Whitsunday Regional Council Planning Scheme

July 2017
Version 3.7

Citation and commencement

This Planning Scheme may be cited as the *Whitsunday Regional Council Planning Scheme 2017.*

A notice was published in the Government Gazette No. 58 on 30 June, 2017 for the Planning Scheme for the Whitsunday Regional Council.

The commencement date for the Planning Scheme was 3 July, 2017.

Amendments to the Planning Scheme are included at Appendix 2.

Community statement

The Whitsunday region is a local government area located in North Queensland, approximately 1,000km north of Brisbane and 600km south of Cairns. In March 2008, Whitsunday Regional Council was formed by the amalgamation of Bowen and Whitsunday Shires. The region is a key pillar in Queensland's economy, rich in tourism, agriculture, mining and construction.

From country to coast, the Whitsunday region supports a diverse range of lifestyles that incorporates the regions key economic sectors and tropical natural environment. Major towns Collinsville, Bowen, Proserpine and Airlie Beach each have their own identity that Council seeks to develop and diversify to build a successful, stronger and more resilient region over the next 20 years. The region is spoilt for opportunity by growing links to the Asian tourist market and development of economic catalysts such as Whitsunday International Airport, Airlie Beach developments and the development of the Abbot Point Growth Gateway Project boosting regional exports. The ongoing management of the regions pristine natural environments, fertile soils and water supplies will maintain strong agricultural production in the region.

Whitsunday Regional Council seeks to accommodate these opportunities through the enhancement of existing infrastructure, developing liveable communities and encouraging innovative practices that improve efficiency and sustainability. The region is anticipated to grow by over 20,000 people up to 2036 with over 9,000 more jobs being created. This growth will be accommodated in a compact urban form to reduce impacts on the regions pristine natural environments and fertile agricultural lands. Population growth will be focused around existing centres, encouraging new modern developments that enhance the local community, build a sense of place and develop vibrant liveable communities that are attractive to permanent residents and tourists alike. Development will supplement the special opportunities afforded to the Whitsunday Region in order to maximise the growth in Tourism, Agriculture, Mining and Construction sectors.

In 2036, the Whitsundays will have a thriving economy in a diverse range of sectors that offer resiliency to the region and capitalise on the areas' privileged location alongside tropical paradise, beautiful hinterlands, fertile soils and resource rich geology. The region will attract new families, cultures and millions of visitors who flock to experience the unique Whitsunday lifestyle. Whilst the region will grow and develop, the Whitsunday lifestyle unique to each township will remain.

Editor's note—The Community statement is extrinsic material to the planning scheme.

Strategic vision

The Whitsundays strategic vision is reflected in the *Whitsunday Regional Council Planning Scheme 2017*, which shows how we will effectively manage growth and land use in the region. This Planning Scheme is the planning framework that focuses upon capitalising upon the regions' opportunities in a sustainable manner using the following guiding principles identified within the strategic framework:

- liveable communities and housing;
- economic growth;
- environment and heritage;
- safety and resilience to hazards; and
- infrastructure;

The *Whitsunday Regional Council Planning Scheme 2017* and its strategic intent will guide growth in the region whilst maintaining a high quality of life for Whitsunday residents.

Editor's note—The Strategic vision is extrinsic material to the planning scheme.

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Part 1 About the Planning Scheme

1.1 Introduction

(1) The Whitsunday Regional Council Planning Scheme 2017 (Planning Scheme) has been prepared in accordance with the *Sustainable Planning Act 2009* (the SP Act) as a framework for managing development in a way that advances the purpose of the SP Act.

(2) The Planning Scheme was amended for alignment with the *Planning Act 2016* (the Act) by the Minister's rules under section 293 of the Act on July 3 2017.

(3) In seeking to achieve this purpose, the Planning Scheme sets out Whitsunday Regional Council's (WRC) intention for the future development in the Planning Scheme area, over the next 20 years to 2036.

(4) The Planning Scheme seeks to advance state and regional policies through more detailed local responses, taking into account the local context.

(5) While the Planning Scheme has been prepared with a 20 year horizon, it will be reviewed periodically in accordance with the Act to ensure that it responds appropriately to the changes in the community at a local, regional and state level.

(6) The Planning Scheme applies to the Planning Scheme area of WRC including all premises, roads, internal waterways and local government tidal areas and interrelates with the surrounding local government areas illustrated in **Schedule 2** (Mapping) Overview map - WRC - 01 (Local government Planning Scheme area and context).

Editor's note—State legislation may state that the Planning Scheme does not apply to certain areas, e.g. strategic port land where there is a land use plan only to the extent of any inconsistency. In accordance with the provisions of section 26 of the *Sustainable Ports Development Act 2015* a port overlay for a master planned area prevails over the Planning Scheme, to the extent of any inconsistency.

1.2 Planning Scheme components

(1) The Planning Scheme comprises the following components:

(a) about the Planning Scheme

(b) State Planning Provisions

(c) the Strategic framework

(d) the Local government infrastructure plan

(e) Tables of assessment

(f) the following zones and where applicable, zone precincts specified in Table 1.2.1 (Zones and zone precincts) below:

Table 1.2.1 Zone and zone precincts

Zone and zone precincts
Residential zones category
(a) Low density residential zone (b) Low-medium density residential zone (c) Tourist accommodation zone
Centre zones category
(a) Major centre zone code (b) District centre zone code (c) Local centre zone code (d) Neighbourhood centre zone code
Industry zones category
(a) Low impact industry zone code (b) Medium impact industry zone code (c) High impact industry zone code (d) Special industry zone code (e) Waterfront industry zone code (f) Industry investigation zone code
Recreation zones category
(a) Recreation and open space zone code
Environmental zones category
(a) Environmental management and conservation zone code
Other zones category
(a) Community facilities zone code (b) Emerging community zone code (c) Mixed use zone code (d) Rural zone code (e) Rural residential zone code

(g) the Local plans specified in Table 1.2.2 (Local plans) below:

Table 1.2.2 Local plans

Local plans
(a) Hamilton Island local plan

(h) the Overlays specified in Table 1.2.3 (Overlays) below:

Table 1.2.3 Overlays

Overlays
(a) Acid sulfate soils overlay code (b) Agricultural land overlay code (c) Airport environs overlay code (d) Bushfire hazard overlay code (e) Coastal protection overlay code (f) Environmental significance overlay code (g) Extractive resources overlay code (h) Flood hazard overlay code (i) Heritage overlay code (j) Infrastructure overlay code (k) Landslide hazard overlay code (l) Waterway and wetlands overlay code

(i) the Development codes specified in Table 1.2.4 (Development codes) below:

Table 1.2.4 Development codes

Development codes
Relevant prescribed codes as specified in the Schedules of the *Planning Regulation 2017*
(a) Community residence code (b) Forestry for wood production code (c) Reconfiguring a lot (subdividing one into two lots) and associated operational works code
Use codes
(a) Business activities code (b) Caretaker's accommodation code (c) Child care centre code (d) Dual occupancy code (e) Dwelling house code (f) Extractive industry code (g) Home based business code (h) Industry activities code (i) Market code (j) Multi-unit uses code (k) Relocatable home park and tourist park code (l) Residential care facility and retirement facility code (m) Rural activities code (n) Sales office code (o) Service station code (p) Telecommunications code
Other development codes
(a) Advertising devices code (b) Construction management code (c) Excavation and filling code (d) Infrastructure code (e) Landscaping code (f) Reconfiguring a lot code (g) Transport and parking code

(j) Schedules and Appendices

(2) The Planning Scheme policies specified in Table 1.2.5 (Planning Scheme policies) below support the Planning Scheme:

Table 1.2.5 Planning Scheme policies

Planning Scheme policies
(a) Environmental features Planning Scheme policy (b) Heritage Planning Scheme policy (c) Landscaping Planning Scheme policy (d) Natural hazards Planning Scheme policy (e) Third party advice or comment Planning Scheme policy (f) Growth management Planning Scheme policy (g) Whitsunday Regional Council development manual Planning Scheme policy

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 2016* (the Act); or

(b) the *Planning Regulation 2017* (the Regulation), other than the regulated requirements; or

(c) the definitions in **Schedule 1 (Definitions)** of the Planning Scheme; or

(d) the *Acts Interpretation Act 1954*; or

(e) the ordinary meaning where that term is not defined in the Act, the Regulation, **Schedule 1 (Definitions)** of the Planning Scheme or the *Acts Interpretation Act 1954*.

(2) In the event a term has been assigned a meaning in more than one of the instruments listed in subsection 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.

Editor's note—The regulated requirements do not apply to this 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) Maps provide information to support the outcomes and are part of the Planning Scheme.

(3) Notes are identified by the title 'Note' and are part of the Planning Scheme.

(4) Editor's notes and footnotes are extrinsic material, as per the *Acts Interpretation Act 1954*, and are identified by the title 'Editor's note' and 'Footnote' and 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.
Footnote[1]—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' means either or both options can apply.

1.3.4 Zones for 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, 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, 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, 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; and

(d) if the 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 2012*.

1.4 Categories of development

(1) The categories of development under the Act are:

(a) accepted development;

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

[1] Footnote—this is an example of a footnote.

(b) assessable development
   i. code assessment
   ii. impact assessment

Editor's note—A development approval is required for assessable development. Schedules 9, 10 and 12 of the 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 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 categorises 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 an inconsistency between provisions in the Planning Scheme, the following rules apply:

(a) the Strategic framework prevails over all other components to the extent of the inconsistency for impact assessment;

(b) relevant codes as specified in Schedules 6 and 10 of the Regulation prevail over all other components to the extent of the inconsistency;

(c) overlays prevail over all other components (other than the matters mentioned in (a) and (b)) to the extent of the inconsistency;

(d) local plan codes prevail over zone codes, use codes and other development codes to the extent of the inconsistency;

(e) zone codes prevail over use codes and other development codes to the extent of the inconsistency; and

(f) provisions of Part 10 (Other plans) may override any of the above.

1.6 Building work regulated under the Planning Scheme

(1) Section 17(b) of the Regulation identifies the assessment benchmarks for building work that a local planning instrument must not change the effect to the extent the building work is regulated under the building assessment provisions, unless permitted under the *Building Act 1975*.

(2) The building assessment provisions are listed in section 30 of the *Building Act 1975*.

Editor's note—The building assessment provisions are stated in section 30 of the Building Act 1975 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 1975*).

(3) This Planning Scheme, through Part 5, regulates building work in accordance with sections 32 and 33 of the *Building Act 1975*.

Editor's note—The *Building Act 1975* permits Planning Schemes to:

- regulate, for the Building Code of Australia (BCA) or the Queensland Development Code (QDC), matters prescribed under a regulation under the *Building Act 1975* (section 32). These include variations to provisions contained in parts MP1.1, 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 1975*; and
- specify alternative boundary clearances and site cover provisions for Class 1 and 10 structures under section 33 of the *Building Act 1975*.

Refer to Schedule 9 of the Regulation to determine assessable development, the type of assessment and any referrals applying to the building work.

(4) The building assessment provisions are contained in the following parts of this Planning Scheme.

Table 1.6.1 Building assessment provisions contained in the Planning Scheme

Building assessment matter addressed in the Planning Scheme	Relevant section of the Planning Scheme
Flood hazard	
Identification of part of the Planning Scheme area as a natural hazard management area (flood).	Schedule 2 Flood hazard overlay maps
Identification of the level to which flood levels of habitable rooms of a building must be built.	Section 8.2.8 Flood hazard overlay code
Bushfire hazard	
Designation of part of the Planning Scheme area as a designated bushfire prone area for the BCA and QDC.	Schedule 2 Bushfire hazard overlay maps

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 under section 83(b) of the *Building Act 1975*.

Editor's note—In a development application, the applicant may request 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 1975*. The decision notice must state this.

1.7 Local government administrative matters

There are no local government administrative matters for the Planning Scheme.

Contents of Part 2

Tables in Part 2

State Planning Provisions

2.1 State Planning Policy

The Minister has identified that State Planning Policy April 2016 is reflected in the Planning Scheme in the following ways:

State interests in the State Planning Policy are appropriately reflected

Liveable communities and housing

- Liveable communities;
- Housing supply and diversity.

Economic growth

- Agriculture;
- Development and construction;
- Mining and extractive resources;
- Tourism.

Environment and heritage

- Biodiversity;
- Coastal environment;
- Cultural heritage;
- Water quality.

Safety and resilience to hazards

- Emissions and hazardous activities;
- Natural hazards, risk and resilience (Flood, Bushfire, Landslide, Coastal).

Infrastructure

- Energy and water supply
- Transport infrastructure;
- Strategic airports and aviation facilities

State interests in the State Planning Policy not integrated

None

State interests in the State Planning Policies not relevant to Whitsunday Regional Council

None

Editor's note–In accordance with section 8(4)(a) of the Act the State Planning Policy applies to the extent of any inconsistency.

2.2 Regional plan

The Minister has identified that the Planning Scheme, specifically the Strategic framework, appropriately advances the Mackay Isaac Whitsunday Regional Plan 2012, as it applies in the Planning Scheme area.

2.3 Referral agency delegations

Schedule 10 of the Regulation identifies referral agencies for certain aspects of development. The following referral agencies have delegated the following referral agency jurisdictions to Whitsunday Regional Council:

Table 2.3.1 Delegated referral agency jurisdictions

Column 1 **Application involving**	**Column 2** **Referral agency and type**	**Column 3** **Referral jurisdiction**
There are no delegated referral agency jurisdictions for the Planning Scheme		

Editor's note - For the above listed referral agency delegations, the applicant is not required to refer the application to the referral agency listed under Schedule 10 of the Regulation because the local government will undertake this assessment role.

2.4 Regulated requirements

The regulated requirements as identified in section 5(2)(a) of the Regulation are not reflected in this Planning Scheme.

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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 appropriate development occurs in the Planning Scheme area for the life of the Planning Scheme.

(2) Mapping for the Strategic framework is included in Schedule 2 (Mapping).

(3) For the purpose of describing the policy direction for the Planning Scheme, the Strategic framework is structured in the following way:

(a) the Strategic intent;

(b) the following five themes that collectively represent the policy intent of the Planning Scheme:

(i) Liveable communities and housing;

(ii) Economic growth;

(iii) Environment and heritage;

(iv) Safety and resilience to hazards; and

(v) Infrastructure;

(c) the Strategic outcome proposed for development in the Planning Scheme area for each theme; and

(d) the Land use strategies for achieving these outcomes.

(4) Although each theme has its own section, the Strategic framework in its entirety represents the policy intent of the Planning Scheme. Zones organise the Planning Scheme area in a way that facilitates the location of preferred or acceptable land uses.

3.2 Strategic intent

(1) In 2036 and beyond, the Whitsundays is a prosperous, liveable and sustainable region where people live, work, play and invest. The region, extending over 23,862 square kilometres, will be built on the integration of the unique attributes and competitive advantages of Airlie Beach, Bowen, Collinsville, Proserpine and their surrounds as shown in Strategic framework map - SFM - 01:05 (Strategic framework maps).

(2) The Region's major townships and communities have a strong and proud social identity, being sustainable and well supported through the provision of a variety of housing and lifestyle options and appropriate community and utility infrastructure. Risks to the community (including life and property) from hazardous activities and natural hazards are appropriately mitigated or avoided, ensuring disaster management response capabilities and capacities are supported.

(3) The major townships of the Region operate as a network of centres, each maintaining relatively strong levels of growth supported by the ongoing strengthening and development of the key economic sectors of agriculture, mining and tourism and associated development and construction activities. The strength of these industry sectors will continue to be supported by maintaining and protecting the resources and values upon which these sectors rely, promoting business innovation and increasing accessibility to robust road, rail, port and aviation facilities.

(4) The promotion and protection of the Region's cultural heritage and unique aquatic, coastal and inland environmental values continues as developmental and environmental pressures increase cumulatively. All matters of ecological, environmental and scenic value (including key urban gateways, views and vistas) are valued and preserved, ensuring the health and resilience of the regions overall biodiversity.

3.2.1 Liveable communities and housing

3.2.1.1 Strategic outcome

(1) The life-enriching (educational, health, cultural and recreational) capacities and resilience of the community and community infrastructure are enhanced or restored for present and future generations in a way which supports the region's settlement pattern and hierarchy of centres.

3.2.1.2 Land use strategies

(1) The settlement pattern of the Region ensures that urban uses are primarily located within the established urban areas of Airlie Beach, Bowen, Collinsville and Proserpine. New residential expansion will occur in Cannon Valley (to the west of Airlie Beach), Mount Bramston and Mount Gordon (to the south of Bowen) and Moongunya Springs (to the north of Collinsville).

(2) Limited Accommodation activities and low order Community and convenience Business activities are located within the settlements of Brisk Bay, Conway Beach, Dingo Beach, Gumlu, Guthalungra, Hideaway Bay, Shutehaven, Merinda, Mt Coolon and Wilson Beach.

(3) The community of each major urban area will be supported by a hierarchy of centres. The highest order, Major centres are provided at Paluma Road/Galbraith Avenue (Cannonvale), Herbert Street (Bowen) and Main Street (Proserpine). Communities of the Region are further serviced by a series of lower order, smaller scale centres. Business activities are only located outside of centres if they cannot be practically

located within nominated centres due to their nature, scale, effects or necessary relationship to other activities or particular features, resources or infrastructure.

(4) Primary and/or secondary schools are co-located with existing facilities in Bowen, Cannonvale, Collinsville, Gumlu, Hamilton Island, Hayman Island and Proserpine, with new facilities in Cannon Valley and Mount Gordon and higher order educational facilities, such as a secondary boarding school and a tertiary educational facility located within the established urban area of Proserpine.

(5) A regionally significant health facility is located in Proserpine with supporting health facilities in Airlie Beach, Bowen, Cannonvale, Collinsville and Hamilton Island.

(6) Urban uses are only located away from identified urban areas if they cannot be practically located within the existing settlement pattern due to their nature, scale, effects or necessary relationship to other activities or particular features, resources or infrastructure.

(7) Rural residential areas will continue to occur on the fringes of urban areas and will generally not expand into adjacent rural areas.

(8) Non-resident workers accommodation is only utilised for the workforce associated with the construction phase of a project. This form of accommodation activity is not to be utilised for workers associated with the operational phase of a project. Accommodation activities for an operational workforce are to be integrated into existing urban areas.

3.2.2 Economic growth

3.2.2.1 Strategic outcome

(1) The economic resilience, wealth creating and employment generating capacities of the Region's key sectors are protected and enhanced for present and future generations.

3.2.2.2 Land use strategies

(1) Agricultural land (including stock routes) and existing Rural activities are protected and diversified with Rural activities being intensified in areas to the west of Collinsville, along the Bowen River, west and south-west of Proserpine and between Gumlu and Bowen. The long-term viability of this agricultural land is enhanced through sustainable land management practices, the use of new technology and the improvement and expansion of supporting infrastructure, such as water storage and irrigation infrastructure.

(2) Rural activities are located outside the existing and proposed urban and environmental areas with only Business and Industry activities that support or supplement the primary Rural activity being located within rural areas.

(3) The integrity and functionality of the mining and extractive resource industry, including within the Abbot Point and Galilee Basin State Development Areas, are maintained and protected to reduce potential conflict with incompatible uses.

(4) Major industrial expansion is appropriately accommodated where the scale, intensity and nature of the Industry activity can be adequately supported. New expansion will predominantly occur within the Abbot Point State Development Area, around the Delta intersection, between Collinsville and the mines to the south, east of Proserpine and within the vicinity of the Whitsunday Coast Airport.

(5) Bulk loading and supporting multi-commodity port facilities are established at the Port of Abbot Point. High impact industry is primarily located adjacent to Port of Abbot

Point within the Abbot Point State Development Area, particularly where Industry activities value-add to commodities being exported or imported through the Port of Abbot Point.

(6) Marine industry servicing the fishing and recreational boating fleet of Central and North Queensland is primarily located within the Bowen Boat Harbour with limited facilities of a smaller nature and scale located at Abel Point Marina and Port of Airlie. A public passenger ferry facility servicing the Whitsunday Islands is primarily located at the Port of Airlie with supplementary facilities at Abel Point Marina and Shute Harbour. A freight (barge) facility servicing the Whitsunday Islands is primarily located at Shute Harbour.

(7) Tourism accommodation and ancillary Business activities are primarily located within the established island resorts at Daydream, Hayman, Hook, Long and South Molle Islands. New or expanded tourist accommodation and ancillary Business activities are located at Airlie Beach, Bowen Front Beach, Funnel Bay, Hamilton Island, Horseshoe Bay, Murray Bay, Rose Bay and Shute Harbour with limited nature-based tourism at the northernmost point of Cape Gloucester. A major regional function facility is located adjacent to the Airlie Beach Main Street and Esplanade area. Tourism accommodation and related activities are only located away from these areas if their nature, scale and effects are small and they have a necessary relationship to other activities or particular natural features.

3.2.3 Environment and heritage

3.2.3.1 Strategic outcome

(1) The cultural heritage and life-supporting capacities of air, ecosystems, soil and water are conserved, enhanced or restored for present and future generations and biological resilience is protected.

3.2.3.2 Land use strategies

(1) The key ecological values of the Great Barrier Reef, Brigalow Belt, Central Queensland Coast and Einasleigh Uplands and the fauna and flora they support are protected. The protection of key endangered species such as the Black-throated Finch (White-rumped subspecies), Leatherback Turtle, Loggerhead Turtle, Olive Ridley Turtle and Proserpine Rock-wallaby and the habitat on which they rely continues to be enhanced as development and environmental pressures increase.

(2) The core landscape values within the Region are protected and, if practical, enhanced. The core landscape values include the urban gateways to Airlie Beach, Bowen, Collinsville, Proserpine and the Whitsunday Coast Airport, as well as the significant visual backdrops as viewed from major scenic routes of the Bowen Development Road, Bruce Highway, Lascelles Avenue, Shute Harbour Road and the boating routes along the coastline and throughout the Whitsunday Islands.

(3) Places of cultural significance are appropriately preserved and promoted to enhance community identity and maintain important connections to the past for the benefit of current and future generations.

3.2.4 Safety and resilience to hazards

3.2.4.1 Strategic outcome

(1) The safety of the community, property and infrastructure is protected and enhanced for present and future generations and the community's resilience to hazards is enhanced.

3.2.4.2 Land use strategies

(1) Risks to people and property are minimised in areas within or adjacent to natural hazard areas, particularly escarpments behind Airlie Beach and Hideaway Bay (landslide); Bells Gully, Campbell Creek, Don River, and Proserpine River (flooding); and Bowen Front Beach, Cannonvale Beach, Conway Beach, Greys Bay, Rose Bay, Queens Beach, Queens Bay and Wilson Beach (coastal erosion and storm surge).

(2) Community health and safety, sensitive land uses and the natural environment are appropriately planned and managed to avoid or mitigate potential adverse impacts of emissions (air, noise and odour) and hazardous activities, whilst ensuring the long-term viability of such activities (Industry and Recreation activities).

3.2.5 Infrastructure

3.2.5.1 Strategic outcome

(1) The service-supporting capacities of infrastructure are coordinated, efficient and orderly. Infrastructure provision and operation are financially sustainable.

3.2.5.2 Land use strategies

(1) An international airport (runway and terminal), remote mine operations centre, air freight and supporting education and Industry activities are located within the vicinity of the Whitsunday Coast Airport, with a secondary regional airport (runway and terminal) at Hamilton Island. Smaller scale and supplementary facilities are provided at Bowen, Collinsville, Flametree and Mount Coolon Airports.

(2) Existing road and rail corridors are protected and operate efficiently. New road connections are established from Cannonvale to Gregory-Cannon Valley Road as a parallel network to Shute Harbour Road, from Collinsville to Proserpine and between Abbot Point State Development Area and the North-West Minerals Province. New railway connections are established from Abbot Point State Development Area to the North Bowen Basin, the Galilee Basin State Development Area and the North-West Minerals Province.

(3) Significant power generation facilities are established and expanded near Collinsville (base-load power station) and the Burdekin Falls Dam (hydro-electric) connecting to the north-south transmission lines which traverse the Region. Existing transmission corridors are protected and new corridors are provided from the Collinsville Power Station to the Galilee Basin and the North-West Minerals Province. Gas pipeline(s) are established from gas fields in the Bowen Basin to the Collinsville Power Station and, where practical, new development aligns with existing or future linear corridors.

(4) The water resource catchments of the Bowen River Weir, Burdekin Falls Dam, Peter Faust Dam (Lake Proserpine) and the potential water resource catchments of the Andromache River and Urannah Creek are protected for future use. Water pipelines are established from Lake Dalrymple and the Burdekin River to Bowen and Abbot Point State Development Area, and from the Bowen River catchment to the Galilee Basin State Development Area.

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Part 4 Local government infrastructure plan

4.1 Preliminary

(1) This local government infrastructure plan (LGIP) 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; and

(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) water supply;

(ii) sewerage;

(iii) stormwater;

(iv) transport; and

(v) parks and land for community facilities.

(e) provides a list of supporting documents that assist in the interpretation of the local government infrastructure plan in the Editor's note – Extrinsic material at the end of Section 4.

4.2 Planning assumptions

(1) The planning assumptions state the assumptions about:

(a) population and employment growth; and

(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 a 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 to accord with future Australian Bureau of Statistics census years:

(i) mid 2021;

(ii) mid 2026;

(iii) mid 2031; and

(iv) Ultimate development.

(b) the LGIP development types in column 2 that include the uses in column 3 of Table 4.2.1; and

(c) the projection areas identified on Local government infrastructure map – PAM – 01:06 (Projection area map) in Schedule 3—Local government infrastructure plan mapping 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	Single dwellings	Caretaker's accommodation Community residence Dwelling house Dwelling unit Home-based business
	Multiple dwellings	Dual occupancy Multiple dwelling Relocatable home park Residential care facility Retirement facility Rooming accommodation Rural workers' accommodation Short-term accommodation
	Other dwellings	Nature-based tourism Non-resident workforce accommodation Resort complex Tourist park
Non-residential development	Retail	Adult store Agricultural supplies store Bulk landscape supplies Car wash

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
		Food and drink outlet Garden centre Hardware and trade supplies Hotel Outdoor sales Service station Shop Shopping centre
	Commercial	Bar Brothel Club Function facility Health care services Indoor sport and recreation Nightclub entertainment facility Office Sales office Showroom Theatre Tourist attraction Veterinary services
	Community purpose	Cemetery Child care centre Community care centre Community use Crematorium Detention facility Educational establishment Emergency services Funeral parlour Hospital Landing Major sport, recreation and entertainment facility Market Motor sport facility Outdoor sport and recreation Outstation Park Place of worship
	Industry	Air services Extractive industry High impact industry Low impact industry Marine industry Medium impact industry Research and technology industry Rural industry Service industry Special Industry Warehouse
	Other	Animal husbandry Animal keeping Aquaculture Cropping Environment facility Intensive animal industry

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
		Intensive horticulture Major electrical infrastructure Parking station Permanent plantation Port services Renewable energy facility Roadside stall Substation Telecommunications facility Transport depot Utility installation Wholesale nursery 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 4.2.1.1 Population and employment assumptions summary.

Table 4.2.1.1 Population and employment growth assumptions summary

Column 1 Description	Column 2 Assumptions				
	Base date 2016	**2021**	**2026**	**2031**	**Ultimate development**
Population	36,380	38,380	41,680	44,970	66,460
Employment	16,959	18,246	19,534	20,821	22,109

(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 mapping and tables:

(a) for population, Table SC3.1.1—Existing and projected population; and

(b) for employment, Table SC3.1.2—Existing and projected employees.

4.2.2 Development

(1) The developable area is represented by zones relating to urban uses excluding the Environmental zones category identified on Zone maps ZM – 01:29 and not affected by the protected areas identified on Environmental significance overlay maps ES–01:29.

(2) The planned density for future development is stated in Table SC3.1.3 in Schedule 3—Local government infrastructure plan mapping and tables.

(3) A summary of the assumptions about future residential and non-residential development for the Planning Scheme area is stated in Table 4.2.2.1 Residential dwellings and non-residential floor space assumptions summary.

Table 4.2.2.1 Residential dwellings and non-residential floor space assumptions summary

Column 1 Description	Column 2 Assumptions				
	Base date 2016	2021	2026	2031	Ultimate development
Residential dwellings	16,995	17,958	19,556	21,164	30,378
Non-residential floor space (m^2 GFA)	622,199	674,471	726,735	779,003	831,274

(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 mapping and tables:

(a) for residential development, Table SC3.1.4; and

(b) for non-residential development, Table SC3.1.5.

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 mapping and tables.

(2) A summary of the projected infrastructure demand for each service catchment is stated in:

(a) for the water supply network, Table SC3.1.6;

(b) for the sewerage network, Table SC3.1.7;

(c) for the stormwater network, Table SC3.1.8;

(d) for the transport network Table SC3.1.9; and

(e) for the parks and land for community facilities network, Table SC3.1.10.

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 – PAM – 01:06 (Projection area map).

4.4 Desired standards of service

(1) This section states the key standards of performance for a trunk infrastructure network.

(2) Details of the standard of service for each trunk infrastructure network is identified in the extrinsic material.

4.4.1 Water supply network

(1) Ensure drinking water complies with the National Health and Medical Research Council (NHMRC) Australian Drinking Water Guidelines and Whitsunday Regional Council's Drinking Water Quality Management Plan.

(2) Collect, store, treat and convey potable water from source to consumers in accordance with the *Water Act 2000*.

(3) Minimise non-revenue water loss.

(4) Design the water supply network in accordance with Council's adopted standards identified in the Planning Scheme, including the Equivalent Demands detailed in SC6.8 Whitsunday Regional Council development manual Planning Scheme policy, to provide:

(a) average day consumption (AD) – 500 l/EP/day;

(b) Mean Day max Month (MDMM) 1.5 x AD;

(c) Peak Day (PD) 2.25 x AD;

(d) Peak Hour (PH) 1/12 x PD;

(e) minimum and maximum supply pressure of 220 kPa and 800 kPA at each property boundary; and

(f) fire flow for residential (15 l/s for 2 hours), industrial and commercial (30 l/s for 4 hours) development.

(5) Design water systems to meet the requirements of the *Water Supply (Safety and Reliability) Act 2008* and Water Services Association of Australia (WSAA) guidelines.

4.4.2 Sewerage network

(1) Provide a reliable network that collects, stores, transports, treats and releases sewerage from premises.

(2) Design the sewerage network in accordance with:

(a) Council's adopted standards identified in the Planning Scheme;

(b) WSAA guidelines;

(c) the *Water Act 2000*;

(d) all Environmental Protection Agency (EPA) licence conditions;

(e) key design parameters identified in Table 4.4.2.1; and

(f) Equivalent Demands detailed in SC6.8 Whitsunday Regional Council development manual Planning Scheme policy.

Table 4.4.2.1 Key design parameters for the sewerage network

Column 1 Infrastructure item	Column 2 Design parameters
All (network)	**Average dry weather flow (ADWF)** 270l/EP/day **Peak wet weather flow (PWWF)** 5 x ADWF OR C_1 x ADWF (whichever is greater) $C_1 = 15 \times (EP)^{-0.1587}$ **Peak dry weather flow (PDWF)** C_2 x ADWF $C_2 = 4.7\ (EP)^{-0.105}$
Pump stations	Emergency storage of 4 hours @ ADWF Installed pump capacity ≥ PWWF
Gravity sewers	Air space of at least 75% of pipe diameter at design flow Slope to achieve self-cleansing velocity
Rising mains	Minimum velocity: 0.75 m/s (Preferred 1.5 m/s) Maximum velocity: 2.5 m/s
Sewerage treatment / release	Existing and future DEHP licence conditions

4.4.3 Stormwater network[1]

(1) Collect and convey stormwater flows for both major 100 year flood events and minor low flow year flood events as per the specific land use requirements from existing and future land use in a manner that protects life and does not cause nuisance or inundation of property.

(2) Design the stormwater network to comply with Council's adopted standards identified in the Planning Scheme, which generally accord with the Queensland Urban Drainage Manual or the Transport and Main Roads Road Drainage Design Manual.

(3) Design road crossing structures to provide an appropriate level of flood immunity for a 50 and 10 year flood events for major and minor roads respectively in accordance with Council's adopted standards identified in the Planning Scheme.

(4) Meet water quality objectives for receiving waters at all times.

(5) Design the water quality system to achieve the minimum reductions in mean annual loads from unmitigated development identified in Table 4.4.3.1 in accordance with Department of State Development, Infrastructure and Planning State Planning Policy – April 2016.

Table 4.4.3.1 Minimum reductions in mean annual loads from unmitigated development

Column 1 Region	Column 2 Pollutant reduction (%)			
	Total suspended solids	**Total Phosphorus**	**Total Nitrogen**	**Gross pollutants >5mm**
Central QLD (north)[1]	75	60	40	90
Western QLD[2]	85	60	45	90

Notes:

1. Applies to development for urban purposes with population centres greater than 3000 persons.
2. Applies to development for urban purposes with population centres greater than 25,000 persons.
3. Excludes development that is less than 25% impervious.
4. In lieu of modelling, the default bio-retention treatment area to comply with load reduction targets for all Queensland regions is 1.5% of the contributing catchment area.
5. Regions defined by State Planning Policy mapping.

[1] Drainage elements that form an inherent part of road infrastructure such as culverts and bridge structures can be included with road infrastructure planning.

4.4.4 Transport network

4.4.4.1 Roads

(1) Provide a functional urban hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.

(2) Design the road network to comply with the following:

(a) adopted standards identified in the Planning Scheme;

(b) AUSTROADS guides;

(c) the Department of Transport and Main Roads Interim Guide to Road Planning and Design Practice;

(d) maximum road volume to capacity ratios identified in Table 4.4.4.1.1; and

(e) maximum degree of saturation for intersections identified in Table 4.4.4.1.2.

Table 4.4.4.1.1 Maximum volume to capacity ratios for the road network

Column 1 Infrastructure item	Column 2 Design parameters	
	Residential	**Non-residential**
Arterial	0.8	0.8
Sub-arterial	0.8	0.8
Major collector	0.8	0.8
Arterial (state-controlled)	0.8	0.8

Table 4.4.4.1.2 Maximum degree of saturation for road intersections

Column 1 Road network item	Column 2 Maximum degree of saturation
Traffic signals	0.9
Roundabout	0.9
Priority controlled	0.8

4.4.4.2 Footpaths and cycle ways

(1) Plan cycle ways and footpaths to provide a safe, attractive and convenient network that links residential areas to major activity nodes and public transport interchanges, thereby encouraging walking and cycling as acceptable travel alternatives.

(2) Design cycle ways (including on-road cycle ways) and footpaths to comply with council's adopted standards identified in the Planning Scheme.

4.4.4.3 Public transport

(1) Ensure development accommodates the integration of public transport services.

(2) Provide bus stops including bus bays, shelters, seating and bus information systems in accordance with adopted standards identified in the Planning Scheme

4.4.5 Public parks and land for community facilities network

(1) Provide an accessible network of parks, open space, and community facilities that meets the needs of residents and visitors in accordance with the rate of provision identified in Table 4.4.5.1 and accessibility standards outlined in Table 4.4.5.2.

(2) Ensure land for public parks and community facilities has:

(a) minimum land size as identified in Table 4.4.5.3;

(b) configuration, slope, and acceptable level of flood immunity in accordance with Table 4.4.5.3 and adopted standards identified in the Planning Scheme; and

(c) embellishments to complement the type and purpose of the public park as identified in Table 4.4.5.4.

Table 4.4.5.1 Rate of land provision for public parks and community facilities

Column 1 Infrastructure item	Column 2 Rate of provision (Ha/1000 people)	
	District	**Regional**
Recreation park	0.5	0.8
Sport park	1.2	1.0

Table 4.4.5.2 Accessibility standards for public parks and land for community facilities

Column 1 Infrastructure item	Column 2 Accessibility standard (km)[1]	
	District	**Regional**
Recreation park	2	25
Sport park	5	10
Notes: 1. 90% of population should be within this distance of a facility		

Table 4.4.5.3 Size of public parks for community facilities

Column 1 Characteristic	Column 2 Recreation park		Column 3 Sports park	
	District	**Regional**	**District**	**Regional**
Average (desired) size (Ha)	4	13	6	18
Shape of land	Preferred square to rectangular aspect ratio no greater than 2:1		Square or rectangle to maximise playing field area	
Minimum desired flood immunity (area)	20% > Q50 10% > Q100	50%> Q50 20% > Q100	Fields and courts > Q50 Built facilities > Q100	
Minimum desired grade	Max grade 1:10 for 80% of park, 1:14 where possible	Average grade 1:20, 1:50 for kick-about areas	Max grade of 1:80 for all playing surfaces	Laser levelling to a maximum gradient of 1:100 for all playing surfaces
Road frontage	30-50% of park perimeter to have direct road frontage, preferably on a collector road		25-50% of the park perimeter to have direct road frontage	

Table 4.4.5.4 Standard facilities/embellishments for public parks

Column 1 Embellishment	Column 2 Recreation park		Column 3 Sports park	
	District	Regional	District	Regional
Playground (activity node)	X	X	X	X
Other activity nodes (half court, rebound wall, skate facility, exercise equipment, etc.)	5 - 7	13	-	-
Fencing – bollards or log and rail to prohibit car access	X	X	X	X
Shade trees clustered near activity area	X	X	X	X
Turf	X	X	X	X
Landscaped garden beds	X	X	X	X
Irrigation	X	X	X	X
Internal pathways and paving	X	X	X	X
Bicycle racks	X	X	X	X
Signage	X	X	X	X
Shade structures	X	X	X[1]	X[1]
Tap / bubbler	X	X	X	X
Bench seating	X	X	X	X
Electric barbeque	X	X	-	-
Picnic shelters	X	X	-	-
Bins	X	X	X	X
Dog off leash area	X	X	-	-
Toilets	X[2]	X	X	X
Internal roads and car parking	-	X	X	X
Public recreation centre	-	-	X	X
Spectator facilities (grandstand)	-	-	X	X
Sports fields	-	-	X	X
Sports courts	-	-	X	X

1. Shade structures should be structures teams can stand under, not shade sails.

2. Only to be provided in certain district recreation parks based on popularity, location and type of use.

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 up to 2031.

4.5.1 Plans for trunk infrastructure maps

(1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:

(a) Local government infrastructure plan map – PFTI WN – 01:06 (Water network plans for trunk infrastructure map);

(b) Local government infrastructure plan map – PFTI SN – 01:05 (Sewerage network plans for trunk infrastructure map);

(c) Local government infrastructure plan map – PFTI SWN – 01:05 (Stormwater network plans for trunk infrastructure map);

(d) Local government infrastructure plan map – PFTI TN – 01:05 (Transport network plans for trunk infrastructure map); and

(e) Local government infrastructure plan map – PFTI PCFN – 01:06 (Parks and land for community facilities network plans for trunk infrastructure map).

(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 of the existing and future trunk infrastructure networks are identified in the electronic Excel schedule of works model which can be viewed here: http://www.whitsunday.qld.gov.au/390/Infrastructure-Planning-and-Charges

(2) The future trunk infrastructure is identified in the following tables in Schedule 3—Local government infrastructure plan mapping and tables:

(a) for the water supply network, Table SC3.2.1;

(b) for the sewerage network, Table SC3.2.2;

(c) for the stormwater network, Table SC3.2.3;

(d) for the transport network, Table SC3.2.4; and

(e) for the parks and land for community facilities network, Table SC3.2.5.

Editor's note — Extrinsic material

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

List of Extrinsic material

Column 1 Title of document	Column 2 Date	Column 3 Author
Whitsunday Region Economic Analysis: Economic and Population Study	November 2013	Norling Consulting Pty Ltd
Whitsunday Regional Council Urban Growth Study	May 2014	Whitsunday Regional Council
Whitsunday Regional Council Development Manual	28 June 2016	Whitsunday Regional Council
Trunk Infrastructure Definitions	May 2017	Whitsunday Regional Council
Local Government Infrastructure Plan (LGIP) and Schedule of Works Model (SOW) explanatory notes	October 2017	Whitsunday Regional Council
LGIP Checklist	May 2017	Whitsunday Regional Council
Department of Transport and Main Roads Consultation Letter	May 2017	Department of Transport and Main Roads
Whitsunday Regional Council Priority Infrastructure Plan Water and Sewerage Network Model Updates	May 2014	Hyder Consulting
LGIP Interim Review Checklist	October 2020	Whitsunday Regional Council
Whitsunday Regional Council Sewer and Water Network Modelling	March 2020	ARCADIS
W8 Removal Justification Report	October 2020	Whitsunday Regional Council

Contents of Part 5

Tables in Part 5

Part 5 Tables of assessment

5.1 Preliminary

The tables in this part identify the category of development, and the category of assessment and assessment benchmarks for assessable development in the Planning Scheme area.

5.2 Reading the tables

The tables identify the following:

(1) the category of development:

(a) prohibited;

(b) accepted, including accepted with requirements; and

(c) assessable development, that requires either code or impact assessment;

(2) the category of assessment - code or impact - for assessable development in:

(a) a zone and, where used, a precinct of a zone;

(b) a local plan and, where used, a precinct of a local plan; and

(c) an overlay where used;

(3) the assessment benchmarks for assessable development, including:

(a) whether a zone code or specific provisions in the zone code apply (shown in the 'assessment benchmarks' column);

(b) if there is a local plan, whether a local plan code or specific provisions in the local plan code apply (shown in the 'assessment benchmarks' column);

(c) if there is an overlay;

(i) whether an overlay code applies (shown in the tables in Section 5.10) ;or

(ii) whether the assessment benchmarks as shown on the overlay map (noted in the 'assessment benchmarks' column) applies;

(d) any other applicable code(s) (shown in the 'assessment benchmarks' column);

(4) any variation to the category of assessment (shown as an 'if' in the 'category of assessment' column) that applies to the development.

Note—Development will only be taken to be prohibited development under the Planning Scheme if it is identified as prohibited development in Schedule 10 of the Regulation.

Editors note—Examples of matters that can vary the category of assessment are gross floor area, height, numbers of people or precinct provisions.

5.3 Categories of development and assessment

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

The process for determining a category of development and category of assessment is:

(1) for a material change of use, establish the use by reference to the use definitions in Schedule 1;

(2) for all development, identify the following:

(a) the zone or zone precinct that applies to the premises, by reference to the zone map in Schedule 2;

(b) if a local plan or local plan precinct applies to the premises, by reference to the local plan map in Schedule 2 (Mapping); and

(c) if an overlay applies to the premises, by reference to the overlay map in Schedule 2 (Mapping);

(3) determine if the development is accepted development under Schedule 6 of the Regulation;

Editors note—Schedule 6 of the Regulation prescribes development that a Planning Scheme can not state is assessable development where the matters identified in the schedule are met.

(4) determine if the development is assessable development under Schedule 10 of the Regulation by reference to section 5.7 Regulated categories of development and assessment—building work and categories of assessment prescribed by the Regulation.

(5) if the development is not listed in the tables in section 5.4 Regulated categories of development and categories of assessment prescribed under Schedule 6 of the Regulation, determine the initial category of assessment by reference to the tables in:

- section 5.5 Categories of development and assessment—Material change of use
- section 5.6 Categories of development and assessment—Reconfiguring a lot
- section 5.7 Categories of development and assessment—Building work
- section 5.8 Categories of development and assessment—Operational work

(6) a precinct of a zone may change the categories of development or assessment and this will be shown in the ‘category of assessment’ column of the tables in sections 5.5, 5.6, 5.7 and 5.8;

(7) if a local plan applies refer to the table(s) in section 5.9 Categories of development and assessment—Local plans, to determine if the local plan changes the category of development or assessment for the zone;

(8) if a precinct of a local plan changes the category of development or assessment this is to be shown in the ‘category of development and assessment’ column of the table(s) in section 5.9;

(9) if an overlay applies, refer to section 5.10 Category 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 categories of assessment

(1) A material change of use is assessable development requiring impact assessment:

(a) unless the Tables of assessment state otherwise;

(b) if a use is not listed or defined; and

(c) unless otherwise prescribed in the Act or the Regulation.

(2) Reconfiguring a lot is assessable development requiring code assessment unless the Tables of assessment state otherwise or unless otherwise prescribed in the Act or the Regulation.

(3) Building work and operational work are accepted development, unless the Tables of assessment state otherwise or unless otherwise prescribed in the Act or the Regulation.

(4) Where an aspect of development is proposed on a premises included in more than one zone, local plan or overlay, the category of development or assessment for that aspect is the highest category under each of the applicable zones, local plans or overlays.

(5) Where development is proposed on a premises partly affected by an overlay, the category of development or assessment for the overlay only relates to the part of the premises affected by the overlay.

(6) For the purposes of Schedule 6, Part 2 Material change of use section (2)(2)(d)(i) or (ii) of the Regulation, an overlay does not apply to the premises if the development meets the acceptable outcomes that form the requirements for accepted development in the relevant overlay code.

(7) If development is identified as having a different category of development or assessment under a zone than under a local plan or an overlay, the highest category of development or assessment applies as follows:

(a) accepted development subject to requirements prevails over accepted development;

(b) code assessment prevails over accepted development where subject to requirements and accepted development; and

(c) impact assessment prevails over code assessment, accepted development where subject to requirements and accepted development.

(8) Despite subsections 5.3.2(4) and (7) above, a category of assessment in a local plan overrides a category of assessment in a zone and a category of assessment in an overlay overrides a category of assessment in a zone or local plan.

(9) Provisions of Part 10 (Other plans) may override any of the above.

(10) The category of development prescribed under Schedule 6 of the Regulation overrides all other categories of development or assessment for that development under the Planning Scheme to the extent of any inconsistency.

Editor's note—Schedule 7 of the 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.

(11) Despite all of the above, if development is listed as prohibited development under Schedule 10 of the Regulation, a development application cannot be made.

Note—Development is to be taken to be prohibited development under the Planning Scheme only if it is identified in Schedule 10 of the Regulation.

5.3.3 Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development

(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 development, unless otherwise specified.

(3) The following rules apply in determining assessment benchmarks for each category of development and assessment.

(4) Code assessable development:

(a) is to be assessed against all the assessment benchmarks identified in the assessment benchmarks column;

(b) that occurs as a result of development becoming code assessable pursuant to subsection 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 subsection 5.3.3(2); and

(ii) comply with all required acceptable outcomes identified in subsection 5.3.3(1), other than those mentioned in subsection 5.3.3(2);

(c) that complies with:

(i) the purpose and overall outcomes of the code complies with the code; and

(ii) the performance or acceptable outcomes 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 Regulation.

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

(5) Impact assessable development:

(a) is to be assessed against all 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; and

(c) is to be assessed against any assessment benchmarks for the development identified in section 30 of the Regulation.

Note—The first row of each table of assessment is to be checked to confirm if there are assessment benchmarks that commonly apply to general scenarios in the zone, local plan or overlay.

Editor's note—Section 31 of the Regulation identifies the matters that impact assessment must have regard to.

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

For the development specified in the 'use', 'zone' or 'development' columns, the categories of development and assessment are prescribed.

Table 5.4.1 Development under Schedules 6 of the Regulation: Material change of use

Material change of use		
Use	**Categories of assessment**	**Assessment benchmarks**
Community residence	Accepted subject to requirements Editors note—Refer to the material change of use tables for category of assessment for community residence that do not comply with the requirements for accepted development.	Editors note—requirements for community residence development that may not be made assessable under a Planning Scheme are set out in Schedule 6, Part 2 section 6 of the Regulation.

Table 5.4.2 Regulated categories of development and categories of assessment: Reconfiguring a lot

Reconfiguring a lot		
Zone	**Category of assessment**	**Assessment benchmarks**
Residential zone category or Industry zone category (other than a Rural residential zone)	Code assessment for subdivision of one lot into two lots (and associated operational work) if code assessment is required under Schedule 10, Part 12 of the Regulation	Reconfiguring a lot (subdividing one lot into two lots) and associated operational work code Editors note—Assessment benchmarks for reconfiguring a lot are set out in Schedule 12 of the Regulation.

Table 5.4.3 Regulated categories of development and categories of assessment: Building work

Table not used.

Table 5.4.4 Regulated categories of development and categories of assessment: Operational work

Operational work		
Zone	**Category of assessment**	**Assessment benchmarks**
Residential zone category or Industry zone category	Code assessment for operational work associated with reconfiguring a lot requiring code assessment under Schedule 10, Part 12 Division 2 of the Regulation	Editors note—Assessment benchmarks for reconfiguring a lot and associated operational works are set out in Schedule 12 of the Regulation.

Table 5.4.5 Regulated development: Overlays

Table not used.

5.5 Categories of development and assessment – Material change of use

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

Table 5.5.1 Community facilities zone

Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Community facilities zone code Infrastructure code
Community residence	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code Community facilities zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Residential care facility	Code assessment	Residential care facility and retirement facility code Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Retirement facility	Code assessment	Residential care facility and retirement facility code Community facilities zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code Transport and parking code
	Otherwise code assessment	Market code Community facilities zone code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Club	Code assessment	Business activities code Community facilities zone code Infrastructure code

Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Landscaping code Transport and parking code
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Cemetery	Accepted development if undertaken by or on behalf of Council	Community facilities zone code Transport and parking code
	Otherwise code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Child care centre	Code assessment	Child care centre zone Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Community care centre	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Crematorium	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Educational establishment	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Emergency services	Accepted development if undertaken by or on behalf of the: (a) Council; or (b) State government.	
	Otherwise impact assessment	The Planning Scheme
Funeral parlour	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Health care services	Code assessment	Business activities code Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Hospital	Code assessment	Community facilities zone code Infrastructure code

Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Landscaping code Transport and parking code
Place of worship	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code Community facilities zone code Landscaping code Transport and parking code
Outdoor sport and recreation	Code assessment	Community facilities zone code Infrastructure code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Air services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Detention facility	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Parking station	Code assessment	Community facilities zone code Infrastructure code Landscaping code Transport and parking code
Substation	Code assessment	Community facilities zone code Landscaping code Transport and parking code
Telecommunications facility	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code
	Otherwise code assessment	Telecommunications facility code Community facilities zone code Infrastructure code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		

Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Any use not defined in Schedule 1(Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.2 District centre zone

District centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code District centre zone code Infrastructure code
Dual occupancy	Code assessment	Dual occupancy code District centre zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code District centre zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code District centre zone code Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code District centre zone code Infrastructure code Landscaping code Transport and parking code
Residential care facility	Code assessment	Residential care facility and retirement facility code District centre zone code Infrastructure code Landscaping code Transport and parking code
Rooming accommodation	Code assessment	Multi-unit uses code District centre zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code District centre zone code Transport and parking code Landscaping code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		

District centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Agricultural supplies store	Code assessment if: (a) not exceeding a maximum building height of 12m above ground level; and (b) complying with the acceptable outcomes of the applicable code(s).	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Food and drink outlet	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Garden centre	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Hardware and trade supplies	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code Transport and parking code
	Otherwise code assessment	Market code District centre code Transport and parking code
Office	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code District centre zone code Infrastructure code

District centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Service station	Code assessment	Service station code District centre code Infrastructure code Landscaping code Transport and parking code
Shop	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Shopping centre	Code assessment if: (a) having a maximum GLFA of 5,000m2; and (b) not exceeding a maximum building height of 12m above ground level.	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Veterinary services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Bar	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Club	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Function facility	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code

District centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Hotel	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Theatre	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Service industry	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Child care centre	Code assessment	Child care centre zone District centre zone code Infrastructure code Landscaping code Transport and parking code
Community care centre	Code assessment	District centre zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Health care services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code

District centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	Otherwise code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code District centre zone code Infrastructure code Landscaping code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.3 Emerging community zone

Emerging community		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Emerging community zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Emerging community zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Emerging community zone code Infrastructure code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		

Emerging community		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.4 Environmental management and conservation zone

Environmental management and conservation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
All Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
All Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
All Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development If: (a) located on Council owned or controlled land; and (b) undertaken by or on behalf of the Council.	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.5 High impact industry zone

High impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code High impact industry zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Food and drink outlet	Code assessment if: (a) having a gross floor area not exceeding 150m2; and (b) not involving a drive-through facility.	Business activities code High impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Office	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code High impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Service station	Code assessment	Service station code High impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
High impact industry	Code assessment	Industry activities code High impact industry zone code Infrastructure code Landscaping code Transport and parking code
Medium impact industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code High impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme

High impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Community activities		
Crematorium	Code assessment	High impact industry zone code Infrastructure code Landscaping code Transport and parking code
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Air services	Code assessment if: (a) the premises is used for the housing, serving, refuelling, maintenance and repair of aircraft; or (b) associated training and education facilities; or (c) aviation facilities.	High impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Major electricity infrastructure	Code assessment	High impact industry zone code Infrastructure code Landscaping code Transport and parking code
Substation	Code assessment	High impact industry zone code Landscaping code Transport and parking code
Telecommunications facility	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code
	Otherwise code assessment	Telecommunications facility code High impact industry zone code Infrastructure code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.6 Industry investigation zone

Industry investigation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
All Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Industry investigation zone code Infrastructure code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.7 Local centre zone

Local centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Local centre zone code Infrastructure code
Dual occupancy	Code assessment	Dual occupancy code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Local centre zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Local centre zone code Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Residential care facility	Code assessment	Residential care facility and retirement facility code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Rooming accommodation	Code assessment	Multi-unit uses code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code Local centre zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Agricultural supplies	Code assessment	Business activities code

Local centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
store		Local centre zone code Infrastructure code Landscaping code Transport and parking code
Food and drink outlet	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Garden centre	Code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Hardware and trade supplies	Code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code Transport and parking code
	Otherwise code assessment	Market code Local centre zone code Transport and parking code
Office	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Local centre zone code Infrastructure code
Service station	Code assessment	Service station code Local centre zone code Infrastructure code Landscaping code

Local centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
Shop	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Shopping centre	Code assessment if having a maximum GLFA of 1,500m2	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Veterinary services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Service industry	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Child care centre	Code assessment	Child care centre zone Local centre zone code Infrastructure code

Local centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Landscaping code Transport and parking code
Community care centre	Code assessment	Local centre zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Health care services	Accepted development if involving no building work or only minor building work	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code Local centre zone code Infrastructure code Landscaping code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.8 Low density residential zone

Low density residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Low density residential zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Low density residential zone code Infrastructure code
Residential care facility	Code assessment	Residential care facility and retirement facility code Low density residential zone code Infrastructure code Landscaping code Transport and parking code
Retirement facility	Code assessment	Residential care facility and retirement facility code Low density residential zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Low density residential zone code Infrastructure code
Shop	Code assessment if: (a) a corner store; and (b) complying with the acceptable outcomes of the applicable codes(s).	Business activities code Low density residential zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		

Low density residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Child care centre	Code assessment	Child care centre code Low density residential zone code Infrastructure code Landscaping code Transport and parking code
Community care centre	Code assessment	Low density residential zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

Editor's note—The above levels of assessment apply unless otherwise prescribed within the Act or the Regulation.

Table 5.5.9 Low impact industry zone

Low impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Low impact industry zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Agricultural supply store	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Car wash	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Food and drink outlet	Code assessment if: (a) having a GFA not exceeding 150m2; and (b) not involving a drive-through facility.	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Garden centre	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code

Low impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
Hardware and trade supplies	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Office	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Outdoor sales	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Low impact industry zone code Transport and parking code
	Otherwise code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Service station	Code assessment	Service station code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Showroom	Code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Veterinary services	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business activities code Transport and parking code
	Code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme

Low impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Bulk landscape supplies	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Low impact industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Medium impact industry	Code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Research and technology	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Service industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code

Low impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	Otherwise code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Warehouse	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Funeral Parlour	Code assessment	Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
Rural industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural activities code Transport and parking code

Low impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	Otherwise code assessment	Rural activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Aquaculture	Code assessment	Rural activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Rural activities	Impact assessment	The Planning Scheme
Other activities		
Substation	Code assessment	Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Telecommunications facility	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code Low impact industry zone code Infrastructure code
	Otherwise impact assessment	The Planning Scheme
Transport depot	Code assessment	Industry activities code Low impact industry zone code Infrastructure code Landscaping code Transport and parking code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.10 Low-medium density residential zone

Low-medium density residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Dual occupancy	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dual occupancy code
	Otherwise code assessment	Dual occupancy code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Low-medium density residential zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Low-medium density residential zone code Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Relocatable home park	Code assessment	Relocatable home park and tourist park code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Residential care facility	Code assessment	Residential care facility and retirement facility code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Retirement facility	Code assessment	Residential care facility and retirement facility code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code

Low-medium density residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Rooming accommodation	Code assessment	Multi-unit uses code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Tourist park	Code assessment	Relocatable home park and tourist park code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Low-medium density residential zone code Infrastructure code
Shop	Code assessment if: (a) a corner store; and (b) complying with the acceptable outcomes of the applicable codes(s).	Business activities code Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Child care centre	Code assessment	Child care centre zone Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code

Low-medium density residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Community care centre	Code assessment	Low-medium density residential zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.11 Major centre zone

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Major centre zone code Infrastructure code
Dual occupancy	Code assessment	Dual occupancy code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Major centre zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Major centre zone code Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Residential care facility	Code assessment	Residential care facility and retirement facility code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Rooming accommodation	Code assessment	Multi-unit uses code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code Major centre zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Business activities		
Agricultural supplies store	Code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Food and drink outlet	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Garden centre	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Hardware and trade supplies	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code
	Otherwise impact assessable	The Planning Scheme
Office	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Major centre zone code Infrastructure code
Service station	Code assessment	Service station code Major centre code Infrastructure code Landscaping code Transport and parking code
Shop	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Shopping centre	(a) Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Veterinary services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Bar	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Club	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Function facility	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Hotel	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Nightclub entertainment facility	Code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Theatre	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Tourist attraction	Impact assessment	The Planning Scheme
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Service industry	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Child care centre	Code assessment	Child care centre zone Major centre zone code Infrastructure code Landscaping code Transport and parking code
Community care centre	Code assessment	Major centre zone code Infrastructure code Landscaping code Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Educational establishment	Code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Health care services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Hospital	Code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code Major centre zone code Infrastructure code Landscaping code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		

Major centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Parking station	Accepted development if undertaken by or on behalf of the Council	
	Otherwise code assessment	Major centre zone code Infrastructure code Landscaping code Transport and parking code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.12 Medium impact industry zone

Medium impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Medium impact industry zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Agricultural supply store	Accepted development if: (a) if involving no building work or only minor building work; and (b) complying with the acceptable outcomes of the applicable code(s).	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Car wash	Code assessment	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Food and drink outlet	Code assessment if: (a) having a gross floor area not exceeding 150m2; and (b) not involving a drive-through facility.	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Garden centre	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Hardware and trade	Accepted development if:	Business activities code

Medium impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
supplies	(a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Transport and parking code
	Otherwise code assessment.	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Office	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Outdoor sales	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Business use code Transport and parking code
	Otherwise code assessment	Business use code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Service station	Code assessment	Service station code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Showroom	Code assessment	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Veterinary services	Code assessment	Business activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		

Medium impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Bulk landscape supplies	Code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Low impact industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Medium impact industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Research and technology	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Service industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code

Medium impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Warehouse	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Crematorium	Code assessment	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Funeral Parlour	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
Rural industry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural activities code Transport and parking code
	Otherwise code assessment	Rural activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other Rural activities	Impact assessment	The Planning Scheme
Other activities		

Medium impact industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Air services	Code assessable if the premises is used for: (a) the housing, serving, refuelling, maintenance and repair of aircraft; or (b) associated training and education facilities; or (c) aviation facilities.	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Major electricity infrastructure	Code assessment	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Substation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Medium impact industry zone code Transport and parking code
	Otherwise code assessment	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Telecommunications facility	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code Medium impact industry zone code Infrastructure code
	Otherwise impact assessment	The Planning Scheme
Transport depot	Code assessment	Industry activities code Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
Utility installation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Medium impact industry zone code Transport and parking code
	Otherwise code assessment	Medium impact industry zone code Infrastructure code Landscaping code Transport and parking code
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.13 Mixed use zone

Mixed use zone		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Mixed use zone code Infrastructure code
Dual occupancy	Code assessment	Dual occupancy code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Mixed use zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Mixed use zone Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Residential care facility	Code assessment	Multi-unit uses code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Rooming accommodation	Code assessment	Multi-unit uses code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		

Mixed use zone		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Food and drink outlet	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code Transport and parking code
	Otherwise code assessment	Market code Mixed use zone code Transport and parking code
Office	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Sales office	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Mixed use zone code Infrastructure code
Shop	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Bar	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and	Business activities code Transport and parking code

Mixed use zone		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	(b) involving no building work; or (c) only minor building work.	
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Club	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Function facility	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Hotel	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Nightclub entertainment facility	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code

Mixed use zone		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Theatre	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Tourist attraction	Impact assessment	The Planning Scheme
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Health care services	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Code assessment	Business activities code Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		

Mixed use zone		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Parking station	Code assessment	Mixed use zone code Infrastructure code Landscaping code Transport and parking code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

Editor's note— he above categories of development and assessment apply unless otherwise prescribed in the Regulation.

Table 5.5.14 Neighbourhood centre zone

Neighbourhood centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Neighbourhood centre zone code Infrastructure code
Dual occupancy	Code assessment	Dual occupancy code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Neighbourhood centre zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Neighbourhood centre zone code Infrastructure code
Multiple dwelling	Code assessment	Multi-unit uses code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Food and drink outlet	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code

Neighbourhood centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Office	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
Shop	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Business activities code Transport and parking code
	Otherwise code assessment	Business activities code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Service industry	Accepted development if: (a) complying with the acceptable outcomes of the applicable code(s); and (b) involving no building work; or (c) only minor building work.	Industry activities code Transport and parking code
	Otherwise code assessment	Industry activities code Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Child care centre	Code assessment	Child care centre zone Neighbourhood centre zone code Infrastructure code Landscaping code Transport and parking code
Community care centre	Code assessment	Neighbourhood centre zone code Infrastructure code Landscaping code

Neighbourhood centre		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.15 Recreation and open space zone

Recreation and open space		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Recreation and open space zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Market	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Market code Transport and parking code
	Otherwise code assessment	Market code Recreation and open space zone code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Club	Code assessment if associated with a Recreation activity conducted on the same site	Business activities code Recreation and open space zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Function facility	Code assessment if associated with a club conducted on the same site	Business activities code Recreation and open space zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme

Recreation and open space		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	Accepted development if: (a) conducted by or on behalf of the council and does not include licensed premises; or (b) involving no building work; or (c) only minor building work.	
	Otherwise code assessment.	Business activities code Recreation and open space zone code Infrastructure code Landscaping code Transport and parking code
Outdoor sport and recreation	Accepted development if: (a) conducted by or on behalf of the council and does not include licensed premises; or (b) involving no building work; or (c) only minor building work.	
	Otherwise code assessment	Recreation and open space zone code Infrastructure code Transport and parking code
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.16 Rural zone

Rural		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's Accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Rural zone code Infrastructure code
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Rural zone code
Home based business	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Rural zone code Infrastructure code
Rural workers accommodation	Code assessment	Multi-unit uses code Rural zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Veterinary services	Code assessment	Business activities code Rural zone code Infrastructure code Landscaping code Transport and parking code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Bulk landscape supplies	Code assessment	Industry activities code Rural zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of	

Rural		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
Animal husbandry	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural activities code
	Otherwise code assessment	Rural activities code Rural zone code
Animal keeping	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural uses code
	Otherwise code assessment	Rural activities code Rural zone code
Aquaculture	Code assessment	Rural activities code Rural zone code
Cropping	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural activities code Forestry for wood production code (where applicable)
	Otherwise code assessment	Rural activities code Forestry for wood production code (where applicable) Rural zone code
Intensive animal industry	Code assessment if involving: (a) 1,000 or less birds of poultry; or (b) 400 or less standard pig units; or (c) 150 or less standard cattle units; or (d) 1,000 or less standard sheep units.	Rural activities code Rural zone code
	Otherwise impact assessment	The Planning Scheme
Intensive horticulture	Code assessment	Rural activities code Rural zone code
Roadside stall	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural uses code

Rural		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	Otherwise code assessment	Rural activities code Rural zone code
Rural industry	Code assessment if no part of the use area is within: (a) 250m of premises in the Rural residential zone; or (b) 500m of premises in a residential zone.	Rural activities code Rural zone code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Wholesale nursery	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Rural activities code Transport and parking code
	Otherwise code assessment	Rural activities code Rural zone code Transport and parking code
All other Rural activities	Impact assessment	The Planning Scheme
Other activities		
Landing	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.17 Rural residential zone

Rural residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Dwelling house	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Rural residential zone code
Home based business	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Home based business code
	Otherwise code assessment	Home based business code Rural residential zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Sales office	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Sales office code
	Otherwise code assessment	Sales office code Rural residential zone code Infrastructure code
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Exempt if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Exempt if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Exempt	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
Animal husbandry	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Rural activities code
	Otherwise code assessmen	Rural activities code Rural residential zone code

Rural residential		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Cropping	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Rural activities code
	Otherwise code assessment	Rural activities code Rural residential zone code
Roadside stall	Self assessment if complying with the acceptable outcomes of the applicable code(s)	Rural activities code
	Otherwise code assessment	Rural activities code Rural residential zone code
All other Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Exempt if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.18 Special industry zone

Special industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Special industry zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
All Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
High impact industry	Code assessment	Industry activities code Special industry zone code Infrastructure code Landscaping code Transport and parking code
Special industry	Code assessment	Industry activities code Special industry zone code Infrastructure code Landscaping code Transport and parking code
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Major electricity infrastructure	Code assessment	Special industry zone code Infrastructure code Landscaping code Transport and parking code
Substation	Code assessment	Special industry zone code Infrastructure code Landscaping code

Special industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
Telecommunications facility	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code
	Otherwise code assessment	Telecommunications facility code Special industry zone code Infrastructure code
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.19 Tourist Accommodation zone

Tourist accommodation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Dwelling house	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Dwelling house code
	Otherwise code assessment	Dwelling house code Tourist accommodation zone code
Relocatable home park	Code assessment	Relocatable home park and tourist park code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Resort complex	Code assessment	Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Rooming accommodation	Code assessment	Multi-unit uses code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Short-term accommodation	Code assessment	Multi-unit uses code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Tourist Park	Code assessment	Relocatable home park and tourist park code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Food and drink outlet	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme

Tourist accommodation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Office	Code assessable if in a building consisting of both Accommodation and Business activities	Business activities code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Shop	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Business activities code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.5.20 Waterfront and marine industry zone

Waterfront and marine industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Caretaker's accommodation code
	Otherwise code assessment	Caretaker's accommodation code Waterfront and marine industry zone code Infrastructure code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
Food and drink outlet	Code assessment if: (a) having a gross floor area not exceeding 150m2; and (b) not involving a drive-through facility.	Business activities cod Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
Outdoor sales	Code assessment if for the sale of marine vehicles and equipment	Business activities code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Service station	Code assessment if primarily servicing marine industry and ancillary uses within the zone	Service station code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
Marine industry	Code assessment	Industry activities code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Warehouse	Code assessment	Industry activities code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code

Waterfront and marine industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
All other Industry activities	Impact assessment	The Planning Scheme
Community activities		
Emergency services	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	Accepted development	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
Aquaculture	Code assessment	Rural activities code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Rural industry	Code assessment if for the distribution and wholesale of seafood products	Rural activities code Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
All other Rural activities	Impact assessment	The Planning Scheme
Other activities		
Landing	Code assessment	Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Major electricity infrastructure	Code assessment	Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Parking station	Code assessment	Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Port services	Code assessment	Waterfront and marine industry zone code Infrastructure code Landscaping code Transport and parking code
Substation	Code assessment	Waterfront and marine industry zone code Infrastructure code Landscaping code

Waterfront and marine industry		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		Transport and parking code
Telecommunications facility	Code assessment if complying with the acceptable outcomes of the applicable code(s)	Telecommunications facility code Waterfront and marine industry zone code Infrastructure code
	Otherwise impact assessment	The Planning Scheme
Utility installation	Accepted development if undertaken by or on behalf of the Council	
	Otherwise impact assessment	The Planning Scheme
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

5.6 Categories of development and assessment – Reconfiguration of a lot

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

Table 5.6.1 Reconfiguring a lot

Reconfiguration of a lot		
Zone	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Community facilities, or Environmental management and conservation, or Recreation and open space	Impact assessment	The Planning Scheme
All other zones	Code assessment (where for an access easement) if compliant with the acceptable outcomes of the Reconfiguring a lot code, including the minimum lot size set out in Table 9.4.6.3.2 (Minimum lot sizes and dimensions)	Relevant zone code Reconfiguring a lot code Excavation and filling code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme
All other zones	Code assessment (where not for an access easement) if compliant with the minimum lot size set out in Table 9.4.6.3.2 (Minimum lot sizes and dimensions) of the Reconfiguring a lot code	Relevant zone code Reconfiguring a lot code Excavation and filling code Infrastructure code Landscaping code Transport and parking code
	Otherwise impact assessment	The Planning Scheme

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

5.7 Categories of development and assessment – Building work

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

Table 5.7.1 Building work

Carrying out building work		
Precinct or Zone	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Airlie Beach Precinct A	Impact assessment if exceeding a maximum building height of 14m above ground level	The Planning Scheme
Airlie Beach Precinct B	Impact assessment if exceeding a maximum building height of 14m above ground level	The Planning Scheme
Airlie Beach Precinct C	Impact assessment if exceeding a maximum building height of 21m above ground level	The Planning Scheme
Airlie Beach Precinct D	Impact assessment if exceeding a maximum building height of 18m above ground level	The Planning Scheme
Airlie Beach Precinct E	Impact assessment if exceeding a maximum building height of 14m above ground level	The Planning Scheme
Airlie Beach Precinct F	Impact assessment if exceeding a maximum building height of 18m above ground level	The Planning Scheme
Airlie Beach Precinct G	Impact assessment if exceeding a maximum building height of 14m above ground level	The Planning Scheme
Residential zones category		
Low density residential zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Low-medium residential density zone, if not within an Airlie Beach Precinct	Impact assessment if exceeding a maximum building height of 12m above ground level	The Planning Scheme
Tourist accommodation zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Centre zones category		
Major centre zone	Impact assessment if exceeding a maximum building height of 12m above ground level	The Planning Scheme
District centre zone, if not within an Airlie Beach Precinct	Impact assessment if exceeding a maximum building height of 12m above ground level	The Planning Scheme
Local centre zone	Impact assessment if exceeding	The Planning Scheme

Carrying out building work		
Precinct or Zone	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
	a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	
Neighbourhood centre zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Industry zones category		
Low impact industry zone	Impact assessment if exceeding a maximum building height of 10m above ground level	The Planning Scheme
Medium impact industry zone	Impact assessment if exceeding a maximum building height of 15m above ground level	The Planning Scheme
High impact industry zone	Impact assessment if exceeding a maximum building height of 20m above ground level	The Planning Scheme
Special industry zone	Impact assessment if exceeding a maximum building height of 20m above ground level	The Planning Scheme
Waterfront industry zone	Impact assessment if exceeding a maximum building height of: (a) 20m above ground level for buildings and structures used for the manufacturing, servicing or repair of vessels; or (b) 12.5m above ground level for all other buildings and structures.	The Planning Scheme
Industry investigation zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Recreation zones category		
Recreation and open space zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Environmental zones category		
Environmental management and conservation zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme

Carrying out building work		
Precinct or Zone	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Other zones category		
Community facilities zone, if not within an Airlie Beach Precinct	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Emerging community zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme
Mixed use zone, if not within an Airlie Beach Precinct	Impact assessment if exceeding a maximum building height of 12m above ground level	The Planning Scheme
Rural residential zone	Impact assessment if exceeding a maximum building height of: (a) 8.5m above ground level; or (b) 10m above ground level where located on slopes exceeding 15%.	The Planning Scheme

5.8 Categories of development and assessment – Operational work

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

Table 5.8.1 Operational work

Operational work		
Development	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Extracting gravel, rock, sand or soil from the place where it occurs naturally	Accepted development if undertaken by or on behalf of the Council	
Conducting a forest practice	Accepted development	
Excavating or filling that materially affects premises or their use	Accepted development if: (a) there would be a change of no greater than 1m in the level of any part of the site; and (b) less than 100m^3 of material is imported to or removed from the site.	Excavation and filling code
	Otherwise code assessment	Construction management code Excavation and filling code
All operational works involving landscaping work where associated with the Reconfiguring of a lot or Material change of use	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Construction management code Landscaping code
All operational works involving landscaping work where not associated with the Reconfiguring of a lot or Material change of use	Code assessment	Construction management code Landscaping code
Operation works involving engineering work	Code assessment	Construction management code Excavation and filling code Infrastructure code
Placing an advertising device on a premise	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Advertising devices code
	Otherwise code assessment	Advertising devices code Construction management code
Prescribed tidal works	Code assessment	Construction management code Excavation and filling code
Undertaking roadworks on a local government road	Accepted development if undertaken by or on behalf of the Council	
	Otherwise code assessment	Construction management

Operational work		
Development	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
		code Excavation and filling code Transport and parking code
Undertaking roadwork's on a local government road for a driveway	Accepted development if complying with the acceptable outcomes of the applicable code(s)	Excavation and filling code Transport and parking code
	Otherwise code assessment	Construction management code Excavation and filling code Transport and parking code

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

5.9 Categories of development and assessment – Local plans

5.9.1 Hamilton Island local plan categories of development and assessment

The following tables identifies the categories of development and assessment for development in the local plan.

Table 5.9.1.1 Hamilton Island local plan - Community facilities zone

Hamilton Island local plan - Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	No change	Hamilton Island local plan (where code assessment)
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Club	No change	Hamilton Island local plan code
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	No change	
Educational establishment	No change	Hamilton Island local plan code
Emergency services	No change	
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	No change	Hamilton Island local plan code
Outdoor sport and recreation	No change	Hamilton Island local plan code
Park	No change	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Air services	No change	
Telecommunications facility	No change	Hamilton Island local plan code (where code assessable)
Utility installation	No change	
All other activities	Impact assessment	The Planning Scheme
Undefined uses		

Hamilton Island local plan - Community facilities		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.9.1.2 Hamilton Island local plan - Recreation and open space zone

Hamilton Island local plan - Recreation and open space		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	No change	Hamilton Island local plan code (where code assessment)
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
All other Business activities	Impact assessment	The Planning Scheme
Entertainment activities		
Club	No change	Hamilton Island local plan code
Function facility	No change	Hamilton Island local plan code
All other Entertainment activities	Impact assessment	The Planning Scheme
Industry activities		
All Industry activities	Impact assessment	The Planning Scheme
Community activities		
Community use	No change	
Emergency services	No change	
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Indoor sport and recreation	No change	Hamilton Island local plan code (where code assessment)
Outdoor sport and recreation	No change	Hamilton Island local plan code (where code assessment)
Park	No change	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	Impact assessment	The Planning Scheme
Other activities		
Utility installation	No change	
All other activities	Impact assessment	The Planning Scheme
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

Table 5.9.1.3 Hamilton Island local plan – Tourist accommodation

Hamilton Island local plan – Tourist accommodation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Accommodation activities		
Caretaker's accommodation	Code assessment	Caretaker's accommodation code Hamilton Island local plan code Tourist accommodation zone code Landscaping Code Transport and parking code
Dual occupancy	Code assessment	Dual occupancy code Hamilton Island local plan code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Dwelling house	Code assessment	Dwelling House Code Hamilton Island local plan code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
Home based business	Code assessment	Home based business code Tourist accommodation zone code Hamilton Island local plan code
Resort complex	No change	Hamilton Island local plan code Tourist accommodation zone code Infrastructure code Landscaping code Transport and parking code
All other Accommodation activities	Impact assessment	The Planning Scheme
Business activities		
All other Business activities	Code assessment if associated with a Resort complex and complying with the acceptable outcomes of the applicable codes	Business activities code Tourist accommodation zone code Hamilton Island local plan code Infrastructure code Landscaping code Transport and parking code
	Impact assessment	The Planning Scheme
Entertainment activities		
All Entertainment activities	Code assessment if associated with a Resort complex and complying with the acceptable outcomes of the applicable codes	Tourist accommodation zone code Hamilton Island local plan code Infrastructure code Landscaping code Transport and parking code
	Impact assessment	The Planning Scheme

Hamilton Island local plan – Tourist accommodation		
Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Industry activities		
All Industry activities	Code assessment if associated with a Resort complex and complying with the acceptable outcomes of the applicable codes	Industry activities code Tourist accommodation zone code Hamilton Island local plan code Infrastructure code Landscaping code Transport and parking code
	Impact assessment	The Planning Scheme
Community activities		
Community use	Code assessment if associated with a Resort complex and complying with the acceptable outcomes of the applicable codes	Tourist accommodation zone code Hamilton Island local plan code Infrastructure code Landscaping code Transport and parking code
	Impact assessment	The Planning Scheme
Emergency services	No change	
All other Community activities	Impact assessment	The Planning Scheme
Recreation activities		
Park	No change	
All other Recreation activities	Impact assessment	The Planning Scheme
Rural activities		
All Rural activities	No change	
Other activities		
Utility installation	No change	
All other activities	Code assessment if associated with a Resort complex and complying with the acceptable outcomes of the applicable codes	Tourist accommodation zone code Hamilton Island local plan code Infrastructure code Landscaping code Transport and parking code
Undefined uses		
Any use not defined in Schedule 1 (Definitions)	Impact assessment	The Planning Scheme

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

5.10 Categories of development and assessment – Overlays

The following tables identify where an overlay changes the category of assessment from that stated in a zone or local plan and the relevant assessment benchmarks.

Note—Some overlays may only be included for information purposes. This should not change the category of assessment or assessment benchmarks in the Planning Scheme.

Table 5.10.1 Acid sulfate soils overlay

Acid sulphate soils overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Any development if on land: (a) subject to the Acid sulfate soils overlay as identified in the Acid sulfate soils map; and (b) there would be a change in level of greater than 1m of any part of the site; or (c) greater than 100m^3 of material is imported to or removed from the site.	No change	Acid sulfate soils overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.2 Agricultural land overlay

Agricultural land overlay		
Development	**Category of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Agricultural land overlay as identified in the Agricultural land overlay map	No change	Agricultural land overlay code
Reconfiguring a lot if on land subject to the Agricultural land overlay as identified in the Agricultural land overlay map	No change	Agricultural land overlay code
Operational work if on land: (a) subject to the Agricultural overlay as identified in the Agricultural land overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving engineering work; or (d) prescribed tidal works; or (e) undertaking roadwork's on a local government road.	No change	Agricultural land overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.3 Airport environs overlay

Airport environs overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land: (a) subject to the Airport environs overlay; and (b) resulting in work encroaching into the operational airspace and is at least 12m high; or (c) within a public safety area; or (d) within the existing lighting area buffer zone; or (e) within the wildlife hazard buffer zone; or (f) resulting in work encroaching into the building restricted area.	No change	Airport environs overlay code
Reconfiguring of a lot if on land: (a) subject to the Airport environs overlay; and (b) within the 20 ANEF contour for an airport; or (c) within a public safety area of an airports identified on the Airport environs overlay map.	No change	Airport environs overlay code
Operational works only where not associated with a Material change of use or a Reconfiguration of a lot.	No change	Airport environs overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.4 Bushfire hazard overlay

Bushfire hazard overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land: (a) subject to the Bushfire hazard overlay as identified in the Bushfire hazard overlay map; and (b) where not wholly contained within an existing building; or (c) involving building work of greater than 50m^2;or (d) there would be a change in level of greater than 0.5m of any part of the site; or (e) greater than 50m^3 of material is imported to or removed from the site.	No change if complying with acceptable outcomes of Table 8.2.4.3.1 (Criteria for accepted development and assessable development) of the Bushfire hazard overlay code	Bushfire hazard overlay code
	Otherwise code assessment	Bushfire hazard overlay code
Reconfiguring a lot if on land subject to the Bushfire hazard overlay as identified in the Bushfire hazard overlay map	No change	Bushfire hazard overlay code
Operational works if on land (a) subject to the Bushfire hazard overlay as identified in the Bushfire hazard overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a lot or Material change of use; or (d) involving engineering work; or (e)	No change	Bushfire hazard overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.5 Coastal environment overlay

Coastal environment overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land: (a) subject to the Coastal environment overlay as identified in the Coastal environment overlay map; and (b) where not wholly contained within an existing building; or (c) involving building work of greater than 50m^2 ;or (d) there would be a change in level of greater than 0.5m of any part of the site; or (e) greater than 50m^3 of material is imported to or removed from the site.	No change if complying with acceptable outcomes of Table 8.2.5.3.1 (Criteria for accepted development and assessable development) of the Coastal environment overlay code	Coastal environment overlay code
	Otherwise code assessment	Coastal environment overlay code
Reconfiguring a lot if on land subject to the Coastal environment overlay as identified in the Coastal environment overlay map	No change	Coastal environment overlay code
Operational works if on land: (a) subject to the Coastal environment overlay as identified in the Coastal environment overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving engineering work; or (d) prescribed tidal works; or (e) undertaking roadwork's on a local government road.	No change	Coastal environment overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.6 Environmental significance overlay

Environmental significance overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Environmental significance overlay as identified in the Environmental significance overlay map	No change	Environmental significance overlay code
Reconfiguring a lot if on land subject to the Environmental significance overlay as identified in the Environmental significance overlay map	No change	Environmental significance overlay code
Operational work if on land: (a) subject to the Environmental significance overlay as identified in the Environmental significance overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a lot or Material change of use; or (d) involving engineering work; or (e) prescribed tidal works; or (f) undertaking roadwork's on a local government road.	No change	Environmental significance overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.7 Extractive resources overlay

Extractive resources overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Extractive resources overlay as identified in the Extractive resources overlay map	No change	Extractive resources overlay code
Reconfiguring a lot, if on land subject to the Extractive resources overlay as identified in the Extractive resources overlay map	No change	Extractive resources overlay code
Operational works, if on land: (a) subject to the Extractive resources overlay as identified in the Extractive resources overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving engineering work; or (d) prescribed tidal works; or (e) undertaking roadwork's on a local government road.	No change	Extractive resources overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.8 Flood hazard overlay

Flood hazard overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land: (a) subject to the Flood hazard overlay as identified in the Flood hazard overlay map; and (b) where not wholly contained within an existing building; or (c) involving building work of greater than $50m^2$;or (d) there would be a change in level of greater than 0.5m of any part of the site; or (e) greater than $50m^3$ of material is imported to or removed from the site.	No change if complying with acceptable outcomes of Table 8.2.8.3.1 (Criteria for accepted development and assessable development) of the Flood hazard overlay code	Flood hazard overlay code
	Otherwise code assessment	Flood hazard overlay code
Reconfiguring a lot if on land subject to the Flood hazard overlay as identified in the Flood hazard overlay map	No change	Flood hazard overlay code
Operational works if on land: (a) subject to the Flood hazard overlay as identified in the Flood hazard overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving engineering work; or (d) prescribed tidal works; or (e) undertaking roadwork's on a local government road.	No change	Flood hazard overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.9 Heritage overlay

Heritage overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Heritage overlay as identified in the Heritage overlay map	Code assessment if development will not result in building work involving demolition, relocation or removal of a heritage place	Heritage overlay code
	Otherwise impact assessment	The Planning Scheme
Reconfiguration of a lot if on land subject to the Heritage overlay as identified in the Heritage overlay map.	No change	Heritage overlay code
Operational works if on land: (a) subject to the Heritage overlay as identified in the Heritage overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a lot or Material change of use; or (d) involving engineering work; or (e) placing an advertising device on a premise; or (f) prescribed tidal works; or (g) undertaking roadwork's on a local government road.	No change if development will not result in building work involving demolition, relocation or removal of a heritage place	Heritage overlay code
	Otherwise code assessment	Heritage overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.10 Infrastructure overlay

Infrastructure overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Infrastructure overlay as identified in the Infrastructure overlay map	No change	Infrastructure overlay code
Reconfiguration of a lo, if on land subject to the Infrastructure overlay as identified in the Infrastructure overlay map	No change	Infrastructure overlay code
Operational works if on land: (a) subject to the Infrastructure overlay as identified in the Infrastructure overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a lot or Material change of use; or (d) involving engineering work; or (e) placing an advertising device on a premise; or (f) prescribed tidal works; or (g) undertaking roadwork's on a local government road.	No change	Infrastructure overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.11 Landslide hazard overlay

Landslide hazard overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land: (a) subject to the Landslide hazard overlay as identified in the Landslide hazard overlay map; and (b) where not wholly contained within an existing building; or (c) involving building work of greater than 50m^2 ;or (d) there would be a change in level of greater than 0.5m of any part of the site; or (e) greater than 50m^3 of material is imported to or removed from the site.	No change if complying with acceptable outcomes of Table 8.2.11.3.1 (Criteria for accepted and assessable development) of the Landslide hazard overlay code	Landslide hazard overlay code
	Otherwise code assessment	Landslide hazard overlay code
Reconfiguring a lot if on land subject to the Landslide hazard overlay as identified in the Landslide hazard overlay map	No change	Landslide hazard overlay code
Operational works if on land: (a) subject to the Landslide hazard overlay as identified in the Landslide hazard overlay map; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a Lot or Material change of use; or (d) involving engineering work; or (e) prescribed tidal works; or (f) undertaking roadwork's on a local government road.	No change	Landslide hazard overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Table 5.10.12 Wetlands and waterways overlay

Wetlands and waterways overlay		
Development	**Categories of assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Material change of use if on land subject to the Wetlands and waterways overlay as identified in the Wetlands and waterways overlay map 1	No change	Wetlands and waterways overlay code
Reconfiguring a lot if on land subject to the Wetlands and waterways overlay as identified in the Wetlands and waterways overlay map 1	No change	Wetlands and waterways overlay code
Operational works if on land: (a) subject to the Wetlands and waterways overlay as identified in the Wetlands and waterways overlay map 1; and (b) involving excavation or filling that materially affects premises or their use; or (c) involving landscaping work where associated with the Reconfiguration of a lot or Material change of use; or (d) involving engineering work; or (e) prescribed tidal works; or (f) undertaking roadwork's on a local government road.	No change	Wetlands and waterways overlay code

Note – where development is not identified in the 'Development' column of the table as being subject to a particular overlay, that overlay is not applicable to the development.

Contents of Part 6

Tables in Part 6

Maps in Part 6

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 (Mapping).

(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 – Table 6.1.1 lists the precincts and their corresponding zones.

Table 6.1.1 Precincts and corresponding zones

Precinct	Zone
Airlie Beach Precinct A	Mixed use
Airlie Beach Precinct B	Low-medium density residential
Airlie Beach Precinct C	Mixed use
Airlie Beach Precinct D	District centre
Airlie Beach Precinct E	District centre
Airlie Beach Precinct F	Mixed use
Airlie Beach Precinct G	Mixed use

(6) Precinct provisions are contained in the corresponding zone codes.

(7) Each zone code identifies the following:

(a) the purpose of the code; and

(b) the overall outcomes that achieve the purpose of the code.

(8) The following are the zone codes for the Planning Scheme:

Residential zones category

(a) Low density residential zone code;

(b) Low-medium density residential zone code; and

(c) Tourist accommodation zone code.

Centre zones category

(a) Major centre zone code;

(b) District centre zone code;

(c) Local centre zone code; and

(d) Neighbourhood centre zone code.

Industry zones category

(a) Low impact industry zone code;

(b) Medium impact industry zone code;

(c) High impact industry zone code;

(d) Special industry zone code;

(e) Waterfront and marine industry zone code; and

(f) Industry investigation zone code.

Recreation zones category

(a) Recreation and open space zone code.

Environmental zones category

(a) Environmental management and conservation zone code.

Other zones category

(a) Community facility zone code;

(b) Emerging community zone code;

(c) Mixed use code;

(d) Rural zone code; and

(e) Rural residential zone code.

6.2 Zone codes

6.2.1 Community facilities zone code

6.2.1.1 Application

This code applies to assessable development:

(a) within the Community facilities zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Community facilities zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.1.2 Purpose and overall outcomes

(1) The purpose of the Community facilities zone code is to provide for community related activities and facilities whether under public or private ownership. These may include the provision of municipal services, public utilities, government installations, hospitals, schools, transport and telecommunications networks and community infrastructure of an artistic, social or cultural nature.

(2) The purpose of the Community facilities zone code in the local government area is to provide for a range of accessible Community, Recreation and Other activities at varying degrees of scale and intensity, which operate effectively and meet the social, educational, spiritual, cultural or health needs of the Whitsunday Region's existing and future communities.

(3) The purpose of the Community facilities zone code will be achieved through the following overall outcomes:

(a) development in the zone caters primarily for specified uses, facilities and works, which include:

(i) land used, owned or operated by Federal, State or Local government for Community and Other activities, such as cemeteries, community uses, emergency services, hospitals, air services, substations, major electricity infrastructure and utility installations; or

(ii) uses, facilities and works, which by virtue of their location, intensity, combination of uses, operations or site characteristics are best managed in a use-specific land use allocation; or

(iii) private Community activities and facilities, including community uses, educational establishments, hospitals and places of worship;

(b) a range of allied and compatible activities may also be established in this zone. These include Recreational activities, such as indoor/outdoor sport and recreation uses;

(c) Community activities and associated uses are located to optimise their accessibility, operational efficiency and benefit to the public;

(d) development accommodates the specific operational, functional and locational needs of the particular use, whilst maintaining a low rise built form compatible with the intended development in the surrounding area. Buildings are to have a maximum height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(e) development provides a high level of amenity, maintains the safety of people, buildings and works, and effectively manages the potential for land use conflict with existing and intended surrounding development;

(f) uses, buildings and works are located, designed and operated to minimise adverse impacts on the amenity of any adjacent properties, nearby residential or public spaces, having regard to:

(i) traffic conditions;

(ii) noise or vibration;

(iii) dust, odour or similar emissions:

(iv) privacy;

(v) safety and security;

(vi) illumination;

(vii) access to natural light and ventilation; and

(viii) drainage.

(g) existing and planned Community activities and associated uses are protected from the intrusion of incompatible uses that could limit the ongoing operation of existing Community activities or prejudice appropriate new activities;

(h) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(i) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, permeability and ease of movement within and to the site;

(j) development is provided with a level of infrastructure and essential services that is commensurate with the location, nature, scale and intensity of the use;

(k) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(l) the safety and efficiency of existing and future infrastructure (i.e. road, rail, pipelines, telecommunications and transmission infrastructure) is protected, and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.2 District centre zone code

6.2.2.1 Application

This code applies to assessable development:

(a) within the District centre zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the District centre zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.2.2 Purpose and overall outcomes

(1) The purpose of the District centre zone code is to provide for a mix of uses and activities. It includes a concentration of land uses, including retail, commercial, residential, offices, administrative and health services, community, small-scale entertainment and recreational facilities capable of servicing a district.

(2) The purpose of the District centre zone code in the local government area is to provide for a range of activities that complement but do not compete with the role and function of the major activity centres. The District centre zone serves the needs of district level catchments and distinct communities in centres that are highly accessible and well connected to the catchment areas. District centres are developed as well-designed, safe and visually attractive business, community and employment centres, predominantly in a low-rise building format, where significant off-site impacts are avoided.

(3) The purpose of the District centre zone code will be achieved through the following overall outcomes:

(a) development provides for a range of Business and Entertainment activities that service the district level needs of surrounding smaller centres and residential areas. These uses include, but are not limited to, food and drink outlets, offices, shops, shopping centres, theatres, clubs and function facilities;

(b) development provides for a range of complementary Community activities in appropriate locations to encourage community interaction and support the health, safety and wellbeing of residents. Such uses include community uses, child care centres, emergency services, health care services and places of worship;

(c) Recreation, Industry and Other activities, such as indoor sport and recreation, service industries and utility installations, may be established where they are compatible with the character and amenity of surrounding development;

(d) beyond existing uses, development provides for a limited range of Accommodation activities, including caretaker's accommodation, dual occupancies, multiple dwellings, rooming accommodation and short-term accommodation, where such uses are ancillary to and support the predominant business functions of the zone;

(e) development of Business activities is of a scale and intensity that is consistent with the intended role and function of the particular activity centre and the Whitsunday hierarchy of centres[1]. For development in the District centre zone, this includes consideration of the following:

[1] Development within the District centre zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(i) the function and role of existing Business activities in district centres is maintained;

(ii) shopping centres have a maximum retail and commercialGLA in the order of 5,000m^2;

(iii) not more than one full-line supermarket is established in each allocated district centre, unless there is a demonstrated need and there are no adverse impacts on the major activity centre; and

(iv) higher order shopping facilities, including department stores and discount department stores, are not established in the District centre zo

(f) unless otherwise specified in a local plan code or Table 6.2.2.2.1 (Maximum building heights in District centre zone), development has a low to medium rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 12.0m above ground level;

Table 6.2.2.2.1 Maximum building heights in District centre zone

District centre location	Maximum building height
Airlie Beach Precinct D	18m
Airlie Beach Precinct E	14m

(g) development may provide for Accommodation activities as part of mixed use premises to encourage and facilitate urban consolidation;

(h) development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places;

(i) development provides an active and articulated streetscape allowing for casual surveillance and pedestrian access from the street, with demonstrated connectivity to surrounding land uses;

(j) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding premises, having regard to matters such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(k) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(l) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(m) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(n) development demonstrates that an appropriate level of transport infrastructure is available and will not unreasonably interfere with the safe and efficient operation of the surrounding road network[2];

(o) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(p) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(q) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[2] Development within the District centre zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.3 Emerging community zone code

6.2.3.1 Application

This code applies to assessable development:

(a) within the Emerging community zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Emerging community zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.3.2 Purpose and overall outcomes

(1) The purpose of the Emerging community zone code is to:

(a) identify land that is suitable for urban purposes and conserve land that may be suitable for urban development in the future;

(b) manage the timely conversion of non-urban land to urban purposes; and

(c) prevent or discourage development that is likely to compromise appropriate longer-term land uses.

(2) The purpose of the Emerging community zone code in the local government area is to ensure that development is designed and coordinated to achieve safe, healthy and sustainable new urban communities, which are well integrated with existing communities and provided with services and infrastructure.

(3) The purpose of the Emerging community zone code will be achieved through the following overall outcomes:

(a) prior to the granting of development approvals in accordance with any strategic planning undertaken by the Council:

(i) interim land uses and other development is predominantly limited to existing uses to ensure that the future potential of land to be used for urban purposes is not compromised; and

(ii) development avoids the sporadic or premature creation of additional lots[3];

(b) development is undertaken in accordance with any strategic plans, prepared or approved master plan or a preliminary approval pursuant to the Act, demonstrating that:

(i) development occurs in accordance with any strategic planning undertaken by the Council;

(ii) unless otherwise specified in a local plan code, development within the zone co-ordinates with existing or future planned development through logical planning of the full extent of the Emerging community zone and neighbouring communities[4];

[3] Development within the Emerging community zone may be requested to provide a Development needs assessment report in accordance with PSP SC6.7 (Growth management).
[4] Development within the Emerging community zone may be requested to provide a Structure plan in accordance with PSP SC6.7 (Growth management).

(iii) unless otherwise specified in a local plan code, development provides for a low-rise building form that is compatible with the character of the surrounding area, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(iv) development sensitively responds to scenic values and landscape character elements, particularly prominent ridgelines, foreshores, coastal landforms, significant landmarks, prominent stands of vegetation and rural and coastal views and vistas;

(v) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(vi) the scale, density and layout of development facilitates an efficient land use pattern that:

(A) is well connected to other parts of the urban fabric and planned future development;

(B) supports walkable neighbourhoods that are well connected to employment nodes, centres, open space and recreation areas, community services and educational opportunities; and

(C) encourages public transport accessibility and use;

(vii) a mix of land uses and housing types is provided;

(viii) a high level of residential amenity, personal health and safety and protection for property is provided;

(ix) a sense of character and community inclusion is promoted;

(x) communities are supported by interconnected open space networks and local centres incorporating attractive, comfortable, safe and convenient public spaces;

(xi) development provides for pedestrian and bicycle movement networks that maximise connectivity, permeability and ease of movement within emerging community areas and to existing urban areas;

(xii) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(xiii) development demonstrates that an appropriate level of transport infrastructure is available and will not unreasonably interfere with the safe and efficient operation of the surrounding road network[5];

(xiv) conflicts with the existing or potential productive use of adjoining or nearby rural lands are avoided or appropriately managed;

[5] Development within the Emerging community zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

(xv) development occurs in a logical sequence and facilitates the efficient and timely provision of infrastructure and services prior to, or in conjunction with, the initial stages of the development;

(xvi) development is provided with the full range of urban services, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(xvii) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(xviii) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected, and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.4 Environmental management and conservation zone code

6.2.4.1 Application

This code applies to assessable development:

(a) within the Environmental management and conservation zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Environmental management and conservation zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.4.2 Purpose and overall outcomes

(1) The purpose of the Environmental management and conservation zone code is to provide for the protection and maintenance of areas identified as supporting significant biological diversity and ecological integrity.

(2) The purpose of the Environmental management and conservation zone code in the local government area is to provide for the protection and rehabilitation of land to maintain biological diversity, ecological processes, coastal processes, water quality, landscape character, scenic amenity, cultural heritage significance and community wellbeing.

(3) The purpose of the Environmental management and conservation zone code will be achieved through the following overall outcomes:

(a) areas identified as having significant environmental values for environmental diversity and functioning, water catchment, beach protection or coastal management and historical or cultural significance are:

(i) protected for their importance in contributing to environmental sustainability; and

(ii) appropriately managed to the general exclusion of most forms of development;

(b) Recreation activities, limited to parks, may be established in the zone where such development:

(i) supports environmental values and provides opportunities for appreciation or study of those values;

(ii) is compatible with and has a direct connection with the environmental values; and

(iii) provides opportunities for recreational pursuits that have a direct connection with the environmental values of the land;

(c) to maintain the intended character and amenity of the zone, development integrates with and compliments the natural landscape and has a low-rise built form with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(d) Other activities, limited to utility installations, may be provided where such activities are located, designed and operated to avoid significant impacts on environmental systems and processes;

(e) green and open space corridor networks are established across the region providing movement opportunities for people and wildlife between the coast and hinterland and access to the regions cultural heritage and environmental significant features;

(f) development maintains and protects the scenic values and landscape character of the zone, particularly coastal views and vistas, prominent ridgelines, escarpments, foreshores, coastal landforms and significant landmarks that are in both public and private ownership;

(g) natural features, such as creeks, gullies, waterways, wetlands, flora and fauna communities, habitats, vegetation and bushland, are protected and buffered from activities in the zone and adjoining land uses;

(h) development provides for infrastructure and services that are commensurate with the very limited range of small scale and low-key activities that are expected to occur in the zone. Such infrastructure and services are designed and operated to maintain public safety and environmental health; and

(i) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected, and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.5 High impact industry zone code

6.2.5.1 Application

This code applies to assessable development:

(a) within the High impact industry zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the High impact industry zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.5.2 Purpose and overall outcomes

(1) The purpose of the High impact industry zone code is to provide for high impact industry uses. It may include non-industrial and business uses that support the industrial activities where they do not compromise the long-term use of the land for industrial purposes. Activities considered appropriate in this zone are defined as high impact industry in the schedule of definitions.

(2) The purpose of the High impact industry zone code in the local government area is to provide for a range of Industry activities at a larger scale and higher intensity relative to the Medium impact industry zone.

(3) The purpose of the High impact industry zone code will be achieved through the following overall outcomes:

(a) uses in the zone are predominantly for higher intensity, higher impact Industry activities that have the potential to generate significant offsite impacts, including medium impact industry and high impact industry uses;

(b) development of ancillary Accommodation and Business activities may be established only where directly supporting the ongoing Industry activities of the zone. These uses are limited to caretaker's accommodation, food and drink outlets, offices and service stations. Such uses must be appropriately located and designed to ensure that they do not compromise the ongoing operation and viability of Industry activities[6];

(c) development of limited Community and Other activities, compatible with this zone, may also be established. Such uses are limited to crematoriums, emergency services, air services, substations, telecommunications facilities and utility installations;

(d) existing and planned Industry activities are protected from the intrusion of incompatible uses that may compromise or conflict with the primary use of premises for industry purposes;

(e) development provides for a range of lot sizes, including an appropriate proportion of larger lots to cater for larger format and land consumptive Industry activities;

(f) development has a built form that is compatible with the intended scale and character of the streetscape and surrounding area whilst accommodating industry operating requirements, with a maximum building height of 20.0m above ground level;

[6] Development within the High impact industry zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(g) Industry activities integrate with the locality by providing a high quality of built form and landscaping in keeping with the expectations of a modern, safe, and attractive industrial environment;

(h) development ensures that uses and works for industrial purposes are located, designed and managed to maintain public health and safety, avoid significant adverse effects on the natural environment and minimise impacts on non-industrial land and sensitive uses;

(i) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(j) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use[7];

(k) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(l) development is provided with the full range of urban services to support industry and employment needs, including reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(m) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(n) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[7] Development within the High impact industry zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.6 Industry investigation zone code

6.2.6.1 Application

This code applies to assessable development:

(a) within the Industry investigation zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Industry investigation zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.6.2 Purpose and overall outcomes

(1) The purpose of the Industry investigation zone code is to identify and protect land that may be suitable for Industry activities where further detailed planning, investigations and studies are required to determine the suitability of the Industry investigation zone for use as an industry zone.

(2) The purpose of the Industry investigation zone code in the local government area is to ensure that development is designed and coordinated to support Industry activities of a nature and scale that is compatible with the surrounding area and provided with services and infrastructure.

(3) The purpose of the Industry investigation zone code will be achieved through the following overall outcomes:

(a) prior to the granting of development approvals in accordance with strategic planning undertaken by Council or approved State Development Area Development Schemes:

(i) interim land uses and other development is predominantly limited to existing uses to ensure that the future potential of land to be used for urban purposes is not compromised; and

(ii) development avoids the sporadic or premature creation of additional lots[8];

(b) development is undertaken in accordance with any strategic plan, prepared and approved master plan or a preliminary approval pursuant to the Act, demonstrating that:

(i) development occurs in accordance with any strategic planning undertaken by the Council;

(ii) unless otherwise specified in a local plan code, development within the zone co-ordinates with existing or future planned development through logical planning of the full extent of the Industry investigation zone and neighbouring communities[9];

(iii) unless otherwise specified in a local plan code, development provides for a low-rise building form that is compatible with the character of the surrounding area, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

[8] Development within the Industry investigation zone may be requested to provide a Development needs assessment report in accordance with PSP SC6.7 (Growth management).
[9] Development within the Industry investigation zone may be requested to provide a Structure plan in accordance with PSP SC6.7 (Growth management).

(iv) development sensitively responds to scenic values and landscape character elements, particularly prominent ridgelines, foreshores, coastal landforms, significant landmarks, prominent stands of vegetation and rural and coastal views and vistas;

(v) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(vi) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(vii) the scale, density and layout of development facilitates an efficient land use pattern that:

(A) is well connected to other parts of the urban fabric and planned future development; and

(B) encourages public transport accessibility and use;

(viii) Industry activities are adequately separated from sensitive uses to minimise the likelihood of environmental harm or environmental nuisance occurring;

(ix) development is sited or co-located having regard to its servicing capabilities in terms of infrastructure, road, rail, proximity to sea, airports, other associated industries and work forces;

(x) development provides for pedestrian and bicycle movement networks that maximise connectivity, permeability and ease of movement within industry investigation areas and to existing urban areas;

(xi) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(xii) conflicts with the existing or potential productive use of adjoining or adjacent non-industrial land are avoided or appropriately managed;

(xiii) interim land uses and other development is predominantly limited to existing uses to ensure that the future potential of land to be used for urban purposes is not compromised;

(xiv) development occurs in a logical sequence and facilitates the efficient and timely provision of infrastructure and services prior to, or in conjunction with, the initial stages of the development;

(xv) the viability of both existing and future Industry activities are protected from the intrusion of incompatible uses;

(xvi) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(xvii) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(xviii) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.7 Local centre zone code

6.2.7.1 Application

This code applies to assessable development:

(a) within the Local centre zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Local centre zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.7.2 Purpose and overall outcomes

(1) The purpose of the Local centre zone code is to provide for a limited range of land uses and activities to service local needs. It includes local shopping, local employment nodes, commercial uses, cafes and dining, entertainment, community services and residential development, where it can integrate and enhance the fabric of the activity centre but is not the predominant use.

(2) The purpose of the Local centre zone code in the local government area is to provide for a range of Business and Community activities that complement, but do not compete with, the role and function of higher order activity centres. The zone meets the convenience service needs of smaller rural, coastal townships or discrete residential areas and provides local employment opportunities. Local centres are developed as well-designed, safe and visually attractive centres, predominantly in a low-rise building format, where significant off-site impacts are avoided.

(3) The purpose of the Local centre zone code will be achieved through the following overall outcomes:

(a) development provides for a range of Business activities that service the local level convenience needs of residents and surrounding tourism or primary production industries and offers locally-based employment opportunities. These uses include, but are not limited to, food and drink outlets, offices, shops, shopping centres and veterinary services;

(b) development provides for a range of complementary Community activities in appropriate locations to encourage community interaction and support the health, safety and wellbeing of local residents. These uses include child care centres, community uses, emergency services and health care services;

(c) Recreation, Industry and Other activities may be established where they are compatible with the character and amenity of surrounding development. Such uses include indoor sport and recreation, service industries and utility installations;

(d) beyond existing uses, development provides for a limited range of Accommodation activities, including caretaker's accommodation, dual occupancies and multiple dwellings, where such uses are ancillary and support the predominant business functions of the zone;

(e) development of Business activities is of a scale and intensity that is consistent with the intended role and function of the particular activity centre and the Whitsunday hierarchy of centres[10]. For development in the Local centre zone, this includes consideration of the following:

[10] Development within the Local centre zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(i) the function and role of existing Business activities in the zone is maintained and not significantly expanded;

(ii) shopping centres have a maximum retail and commercial GLA in the order of 1,500m^2; and

(iii) higher order shopping facilities, including full-line supermarkets, department stores and discount department stores are not established in the zone;

(f) development has a low-rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(g) development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places;

(h) development provides an active and articulated streetscape allowing for casual surveillance and pedestrian access from the street, with demonstrated connectivity to surrounding land uses;

(i) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding premises, having regard to matters, such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(l) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(m) development demonstrates that an appropriate level of transport infrastructure is available and will not unreasonably interfere with the safe and efficient operation of the surrounding road network[11];

(n) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(o) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(p) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[11] Development within the Local centre zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.8 Low density residential zone code

6.2.8.1 Application

This code applies to assessable development:

(a) within the Low density residential zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Low density residential zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.8.2 Purpose and overall outcomes

(1) The purpose of the Low density residential zone code is to provide for predominantly dwelling houses supported by community uses and small-scale services and facilities that cater for local residents.

(2) The purpose of the Low density residential zone code in the local government area is to provide for predominantly low density, low-rise Accommodation activities on a range of lot sizes. Whilst primarily intended to accommodate dwelling houses, limited other Accommodation activities may also be established in the zone where compatible with the prevailing residential character and amenity.

(3) The purpose of the Low density residential zone code will be achieved through the following overall outcomes:

(a) development provides for low density housing types, primarily in the form of dwelling houses that promote variety in housing size and choice;

(b) limited other Accommodation activities, such as community residences, residential care facilities and retirement facilities, may be established in the zone, where such uses are compatible with the prevailing scale and residential character of surrounding development;

(c) home based businesses that are compatible with local residential amenity may be established in the zone;

(d) development may provide for limited Business, Community and Other activities, including sales offices, shops (limited to corner stores), community uses, emergency services and utility installations, which:

(i) directly support the day to day needs of the immediate residential community;

(ii) are a small-scale and low intensity;

(iii) are compatible with the local residential character and amenity of the area;

(iv) wherever possible, are co-located with similar activities within the zone;

(v) are accessible to the population they serve and are located on the major road network rather than local residential streets; and

(vi) do not have a significant detrimental impact on the amenity of surrounding residents, having regard to hours of operation, generation of odours, noise, waste products, dust, traffic, electrical interference, lighting and visual impacts;

(e) development occurring in residential neighbourhoods takes place in a planned, orderly manner that promotes certainty and maintains a high level of residential amenity for existing residents, in terms of the type, design and density of development that may occur over time;

(f) development in the zone provides for an attractive, open and low density form of urban residential living that promotes a sense of character and community inclusion;

(g) development provides for a range of lot sizes;

(h) to maintain the low density character and residential amenity of the zone, development has a low-rise built form with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(i) the scale, density and layout of development facilitates an efficient land use pattern that:

    (i) is well connected to other parts of the urban fabric and planned future development;

    (ii) supports walkable neighbourhoods that are well connected to employment nodes, centres, open space and recreation areas, community services and educational opportunities; and

    (iii) encourages public transport accessibility and use;

(j) development is designed and located in a manner which makes a positive contribution to the streetscape and is sympathetic to the intended scale and character of surrounding development;

(k) development incorporates a high level of residential amenity, personal health and safety and protection for property;

(l) communities are supported by interconnected open space networks and local centres incorporating attractive, comfortable, safe and convenient public spaces;

(m) development provides for pedestrian and bicycle movement networks that maximise connectivity, permeability and ease of movement within emerging community areas and to existing urban areas;

(n) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(o) development demonstrates an appropriate level of transport infrastructure is available and that development will not unreasonably interfere with the safe and efficient operation of the surrounding road network[12];

(p) development sensitively responds to scenic values and landscape character elements, particularly prominent ridgelines, foreshores, coastal landforms, significant landmarks, prominent stands of vegetation and rural and coastal views and vistas;

[12] Development within the Low density residential zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

(q) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(r) development is provided with the full range of urban services to support the needs of the community, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(s) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(t) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.9 Low impact industry zone code

6.2.9.1 Application

This code applies to assessable development:

(a) within the Low impact industry zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Low impact industry zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.9.2 Purpose and overall outcomes

(1) The purpose of the Low impact industry zone code is to provide for service and low impact industry uses. It may include non-industrial and business uses that support Industrial activities where they do not compromise the long-term use of the land for industrial purposes. Activities considered appropriate in this zone are defined as low impact industry or service industry in the schedule of definitions.

(2) The purpose of the Low impact industry zone code in the local government area is to provide for low intensity Industry activities of a nature and scale that are compatible with intended development in the surrounding area.

(3) The purpose of the Low impact industry zone code will be achieved through the following overall outcomes:

(a) uses in the zone are predominantly for low intensity, low impact Industry activities, including bulk landscape supplies, low impact industry, research and technology industry, service industry and warehouse uses;

(b) development of ancillary Accommodation activities may be established only where directly supporting the ongoing Industry activities of the zone. These uses are limited to caretaker's accommodation;

(c) development of Business, Rural and Other activities, which are not ancillary but are compatible with Industry activities, may be established in the zone. These uses include, but are not limited to, agricultural supplies stores, hardware and trade supplies, offices, outdoor sales, showrooms, rural industries, transport depots and utility installations. Such uses must be appropriately located and designed to ensure that they do not compromise the ongoing operation and viability of Industry activities[13];

(d) development of limited Community and Recreation activities compatible with this zone may also be established. Such uses are limited to community uses, emergency services, funeral parlours and indoor sport and recreation;

(e) existing and planned Industry activities are protected from the intrusion of incompatible uses that may compromise or conflict with the primary use of premises for industry purposes;

(f) development provides for a range of lot sizes to cater for varying industry needs and user requirements;

(g) development has a predominantly low-rise built form that is sympathetic to the intended scale and character of the streetscape and surrounding area, with a maximum building height of 10.0m above ground level;

[13] Development within the Low impact industry zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(h) Industry activities integrate with the locality by providing a high quality of built form and landscaping in keeping with the expectations of a modern, safe and attractive industrial environment;

(i) development ensures that uses and works for industrial purposes are located, designed and managed to maintain public health and safety, avoid significant adverse effects on the natural environment and minimise impacts on non-industrial land and sensitive uses;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use[14];

(l) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(m) development is provided with the full range of urban services to support industry and employment needs, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(n) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(o) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[14] Development within the Low impact industry zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.10 Low-medium density residential zone code

6.2.10.1 Application

This code applies to assessable development:

(a) within the Low-medium density residential zone code as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Low-medium density residential zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.10.2 Purpose and overall outcomes

(1) The purpose of the Low-medium density residential zone code is to provide for a range and mix of dwelling types, including dwelling houses and multiple dwellings supported by community uses and small-scale services and facilities that cater for local residents.

(2) The purpose of the Low-medium density residential zone code in the local government area is to provide for low-medium density Accommodation activities in a low to medium-rise format, comprising of a range of single and multiple residential uses for permanent residents.

(3) The purpose of the Low-medium density residential zone code will be achieved through the following overall outcomes:

(a) development provides for a compatible mix of low and medium density residential dwelling choices and forms, predominantly for permanent living, including dwelling houses, dual occupancies and multiple dwellings (such as townhouses, villas, terraces and row houses);

(b) other low-medium density Accommodation activities, such as community residence, relocatable home parks, residential care facilities, retirement facilities, short-term accommodation and tourist parks, may also be provided. The operation and scale of these uses are compatible with, but do not detract from, the intended residential character and amenity of the zone;

(c) home based businesses that are compatible with local residential amenity may be established in the zone;

(d) development may provide for limited Business, Community and Other activities including sales offices, shops (limited to corner stores), community uses, emergency services and utility installations which:

(i) directly support the day to day needs of the immediate residential community;

(ii) are small-scale and low intensity;

(iii) are compatible with the local residential character and amenity of the area;

(iv) wherever possible, are co-located with similar activities within the zone;

(v) are accessible to the population they serve and are located on the major road network rather than local residential streets; and

(vi) do not have a significant detrimental impact on the amenity of surrounding residents, having regard to hours of operation, generation of odours, noise, waste products, dust, traffic, electrical interference, lighting and visual impacts;

(e) residential development encourages and facilitates urban consolidation;

(f) unless otherwise specified in a local plan code or Table 6.2.10.2.1 (Maximum building heights in Low-medium density residential zone), development has a low to medium rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 12.0m above ground level;

Table 6.2.10.2.1 Maximum building heights in Low-medium density residential zone

Low-medium density residential location	Maximum building height
Airlie Beach Precinct B	14m

(g) the scale, density and layout of development facilitates an efficient land use pattern that:

(i) is well connected to other parts of the urban fabric and planned future development;

(ii) supports walkable neighbourhoods that are well connected to employment nodes, centres, open space and recreation areas, community services and educational opportunities; and

(iii) encourages public transport accessibility and use;

(h) multi-storey development ensures that there is no unreasonable loss of amenity for surrounding development, having regard to:

(i) microclimate impacts, including the extent and duration of any overshadowing;

(ii) privacy and overlooking impacts;

(iii) impacts upon views and vistas; and

(iv) building massing and scale relative to its surroundings;

(i) development is designed and located in a manner which makes a positive contribution to the streetscape and is sympathetic to the intended scale and character of surrounding development;

(j) development incorporates a high level of residential amenity, personal health and safety and protection for property;

(k) communities are supported by interconnected open space networks and local centres incorporating attractive, comfortable, safe and convenient public spaces;

(l) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(m) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(n) development demonstrates an appropriate level of transport infrastructure is available and that development will not unreasonably interfere with the safe and efficient operation of the surrounding road network[15];

(o) development sensitively responds to scenic values and landscape character elements, particularly prominent ridgelines, foreshores, coastal landforms, significant landmarks, prominent stands of vegetation and rural and coastal views and vistas;

(p) development avoids or mitigates adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location design, operation and management;

(q) development is provided with the full range of urban services to support the needs of the community, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(r) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(s) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[15] Development within the Low-medium density zone may be requested to provide a Traffic assessment report in accordance with PSP SC6.7 (Growth management).

6.2.11 Major centre zone code

6.2.11.1 Application

This code applies to assessable development:

(a) within the Major centre zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Major centre zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.11.2 Purpose and overall outcomes

(1) The purpose of the Major centre zone code is to provide for a mix of uses and activities. It includes concentrations of higher order retail, commercial, offices, residential, administrative and health services, community, cultural and entertainment facilities and other uses capable of servicing a sub-region in the Planning Scheme area.

(2) The purpose of the Major centre zone code in the local government area is to accommodate a wide range of Business, Entertainment, Accommodation and Community activities in an active and vibrant mixed use environment. The scale and intensity of such development is consistent with the intended role and function of the Whitsunday hierarchy of centres.

(3) The purpose of the Major centre zone code will be achieved through the following overall outcomes:

(a) development supports the role of the zone as the regional focus and location of the highest order and intensity of Business and Entertainment activities. Such uses include, but are not limited to, food and drink outlets, offices, shops, shopping centres, clubs, function facilities, hotels, theatres and tourist attractions;

(b) development provides the highest order of Community activities to service the regional needs of the centre and to encourage community interaction, health and wellbeing. These Community activities include child care centres, community uses, educational establishments, emergency services, health care services and hospitals and places of worship;

(c) Recreation, Industry and Other activities, such as indoor sport and recreation, service industries and utility installations may be established where they are compatible with the character and amenity of surrounding development;

(d) a mix of low-medium density Accommodation activities, such as dual occupancies, multiple dwellings, rooming accommodation and short-term accommodation uses are provided that are complementary to the predominant business functions of the zone, with residential buildings incorporating non-accommodation activities at street level to activate the public realm;

(e) development of Business activities is of a scale and intensity that is consistent with the intended role and function of the particular activity centre and the Whitsunday hierarchy of centres[16];

[16] Development within the Major centre zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(f) Development has a low to medium-rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 12.0m above ground level;

(g) development provides for an efficient pattern of land use where the greatest mix of uses and highest intensity of development is located in areas with relatively high levels of access to public transport facilities. All development has a clear connection to the pedestrian, bicycle, public transport and road transport networks and infrastructure;

(h) wherever possible, Business and Community activities are co-located and designed to contribute to safety, security and vitality of the centre;

(i) the built form and urban design of development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places, in keeping with the primary role and focus of the zone as a major hub;

(j) development contributes to the creation of an active, safe and legible public realm and, where appropriate, incorporates significant public open spaces including plazas, parks and gardens;

(k) development provides an active and articulated streetscape allowing for casual surveillance and pedestrian access from the street, with connectivity to surrounding land uses;

(l) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding development, having regard to matters such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(m) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(n) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;;

(o) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(p) development demonstrates an appropriate level of transport infrastructure is available and that development will not unreasonably interfere with the safe and efficient operation of the surrounding road network[17];

(q) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(r) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

[17] Development within the Major centre zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

(s) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.12 Medium impact industry zone code

6.2.12.1 Application

This code applies to assessable development:

(a) within the Medium impact industry zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Medium impact industry zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.12.2 Purpose and overall outcomes

(1) The purpose of the Medium impact industry zone code is to provide for medium impact industry uses. It may include non-industrial and business uses that support the Industrial activities where they do not compromise the long-term use of the land for industrial purposes. Activities considered appropriate in this zone are defined as medium impact industry in the schedule of definitions.

(2) The purpose of the Medium impact industry zone code in the local government area is to provide for a wide range of Industry activities at a larger scale and higher intensity relative to the Low impact industry zone.

(3) The purpose of the Medium impact industry zone code will be achieved through the following overall outcomes:

(a) uses in the zone are predominantly for low to medium intensity and low to medium impact Industry activities, including bulk landscape supplies, low impact industry, medium impact industry, research and technology industry, service industry and warehouse uses;

(b) development of ancillary Accommodation may be established only where directly supporting the ongoing Industry activities of the zone. These uses are limited to caretaker's accommodation;

(c) development of Business, Rural and Other activities, which are not ancillary but are compatible with Industry activities, may be established in the zone. These uses include, but are not limited to, agricultural supplies stores, hardware and trade supplies, offices, outdoor sales, showrooms, rural industries, transport depots, transport depots and utility installations. Such uses must be appropriately located and designed to ensure that they do not compromise the ongoing operation and viability of Industry activities[18];

(d) development of limited Community activities, compatible with this zone may also be established. Such uses are limited to crematoriums, emergency services and funeral parlours;

(e) existing and planned Industry activities are protected from the intrusion of incompatible uses that may compromise or conflict with the primary use of premises for industry purposes;

(f) development provides for a range of lot sizes to cater for varying industry needs and user requirements;

[18] Development within the Medium impact industry zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(g) development has a predominantly low-rise built form that is sympathetic to the intended scale and character of the streetscape and surrounding area, with a maximum building height of 15.0m above ground level;

(h) Industry activities integrate with the locality by providing a high quality of built form and landscaping in keeping with the expectations of a modern, safe, and attractive industrial environment;

(i) development ensures that uses and works for industrial purposes are located, designed and managed to maintain public health and safety, avoid significant adverse effects on the natural environment and minimise impacts on non-industrial land and sensitive uses;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) Industry activities provide for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use[19];

(l) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(m) development is provided with the full range of urban services to support industry and employment needs, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(n) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(o) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[19] Development within the Medium impact industry zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.13 Mixed use zone code

6.2.13.1 Application

This code applies to assessable development:

(a) within the Mixed use zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Mixed use zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.13.2 Purpose and overall outcomes

(1) The purpose of the Mixed use zone code is to provide for a mixture of development that may include business, retail, residential, tourist accommodation and associated services, service industry and low impact uses.

(2) The purpose of the Mixed use zone code in the local government area is to provide for an appropriate mix of uses that take advantage of and support the development of key mixed use activity areas.

(3) The purpose of the Mixed use zone code will be achieved through the following overall outcomes:

(a) development provides for a range of activities that are compatible with the intent of the zone;

(b) Community and Other activities established in the zone are appropriately designed and located to assist in maintaining public health, contribute to the comfort and safety of residents and visitors and integrate with the built form and character of the zone. Such uses include community uses, emergency services, health care services and utility installations;

(c) the range, scale and intensity of Business, Recreation and Entertainment activities provided within this zone service the needs of surrounding residents and visitors, not compromising the role and function of existing centres within the region. These activities include but are not limited to food and drink outlets, offices, shops, indoor sport and recreation, bars, clubs, hotels, nightclub entertainment facilities and tourist attractions;

(d) development provides for a range of Accommodation activities consistent with the mixed use environment intended in this zone. Such Accommodation activities include multiple dwellings, resort complexes, rooming accommodation and short-term accommodation;

(e) the scale, character and built form of development contributes to a high standard of amenity in keeping with the intended role and function of the particular precinct[20];

(f) development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places;

(g) development provides an active and articulated streetscape allowing for casual surveillance and pedestrian access from the street, with connectivity to surrounding land uses;

[20] Development within the Mixed use zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(h) unless otherwise specified in a local plan code or Table 6.2.13.2.1 (Maximum building heights in Mixed use zone), development has a low to medium rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 12.0m above ground level;

Table 6.2.13.2.1 Maximum building heights in Mixed use zone

Mixed use location	Maximum building height
Airlie Beach Precinct A	14m
Airlie Beach Precinct C	21m
Airlie Beach Precinct F	18m
Airlie Beach Precinct G	14m

(i) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding development, having regard to matters such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) development demonstrates an appropriate level of transport infrastructure is available and that development will not unreasonably interfere with the safe and efficient operation of the surrounding road network[21];

(l) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(m) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(n) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(o) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected, and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[21] Development within the Mixed use zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.14 Neighbourhood centre zone code

6.2.14.1 Application

This code applies to assessable development:

(a) within the Neighbourhood centre zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Neighbourhood centre zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.14.2 Purpose and overall outcomes

(1) The purpose of the Neighbourhood centre zone code is to provide for a small mix of land uses to service residential neighbourhoods. It includes small-scale convenience shopping, professional offices, community services and other uses that directly support the immediate community.

(2) The purpose of the Neighbourhood centre zone code in the local government area is to provide for a limited range of small-scale Business and Community activities that support the basic convenience needs of local neighbourhoods.

(3) The purpose of the Neighbourhood centre zone code will be achieved through the following overall outcomes:

(a) development provides for the convenience and day to day Business needs of localised residential catchments, with uses including small-scale food and drink outlets, offices and shops;

(b) Community, Industry and Other activities, such as child care centres, community uses, emergency services, service industries and utility installations, may be established in the zone where they are compatible with the amenity of surrounding residential development;

(c) development provides for a limited range of Accommodation activities, including caretaker's accommodation, dual occupancies and multiple dwellings where such uses are ancillary to and support the predominant business functions of the zone;

(d) Business and Community activities are of a small-scale and limited intensity to maintain and reinforce the role and function of higher order activity centres as the preferred location for Business activities in the region, as demonstrated in the Whitsunday hierarchy of centres;

(e) development of Business activities in the Neighbourhood centre zone includes consideration of the following:

(i) the function and role of existing Business activities in the zone is maintained[22];

(ii) any commercial or retail component of development does not exceed 150m^2 GLA; and

(iii) site cover of the entire development does not exceed 50%;

[22] Development within the Neighbourhood centre zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

(f) development has a low-rise built form that is compatible with the intended scale and character of the streetscape and surrounding area, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(g) development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places;

(h) development provides an active and articulated streetscape allowing for casual surveillance and pedestrian access from the street, with connectivity to surrounding land uses;

(i) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding development, having regard to matters such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(j) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(k) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(l) development demonstrates an appropriate level of transport infrastructure is available and that development will not unreasonably interfere with the safe and efficient operation of the surrounding road network[23];

(m) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(n) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(o) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(p) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[23] Development within the Neighbourhood centre zone may be requested to provide a Traffic assessment report in accordance with PSP SC6.7 (Growth management).

6.2.15 Recreation and open space zone code

6.2.15.1 Application

This code applies to assessable development:

(a) within the Recreation and open space zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Recreation and open space zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.15.2 Purpose and overall outcomes

(1) The purpose of the recreation and open space zone code is to provide for a range of sporting, recreation, leisure, cultural and educational activities. It may provide for local, district and regional scale parks that serve the recreation needs of residents and visitors and may include areas for conservation. Areas, such as parks, playing fields and playgrounds, are generally accessible to the public, however, access may be limited in certain areas at certain times. When required to meet community needs, development may include built structures, such as shelters, amenity facilities, picnic tables, clubhouses, gymnasiums, public swimming pools and tennis courts and other infrastructure to support the activities, provide safe access and support the management of these essential built structures.

(2) The purpose of the Recreation and open space zone code in the local government area is to provide for Recreation activities, open space and park functions and ancillary uses and infrastructure which are associated with the public use of those areas.

(3) The purpose of the Recreation and open space zone code will be achieved through the following overall outcomes:

(a) development provides for a range of passive and active Recreation activities that provide for the recreational needs of residents and visitors, including indoor/outdoor sport and recreation and park uses. The zone accommodates both formal and informal Recreation activities, including playing fields, equestrian facilities, outdoor cultural activities, educational activities, public swimming pools and outdoor courts;

(b) development may provide for limited other Community and Entertainment activities where they provide support for the predominant Recreation activity. Such uses include community uses, emergency services, clubs and function facilities as well as further supporting infrastructure, such as amenities blocks, shelters, spectator stands and picnic tables. Lighting infrastructure may be established in the zone where it supports the ongoing safe, comfortable and efficient operation of Recreation activities;

(c) recreation and open space areas may be used for temporary or periodical Business activities, such as markets or outdoor entertainment events, where these uses are of a scale that can be reasonably accommodated by the existing recreation and open space facilities and do not unduly impact on the amenity and character of the surrounding area;

(d) to maintain the intended character and amenity of the zone, development integrates with and compliments the streetscape and has a low-rise built form, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(e) development in the zone encourages personal safety and property security through the design of buildings and spaces, allowing for casual surveillance and the clear definition of public and private spaces;

(f) the co-location and multiple use of sport and recreation fields and facilities by complementary Recreation activities is encouraged;

(g) areas used for Recreation activities and open space complement and, where possible, are connected to other parts of the broader regional open space network, including land in the Environmental management and conservation zone;

(h) development in the zone provides a high level of amenity and mitigates the potential for land use conflicts with existing and planned development in the locality;

(i) existing and planned Recreation activities and open space areas are protected from the intrusion of incompatible land uses that may compromise or conflict with the primary use of the land for recreation and open space purposes;

(j) foreshores provide high quality recreation areas and are protected from further encroachment by incompatible development;

(k) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through location, design, operation and management;

(l) development provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(m) development is provided with an appropriate level of services and infrastructure that maintains public health, avoids negative impacts on the natural environment and ensures the safety of buildings and works;

(n) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(o) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.16 Rural zone code

6.2.16.1 Application

This code applies to assessable development:

(a) within the Rural zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Rural zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.16.2 Purpose and overall outcomes

(1) The purpose of the Rural zone code is to:

(a) provide for a wide range of rural uses, including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities;

(b) provide opportunities for non-rural uses that are compatible with agriculture, the environment and the landscape character of the rural area, where they do not compromise the long-term use of the land for rural purposes; and

(c) protect and manage significant natural features, resources, and processes, including the capacity for primary production.

(2) The purpose of the Rural zone code in the local government area is to provide for a wide range of Rural activities and a limited range of non-rural activities, which complement or provide a service to rural areas. Activities in rural areas are sustainably managed to protect, maintain and enhance the productivity, character, visual amenity and ecological sustainability of the area.

(3) The purpose of the Rural zone code will be achieved through the following overall outcomes:

(a) development provides for a broad range of Rural activities, including animal husbandry, cropping, roadside stalls and wholesale nurseries, animal keeping, aquaculture, intensive animal industry, intensive horticulture and rural industry, provided that adverse environmental and amenity impacts are avoided or appropriately managed;

(b) permanent Accommodation activities are limited to dwelling houses and caretaker's accommodation on existing lots. Home based businesses, nature-based tourism, rural workers accommodation and tourist parks may also be established where the scale, intensity and nature of the use complements Rural activities and promotes the sustainable use of rural land;

(c) Business, Industry and Community activities that are compatible with a rural setting and support rural enterprise and community wellbeing are facilitated where they do not compromise the use of the land for Rural activities. Such uses include agricultural supply stores, veterinary services, bulk landscaping supplies, community uses and emergency services;

(d) non-rural activities are located, designed and operated to minimise conflicts with existing and future Rural activities on the surrounding rural lands;

(e) intensive Rural activities are not located adjacent to sensitive uses and are designed and operated to maintain the rural character and amenity of the zone;

(f) development encourages the continued operation of existing agri-business and continued development of new agri-business opportunities;

(g) development for extractive industry is appropriately designed, operated and managed to minimise significant nuisance and environmental impacts on surrounding premises;

(h) development does not alienate or fragment agricultural land unless:

  (i) there is an overriding need for the development in terms of public benefit; and

  (ii) no other site is suitable for the particular purpose;

(i) the built form of development in the zone integrates with and complements the predominant rural character and scale of the zone and sensitively responds to the environmental and topographical features of the landscape;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) development is provided with an appropriate level of services and infrastructure that maintains public health, avoids negative impacts on the natural environment and ensures the safety of buildings and works;

(l) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(m) the safety and efficiency of existing and future infrastructure (including road, rail, telecommunications and electrical infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.17 Rural residential zone code

6.2.17.1 Application

This code applies to assessable development:

(a) within the Rural residential zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Rural residential zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.17.2 Purpose and overall outcomes

(1) The purpose of the Rural residential zone code is to provide for residential development on large lots where local government infrastructure and services may not be provided and where the intensity of residential development is generally dispersed.

(2) The purpose of the Rural residential zone code in the local government area is to ensure that development is low density and semi-rural in nature, developed as a logical extension, infill or consolidation of existing rural residential zoned land. These areas occur on land considered unsuitable for agricultural production with Rural activities limited to small-scale activities that do not impact on the rural residential amenity of the zone.

(3) The purpose of the Rural residential zone code will be achieved through the following overall outcomes:

(a) development provides for low density Accommodation activities, in the form of dwelling houses on a range of relatively large lots within a semi-rural setting. Home based businesses may be established in the zone, where the scale, intensity and nature of the activity does not disturb the rural residential character and amenity of the surrounding locality;

(b) Rural, Business and Community activities are limited to small-scale and low intensity uses that are compatible with the prevailing rural residential character and amenity of the zone. Such uses are limited to animal husbandry, cropping, roadside stalls, sales offices, community uses and emergency services;

(c) to maintain the low density character and rural residential amenity of the zone, development has a low-rise built form with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(d) the built form of development integrates with and complements the predominant rural residential character and scale of the zone and is sympathetic to the environmental and topographical features of the landscape;

(e) development for Accommodation activities adjacent to rural land does not interfere with the existing or ongoing use of the rural land for productive agricultural purposes;

(f) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(n) development is provided with an appropriate level of services and infrastructure that maintains public health, avoids negative impacts on the natural environment and ensures the safety of buildings and works; and

(g) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.18 Special industry zone code

6.2.18.1 Application

This code applies to assessable development:

(a) within the Special industry zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Special industry zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.18.2 Purpose and overall outcomes

(1) The purpose of the Special industry zone code is to provide for specialised industry uses, including those that are noxious and hazardous. It may include non-industrial and business uses that support the Industrial activities where they do not compromise the long-term use of the land for industrial purposes. Activities considered appropriate in this zone are defined as special industry in the schedule of definitions;

(2) The purpose of the Special industry zone in the local government area is to provide for existing and future large scale, high intensity industry, which has the potential to significantly impact sensitive uses;

(3) The purpose of the Special industry zone code will be achieved through the following overall outcomes:

(a) uses in the zone are predominantly for higher intensity, higher impact Industry activities that have the potential to generate significant off-site impacts, including high impact industry and special industry uses;

(b) development of limited Accommodation, Community and Other activities compatible with this zone may also be established. These uses are limited to caretaker's accommodation, emergency services, substations, telecommunications facilities and utility installations. Such uses must be appropriately located and designed to ensure that they do not compromise the ongoing operation and viability of Industry activities[24];

(c) development provides for a range of lot sizes, including an appropriate proportion of larger lots to cater for larger format and land consumptive Industry activities;

(d) development has a built form that is compatible with the intended scale and character of the streetscape and surrounding area whilst accommodating industry operating requirements, with a maximum building height of 20.0m above ground level;

(e) Industry activities integrate with the locality by providing a high quality of built form and landscaping in keeping with the expectations of a modern, safe, and attractive industrial environment;

(f) the viability of both existing and future noxious and hazardous Industry activities are protected from the intrusion of incompatible uses;

(g) uses and works for noxious and hazardous industrial purposes are located, designed and managed to maintain safety to people, avoid significant adverse effects on the natural environment and minimise impacts on adjacent

[24] Development within the Special impact industry zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

non-industrial land, having regard to the inherent risks associated with these types of industries;

(h) Accommodation activities are not located within close proximity to the Industry activities in the zone;

(i) any sensitive uses located in the Special industry zone do not compromise the viability of both existing and future Industry activities;

(j) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(k) Industry activities provide for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use[25];

(l) development is provided with the full range of urban services to support industry and employment needs including reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

(m) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(n) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

[25] Development within the Special industry zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

6.2.19 Tourist accommodation zone code

6.2.19.1 Application

This code applies to assessable development:

(a) within the Tourist accommodation zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Tourist accommodation zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.19.2 Purpose and overall outcomes

(1) The purpose of the Tourist accommodation zone code is to provide for short-term accommodation in locations where there is a strong focus on tourist attractions supported by community uses and small-scale services and facilities.

(2) The purpose of the Tourist accommodation zone code in the local government area is to provide development that meets the needs and expectations of visitors to the Region through the co-location of a range of Accommodation and Business activities.

(3) The purpose of the Tourist accommodation zone code will be achieved through the following overall outcomes:

(a) development provides for Accommodation activities, primarily in the form of relocatable home parks, resort complexes, rooming accommodation, short-term accommodation and tourist parks, that promote variety in visitor accommodation;

(b) development facilitates opportunities for establishing tourist facilities and services in urban, rural, environmental or coastal areas to complement tourist accommodation and enhance the attractiveness of tourist areas;

(c) development may provide for limited Business, Community and Other activities, including food and drink outlets, shops, community uses, emergency services and utility installations, which:

(i) directly support the day to day needs of the immediate visitors and residential community;

(ii) are small-scale and low intensity;

(iii) are compatible with the local residential character and amenity of the area;

(iv) wherever possible, are co-located with similar activities within the zone;

(v) are accessible to the population they serve and are located on the major road network, rather than local residential streets;

(vi) do not undermine the viability of nearby centres[26];

(vii) do not have a significant detrimental impact on the amenity of surrounding residents, having regard to hours of operation,

[26] Development within the Tourist accommodation zone may be requested to provide an Economic impact assessment report in accordance with PSP SC6.7 (Growth management).

generation of odours, noise, waste products, dust, traffic, electrical interference, lighting and visual impacts;

(d) to maintain the low intensity character and residential amenity of the zone, development has a low-rise built form, with a maximum building height of 8.5m above ground level, or 10.0m above ground level where located on slopes exceeding 15%;

(e) development enhances and protects the unique local, scenic, environmental, cultural or historic character of the locality;

(f) development is facilitated where it has a direct relationship with local scenic, environmental, recreational, cultural or historic character;

(g) development is designed and located in a manner which makes a positive contribution to the streetscape and is sympathetic to the intended scale and character of surrounding development;

(h) development incorporates a high level of residential amenity, personal health and safety and protection for property;

(i) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding premises, having regard to matters such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(j) development located close to centres, community facilities and open space provides for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use;

(k) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(l) development demonstrates an appropriate level of transport infrastructure is available and will not unreasonably interfere with the safe and efficient operation of the surrounding road network[27];

(m) development is reflective of, and responsive to, the environmental constraints of the land;

(n) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) that form the basis of the tourist attraction. Any unavoidable impacts are minimised through sensitive location, design, operation and management;

(o) development is provided with an appropriate level of services and infrastructure that maintains public health, avoids negative impacts on the natural environment and ensures the safety of buildings and works;

(o) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(p) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is

[27] Development within the Tourist accommodation zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

6.2.20 Waterfront and marine industry zone code

6.2.20.1 Application

This code applies to assessable development:

(a) within the Waterfront and marine industry zone as identified on the zoning maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Waterfront and marine industry zone code by the tables of assessment in Part 5 (Tables of assessment).

6.2.20.2 Purpose and overall outcomes

(1) The purpose of the Waterfront and marine industry zone code is to provide for waterfront, marine and business industry uses that require land near, or adjoining the waterfront. It may include non-industrial and business uses that support the Industrial activities, where they do not compromise the long-term use of the land for industrial purposes.

(2) The purpose of the Waterfront and marine industry zone code in the local government area is to provide a dedicated area for the establishment of waterfront and marine Industry activities as well as a limited range of non-industry activities that are compatible.

(3) The purpose of the Waterfront and marine industry zone code will be achieved through the following overall outcomes:

(a) the Waterfront and marine industry zone is predominantly used for marine industry uses, including ship and boat building, marine equipment manufacturing, marine and maritime service providers, storage, marine vessel refitting and marine vessel maintenance operations;

(b) other Industry activities may be established in the zone where they require access to a navigable waterway or provide support or complementary services to marine industry uses;

(c) development of ancillary Accommodation and Business activities may be established only where directly supporting the ongoing Industry activities of the zone. These uses are limited to caretaker's accommodation, food and drink outlets, outdoor sales and service station;

(d) Rural and Other activities may also be established in the zone where they are ancillary to and directly support the ongoing viability and operation of marine industry uses. These uses include rural industries (including wholesale and distribution of seafood products), aquaculture, landings and port services;

(e) compatible non-maritime uses should be co-located within the site allowing for good pedestrian access and permeability;

(f) the zone is protected from the intrusion of incompatible land uses that may compromise or conflict with the primary use of premises for Industry activities;

(g) the first stage of development incorporates a single integrated area for marine services and repair infrastructure for use by all existing and future operators located in the zone, comprising of:

(i) a canal basin;

(ii) a boat ramp into the canal basin;

(iii) a straddle lift for vessels up to 30m in length;

(iv) hardstand area (with a minimum area of approximately 2 hectares);

(v) equipment for the removal, treatment and disposal of sewage and other solid and liquid waste from vessels, including bilge water;

(vi) equipment for the removal and storage of fuel from vessels;

(vii) a vessel wash down facility designed and constructed to industry best practice standards;

(viii) a location for an enclosed pressure sand blasting and painting facility; and

(ix) a waste treatment system for the containment, treatment and removal of waste materials from blasting, painting and surface coating activities. The waste treatment system must be located so that influx of tidal waters is prevented;

(h) development has a built form that meets the functional needs of marine industry uses and is also sympathetic to the non-urban character and amenity of the surrounding area, with a maximum building height above ground level of:

(i) 20.0m for buildings and structures used for the manufacturing, servicing or repair of vessels; and

(ii) 12.5m for all other buildings and structures;

(i) development incorporates high quality urban design and landscaping to create an attractive, functional and legible waterfront industry precinct;

(j) development ensures that uses and works for industrial purposes are located, designed and managed to maintain public health and safety, avoid significant adverse effects on the natural environment and minimise impacts on non-industrial land and sensitive uses;

(k) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance (including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation) through sensitive location, design, operation and management;

(l) Industry activities provide for pedestrian, bicycle and vehicular movement networks that maximise connectivity, safety, permeability and ease of movement in a manner that encourages public transport accessibility and use[28];

(m) vehicle movement networks are provided that facilitate convenient connections to centres and Community activities, in a manner that relieves traffic pressure on the Bruce Highway and Shute Harbour Road through the use of alternative routes;

(n) development is provided with the full range of urban services to support industry and employment needs, including parks, reticulated water, sewerage, stormwater drainage, sealed roads, pathways, electricity and telecommunications infrastructure;

[28] Development within the Waterfront and marine industry zone may be requested to provide a Traffic impact assessment report in accordance with PSP SC6.7 (Growth management).

(o) development is located and designed to maximise the efficient extension and safe operation of infrastructure; and

(p) the safety and efficiency of existing and future infrastructure (including road, rail, pipelines, telecommunications and transmission infrastructure) is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure.

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Part 7 Local Plans

7.1 Preliminary

(1) Local plans address matters at the local or district level and may provide more detailed planning for the zones.

(2) Local plans are mapped and included in Schedule 2 (Mapping).

(3) A precinct may be identified for part of a local plan.

(4) The categories of development and assessment for development in a local plan are in Part 5 (Tables of assessment).

(5) Assessment benchmarks for local plans are contained in a local plan code.

(6) Each local plan code identifies the following:

(a) the application of the local plan code;

(b) the purpose of the local plan code;

(c) the overall outcomes that achieve the purpose of the local plan code;

(d) the purpose and overall outcomes for each precinct;

(e) the performance outcomes that achieve the overall outcomes of the local plan code;

(f) the acceptable outcomes that achieve the performance outcomes of the local plan code; and

(g) the performance and acceptable outcomes of a precinct that achieve the overall outcomes of the precinct.

(7) The following are the local plan codes for the Planning Scheme:

(a) Hamilton Island local plan.

7.2 Local plan codes

7.2.1 Hamilton Island local plan code

7.2.1.1 Application

This code applies to acceptable and assessable development within the Hamilton Island local plan as identified on the zoning maps contained within Schedule 2 (Mapping).

Note – Applicants should seek guidance from Hamilton Island Enterprises prior to lodging a development application.

Editor's note – To the extent of any inconsistency between the Hamilton Island local plan code and any other part of the Planning Scheme, the Hamilton Island local plan code prevails.

7.2.1.2 Purpose and overall outcomes

(1) The purpose of the Hamilton Island local plan code is to provide a development framework that facilitates growth to sustain and strengthen the tourist centre of Hamilton Island, while retaining its valuable natural assets.

(2) The purpose of the Hamilton Island local plan code will be achieved through the following overall outcomes:

(a) Hamilton Island provides for an integrated tourist resort community, comprising Hamilton and Dent Islands;

(b) Dent Island functions as an integrated part of Hamilton Island;

(c) Dent Island provides low impact, small scale resort Accommodation and Recreational activities, which is less intensively developed then Hamilton Island;

(d) Hamilton Island's role and use as an offshore gateway to the Whitsunday Islands is maintained and enhanced;

(e) development does not compromise the ongoing operation of existing tourist facilities and attractions with uses contributing to the vitality and experience of Hamilton Island as a tourist destination, residential community and a cultural focal point;

(f) development provides for a cluster of appropriately located low and low-medium density Accommodation activities in both traditional neighbourhood and mixed use formats, providing for and supporting the residential and tourist function of the Island, optimising premium hillside views to the ocean and maintaining the privacy of existing residential sites;

(g) development is located on ridgelines and vegetated gullies to remain generally recessive through existing vegetation and foreshore features as viewed from surrounding marine waters by way of suitable aesthetic building design, treatments and colours;

(h) development for Business, Entertainment, Recreation activities provide for both resident and visitor needs to support day and night time economies. Activities are established where they are compatible with the character and amenity of surrounding development, optimise public accessibility to, and visibility of, waterfront areas and natural features or support marina functions and provide services to boats and boat users;

(i) development of Community, Industry and Other activities may be established where they support tourist, marina or aviation functions and services and are compatible with the scale, nature, character and amenity of surrounding development;

(j) the character and individual identity of each development, evident in the style of buildings, landscaping and views to, and from, the surrounding waterbodies and natural features/landscapes is maintained;

(k) development incorporates a high standard of architecture, urban design and landscaping that creates attractive and functional buildings, streets and places;

(l) development provides for a built form that is predominately low-rise and compatible in theme, scale and character with the existing or desired form of development within the Island;

(m) development provides for an architectural character, which reflects an open and relaxed lifestyle centred on the outdoors that is designed to be responsive to the tropical maritime climate and environment;

(n) development provides and maintains a high level of residential and visitor amenity;

(o) development is linked by a series of circulation and open space networks that are designed to provide pedestrian, cyclists and other resort transport modes with direct, integrated, safe and pleasant access to centres, waterfront, marina and recreation activities;

(p) development is located, designed and operated in a manner that does not unreasonably impact on the amenity of surrounding premises, having regard to matters, such as traffic, noise, lighting, waste, fumes, odours, hours of operation, privacy, overlooking and public health and safety;

(q) the tourism and recreation significance and the environmental and landscape values of Hamilton Island are recognised and protected with the accessibility of the surrounding marine and national parks (or other areas of conservation or scenic value) maintained for visitors and residents;

(r) development avoids or mitigates any adverse impacts on areas of cultural heritage significance or environmental significance, including creeks, gullies, waterways, wetlands, coastal areas, habitats and vegetation, through sensitive location, design, operation and management;

(s) development is provided with the full range of urban services, including reticulated water, sewerage, stormwater drainage, sealed roads, electricity and telecommunications infrastructure;

(t) development is located and designed to maximise the efficient extension and safe operation of infrastructure;

(u) the safety and efficiency of existing and future infrastructure is protected and the amenity and safety of development is not adversely affected by proximity to such infrastructure; and

(v) risks to people and property as a result of bushfire, coastal and landslide hazards are considered. Development should only be carried out in hazard areas where it is demonstrated that impacts are suitably avoided and managed.

7.2.1.3 Assessment benchmarks

Table 7.2.1.3.1 Benchmarks for acceptable and assessable development

Performance Outcomes		Acceptable Outcomes	
All zones			
Minimum lot size			
PO1	Reconfiguring a lot provides for the size, dimensions and orientation of lots to: (a) be appropriate for their intended use; (b) be compatible with the existing or preferred character and identity of the zone and local area; (c) provide for appropriate landscaping, convenient vehicle access, manoeuvrability and on-site parking; (d) provide for the efficient use of land, whilst including sufficient area for suitable and useable private open space; and (e) take account of, and respond sensitively to, site constraints.	**AO1.1**	Land is retained in lots with a minimum lot size of: (a) 500m^2 within the Mixed use zone; (b) 1,000m^2 within the Low density residential zone; (c) 500m^2 within the Low-medium density residential zone; and (d) 1,000m^2 within the Low impact industry zone.
Built form			
PO2	The height of a building does not unduly: (a) overshadow adjoining dwellings; or (b) obstruct the outlook from adjoining lots; or (c) dominate the intended streetscape character.	**AO2.1**	Development has a maximum building height: (a) consistent with that provided in Local plan - HILP - 01 (Hamilton Island local plan: Heights plan); or (b) where not specified in the Local plan - HILP - 01 (Hamilton Island local plan: Heights plan): (i) 8.5m above ground level; or (ii) 10.0m above ground level where located on slopes exceeding 15%.
		AO2.2	The maximum building height of a garage, carport or shed is: (a) 4.5m above ground level to the highest point; and (b) 3.6m to the eaves.
PO3	Development is sited and designed to: (a) provide amenity for users of the premises, whilst preserving the privacy and amenity of nearby properties; (b) preserve any existing vegetation that will buffer the proposed building;	**AO3.1**	For dwelling houses and dual occupancy buildings the: (a) front boundary is setback a minimum of 3m; and (b) rear boundary is setback a minimum of: (i) 6m; or (ii) 3m where the lot backs onto Recreation and

Performance Outcomes		Acceptable Outcomes	
	(c) allow for landscaping to be provided between buildings, street frontages and between neighbouring buildings; and (d) maintain the visual continuity, pattern of buildings and landscape elements within the street.		open space or non-residential areas; (c) side boundaries are setback: (i) a minimum of 3m for lots 550m² or less; or (ii) a minimum of 4m for lots greater than 550m².
		AO3.2	For all other Accommodation activities the front boundary is setback a minimum of: (a) 6m from the primary road frontage; or (b) 3m where fronting an internal private road; and (c) side and rear boundaries are setback a minimum of 4m.
		AO3.3	For Accommodation activities fronting a waterbody (including ocean), buildings are setback a minimum of 20m from the waterbody.
		AO3.4	The integrity of natural vegetation and ground is retained and left predominantly undisturbed within boundary setback areas.
PO4	Buildings are sited and designed to: (a) provide adequate building separation distance from adjoining uses; and (b) optimise visual permeability of the built form.	**AO4.1**	New buildings or any new building levels are separated from any existing building in the following manner: (a) habitable rooms in any new building are separated from any existing building in accordance with the table below: Building height 7m 12 (b) non-habitable rooms in an existing building are separated from the existing building in accordance with the table below: Building height 7m 9m
PO5	The building is sited and designed to: (a) provide a visibly clear pedestrian entrance to and from the building; and (b) minimise the potential for pedestrian and vehicular conflict.	**AO5.1**	The building is sited and designed, such that: (a) the main pedestrian entrance to the building, or group of buildings, is located on the primary street frontage; and (b) pedestrian access to the entrance of the building(s) or individual dwellings is easily discerned.

Performance Outcomes		Acceptable Outcomes	
PO6	Buildings are sited and designed in a manner which: (a) minimises visual bulk and scale of the building mass; (b) provides visual interest through building articulation and architectural design features; and (c) allows sufficient area at ground level for communal open space, site facilities, resident and visitor parking, landscaping and maintenance of a residential streetscape where required.	**AO6.1**	The building incorporates most or all of the following design features: (a) vertical and horizontal articulation, such that no unbroken elevation is longer than 15m; or (b) variations in plan shape, such as curves, steps, recesses, projections or splays; or (c) variations in the treatment and patterning of windows, sun protection and shading devices or other elements of façade treatmentt at a finer scale than the overall building structure; or (d) balconies, verandahs or terraces; or (e) planting, particularly on podiums, terraces and low-level roof decks.
		AO6.2	Any projection above the podium level outside the boundaries of the building envelope is limited to balconies that do not project more than 1.5m into the setback.
		AO6.3	Roof forms include pitches or skillions with a substantial portion of the roof plane parallel to the ground slope.
Privacy and amenity			
PO7	Development does not unreasonably impact upon the amenity or environmental quality of its environs, especially any nearby sensitive uses.	**AO7.1**	Undesirable visual, noise and odour impacts on public spaces and sensitive uses, are avoided or reduced by: (a) providing vehicle loading/unloading and refuse storage/collection facilities within enclosed service yards or courtyards; and (b) providing an enclosed, roofed, vermin and fauna proof refuse area, incorporating cross ventilation and enclosing doors located at driveway entries.
PO8	Fencing ensures the protection of new landscaping and existing vegetation from fauna and is designed having regard to: (a) privacy and overlooking; (b) views and vistas; (c) building character and appearance; (d) safety and surveillance of street and entry areas; and	**AO8.1**	Street front fencing: (a) does not exceed 1.5 metres in height and: (i) is screened by landscaping for the entire length; or (ii) where street front fencing is not screened with landscaping, the length of the fence does

Performance Outcomes		Acceptable Outcomes	
	(e) the natural landscape.		not exceed 75% of the frontage or 15 metres.
		AO8.2	Side and rear boundary fencing: (a) does not exceed 1.8 metres in height; (b) is constructed of masonry, timber or chain wire coated in black or grey PVC; and (c) is screened by extensive landscaping.
PO9	Buildings and structures maintain the visual prominence of any significant landmarks and conserve important views and vistas.	**AO9.1**	Development ensures: (a) views from the mainland to Dent Island are of the natural landscape; (b) views from the surrounding waters and Islands of the Whitsundays to both Hamilton and Dent Islands are primarily of the natural landscape; (c) views of development on Hamilton Island are available from Dent Island; and (d) views of development on Dent Island from Hamilton Island are minimised.
PO10	Building and structures do not dominate the natural landscape.	**AO10.1**	Buildings on sloping lots are: (a) orientated so that the longer axis is parallel to the contours; or (b) have a stepped profile following the slope of the site.
		AO10.2	Buildings and structures consist of lightweight and framed construction, including the use of functional elements, such as: (a) shaded verandahs; or (b) balconies; or (c) pergolas.
		AO10.3	Where the underfloor surface, services and foundation structures are visible, these are screened with physical, such as timber battens or landscape elements.
		AO10.4	The design of garages, covered parking areas and storage areas are integrated with the building's architecture, including materials and landscaping.
PO11	The design, size, frequency and location of wayfinding signage does not detract from the character and amenity of the area.	**AO11.1**	Building names and other property identification are prominently displayed and illuminated at night.
		AO11.2	Signage complements the architecture of the development and streetscape.

Performance Outcomes		Acceptable Outcomes	
Open space and landscaping			
PO12	The development provides communal open space, private open space and landscaping, such that residents have sufficient area to engage in communal activities, enjoy private and semi-private spaces and accommodate visitors.	**AO12.1**	Multiple dwellings ensure that: (a) at least 30% of the site area at ground level is provided as communal open space for clothes drying and communal recreation facilities; and (b) at least 50% of this communal open space area is landscaped to achieve total ground cover at maturity.
		AO12.2	Each ground floor dwelling or rooming unit has a courtyard or similar private open space area with: (a) a minimum of 25m^2; (b) a minimum dimension of 4m; and (c) direct access from a main living area.
		AO12.3	Each dwelling or rooming unit above ground floor level has a balcony or similar private open space area with: (a) a minimum area of 10m^2; (b) a minimum dimension of 2m; and (c) direct access from a main living area.
PO13	Landscaping complements the existing or desired character of the Island, contributing to the amenity, accessibility and safety of public areas and is well integrated with the natural landscape.	**AO13.1**	A minimum of 30% of the site is to be landscaped with soft landscaping, exclusive of service areas, pools, paving, retaining structures and driveways.
		AO13.2	Accommodation activities provide for a landscaped area with a minimum width of 3m along all boundaries, exclusive of service areas, pools, paving, retaining structures and driveways.
		AO13.3	Where buildings with elevated or pole construction are proposed, the open ground beneath and immediately surrounding the building is extensively revegetated where light penetrates.
		AO13.4	Landscaped areas are designed to integrate open space networks and the built form through the use of the following: (a) provision of landscaped physical and visual connections through the site; and

Performance Outcomes		Acceptable Outcomes	
			(b) use of a variety of plants and planting structure to provide comfortable use of public and semi-public spaces.
		AO13.5	Existing trees are retained where removal is not required to site new buildings.
		AO13.6	Where significant vegetation is removed, replacement vegetation is advanced in size and maturity to contribute to the character of the surrounding area.
Access and parking			
PO14	Roads, driveways and pathways within residential areas are finished to a high visual standard with sufficient parking facilities provided.	**AO14.1**	Driveways are sealed and constructed of concrete, clay pavers, coloured or exposed aggregate finished concrete.
		AO14.2	On-site parking spaces are provided for a maximum of 2 buggy carts per dwelling unit.

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Part 8 Overlays

8.1 Preliminary

(1) Overlays identify areas in the Planning Scheme that reflect state 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; or

(b) there is a constraint on land use or development outcomes; or

(c) there is the presence of valuable resources; or

(d) there are particular opportunities for development.

(2) Overlays are mapped and included in Schedule 2 (Mapping).

(3) The changed category of development or assessment, if applicable, for development affected by an overlay are in Part 5 (Tables of assessment).

(4) Some overlays may be included for information purposes only. This should 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; or

(b) a code for an overlay; or

(c) a zone code; or

(d) a local plan code; or

(e) a development code.

(6) Where development is proposed on premises partly affected by an overlay, the assessment benchmarks for the overlay only relates to the part of the premises affected by the overlay.

(7) The overlays for the Planning Scheme are:

(a) Acid sulfate soils;

(b) Agricultural land;

(c) Airport environs;

(d) Bushfire hazard;

(e) Coastal environment;

(f) Environmental significance;

(g) Extractive resources;

(h) Flood hazard;

(i) Heritage;

(j) Infrastructure;

(k) Landslide hazard; and

(l) Waterways and wetlands.

8.2 Overlay codes

8.2.1 Acid sulfate soils overlay code

8.2.1.1 Application

This code applies to accepted and assessable development:

(a) subject to the Acid sulfate soils overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Acid sulfate soils overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.1.2 Purpose and overall outcomes

(1) The purpose of the Acid sulfate soils overlay code is to ensure that the generation, or release, of acid and associated metal contaminants from acid sulfate soils does not have significant adverse effects on the natural environment, built environment, infrastructure or human health.

(2) The purpose of the Acid sulfate soils overlay code will be achieved through the following overall outcomes:

(a) development ensures that the release of acid and associated metal contaminants into the environment is avoided by either:

(i) not disturbing acid sulfate soils when excavating or otherwise removing soil or sediment, extracting groundwater or filling land; or

(ii) treating and, if required, undertaking ongoing management of any disturbed acid sulfate soils and drainage waters.

8.2.1.3 Assessment benchmarks

Table 8.2.1.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Avoidance or mitigation of acid sulfate soils			
PO1	Where acid sulfate soils are identified, development: (a) does not disturb acid sulfate soils; or (b) is managed to avoid or minimise the release of acid and metal contaminants, where disturbance of acid sulfate soils is unavoidable.	**AO1.1**	Acid sulfate soils are: (a) not identified on site; or (b) avoided or managed in accordance with the Queensland Acid Sulfate Soils Technical manual (Queensland Government, 2014). Note – This may be demonstrated by undertaking an Acid sulfate soils assessment report in accordance with PSP SC6.2 (Environmental features).

8.2.2 Agricultural land overlay code

8.2.2.1 Application

This code applies to accepted and assessable development:

(a) subject to the Agricultural land overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Agricultural land overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.2.2 Purpose and overall outcomes

(1) The purpose of the Agricultural land overlay code is to ensure that agricultural land is protected from development that may lead to its alienation, fragmentation or diminished productivity.

(2) The purpose of the Agricultural land overlay code will be achieved through the following overall outcomes:

(a) agricultural land is used for Rural activities;

(b) conflict between Rural activities and sensitive uses is avoided;

(c) development avoids adverse impacts on agricultural land from land degradation and stormwater runoff; and

(d) the stock route network is protected.

8.2.2.3 Assessment benchmarks

Table 8.2.2.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Conservation of agricultural land			
PO1	Development ensures that agricultural land is conserved to ensure its long-term availability and productive use for agriculture.	**AO1.1**	Development: (a) is for Rural activities; or (b) will not permanently alienate the ability for land to be used for Rural activities.
		AO1.2	Development that will result in the permanent alienation of land for future Rural activities is not located on agricultural land unless a site investigation confirms that the land is not suitable for that purpose. Note – This may be demonstrated by undertaking an evaluation in accordance with the Guidelines for Agricultural Land Evaluation in Queensland, 2nd edition, prepared by Queensland Government, 2015.
Avoidance or mitigation of land use conflict			

Performance Outcomes		Acceptable Outcomes	
PO2	Development for Accommodation activities and other sensitive uses does not adversely impact on the ongoing operational efficiency and productive use of agricultural land.	**AO2.1**	Any new Accommodation activities or sensitive uses are to be separated and/or buffered appropriately. Note – This may be demonstrated by undertaking a site specific Landscaped separation buffer plan in accordance with PSP SC6.4 (Landscaping).
Realignment of lot boundaries			
PO3	The boundaries of existing lots containing agricultural lands are not realigned, unless it can be demonstrated that a realignment of lot boundaries would: (a) result in a more productive use and management of Agricultural land classification class A or class B land and water for Rural activities; or (b) does not lead to increased fragmentation of Agricultural land classification class A or class B land; or (c) does not increase the potential conflict between Rural and Non-rural activities.	**AO3.1**	The number of new lots, including the balance of the area is equal to or less than the total number of original lots.
		AO3.2	Provision of adequate separation areas between small lots and nearby Rural activities is provided to ensure nearby agricultural land is protected. Note – This may be demonstrated by undertaking a site specific Landscaped separation buffer plan in accordance with PSP SC6.4 (Landscaping).
Sediment and stormwater run-off			
PO4	Development is located, designed and constructed to minimise the impact of sediment and stormwater run-off on agricultural lands.	**AO4.1**	Development is undertaken in accordance with PSP SC6.8 (WRC development manual).
Protection of stock route networks			
PO5	Development does not impact the integrity or connectivity of the stock route network.	**AO5.1**	Development provides for an adequate separation area where adjacent to the stock route network.
		AO5.2	Development ensures the connectivity and capacity of the stock route network.

8.2.3 Airport environs overlay code

8.2.3.1 Application

This code applies to accepted and assessable development:

(a) subject to the Airport environs overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Airport environs overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.3.2 Purpose and overall outcomes

(1) The purpose of the Airport environs overlay code is to protect the safety, efficiency and operational integrity of the Region's airports and associated aviation facilities.

(2) The purpose of the Airport environs overlay code will be achieved through the following overall outcomes:

(a) development does not create incompatible intrusions, or compromise aircraft safety in operational airspace;

(b) development does not adversely affect the functioning of aviation facilities;

(c) development avoids increasing risk to public safety in public safety areas;

(d) development is compatible with forecast levels of aircraft noise within the 20 ANEF contour and greater (as defined by Australian Standard 2021-2000 Acoustics – aircraft Noise intrusion – Building siting and construction (AS 2021) as adopted 7 July 2000); and

(e) sensitive land uses and other incompatible activities are appropriately located and designed, to not impact on airport operations.

8.2.3.3 Assessment benchmarks

Table 8.2.3.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Operational airspace			
PO1	Development does not create a permanent or temporary physical or transient obstruction in an airport's operational airspace.	**AO1.1**	Buildings, structures or temporary equipment, such as cranes, do not encroach into an airport's operational airspace.
		AO1.2	Landscaping does not include vegetation that at maturity will encroach into the airport's operational airspace.
		AO1.3	Transient activities associated with development, such as parachuting, hot air ballooning and hang-gliding, will not occur within an airport's operational airspace. Note – where development intrudes into the airport's operational airspace, the application will be referred to the airport manager for assessment.
Lighting and reflective surfaces			

Performance Outcomes		Acceptable Outcomes	
PO2	Development within the lighting buffer zone does not include external lighting or reflective surfaces that could distract or confuse pilots.	**AO2.1**	Development identified within the lighting buffer zone does not: (a) emit light that will exceed the maximum light intensity specified for the area; or (b) include any of the following types of outdoor lighting: (i) straight parallel lines of lighting 500m to 1000m long; (ii) flare plumes; (iii) upward shining lights; (iv) flashing lights; (v) laser lights; (vi) sodium lights; or (vii) reflective surfaces. Note – *Development which does include type(s) of lighting as listed above will be referred to the airport manager.* Note – *Civil Aviation Safety Authority (CASA) can provide advice to both Council and applicants at pre-lodgement or development assessment stage of development. They also have legislative powers to make directives to modify lighting after it has been installed – this should be avoided.*
Emissions			
PO3	Emissions within an airport's operational airspace do not significantly: (a) increase air turbulence; (b) reduce visibility; or (c) compromise the operation of aircraft engines.	**AO3.1**	Within an airport's operational airspace, development: (a) does not emit: (i) smoke, dust, ash or steam; or (ii) a gaseous plume at a velocity exceeding 4.3m/sec; or (b) where emitting smoke, dust ash, steam or a gaseous plume exceeding 4.3m/sec, is designed and constructed to mitigate adverse impacts of emissions upon operation airspace.
Wildlife hazard			
PO4	Development does not cause wildlife to create a safety hazard within an airport's operational airspace	**AO4.1**	Development located within 3km of an airport's runway: (a) does not involve uses listed in column 1 of Table 8.2.3.3.2 (Land uses associated with increases in wildlife strikes and hazards); and (b) where involving a use listed in column 2 of Table 8.2.3.3.2 (Land uses associated with increases in wildlife strikes and hazards), includes measures to reduce

Performance Outcomes		Acceptable Outcomes	
			the potential to attract birds and bats.
		AO4.2	Development located between 3km and 8km of an airport's runway, involving a use listed in column 1 or column 2 of Table 8.2.3.3.2 (Land uses associated with increases in wildlife strikes and hazards), includes measures to reduce the potential to attract birds and bats
		AO4.3	Development located between 8 km and 13 km of a strategic airport's runway, involving a use listed in column 1 or column 2 of Table 8.2.3.3.2 (Land uses associated with increases in wildlife strikes and hazards), does not increase the potential to attract birds and bats.
Protection of aviation facilities			
PO5	Development within the building restricted area does not interfere with the function of aviation facilities Note—Development complies with this performance outcome where written confirmation from Air Services Australia confirms that the development will not impair the functioning of the aviation facility.	**AO5.1**	Development located within the building restricted area for an aviation facility: (a) does not create: (i) permanent or temporary physical obstructions in the line of sight between antennas; (ii) an electrical or electromagnetic field that will interfere with signals transmitted by the facility; or (iii) reflective surfaces that could deflect or interfere with signals transmitted by the facility; and (b) is designed and constructed to mitigate adverse impacts on the function of the facility. Note—Advice from Air Services Australia should be sought when proposing development within the Aviation facility sub-category. Appendix 2 contained in the SPP Guideline, State interest—infrastructure, Guidance on strategic airports and aviation facilities identifies development likely to impact certain aviation facilities.
Public safety areas			
PO6	Development within an airport's public safety area does not increase the risk to public safety.	**AO6.1**	Development within an airport's public safety area does not: (a) propose greater dwelling density than a dwelling house;

Performance Outcomes		Acceptable Outcomes	
			(b) introduce or intensify Business, Entertainment, Community or Recreational activities; or (c) involve the manufacture, use or storage of flammable, explosive, hazardous or noxious materials.
Aircraft noise			
PO7	Development involving a sensitive land use is appropriately located and designed to prevent adverse impacts from aircraft noise.	**AO7.1**	Development within the 20–40 ANEF contour is: (a) consistent with Table 8.2.3.3.3 (Compatible and incompatible land uses within ANEF contours of the SPP guideline: Strategic airports and aviation facilities); and (b) is designed and constructed to attenuate aircraft noise by achieving the indoor design sound levels specified in Table 8.2.3.3.4 (Desirable indoor sound levels for sensitive land uses of the SPP guideline: Strategic airports and aviation facilities).

Table 8.2.3.3.2 Land uses associated with increases in wildlife strikes and hazards

Column 1: High risk	Column 2: Moderate risk
<u>Areas of environmental significance</u> Conservation estate (wetland) <u>Rural activities</u> Cropping (turf farm) Cropping (fruit tree farm) Intensive animal industry (piggery) Aquaculture (fish processing/packing plant) <u>Recreation activities</u> Major sport, recreation and entertainment facility (showground) <u>Industry activities</u> Low-impact industry (food processing plant) Medium-impact industry (food processing plant) High-impact industry (food processing plant) <u>Other activities</u> Food/organic waste facility Putrescible waste facility (e.g. landfill, transfer station)	<u>Areas of environmental significance</u> Conservation estate (all other) <u>Rural activities</u> Animal husbandry (cattle/dairy farm) Intensive animal industry (poultry farm) <u>Recreation activities</u> Major sport, recreation and entertainment facility (all other) Outdoor sport and recreation Park <u>Other activities</u> Non-putrescible waste facility (e.g. landfill, transfer station) Sewage/wastewater treatment facility

Table 8.2.3.3.3 Compatible and incompatible land uses within ANEF contours

Sensitive land uses	Compatibility of use within ANEF contour of site		
	Compatible	Compatible subject to conditions	Incompatible
Accommodation activity (except Short-term accommodation and Hostel)	Less than 20 ANEF	20–25 ANEF	25–40 ANEF
Short-term accommodation Hotel Hostel	Less than 25 ANEF	25–30 ANEF	30–40 ANEF
Educational establishment Child care centre	Less than 20 ANEF	20–25 ANEF	25–40 ANEF
Hospital Health care service	Less than 20 ANEF	20–25 ANEF	25–40 ANEF
Community use Places of worship	Less than 20 ANEF	20–30 ANEF	30–40 ANEF
Office	Less than 25 ANEF	25–35 ANEF	35–40 ANEF

Table 8.2.3.3.4 Desirable indoor design sound levels for sensitive land uses

Land use	Location within development	Indoor design sound level dB(A)
Accommodation activities (except Short-term accommodation)	Sleeping areas	50
	Other habitable	55
Short-term accommodation Hotels	Sleeping areas	55
Educational establishments Child care centres	Libraries Classrooms, study areas Sleeping areas	50
	Teaching area, assembly areas	55
Hospitals Health care services	Wards, theatres, treatment and consulting rooms	50
	Laboratories	65
Community uses Places of worship		50
Offices	Private offices, conference rooms	55
	Open offices	65

8.2.4 Bushfire hazard overlay code

8.2.4.1 Application

This code applies to accepted and assessable development:

(a) subject to the Bushfire hazard overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Bushfire hazard overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.4.2 Purpose and overall outcomes

(1) The purpose of the Bushfire hazard overlay code is to:

(a) provide for the assessment of the suitability of development in Bushfire hazard areas to ensure that risk to life, property, community, economic activity and the environment during bushfire events is minimised; and

(b) provide for the assessment of development that maintains the safety of people and property by not exposing them to an unacceptable risk from bushfire events.

(2) The purpose of the Bushfire hazard overlay code will be achieved through the following overall outcomes:

(a) development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the bushfire hazard and does not significantly increase the potential for damage on the site or to other properties;

(b) development is compatible with the level of risk associated with the bushfire hazard;

(c) development location, siting and design responds to the risk of the bushfire hazard and minimises risk to personal safety and property;

(d) development supports the disaster management response or recovery by providing efficient access for evacuation of people, emergency services and water supplies during bushfire events;

(e) where practical, community infrastructure is located and designed to function effectively during and immediately after a bushfire event; and

(f) natural processes and the protective function of landforms and vegetation are maintained, where possible, in potential Bushfire hazard areas.

8.2.4.3 Assessment benchmarks

Table 8.2.4.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Development is compatible with the level of risk associated with the bushfire hazard.	**AO1.1**	Development: (a) is not located on land identified in a Bushfire hazard area: or (b) if identified within a Bushfire hazard area, must ensure that people, property and the community are not exposed

Performance Outcomes		Acceptable Outcomes	
			to an unacceptable or increased level of risk from a bushfire event. Note – This may be demonstrated by undertaking a site specific Bushfire hazard assessment report and Bushfire hazard management plan in accordance with PSP SC6.5 (Natural hazards).
PO2	Development supports and does not unduly burden disaster management response or recovery capacity and capabilities by providing evacuation routes and access for emergency services.	**AO2.1**	Access to the development is provided in the form of: (a) a public road network or alternate emergency access that separates the development from hazardous vegetation; or (b) a fire access trail that is contained wholly on the subject site; or (c) an evacuation route with a potential exposure no greater than 2kW/m^2 fire intensity that does not cross the fire access trail: (i) if by foot, to a safe assembly zone; or (ii) the preferred method, by car, to a road that can provide escape from the area. Note – This may be demonstrated by undertaking a site specific Bushfire hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
PO3	Development provides for firefighting requirements, including: (a) ready access to water supplies; (b) safety considerations for other utilities, including electricity and gas supplies; and avoidance of the release of, or exposure to, hazardous materials, as a result of a bushfire event.	**AO3.1**	Development ensures that: (a) all lots are within 70m of a hydrant with reticulated water supply, fully installed in accordance with AS2419.1-2005 (Fire hydrant installations); or (b) where a reticulated water supply is not available, one tank within 100m of each Class 1, 2, 3 or 4 building has: (i) a take off connection from the tank that is at a level that allows 20,000 litres to be dedicated for firefighting purposes; (ii) a hardstand area allowing heavy rigid fire appliance access within 6m of tank; (iii) fire brigade tank fittings (50mm ball valve & male camlock coupling);

Performance Outcomes		Acceptable Outcomes	
			(iv) above ground water pipes, where fittings are metal; and (v) if underground, the tank has an access hole of 200mm (minimum) to allow access for suction lines. Editor's Note - Plastic tanks are not recommended, however, if they are submerged, they may be acceptable.
		AO3.2	The location of water supplies is readily identified from the street frontage with clear identification directing fire fighters to its access point.
		AO3.3	Mains gas supplies are protected in accordance with AS1596-2002 (The storage and handling of LP gas), the requirements of relevant authorities and metal piping is exclusively used.
		AO3.4	Bulk storage of hazardous materials, as defined in the *Work Health and Safety Act 2011*, does not occur in an identified Bushfire hazard area.
PO4	Development for community infrastructure is located, designed and sited to: (a) function efficiently to protect the safety of people during and immediately after a bushfire event; (b) reduce the exposure of people and vulnerable populations at risk from a bushfire event; and (c) mitigate the impacts of a bushfire on the community and environment.	**AO4.1**	Development of community infrastructure does not occur in a Bushfire hazard area.

Table 8.2.4.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	People residing or working within the development area have relevant emergency management plans in place and ensure the safety of emergency management personal.	**AO1.1**	Development allows for the safe operation of firefighting personal, by providing: (a) an area that is not exposed to radiant heat of more than 7kW/m² during the passing of a fire front; or (b) a Bushfire management plan is prepared in accordance with PSP SC6.5 (Natural hazards).
PO2	Development provides for firefighting requirements, with safety considerations for other	**AO2.1**	Electricity supplies and transmission poles in the area are protected and not vulnerable

Performance Outcomes		Acceptable Outcomes	
	utilities, including electricity and gas supplies.		to bushfire events or associated activities (e.g. Falling trees).

8.2.5 Coastal environment overlay code

8.2.5.1 Application

This code applies to accepted and assessable development:

(a) subject to the Coastal environment overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Coastal environment overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.5.2 Purpose and overall outcomes

(1) The purpose of the Coastal environment overlay code is to ensure that development is designed, constructed and operated to:

(a) protect, conserve, rehabilitate and manage the coast, including its resources and biological diversity;

(b) avoid the social, financial and environmental costs arising from the adverse impacts of coastal hazards, taking into account the predicted effects of climate change;

(c) preferentially use land on the coast for coastal-dependent development; and

(d) ensure development maintains the safety of people and property.

(2) The purpose of the Coastal environment overlay code will be achieved through the following overall outcomes:

(a) wherever possible, development within a Coastal hazard area avoids:

(i) intensification of existing uses;

(ii) new permanent built structures; and

(iii) seaward extensions to existing built structures;

(b) development maintains and enhances natural processes, including those below tidal waters;

(c) development location, siting and design responds to the risk of storm tide and tidal inundation and minimises risk to personal safety and property;

(d) development supports, and does not compromise, the ability of the disaster management response or recovery capacity and capabilities;

(e) development provides for

(i) efficient evacuation and emergency services access during coastal hazard events; or

(ii) plans for the prospect and impact of isolation or hindered evacuation due to flooding from storm-tide and tidal inundation;

(f) development ensures that urban services are designed, located and operated to minimise damage to property, disruption to building function and the recovery time after a storm-tide or tidal inundation event;

(g) development does not cause or increase adverse impacts on other premises within the coastal environment from flooding and does not impede the ability of neighbouring sites to implement future coastal hazard mitigation measures;

(h) development in areas subject to coastal hazards protects biodiversity, the loss of environmental networks and the scenic amenity of important coastal areas, landscapes and views;

(i) development minimises the private use of land prone to permanent inundation;

(j) development maintains public access to the coast;

(k) development preserves opportunities for locating coastal-dependent land uses in areas adjoining tidal waters; and

(l) development and infrastructure avoids or mitigates the impacts of predictable future coastal hazard due to increase in sea-level rise and cyclonic activity.

8.2.5.3 Assessment Criteria

Table 8.2.5.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Development involving a building is: (a) located and designed to ensure the safety of all persons and buildings from coastal hazards; and (b) located to minimise amenity impacts, disruptions to residents, recovery time, rebuilding and restoration costs after a coastal hazard event.	**AO1.1**	Development of a habitable building: (a) is not located on land identified in a Coastal hazard area; (b) ensures the finished floor level of a new building is located at a minimum 300mm above the defined storm tide event (DSTE) for all habitable rooms; or (c) is not less than the floor level of existing habitable room(s) where involving an extension for no greater than 75m² to an existing building. Editor's Note – Refer to Council's detailed Coastal environment overlay map for further detail. Where no further information is provided by Council the applicant must source the information independently.
		AO1.2	Buildings are only located within a Coastal hazard area, if a registered professional engineer Queensland (RPEQ) certifies that the development is structurally designed to be able to resist hydrostatic and hydrodynamic loads associated with flooding up to and including the DSTE. Editor's Note – if part of the site is outside the Coastal hazard overlay, this is the preferred location for all buildings.

Performance Outcomes		Acceptable Outcomes	
		AO1.3	Development on land identified within a Coastal hazard area ensures storage of hazardous materials is located above the DSTE.
PO2	Buildings are sited and designed to protect people and property from coastal hazards and avoid the need for additional coastal environment works.	**AO2.1**	Where adjacent to or fronting the coastline, all buildings are located: (a) landward or equal to the seaward alignment of any buildings on neighbouring properties; or (b) where there are no neighbouring properties, at least 6m from the seaward property boundary of the site.
PO3	Marina development provides facilities for the handling and disposal of ship-sourced pollutants.	**AO3.1**	Common user facilities for the handling and disposal of ship-sourced pollutants, including oil, garbage and sewage: (a) are provided at a suitable location at the marina; (b) designed and operated to ensure the risk of spillage from operations is minimised; (c) provide appropriate equipment to contain and remove spillages, stored in a convenient position near the facility and available for immediate use; and (d) for boats visiting the marina are able to use the ship-sourced pollutants reception facilities. Editor's note: Refer to: Australian and New Zealand Environment and Conservation Council (ANZECC), 1997, Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand.
		AO3.2	Where practical, the marina pollutant reception facility is connected to sewerage or other waste reception infrastructure. Editor's note: Reception facilities require compliance assessment under the Plumbing and Drainage Act 2002. The plumbing compliance assessment process will ensure that the proposed facilities address 'peak load'.

Table 8.2.5.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
All development in Coastal hazard areas			
PO1	Development: (a) maintains dune crest height; or (b) where a reduction in dune crest heights cannot be avoided, mitigates risk to development from wave overtopping and storm-tide inundation.	**AO1.1**	Development avoids, or where this is not feasible, minimises reductions in dune crest height.
PO2	Development maintains or enhances coastal ecosystems and natural features, such as mangroves and coastal wetlands, between development and tidal boulders, where they protect or buffer communities and infrastructure from sea level rise and coastal inundation impacts.	**AO2.1**	Development ensures that: (a) existing natural environmental features, such as mangroves and wetlands, are maintained as much as possible; or (b) where changes to these natural features cannot be avoided, alternate methods are used to mitigate risks to development from coastal hazards.
PO3	Development maintains or enhances the scenic amenity and natural character of the coastal landscape, views and vistas from the foreshore or significant viewpoints.	**AO3.1**	Development is located, scaled and designed to be sympathetic to the coastal scenic amenity: (a) maintaining or restoring vegetation buffers between development and coastal waters; or (b) where impacts on the coastal scenic amenity cannot be avoided, alternative methods are used to maintain the natural character of the coastal landscape.
PO4	Development avoids the release of hazardous materials into floodwaters.	**AO4.1**	Development ensures: (a) buildings used for the manufacture or storage of hazardous materials are designed to prevent the intrusion of waters from a DSTE; (b) the exposure of floodwaters to hazardous materials is prevented; and (c) emergency planning and contingency measures are appropriately developed and managed.
PO5	Development maintains the safety of people living and working on the premises from a DSTE.	**AO5.1**	Development ensures: (a) a safe refuge is available for people within the development site during a DSTE; or (b) that at least one evacuation route remains passable for emergency evacuations during a DSTE.

Performance Outcomes		Acceptable Outcomes	
			Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
PO6	Development does not negatively impact the flood characteristics of the DSTE outside of the subject site.	**AO6.1**	Buildings are only located within the Coastal hazard area if a registered professional engineer Queensland (RPEQ) certifies that the development does not change the flood characteristics of the DSTE outside the subject site.
PO7	Development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities.	**AO7.1**	Development does not: (a) increase the number of people calculated to be at risk from the coastal hazard event; (b) increase the number of people likely to need evacuation; (c) impact on the ability of traffic to use evacuation routes; or (d) unreasonably increase traffic volumes on evacuation routes. Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
Community infrastructure			
PO8	Development involving community infrastructure remains functional to serve community needs during and immediately after a coastal hazard event.	**AO8.1**	Community infrastructure: (a) is designed, sited and operated to avoid adverse impacts on the community facilities, access and egress routes and the environment; (b) retains essential site access during a coastal hazard event; and (c) is able to remain functional, even when other infrastructure or services may be compromised in a coastal hazard event. Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
Public access to the coast			
PO9	Development ensures that there is no net loss of public access to the foreshore and, where practicable, provides enhanced opportunities for safe public access to the foreshore.	**AO9.1**	Development is located, designed and operated: (a) in a manner that retains or enhances existing public access to and along the foreshore; or (b) where loss of public access to the foreshore cannot practicably be avoided,

Performance Outcomes		Acceptable Outcomes	
			development provides the same or a greater amount of new public access opportunities in an alternative location.
Maritime development and Maritime development areas			
PO10	Except in limited circumstances, maritime development is located within a Maritime development area.	**AO10.1**	Maritime development: (a) is located within an identified Maritime development area; (b) demonstrates that the site is suitable for identification as a Maritime development area; or (c) is located outside a Maritime development area, if it is: (i) a minor marine development; (ii) dredging for navigation channels; or (iii) development in a port.
PO11	Development in a Maritime development area: (a) is predominantly for maritime development; and (b) ensures ancillary and subsidiary development is predominantly of a commercial or public nature.	**AO11.1**	Within the Maritime development area: (a) less than half of the non-tidal component of the development site is allocated for non-maritime development, not including Accommodation activities; and (b) less than a quarter of the non-tidal component of the development site is allocated for Accommodation activities.
Coastal environment map 1 – Storm tide inundation (Overlay map - CP1 - 01:14)			
Where development is in an urban area			
PO12	Except in limited circumstances, development is located outside a high hazard storm tide area.	**AO12.1**	Development is situated wholly outside of a high hazard storm tide area except where the development is: (a) temporary and /or relocatable development; or (b) coastal-dependent development; or (c) located within a Maritime development area; or (d) does not result in an increase of development intensity on the site.
PO13	Development that is subject to a medium hazard storm tide area is located, designed, constructed and operated to avoid adverse coastal hazard impacts, including impacts on the development's ongoing operation.	**AO13.1**	Development within an urban area is located outside a medium hazard storm tide area unless: (a) it does not result in an increase in the intensity of development on the site; (b) involving redevelopment that intensifies the use of a site, if the development mitigates

Performance Outcomes		Acceptable Outcomes	
			any increase in risk to people and property from inundation impacts; or (c) a Coastal hazard assessment report demonstrates that the development avoids any increase in risk to people or property from coastal hazard impacts. Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
Where development is in a non-urban area			
PO14	Except in limited circumstances, development does not occur within a non-urban area that is subject to storm tide hazard.	**AO14.1**	Development within a non-urban area that is subject to storm tide hazard is: (a) located within a Maritime development area; or (b) for tourist attractions and tourist accommodation, the development: (i) locates Accommodation activities outside the high hazard storm tide area; or (ii) is located, designed, constructed and operated to avoid adverse storm tide hazard impacts, including impacts on the development's ongoing operation, as demonstrated by a Coastal hazard assessment report prepared to support the development proposal. Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
Coastal environment map 2 – Erosion prone areas and permanent inundation (Overlay map - CP2 - 01:14)			
PO15	Except in limited circumstances, development is located outside of an Erosion prone or Permanent inundation area.	**AO15.1**	Development is situated wholly outside of an Erosion prone or Permanent inundation area, except where the development is: (a) temporary and/or relocatable development; (b) located within a Maritime development area; or (c) redevelopment that intensifies the use of a site in an urban area, if the

Performance Outcomes		Acceptable Outcomes	
			development mitigates any increase in risk to people and property from adverse coastal erosion impacts.
		AO15.2	Development is situated wholly outside of an Erosion prone or Permanent inundation area except where: (a) community infrastructure; or (b) able to be abandoned; and (c) demonstrates that: (i) it is not feasible to locate the development outside an Erosion prone or Permanent inundation area; (ii) buildings and structures are located landward of alignment of adjacent habitable buildings; or (iii) where it is demonstrated that item (ii) is not reasonable, buildings and structures are located as far landward as practicable.
PO16	Redevelopment occurring within an Erosion prone or Permanent inundation area mitigates any increase in risk to people and property from adverse coastal erosion or permanent inundation impacts.	**AO16.1**	Redevelopment relocates buildings and structures: (a) outside of an Erosion prone or Permanent inundation area; or (b) relocates buildings and structures landward of the alignment of adjacent habitable buildings; or (c) where it is demonstrated that item (b) is not reasonable, buildings and structures are located as far landward as practicable; and (d) provides sufficient space seaward of the development within the premises to allow for the construction of erosion control structures, such as a sea wall.
		AO16.2	Redevelopment in an Erosion prone or Permanent inundation area that results in an intensification of a use, mitigates the coastal erosion or permanent inundation threat to the development, having regard to the: (a) layout of the development, minimising the footprint of the development within the Erosion prone or Permanent

Performance Outcomes		Acceptable Outcomes	
			inundation area and locating the development as far landward as possible; (b) ability of buildings or structures to be decommissioned, disassembled or relocated either on the site or to another site; (c) use of appropriate foundations for the building or structure; and (d) installation and maintenance of site erosion control structures. Note – This may be demonstrated by undertaking a Coastal hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
PO17	Coastal-dependent development or development within a Maritime development area mitigates any increase in risk to people and property from the impacts of Storm tide inundation, Erosion prone and Permanent inundation areas.	**AO17.1**	Coastal-dependent development: (a) installs and maintains coastal environment works to mitigate adverse impacts to people and property from coastal erosion or permanent inundation; or (b) locates, designs and constructs buildings or structures to withstand coastal erosion or permanent inundation impacts.
		AO17.2	Development within Maritime development area that is not coastal-dependent development: (a) is located outside an Erosion prone or Permanent inundation area; or (b) installs and maintains coastal environment works to mitigate adverse impacts to people and property from coastal erosion or permanent inundation at the location.

8.2.6 Environmental significance overlay code

8.2.6.1 Application

This code applies to accepted and assessable development:

(a) subject to the Environmental significance overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Environmental significance overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.6.2 Purpose and overall outcomes

(1) The purpose of the Environmental significance overlay code is to ensure that:

(a) matters of environmental significance are protected; and

(b) ecological connectivity and habitat extent are maintained or enhanced.

(2) The purpose of the Environmental significance overlay code will be achieved through the following overall outcomes:

(a) matters of environmental significance are valued and protected;

(b) the health and resilience of biodiversity is maintained or enhanced to support ecological integrity;

(c) development conserves and enhances biodiversity values and associated ecosystem services in the Region;

(d) development protects and establishes appropriate buffers to native vegetation and significant fauna habitat;

(e) development protects known populations and supporting habitat of:

(i) matters of National environmental significance, as listed in the *Environment Protection and Biodiversity Conservation Act 1999*;

(ii) endangered, vulnerable and near threatened flora and fauna species, as listed in the *Nature Conservation Act 1992*; and

(iii) regulated vegetation protected under the *Vegetation Management Act 1999*;

(f) development is located, designed and managed to avoid or mitigate adverse direct or indirect impacts on ecological systems and processes; and

(g) development ensures that viable connectivity is maintained or enhanced between matters of environmental significance and biodiversity values.

8.2.6.3 Assessment benchmarks

Table 8.2.6.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
All development			
PO1	Development avoids significant impacts on matters of environmental significance.	**AO1.1**	Development: (a) does not result in a significant impact on

Performance Outcomes		Acceptable Outcomes	
			identified environmental values; or (b) is located, designed and operated to avoid or mitigate significant impacts on the identified environmental values. Note – This may be demonstrated by preparing an Ecological assessment report in accordance with PSP SC6.2 (Environmental features).
PO2	Development avoids significant impacts on areas designated as a Protected or Legally secured offset areas.	**AO2.1**	Development is wholly situated outside of an area designated as a Protected or Legally secured offset areas. Editor's Note – For guidance of offset areas refer to the *Environmental Offsets Act 2014*.
PO3	Development does not result in the short or long-term degradation of ecological values of Protected areas due to edge effects.	**AO3.1**	Development provides for buffer(s) of: (a) not less than 25m width, between the development and Protected areas; or (b) dimensions and characteristics that protect the long-term viability of matters of environmental significance located on and/or adjacent to the site. Note – This may be demonstrated by preparing an Ecological assessment report in accordance with PSP SC6.2 (Environmental features).
PO4	Development protects and enhances ecological connectivity and/or habitat extent.	**AO4.1**	Development retains vegetation in areas large enough to maintain ecological values, functions and processes. Note – This may be demonstrated by preparing an Ecological assessment report in accordance with PSP SC6.2 (Environmental features).
Where development is within an urban area			
PO5	Development does not result in the short or long-term degradation of ecological values of Wildlife habitat and Regulated vegetation areas due to edge effects.	**AO5.1**	Development provides for a buffer(s): (a) along the boundary adjoining Wildlife habitat and Regulated vegetation areas; or (b) of dimensions and characteristics that protect the long-term viability of the matters of environmental significance located on and/or adjacent to the site. Note – This may be demonstrated by preparing an Ecological assessment

Performance Outcomes		Acceptable Outcomes	
			report in accordance with PSP SC6.2 (Environmental features).
Where development is within a non-urban area			
PO6	Development avoids significant impacts on Wildlife habitat and Regulated vegetation areas.	**AO6.1**	Development is: (a) wholly situated outside of a Wildlife habitat and Regulated vegetation area; and (b) setback 25m or 1.5 times the height of the vegetation, whichever is the greater.
PO7	Development provides for the long-term management and maintenance of the stream protection zone.	**AO7.1**	The stream protection zone is protected through a covenant for environmental purposes.
PO8	Development of premises adjoining or containing Regulated vegetation intersecting a watercourse must not adversely affect the integrity of the riparian corridor.	**AO8.1**	Proposed roads and vehicle crossings must not be located within areas designated as Regulated vegetation intersecting a watercourse.
		AO8.2	Development: (a) maintains hydrological processes and the physical integrity of watercourses, lakes and springs; (b) ensures that impacts from works on the long-term sustainable use of the watercourse or lake or spring are avoided; and (c) the stability of beds and banks of watercourses and the condition and natural functions of water bodies is maintained.

8.2.7 Extractive resources overlay code

8.2.7.1 Application

This code applies to accepted and assessable development:

(a) subject to the Extractive resources overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Extractive resources overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.7.2 Purpose and overall outcomes

(1) The purpose of the Extractive resources overlay code is to protect and maintain the sustainable and viable use of extractive resources within the Region by preventing incompatible development and land uses from encroaching on the extractive resource/processing areas, the associated separation areas and transport routes.

(2) The purpose of the Extractive resources overlay code will be achieved through the following overall outcomes:

(a) development occurring within, or adjacent to, extractive resource areas does not adversely affect or impair the ability of existing or future extractive industries to viably win the resource;

(b) development occurring within, or adjacent to, transport routes for extractive resources does not constrain, or otherwise conflict with, the ongoing safe and efficient transportation of the extractive resource; and

(c) the potential negative impacts of extractive industries on sensitive uses within, or adjacent to, extractive resource areas and associated transport routes is mitigated to maintain high levels of safety and amenity.

8.2.7.3 Assessment benchmarks

Table 8.2.7.3.1 Benchmarks for accepted and assessable development

Performance Outcome		Acceptable Outcome	
Development within a Local resource or Key resource area (KRA) resource/processing area			
PO1	Development does not constrain, prevent or otherwise interfere with the current or future viability of the winning, or processing of, extractive resources.	**AO1.1**	Development is limited to: (a) extractive industry uses; (b) uses that are directly associated with an extractive industry; or (c) temporary or non-intensive development that is compatible with future extractive industry operations, for example forestry for wood production.
Development within a KRA separation area			
PO2	Development does not materially increase the number of people living within a KRA separation area.	**AO2.1**	Development does not result in an increase in residential density.
		AO2.2	Reconfiguring a lot: (a) does not result in the creation of additional lots used, or capable of being

Performance Outcome		Acceptable Outcome	
			used, for Accommodation activities; and (b) where realigning boundaries, does not worsen the existing situation with respect to the distance between available house sites and the resource processing area.
PO3	Development minimises the potential adverse impacts, including noise, dust, vibration and blasting, from existing or future extractive industry operations upon people working or congregating within a KRA separation area, given the proposed development's location.	**AO3.1**	Development ensures that: (a) the number of people working or congregating is not increased; (b) it is compatible with the potential adverse impacts arising from existing or future extractive industry operations; or (c) incorporates design, orientation and construction measures that mitigate the potential adverse effects from existing or future extractive industry operations to acceptable levels. Note — In order to demonstrate compliance with AO3 applicant should demonstrate the regulations of Environmental Protection Act and relevant policies (i.e. EPP Noise) can be achieved.
PO4	Extractive industry development maintains the function and integrity of a KRA separation area as an efficient and effective buffer between extractive/processing operations and incompatible uses beyond the separation area.	**AO4.1**	Development for an extractive industry use is not located within a KRA separation area.
Development within a Transport route or Transport route separation area			
PO5	Development does not materially increase the number of people living within a Transport route separation area.	**AO5.1**	Development does not result in an increase in residential density.
PO6	Development involving a sensitive use, other than for an Accommodation activity, maintains an acceptable level of amenity.	**AO6.1**	Development involving a sensitive use, other than an Accommodation activity, ensures an acceptable level of amenity by incorporating mitigation measures, such as landscape buffer strips and maintaining adequate separation distances.
PO7	Development does not adversely affect the safe and efficient movement and operation of vehicles transporting extractive materials along a Transport route.	**AO7.1**	Development ensures that: (a) the number of premises with access points to an identified Transport route is not increased; or (b) access points are designed to avoid adversely affecting

Performance Outcome		Acceptable Outcome	
			the safe and efficient operation of vehicles transporting extractive materials along a Transport route.

8.2.8 Flood hazard overlay code

8.2.8.1 Application

This code applies to accepted and assessable development that is:

(a) subject to the Flood hazard overlay maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Flood hazard overlay code by the tables of assessment in Part 5 (Tables of assessment).

Note – Where flood hazard is mapped from more than one flood source for a single property, or is also identified in the Coastal hazard overlay map, the assessment benchmark that provides the highest level of protection from any source of flooding applies.

8.2.8.2 Purpose and overall outcomes

(1) The purpose of the Flood hazard overlay code is to:

(a) provide for the assessment of the suitability of development in the Flood hazard overlay area, to ensure that risk to life, property, community, economic activity and the environment during flood events is minimised; and

(b) ensure that development does not increase the potential for flood damage on-site or to other property, both upstream and downstream.

(2) The purpose of the Flood hazard overlay code will be achieved by the following outcomes:

(a) floodplains and the flood conveyance capacity of waterways are protected;

(b) incompatible uses are not located in areas susceptible to flood hazard;

(c) development location, siting, layout, and access responds to the risk of the flooding and minimises risk to personal safety and property;

(d) development supports and does not compromise the ability of the disaster management response or recovery capacity and capabilities;

(e) development provides for:

i. efficient evacuation and emergency services access during flooding events; or

ii. otherwise plans for the prospect and impact of isolation or hindered evacuation during flooding;

(f) development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the flood event and does not materially increase the extent or impact of the flood event on the site or to other properties;

(g) development ensures that urban services are designed, located and operated to minimise damage to property, disruption to building function and recovery time after a flood event;

(h) natural processes and the protective function of landforms and/or vegetation are maintained where possible in Flood hazard areas;

(i) where practical, community infrastructure is located and designed to function effectively during, and immediately after, flood events; and

(j) development for new premises mitigates the impacts of predictable future flood hazards.

8.2.8.3 Assessment benchmarks

Table 8.2.8.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Development involving any habitable and non-habitable part of the building is: (a) located and designed to ensure the safety of all persons and buildings from flood hazards; and (b) located to minimise amenity impacts, disruptions to residents, recovery time, rebuilding and restoration costs after a flood event.	**AO1.1**	Development of a habitable building: (a) is not located on land in a Flood hazard area; (b) ensures the finished floor level of a new building is located at a minimum 300mm above the defined flood level (DFL) for all habitable rooms; or (c) is not less than the floor level of existing habitable room(s) where involving an extension for no greater than 75m² to an existing building. Editor's Note – Refer to Council's Flood hazard map on the website for further detail. The maps do not provide information about the depth or speed of flood water. Information on potential depth levels for a property can be found by contacting Council.
		AO1.2	Buildings are only located within the Flood hazard area, if a registered professional engineer Queensland (RPEQ) certifies that the development is structurally designed to be able to resist hydrostatic and hydrodynamic loads associated with flooding up to and including the DFL. Editor's Note – If part of the site is outside the Flood hazard overlay area, this is the preferred location for all buildings.
		AO1.3	Development within a Flood hazard area ensures storage of hazardous materials are located above the DFL.
PO2	Development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level, and does not increase the potential for flood damage either on site or on other properties.	**AO2.1**	Buildings and infrastructure in non-urban areas are set back 50m from natural riparian corridors to maintain their natural function of reducing velocity of flood waters.
		AO2.2	Development does not involve a net increase in filling greater than 50m³ in urban areas or

Performance Outcomes		Acceptable Outcomes	
	Note – Where assessable development PO2 may be achieved by demonstrating that development will not: (a) result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters; (b) change flood characteristics outside the subject site in ways that result in: (i) loss of flood storage; (ii) loss of/changes to flow paths; or (iii) acceleration or retardation of flows; or (c) increase stormwater ponding on sites upstream, downstream or in the general vicinity of the subject site.		$500m^3$ in non-urban areas within a Flood hazard area. Editor's Note – Berms/mounds are considered to be an undesirable built form outcome and are not supported.
		AO2.3	The design and layout of buildings within a Flood hazard area provides: (a) non-habitable uses at ground level; and (b) allows for the flow through of flood water below the DFL. Editor's Note - The highset 'Queenslander' style house is a resilient low-density housing solution in floodplain areas. Higher density residential development should ensure only non-habitable rooms, such as garages and laundries, are located on the ground floor. Businesses should ensure that they have the necessary continuity plans in place to account for the potential need to relocate property prior to a flood event, for example allow enough time to transfer stock to the upstairs level of a building or off site. The relevant building assessment provisions under the *Building Act 1975* apply to all building work within the Flood hazard area and need to take account of the flood potential within the area.

Table 8.2.8.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
All development			
PO1	Development avoids the release of hazardous materials into flood waters.	**AO1.1**	Development within a Flood hazard area ensures: (a) buildings used for the manufacture or storage of hazardous materials are designed to prevent the intrusion of waters from a DFE; and (b) exposure to hazardous materials and emergency planning and contingency measures are appropriately managed.
PO2	Development does not materially increase the number of people at risk of flood hazard.	**AO1.2**	For Reconfiguring a lot, additional lots are: (a) not located in a Flood hazard area; or (b) demonstrated to be above the DFL identified for the site.
PO3	The development supports, and does not unduly burden, disaster management response or	**AO2.1**	Development does not:

Performance Outcomes		Acceptable Outcomes	
	recovery capacity and capabilities.		(a) increase the number of people calculated to be at risk from flooding; (b) increase the number of people likely to need evacuation; (c) shorten flood warning times; (d) impact on the ability of traffic to use evacuation routes; or (e) unreasonably increase traffic volumes on evacuation routes. Note – This may be demonstrated by preparing a Flood hazard assessment report in accordance with PSP SC6.5 (Natural hazards).
PO4	Development involving any habitable and non-habitable part of the building is: (a) located and designed to ensure the safety of all persons and buildings from flood hazard; (b) located to minimise amenity impacts, disruptions to residents, recovery time, rebuilding and restoration costs after a flood event; and (c) compatible with the level of risk associated with the flood hazard.	**AO3.1**	Development of the following uses is not to occur on land inundated by the DFL: (a) residential care facility; (b) retirement facility; (c) community care centre; or (d) child care centre.
Community infrastructure			
PO5	Development involving community infrastructure remains functional to serve community need during and immediately after a flood event.	**AO4.1**	Community infrastructure is: (a) provided with the level of flood immunity set out in Table 8.2.8.3.3 (Flood immunity for community infrastructure and services); (b) designed, sited and operated to avoid adverse impacts on the community or the environment due to the impacts of flooding on infrastructure, facilities or access and egress routes; (c) retains essential site access during a flood event; and (d) able to remain functional even when other infrastructure or services may be compromised in a flood event. Note – This may be demonstrated by preparing a Flood hazard assessment report in accordance with PSP SC6.5 (Natural hazards).

Table 8.2.8.3.3 Flood immunity for community infrastructure and services

Development	Level of immunity Annual exceedance probability (AEP)
Development involving: (a) emergency services; (b) hospitals and associated facilities; and (c) major electricity infrastructure.	0.2% AEP flood event
Development involving: (a) emergency/evacuation shelters; (b) the storage of valuable records or items of historic/cultural significance (e.g. libraries, galleries); (c) telecommunication facilities; (d) substations; (e) water treatment plants; (f) regional fuel storage; (g) food storage warehouses; and (h) retirement facilities and residential care facilities.	0.5% AEP flood event
Sewerage treatment plants (requiring licensing as an environmentally relevant activity).	1% AEP flood event

8.2.9 Heritage overlay code

Editor's Note – This code does not apply to indigenous cultural heritage which is protected under the *Aboriginal Cultural Heritage Act 2003*. In accordance with this legislation, a person who carries out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage ("the cultural heritage duty of care").

8.2.9.1 Application

This code applies to accepted and assessable development:

(a) subject to the Heritage overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Heritage overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.9.2 Purpose and overall outcomes

(1) The purpose of the Heritage overlay code is to ensure development on a Heritage place is compatible with the cultural heritage significance of the place outlined in the place card.

Editor's Note – Heritage place cards are identified and explained on the Whitsunday Regional Council website.

(2) The purpose of the Heritage overlay code will be achieved through the following overall outcomes:

(a) the cultural heritage significance of the Heritage place is conserved;

(b) development of the Heritage place is compatible with the cultural heritage significance of the place by:

(i) preventing the demolition or removal of Heritage places, unless there is no prudent and feasible alternative to its demolition or removal; and

(ii) maintaining or encouraging, as far as practical, the appropriate use, or adaptive re-use of Heritage places;

(iii) protecting, as far as practical, the materials and setting of the Heritage place;

(iv) ensuring, as far as practical, development on a Heritage place is compatible with the cultural heritage significance of the place; and

(c) development is compatible with the conservation and management of the cultural heritage significance of the Heritage place.

8.2.9.3 Assessment benchmarks

Table 8.2.9.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Development of the Heritage place is: (a) subservient to the features and values of the Heritage place; and (b) compatible with the conservation and	**AO1.1**	Development: (a) does not alter, remove or conceal significant attributes of the Heritage place; or (b) is minor and necessary to maintain a significant use for the Heritage place.

Performance Outcomes		Acceptable Outcomes	
	management of the cultural heritage significance of the Heritage place.	**AO1.2**	Development of the Heritage place is undertaken with reference to the ICOMOS Charter for the conservation of places of cultural heritage (*Burra Charter 2013*). Note – This may be demonstrated by undertaking a Heritage impact assessment report in accordance with PSP SC6.3 (Heritage).
PO2	The Heritage place or part of the Heritage place may not be demolished and/or removed unless it can be demonstrated that: (a) there is no prudent or feasible alternative; or (b) the Heritage place, or part of the Heritage place is not of local cultural heritage significance.	**AO2.1**	Prior to the demolishing or removal of a Heritage place, it must be demonstrated that: (a) beyond reasonable doubt there is no prudent or feasible alternative to the demolition, or removal, of part or all of the Heritage place. The proposal must be supported by a report from an appropriate expert; and (b) where the Heritage place or part of the Heritage place is to be demolished or removed, a Heritage management plan outlining the removal/demolition process must be developed by an appropriate expert having regard for the *Burra Charter 2013*. Note – This may be demonstrated by undertaking a Heritage management plan in accordance with PSP SC6.3 (Heritage).
PO3	Changes to a Heritage place are appropriately managed and documented on the place card of the Heritage place.	**AO3.1**	Development is compatible with a Conservation management plan prepared in accordance with the Australian ICOMOS Charter for places of cultural significance (*Burra Charter 2013*).
		AO3.2	Any development is appropriately documented on the place card of the Heritage place.
PO4	The identified archaeological significance or potential archaeological significance of the Heritage place is conserved.	**AO4.1**	Where a ground breaking activity is required within the boundary of the Heritage place that has been identified as an archaeological place, a suitably qualified and experienced archaeologist must be appointed to assess the impact of the ground breaking activity on any identified and/or potential archaeological artefacts and features. The archaeologist must develop and, where required by

Performance Outcomes		Acceptable Outcomes	
			Council, oversee the implementation of an Archaeological management plan that outlines how the project will manage impacts to the archaeological significance and potential of the place. Note – This may be demonstrated by undertaking an Archaeological management plan in accordance with PSP SC6.3 (Heritage).

8.2.10 Infrastructure overlay code

8.2.10.1 Application

This code applies to accepted and assessable development:

(a) subject to the Infrastructure overlay shown on the overlay maps contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Infrastructure overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.10.2 Purpose and overall outcomes

(1) The purpose of the Infrastructure overlay code is to ensure that development is compatible with, and does not adversely affect the viability, integrity, operation and maintenance of the following existing and planned infrastructure and facilities with the Whitsunday region:

(a) major roads (State controlled roads);

(b) railways;

(c) major electricity infrastructure;

(d) substations;

(e) bulk water supply infrastructure;

(f) gas pipelines;

(g) strategic ports;

(h) public passenger transport facilities;

(i) wastewater treatment facilities; and

(j) waste management facilities.

(2) The purpose of the Infrastructure overlay code will be achieved through the following overall outcomes:

(a) existing and planned infrastructure facilities, networks and corridors are protected from incompatible development;

(b) development in proximity to existing and planned infrastructure facilities, networks and corridors is appropriately located, designed, constructed and operated to:

(i) avoid compromising the integrity, operational efficiency and maintenance of infrastructure and facilities; and

(ii) protect the amenity, health and safety of people and property.

8.2.10.3 Assessment benchmarks

Table 8.2.10.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Infrastructure Map 1 – Transport infrastructure (Overlay map - INF1 - 01:29)			
Road noise corridor and Railway buffers			
PO1	Sensitive uses are located, designed and constructed to ensure that noise emissions from major road corridors and railway corridors do not adversely affect: (a) the development's primary function; or (b) the wellbeing of occupants including their ability to sleep, work or otherwise undertake quiet enjoyment without unreasonable interference from road traffic or railway noise.	**AO1.1**	Development of sensitive uses: (a) does not occur within a Railway buffer; or (b) where within a Railway buffer complies with the acoustic noise quality objectives specified in Environmental Protection (Noise) Policy 2008.
		AO1.2	Development of sensitive uses located within a Road noise corridor, are sited and designed to comply with the QDC MP4.4 (Buildings in a transport noise corridor).
PO2	Development within a Road noise corridor or Railway buffer does not adversely impact on the associated infrastructure.	**AO2.1**	Development within a Road noise corridor or Railway buffer maintains and, where practicable, enhances the safety, efficiency and effectiveness of the infrastructure.
Strategic port areas and buffers			
PO3	Development within a Strategic port area or buffer does not interfere with an aid to navigation or associated signals.	**AO3.1**	Development does not result in significant electrical or electro-magnetic emissions which may impede the operation of aids to navigation.
		AO3.2	All lights on or above the development site: (a) are shielded to prevent glare or reflection; (b) do not include flood lights; (c) do not involve flashing or flickering lights which may be confused with aids to navigation; and (d) are not coloured lights such as green, blue or red lights which may be confused with aids to navigation.
		AO3.3	Lighting complies with AS 4282-1997(Control of the obtrusive effects of outdoor lighting).
Public passenger transport facilities and buffers			
PO4	Development supports a road hierarchy which facilitates efficient, safe and accessible bus services connecting to existing and future Public passenger transport facilities.	**AO4.1**	Roads catering for buses are major collector, arterial or sub-arterial roads or their equivalent.
		AO4.2	Roads catering for buses provide convenient connections to existing and future Public passenger transport facilities.

Performance Outcomes		Acceptable Outcomes	
		AO4.3	Development on bus routes does not impact bus stop infrastructure or the efficient running of bus services.
		AO4.4	Roads catering for buses are designed and constructed in accordance with Part 2 of the Transport Planning and Coordination Regulation 2005 (Code for IDAS).
PO5	Development enhances connectivity between existing and future Public passenger transport facilities and other transport modes.	**AO5.1**	The road network supports modal interchange by integrating with existing and future Public passenger transport facilities.
		AO5.2	Development provides direct linkages for passengers between existing and future Public passenger transport facilities and other transport modes.
		AO5.3	Development provides way-finding information for existing Public passenger transport facilities and interconnecting transport modes.
PO6	Development optimises the walkable catchment to existing and future Public passenger transport facilities.	**AO6.1**	Development connects to an existing or planned pedestrian/cycle network that links to existing and future Public passenger transport facilities.
		AO6.2	Development provides convenient through-site connections for pedestrians and cyclists to existing and future Public passenger transport facilities.
PO7	Development provides direct and safe access to and use of Public passenger transport facilities.	**AO7.1**	Through-site pathway connections to Public passenger transport facilities are provided in accordance with Part 6A of Austroads guide to road design (Pedestrian and cyclist paths).
		AO7.2	Pathway connections are available at all times.
		AO7.3	Direct and legible pedestrian and cycle paths and crossings provide connections to existing and future Public passenger transport facilities.
		AO7.4	Development incorporates landscaping, boundary treatments and lighting that enhances the safety of pedestrians and cyclists accessing Public passenger

Performance Outcomes		Acceptable Outcomes	
			transport facilities by providing for casual surveillance.
		AO7.5	Development of Business activities provides active frontages oriented towards Public passenger transport facilities.
		AO7.6	Accommodation activities address street frontages and provide casual surveillance of Public passenger transport facilities.
Infrastructure Map 2 – Utility infrastructure (Overlay map - INF2 - 01:29)			
Major electricity infrastructure and substation buffers			
PO8	Development involving a sensitive use is sufficiently separated from major electricity infrastructure or substations to minimise the likelihood of nuisance or complaint.	**AO8.1**	Sensitive uses maintain the following separation distances from the substation or easement for major electricity infrastructure: (a) 20m for transmission lines up to 132kV; (b) 30m for transmission lines between133kV and 275kV; and (c) 40m for transmission lines exceeding 275kV.
PO9	Major electricity infrastructure on private land is included in an easement.	**AO9.1**	Existing infrastructure easements are maintained and where none currently exist, new easements are created which are sufficient for electricity provider's requirements.
Bulk water supply pipelines and buffers			
PO10	Development within a water supply infrastructure buffer: (a) is located, designed and constructed to protect the integrity of the water supply pipeline; and (b) maintains adequate access for any required maintenance or upgrading work to the water supply pipeline.	**AO10.1**	Buildings and structures are setback a minimum of 20m from a water supply pipeline.
PO11	Development is located and designed to maintain required access to water supply infrastructure.	**AO11.1**	Development does not restrict access to bulk water supply infrastructure of any type or size, having regard to: (a) buildings or structures; (b) gates and fences; (c) storage of equipment or materials; and (d) landscaping, earthworks, stormwater or other infrastructure.
Petroleum pipeline buffers			

Performance Outcomes		Acceptable Outcomes	
PO12	Development within a Petroleum pipeline buffer reduces the risk of harm to sensitive uses, people and property.	**AO12.1**	Development within a Petroleum pipeline buffer provides and maintains adequate separation between the use or works and a Petroleum pipeline corridor so as to minimise risk of harm to sensitive uses, people and property.
PO13	Development and works within a Petroleum pipeline buffer does not adversely impact on associated infrastructure.	**AO13.1**	Uses and works within a Petroleum pipeline buffer are constructed and operated to avoid: (a) compromising the viability of the Petroleum pipeline corridor; or (b) damaging or adversely affecting the existing or future operation of major petroleum pipelines and the supply of petroleum.
Waste water treatment facilities and buffers			
PO14	Accommodation activities and other sensitive uses are not adversely affected by odour emissions from existing or planned Waste water treatment facilities.	**AO14.1**	A sensitive use involving an Accommodation activity is not located or intensified within a Waste water treatment facility buffer.
		AO14.2	Any sensitive use (other than an accommodation activity) located within a Waste water treatment facility buffer: (a) incorporates appropriate measures to minimise odour impacts; or (b) demonstrates that occupants and users will not be adversely affected by odour emissions from activities associated with the Waste water treatment facility.
		AO14.3	Reconfiguring a lot within a Waste water treatment facility buffer: (a) does not result in the creation of additional lots used or capable of being used for Accommodation activities; and (b) where rearranging boundaries, does not worsen the existing situation with respect to the distance between available residential sites and the Waste water treatment facility.
Waste management facility buffer			

Performance Outcomes		Acceptable Outcomes	
PO15	Accommodation activities and other sensitive uses are not adversely affected by noise emissions from existing or planned Waste management facilities.	**AO15.1**	A sensitive use involving an Accommodation activity is: (a) not located or intensified within a Waste management facility buffer; or (b) where located within a Waste management facility buffer complies with the following the acoustic quality design objectives specified in Environmental Protection (Noise) Policy 2008.
		AO15.2	Any sensitive use (other than an Accommodation activity) located within a Waste management facility buffer complies with the acoustic quality design objectives specified in *Environmental* Protection (Noise) Policy 2008.

8.2.11 Landslide hazard overlay code

8.2.11.1 Application

This code applies to accepted and assessable development:

(a) subject to the Landslide overlay maps contained within Schedule 2 (Mapping); or

(b) identified as requiring assessment against the Landslide overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.11.2 Purpose and overall outcomes

(1) The purpose of the Landslide overlay code is to:

(a) provide for the assessment of the suitability of development, in an area subject to landslide hazard, to ensure that risk to life, property, community, economic activity and the environment is minimised; and

(b) ensure that development does not increase the potential damage from landslide events on site or to other property.

(2) The purpose of the Landslide overlay code will be achieved through the following overall outcomes:

(a) development is compatible with the level of risk associated with the landslide hazard;

(b) development siting, design, layout and access responds to the risk of the landslide hazard and minimises risk to personal safety and property;

(c) development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities;

(d) development avoids an unacceptable increase in severity of the landslide hazard and does not significantly increase the potential for damage on the site or to other properties;

(e) where practical, community infrastructure is located and designed to function effectively during and immediately after a landslide event;

(f) development avoids the release of hazardous materials, as a result of the landslide hazard; and

(g) natural processes and the protective function of landforms and/or vegetation are maintained in Landslide hazard areas.

8.2.11.3 Assessment benchmarks

Table 8.2.11.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Development maintains the safety of people, property and hazardous materials, manufactured or stored in bulk, from the risk of a landslide hazard.	**AO1.1**	Development: (a) is not located on land identified in a Landslide hazard area; or (b) if identified within a Landslide hazard area ensures:

Performance Outcomes		Acceptable Outcomes	
			(i) the long-term stability of the site, including associated buildings and infrastructure; (ii) that the site will not be adversely affected by landslide activity originating from other land, including land above the site; and (iii) that filling and excavation does not redirect the flow of, or concentrate surface water or groundwater on, the site or neighbouring sites. Note – This may be demonstrated by undertaking a site specific Landslide hazard (geotechnical) assessment report in accordance with PSP SC6.5 (Natural hazards). The building assessment provisions must address the stability of buildings and structures in relation to landslide hazard.
PO2	Community infrastructure maintains the safety of people and property and is not adversely affected by a landslide hazard.	**AO2.1**	Development of community infrastructure within an identified Landslide hazard area ensures: (a) the long-term stability of the site, including associated building and infrastructure; (b) that access to the site will not be impeded by a landslide event; (c) that the site will not be adversely affected by landslides originating from other land, including land above the site; and (d) the primary function of the community infrastructure is maintained during a landslide event. Note – A site-specific landslide hazard (geotechnical) report is required to demonstrate compliance with PO2. The Landslide hazard (geotechnical) assessment report is to be prepared in accordance with PSP SC6.5 (Natural hazards). The building assessment provisions must address the stability of buildings and structures in relation to landslide hazard.

8.2.12 Waterways and wetlands overlay code

8.2.12.1 Application

This code applies to accepted and assessable development:

(a) subject to the Waterways and wetlands overlay map contained within Schedule 2 (Mapping); and

(b) identified as requiring assessment against the Waterways and wetlands overlay code by the tables of assessment in Part 5 (Tables of assessment).

8.2.12.2 Purpose and overall outcomes

(1) The purpose of the Waterways and wetlands overlay code is to ensure that:

(a) matters of environmental significance are protected;

(b) ecological connectivity and habitat extent are maintained or enhanced;

(c) wetlands and waterways are protected, maintained or enhanced; and

(d) development in, or adjacent to, wetlands in a Great Barrier Reef catchment is planned, designed, constructed and operated to prevent the loss, or degradation of, the wetlands and their environmental values.

(2) The purpose of the Waterways and wetlands overlay code will be achieved through the following overall outcomes:

(a) development maintains or enhances the biodiversity values, and associated ecosystem services of, waterways and wetlands within the Whitsunday region;

(b) development protects and establishes appropriate buffers to waterways and wetlands;

(c) development protects known populations and supporting habitat of:

(i) matters of national environmental significance, as listed in the *Environment Protection and Biodiversity Conservation Act 1999*;

(ii) endangered, vulnerable and near threatened flora and fauna species, as listed in the *Nature Conservation Act 1992*; and

(iii) regulated vegetation protected, under the *Vegetation Management Act 1999*;

(d) development is planned, designed, constructed and managed to avoid, or mitigate, significant impacts on environmental values and processes of waterways and wetlands;

(e) development ensures that viable connectivity is maintained or enhanced between matters of environmental significance and biodiversity values;

(f) development protects the ecological values and processes, physical extent and buffering of waterways and wetlands;

(g) development enhances existing wetland environmental values, or avoids adverse effects on, wetland environmental values;

8.2.12.3 Assessment benchmarks

Table 8.2.12.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
All development			
PO1	Development avoids significant impacts on matters of environmental significance.	**AO1.1**	Development: (a) does not result in a significant impact on the identified environmental values; or (b) is located, designed and operated to avoid, or mitigate, significant impacts on the identified environmental values. Note – This may be demonstrated by preparing an Ecological assessment report in accordance with PSP SC6.2 (Environmental features).
PO2	Development protects and enhances ecological connectivity and/or habitat extent.	**AO2.1**	Development retains vegetation in areas large enough to maintain ecological values, functions and processes. Note – This may be demonstrated by preparing an Ecological assessment report in accordance with PSP SC6.2 (Environmental features).
Where development is within an urban area			
Plan to avoid/minimise new impacts			
PO3	The development is planned and designed considering the land use constraints of the site for achieving stormwater design objectives.	**AO3.1**	A SQMP is prepared ensuring it: (a) is consistent with any local area stormwater management planning, and (b) provides for achievable stormwater quality treatment measures meeting design objectives listed in Table 8.2.12.3.2 (Stormwater management design objectives – Construction phase) and Table 8.2.12.3.3 (Stormwater management design objectives – Post construction phase), or (c) current best practice environmental management, reflecting land use constraints, such as: (i) erosive, dispersive and/or saline soil types; (ii) landscape features (including landform); (iii) acid sulfate soil and management of nutrients of concern; and (iv) rainfall erosivity.

Performance Outcomes		Acceptable Outcomes	
			Editor's Note – Local area stormwater management planning may include Urban stormwater quality management plans, Catchment or waterway management plans, Healthy waters management plans, Water quality improvement plans or Natural resource management plans.
PO4	Development does not discharge wastewater to a waterway or off site unless demonstrated to be best-practice environmental management for that site.	**AO4.1**	A WWMP is prepared by a suitably qualified person and addresses: (a) wastewater type; (b) climatic conditions; (c) WQOs; and (d) best practice environmental management.
		AO4.2	The WWMP provides that wastewater is managed in accordance with a waste management hierarchy that: (a) avoids wastewater discharges to waterways; or (b) if wastewater discharge to waterways cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and groundwater.
PO5	Any non-tidal artificial waterway is compatible with the land use constraints of the site for protecting water environmental values in existing natural waterways.	**AO5.1**	If the proposed development involves a non-tidal artificial waterway: (a) environmental values in downstream waterways are protected; (b) any groundwater recharge areas are not affected; (c) the location of the waterway incorporates low lying areas of a catchment connected to an existing waterway; and (d) existing areas of ponded water are included.
		AO5.2	Non-tidal artificial waterways are located: (a) outside natural wetlands and any associated buffer areas; (b) to minimise the disturbance of soils or sediments; and (c) to avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.
PO6	Any non-tidal artificial waterway is compatible with existing tidal waterways.	**AO6.1**	Where a non-tidal artificial waterway is located adjacent to, or is connected to, a tidal waterway by means of a weir, lock, pumping system or similar:

Performance Outcomes		Acceptable Outcomes	
			(a) there is sufficient flushing or a tidal range of >0.3 m; (b) any tidal flow alteration does not adversely impact on the tidal waterway; or (c) there is no introduction of salt water into freshwater environments.
Design to avoid/minimise new impacts			
PO7	Stormwater does not discharge directly to a non-tidal artificial waterway without treatment to achieve stormwater quality management.	**AO7.1**	Any non-tidal artificial waterway is designed and managed for any of the following end-use purposes: (a) Amenity, including aesthetics, landscaping and recreation; (b) flood management; (c) stormwater harvesting as part of an integrated water cycle management plan; or (d) aquatic habitat.
		AO7.2	The end-use purpose of any non-tidal artificial waterway is designed and operated in a way that protects water environmental values.
Construct to avoid/minimise new impacts			
PO8	Construction activities avoid or minimise adverse impacts on stormwater quality.	**AO8.1**	An ESCP demonstrates that the release of sediment-laden stormwater is avoided for the nominated design storm and minimised when the nominated design storm is exceeded. Editor's note – ESCP must address relevant design objectives outlined within SDAP Module 8. Note – An Erosion and sediment control plan is to be prepared in accordance with PSP SC6.8 (WRC development manual).
		AO8.2	Erosion and sediment control practices, including any proprietary erosion and sediment control products, are designed, installed, constructed, operated, monitored and maintained. Any other erosion and sediment control practices are carried out in accordance with local conditions and appropriate recommendations from a suitably qualified person experienced with technical expertise in the field of Environmental engineering. Note – An Erosion and sediment control plan is to be prepared in accordance with PSP SC6.8 (WRC development manual).

Performance Outcomes		Acceptable Outcomes	
		AO8.3	The ESCP demonstrates how stormwater quality will be managed in accordance with an acceptable regional or local guideline, so that target contaminants are treated. Editor's note – ESCP must address relevant design objectives outlined within SDAP Module 8. Note – An Erosion and sediment control plan is to be prepared in accordance with PSP SC6.8 (WRC development manual).
Operate to avoid/minimise new impacts			
PO9	Operational activities for the development avoids or minimises changes to waterway hydrology from adverse impacts of altered stormwater quality and flow.	**AO9.1**	Development (both construction and post-construction) incorporates stormwater flow control measures to achieve the design objectives set out in: (a) Table 8.2.12.3.2 (Stormwater management design objectives – Construction phase); and (b) Table 8.2.12.3.3 (Stormwater management design objectives – Post construction phase); or (c) current best practice environmental management, including management of frequent flows, peak flows, and construction phase hydrological impacts.
PO10	Wastewater discharge to a waterway is managed in a way that maintains ecological processes, riparian vegetation, waterway integrity and downstream ecosystem health.	**AO10.1**	Wastewater discharge to non-tidal artificial waterways is managed to avoid, or minimise, the release of nutrients of concern to minimise the occurrence, frequency and intensity of coastal algal blooms.
		AO10.2	Development in coastal catchments avoids or minimises and appropriately manages soil disturbance or altering natural hydrology. Note – Compliance with this outcome may be demonstrated by following the management advice in the guideline: Implementing policies and plans for managing nutrients of concern for coastal algal blooms in Queensland by the Department of Environment and Heritage Protection.
PO11	Any non-tidal artificial waterway is managed and operated by suitably qualified persons to achieve water quality objectives in natural waterways.	**AO11.1**	Any non-tidal artificial waterway is designed, constructed and managed under the responsibility of a suitably qualified registered professional engineer, Queensland (RPEQ)

Performance Outcomes		Acceptable Outcomes	
			with specific experience in establishing and managing artificial waterways.
		AO11.2	Monitoring and maintenance programs adaptively manage water quality in any non-tidal artificial waterway to achieve relevant water-quality objectives downstream of the waterway.
		AO11.3	Aquatic weeds are managed in any non-tidal artificial waterway to achieve less than 10% of coverage of the water surface area. Pests and vectors, such as mosquitoes, are managed through avoiding stagnant water areas, providing for native fish predators and any other best practices for monitoring and treating pests.
		AO11.4	Any non-tidal artificial waterway is managed and operated by a responsible entity under agreement for the life of the waterway. The responsible entity is to implement a deed of agreement for the management and operation of the waterway that: (a) identifies the waterway; (b) states a period of responsibility for the entity; (c) states a process for any transfer of, or responsibility for, the waterway; (d) states required actions under the agreement for monitoring the water quality of the waterway and receiving waters; (e) states required actions under the agreement for maintaining the waterway to achieve the outcomes of this code and any relevant conditions of a development approval; and (f) identifies funding sources for the above, including bonds, infrastructure charges or levies.
Where development is within or adjacent to waterways or Matters of state environmental significance (MSES) wetland			
PO12	Development ensures stormwater treatment is located clear of waterways and wetland areas.	**AO12.1**	Stormwater treatment devices are located entirely outside of waterways, waterway buffers and wetland areas.

Performance Outcomes		Acceptable Outcomes	
PO13	Development: (a) retains, enhances and maintains the environmental values and functioning of waterways; and (b) provides and maintains adequate vegetated buffers and setbacks to waterways.	**AO13.1**	Cleared, degraded or disturbed waterway and waterway buffer areas within the site are rehabilitated. Such areas are rehabilitated along their full length to a suitable buffer width in accordance with expert ecological advice provided as part of the approved Ecological assessment report prepared in accordance with PSP SC6.2 (Environmental significance).
		AO13.2	Site layout does not impact upon the natural drainage systems associated with the waterway.
		AO13.3	Development is undertaken in accordance with an approved Vegetation management plan prepared in accordance with PSP SC6.2 (Environmental features) that protects the waterway.
PO14	Bank stability, channel integrity and in-stream habitats are protected from degradation and maintained, or improved, at a standard commensurate with pre-development environmental conditions.	**AO14.1**	No direct interference or modification of waterway channels, banks or riparian and in-stream habitats occurs.
PO15	Existing natural flows of surface and groundwater are not altered through channelisation, redirection or interruption of flows.	**AO15.1**	Development ensures that the natural surface water and groundwater hydrologic regimes of waterways and associated buffers are maintained to the greatest extent possible.
PO16	Development on land adjacent to a waterway maintains an appropriate extent of public access to waterways and minimises edge effects.	**AO16.1**	Development adjacent to a waterway provides that: (a) no new lots directly adjoin the riparian area; and (b) a new road is located between the riparian buffer and the proposed development areas.
PO17	Development is not carried out in a wetland area.	**AO17.1**	Development is located outside: (a) the mapped boundary of a wetland area; or (b) an alternative mapped boundary of the wetland area, (submitted to Council and supported by a site assessment and analysis of the wetland to delineate its extent, in accordance with expert ecological advice provided as part of the approved Ecological assessment report prepared in accordance with PSP

Performance Outcomes		Acceptable Outcomes	
			SC6.2 (Environmental features)).
PO18	Development does not result in the short or long-term degradation of environmental values of wetlands due to edge effects.	**AO18.1**	Development, including associated infrastructure, provides for a buffer along the boundary adjoining wetland areas.
		AO18.2	Development provides for buffer(s) of: (a) not less than 100m width, incorporating vegetated, representative of local native habitat, and degraded areas, requiring rehabilitation between the development and wetlands located on and/or adjacent to the site; or (b) dimension and characteristics that protect the long-term viability of the wetlands located on and/or adjacent to the site from negative impacts associated with the development on the site, in accordance with expert ecological advice provided as part of the approved Ecological assessment report prepared in accordance with PSP SC6.2 (Environmental significance).
PO19	The existing surface water hydrological regime of the wetland area is enhanced or maintained.	**AO19.1**	Development must: (a) provide a net ecological benefit and improvement to the environmental values and functioning of a wetland area; (b) rehabilitate the existing hydrological regime; or (c) restore the natural hydrological regime of the wetland area to enhance the ecological functions and biodiversity values of the wetland.
		AO19.2	Development ensures the: (a) existing surface water hydrological regime of a wetland area does not change, including through channelisation, redirection or interruption of flows, as demonstrated in the approved Ecological assessment report prepared in accordance with PSP SC6.2 (Environmental features); or

Performance Outcomes		Acceptable Outcomes	
			(b) extent of any change to the existing surface water hydrological regime is minimised to ensure wetland values and functioning are protected. The change is minimised if: (i) there is no change to the reference duration high-flow and low-flow duration frequency curves, low-flow spells frequency curve and mean annual flow to and from the wetland; or (ii) any relevant stream flows into the wetland comply with the relevant flow objectives of the applicable water resource plan for the area; or (iii) for development resulting in an increase to the velocity or volume of stormwater flows into the wetland – the collection and re-use of stormwater occurs in accordance with (a) or (b).

Table 8.2.12.3.2 Stormwater management design objectives – Construction phase (Ref: SPP Appendix 2)

Issue	Design	Issue
Drainage control	Temporary drainage works	(1) Design life and design storm for temporary drainage works: (a) disturbed area open for <12 months—1 in 2-year ARI event; (b) disturbed area open for 12–24 months—1 in 5-year ARI event; (c) disturbed area open for > 24 months—1 in 10-year ARI event. (2) Design capacity excludes minimum 150 mm freeboard. (3) Temporary culvert crossing—minimum 1 in 1-year ARI hydraulic capacity.
Erosion control	Erosion control measures	(1) Minimise exposure of disturbed 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 identified erosion risk rating.

Issue	Design Objectives	Issue
Sediment control	Sediment control measures Design storm for sediment control basins Sediment basin dewatering	(1) Determine appropriate sediment control measures using: (a) potential soil loss rate; or (b) monthly erosivity; or (c) average monthly rainfall. (2) Collect and drain stormwater from disturbed soils to sediment basin for design storm event: (a) design storm for sediment basin sizing is 80th% five-day event or similar. (3) Site discharge during sediment basin dewatering: (a) TSS < 50 mg/L TSS; (b) turbidity not >10% receiving waters turbidity; and (c) pH 6.5–8.5.
Water quality	Litter and other waste, hydrocarbons and other contaminants	(1) Avoid wind-blown litter; remove gross pollutants. (2) Ensure there is no visible oil or grease sheen on released waters. (3) Dispose of waste containing contaminants at authorised facilities.
Waterway stability and flood flow management	Changes to the natural waterway hydraulics and hydrology	(1) For peak flow for the 1-year and 100-year ARI event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site.

Table 8.2.12.3.3 Stormwater Management Design Objectives - Post construction phase (Ref: SPP Appendix 2)

Climatic region	Design Objectives Minimum reductions in mean and annual load from unmitigated development (%)				Application
	Total suspended solids	Total phosphorus	Total Nitrogen	Gross pollutants >5mm	
Central Queensland (North)	75	60	40	90	Development for urban purposes within population centres greater than 3,000 persons.
All	N/A	N/A	N/A	N/A	Excludes development that is less than 25% impervious. In lieu of modelling, the default bio-retention treatment area to comply with load reduction targets for all Queensland regions is 1.5% of the contributing catchment area.
	Waterway stability management				Catchments contributing to un-lined receiving waterway may not require

	Limit the peak 1-year ARI event discharge within the receiving waterway to the pre-development peak 1-year ARI event discharge.	compliance if the waterway is degraded. For peak flow the 1-year ARI event, use co-located storages to attenuate site discharge rate of stormwater.

Contents of Part 9

Tables of Part 9

Part 9 Development codes

9.1 Preliminary

(1) Development codes are codes for assessment where identified as an applicable code in Part 5 (Tables of assessment).

(2) The following codes and requirements apply to development under Schedule 6 of the Regulation, which are relevant for the Planning Scheme.

(3) Use codes and other development codes are specific to each Planning Scheme area.

(4) The following are the codes and requirements under the Regulation for development in the Planning Scheme area:

(a) Community residence code requirements applying to development that may not be made assessable development under the Planning Scheme

(b) Cropping involving forestry for wood production code applying to development that may not be made assessable development under the Planning Scheme

(c) Reconfiguring a lot (subdividing one lot into two lots) and associated Operational works code applying to development for which code assessment is required under Schedule 10, part 12 and Schedule 10, Part 14 Division 2 of the Regulation.

(5) The following are the use codes for the Planning Scheme:

(a) Business activities code

(b) Caretaker's accommodation code

(c) Child care centre code

(d) Dual occupancy code

(e) Dwelling house code

(f) Extractive industry code

(g) Home based business code

(h) Industry activities code

(i) Market code

(j) Multi-unit code

(k) Relocatable home park and tourist park code

(l) Residential care and retirement facility code

(m) Rural activities code

(n) Sales office code

(o) Service station code

(p) Telecommunication facility code

(6) The following are the other development codes for the Planning Scheme:

(a) Advertising devices code

(b) Construction management code

(c) Excavation and filling code

(d) Infrastructure code

(e) Landscaping code

(f) Reconfiguring a lot code

(g) Transport and parking code

9.2 Development that cannot be made assessable in accordance with Schedule 6 of the Planning Regulation 2017

9.2.1 Community residence requirements

Development for a community residence that complies with the acceptable outcomes in Table 9.2.3.1 is accepted development.

Table 9.2.3.1 Community residence for accepted development only

Requirements	
1.	The premises are in a residential zone or rural residential zone.
2.	No more than 7 support workers attend the residence in a 24-hour period.
3.	At least 2 car parks are provided on the premises for use by residents and visitors.
4.	At least 1 of the car parks stated in (3) is suitable for persons with disabilities.
5.	At least 1 car park is provided on the premises for use by support workers.

Editor's note—Schedule 6, Part 2, (6) of the Regulation states the development the Planning Scheme is prohibited from making assessable development for a material change of use for community residence.

9.2.2 Requirements for Cropping involving forestry for wood production code for accepted development

Table 9.2.3.11 Code for accepted development that is a material change of use for cropping involving forestry for wood production or operational work for harvesting trees for wood production.

Requirements	
Setbacks	
1	The use or work is at a distance of at least the separation distance stated in Table 9.2.3.12 below taken from the Regulation Schedule 13 Part 2 Table 1, column 2 Separation distances.
2	Seedlings within the separation distance stated in requirement (1) are removed if the seedlings: (i) are the same species as the trees to be harvested; and (ii) are not native to the local area.
Impacts on soil structure, fertility and stability	
3	For land with a slope of more than 10% but less than 25% - the development uses only— (a) mechanical strip cultivation on the contour; (b) spot cultivation; or (c) manual cultivation.
4	For land with a slope of 25% or more – the development uses only— (a) spot cultivation; or (b) manual cultivation.
5	The construction, operation or maintenance of a track or road for the development does not adversely affect – (a) a natural drainage feature on the land; or (b) land that is subject to erosion or landslide.
6	A track or road for the development – a) is appropriately drained; and b) has a stable surface.
7	Drainage structures for a track or road for the development are regularly maintained.
8	Drainage water from a track or road for the development is directed away from exposed soils, and onto undisturbed ground or other areas with a stable surface.
Fire risk	
9	For development involving a forest for wood production that is less than 40ha - a fire break that is at least 7m wide, measured from the base of the outermost tree in the forest to be harvested, is established and maintained.
10	For development involving a forest for wood production that is at least 40ha, but less than 100ha — a fire break that is at least 10m wide, measured from the base of the outermost tree in the forest to be harvested, is established and maintained.
11	For development involving a forest for wood production that is 100ha or more— (a) a fire break that is at least 20m wide, measured from the base of the outermost tree in the forest to be harvested, is established and maintained; or (b) both of the following things are established and maintained—

	(i) a fire break that is at least 10m wide, measured from the base of the outermost tree in the forest to be harvested; and (ii) a fuel reduction area immediately behind the fire break that is at least 10m wide.
12	Trees to be harvested in the fuel reduction area are pruned to a minimum height of 5m when the trees reach a height of 10m.
13	Fire breaks are kept clear of flammable material with a height of more than 1m.
14	Fire access tracks and roads with a minimum width of 4m wide are established and maintained on the premises.
15	Each part of the forest for wood production is within 250m of a fire access track or road.
16	Despite requirement (1), the following works may be carried out within the separation distance mentioned in Table 9.2.3.12 - Separation distances— a) the construction of roads and tracks for the development; or b) maintenance works for the development.

Table 9.2.3.12 - Separation distances

Column 1 **Structure or thing**	**Column 2** **Separation distance**
1 A watercourse shown on the regulated vegetation management map (1:100,000) and classified as stream order 1 to 2 under the Strahler stream order classification system	5m from the defining bank of the watercourse.
2 A watercourse shown on the regulated vegetation management map (1:100,000) and classified as a stream order 3 to 5 under the Strahler stream order classification system	10m from the defining bank of the watercourse.
3 A watercourse shown on the regulated vegetation management map (1:100,000) and classified as a stream order 6 under the Strahler stream order classification system	20m from the defining bank of the watercourse.
4 A State-owned protected area or forest reserve under the *Nature Conservation Act 1992*	10m from the boundary of the protected area or forest reserve.
5 category A area, category B area, category C area or category R area	10m from the boundary of the area.
6 A dwelling	100m from the dwelling, or another distance that complies with the Building Code and AS 3959-2009 *'Construction of buildings in bushfire prone areas".*
7 A machinery shed	A distance that is the greater of the following: (a) 25m from the machinery shed; or (b) A distance from the structure that equals 1.5 times the maximum height of the trees to be harvested
8 A transmission grid, supply network or above-ground pipeline, that services more than 1 premises and is not the subject of an easement.	A distance that is the longer of the following: (a) 25m from the structure; or (b) A distance from the structure that equals 1.5 times the maximum height of the trees to be harvested

9.2.3 Reconfiguring a lot (subdividing one lot into two lots) and associated operational works code

9.2.3.1 Purpose

The purpose of the Reconfiguring a lot (subdividing one lot into two lots) and associated operational works code is for assessing applications for development for reconfiguring a lot that requires assessment as regulated in Part 5, Section 5.4 under Table 5.4.2 (Regulated categories of assessment: reconfiguring a lot).

Editor's note—Schedule 12 (3) of the Regulation sets out the assessment benchmarks for the reconfiguring a lot.

This code applies to a reconfiguring of a lot if:

(a) The lot is in an industrial zone or residential zone (other than a park residential zone or rural residential zone);
(b) The reconfiguration is the subdivision of 1 lot, other than a rear lot, into 2 lots (each a created lot);
(c) Each created lot is at least the minimum lot size for the relevant zone stated in a local instrument; and
(d) the reconfiguration is consistent with the purpose statement for the relevant zone stated in a local instrument.

However, this code does not apply if:

(a) all or part of the premises, is in an erosion prone area or any of the following areas under a local instrument:
    (i) a flood hazard area;
    (ii) a bushfire hazard area;
    (iii) a landslide hazard area;
    (iv) a storm tide inundation area; or
(b) an overlay in a local instrument applies to all or part of the premises or any part of the premises.

For this section –

Industrial zone means area, (however described), designated in a local categorising instrument as industrial.
Relevant zone means the zone applying to premises under a local instrument.

A reference to a local instrument is a reference to a local instrument applying to the premises.

Table 9.2.3.1 Reconfiguring a lot (subdividing one lot into two lots) and associated operational works requiring code assessment

Requirements	
1.	The frontage of each created lot complies with the minimum frontage requirements for the relevant zone stated in a local instrument.
2.	The building envelope of each created lot complies with the building envelope requirements for the relevant zone stated in a local instrument.
3.	The reconfiguration involves the creation of a rear lot, only if the local instrument states that a rear lot is consistent with the relevant zone.
4.	The number of lots, including rear lots adjoining each created lot, complies with the maximum number of adjoining lots of the relevant zone stated in a local instrument.
5.	If the reconfiguration creates a rear lot: (i) an access strip for the rear lot does not adjoin the access strip of more than 1 other rear lot; and (ii) no more than 2 rear lots are accessed from the head of a single cul-de-sac

6.	If a local instrument states minimum setback distances for the relevant zone, the distance of a building or structure from a boundary of a created lot complies with the minimum distances stated in the local instrument.
7.	If the reconfiguration is in a residential zone and a local instrument does not state minimum setback distances for the zone, the distance of an existing building or structure from a boundary of a created lot complies with the minimum setback distances stated in the Queensland Development Code, Parts 1.1 to 1.3
8.	A new building or structure on the premises: (i) will comply with the Queensland Development Code, Part 1.4; and (ii) will be outside of an existing or planning infrastructure easement.
9.	Each created lot has access to the road network through: (i) direct road frontage; (ii) an access strip; or (iii) an access easement, if a local instrument states that an access easement is consistent with the relevant zone.
10.	Access from each created lot to the road network is: (i) lawful, safe and practical; and (ii) designed and built in accordance with requirements for the relevant zone stated in a local instrument, including requirements about width, length or gradient.
11.	If a local instrument does not state a minimum width requirement for an access strip or access easement in the relevant zone, an access strip or access easement for a created lot has a minimum width of: (i) for reconfiguring a lot in a residential zone—5m; or (ii) for reconfiguring a lot in an industry zone—8m.
12.	If a local instrument does not state a maximum length requirement for an access strip or access easement in the relevant zone, an access strip or access easement for a created lot has a maximum length of 50m.
13.	If the premises are in a reticulated water area, each created lot is connected to the reticulated water supply system.
14.	If the premises are not in a reticulated water area, each created lot has an alternative potable water supply source that complies with the minimum storage capacity requirements for the relevant zone stated in a local instrument.
15.	If the premises is in an area with a sewerage service, each created lot is connected to the sewerage service.
16.	If the premises is not in an area with a sewerage service, each created lot has an effluent treatment and disposal system designed and built in accordance with the requirements stated in a local instrument.
17.	Each lot is connected to a supply network and telecommunication network, if required under a local instrument.
18.	Any other infrastructure necessary to service the lots will be provided, designed and built in accordance with the requirements stated in a local instrument.
19.	The release of sediment from the premises, including from erosion and sediment-laden stormwater runoff: (i) is minimised during and after construction; and (ii) complies with the requirements stated in a local instrument.
20.	Filling and excavation on the premises: (i) does not cause a vertical change to the natural ground level of more than 1m; and (ii) does not result in ponding on the premises or adjoining land; and (iii) complies with the requirements stated in a local instrument.

9.3 Use codes

9.3.1 Business activities code

9.3.1.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Business activities code by the tables of assessment in Part 5 (Tables of assessment).

9.3.1.2 Purpose and overall outcomes

(1) The purpose of the Business activities code is to ensure that Business activities:

(a) are developed in a manner consistent with the Whitsunday regions hierarchy of centres; and

(b) are of a high quality design which reflects good centre design principles and appropriately responds to local character, environment and amenity considerations.

(2) The purpose of the Business activities code will be achieved through the following overall outcomes:

(a) a Business activity is of a type, scale and intensity that is consistent with and reinforces the Whitsunday regions hierarchy of centres;

(b) a Business activity incorporates building and landscape design that responds to the Region's tropical climate as well as the character of the particular local area;

(c) a Business activity is integrated into its surrounds and reflects high quality town centre design, streetscape and landscaping principles; and

(d) a Business activity avoids or mitigates adverse impacts upon the amenity, privacy or environmental quality of nearby Accommodation activities.

9.3.1.3 Assessment benchmarks

Table 9.3.1.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Relationship of buildings to streets and public spaces			
PO1	The Business activity is in a building that clearly defines frames or encloses the street and other useable public and semi-public open space.	**AO1.1**	The building is located close to the street frontage and other urban spaces for all or most of its length to create a continuous or mostly continuous edge.
		AO1.2	The building is sited and designed, such that: (a) the main pedestrian entrance to the building, or group of buildings, is located on the primary street frontage; (b) pedestrian access to the entrance of the building(s) or individual dwellings is easily discerned from the primary street frontage; and (c) the building addresses the street and has its pedestrian entrances fronting the street.

Performance Outcomes		Acceptable Outcomes	
		AO1.3	Car parking areas, service areas and driveways: (a) are located and configured so that they do not dominate the streetscape; and (b) are separate from the pedestrian access.
PO2	The Business activity provides for footpaths, walkways and other spaces intended primarily for pedestrians to be comfortable to use and adequately sheltered from excessive sunlight and inclement weather.	**AO2.1**	Any building provides adequate and appropriate shelter along or around the street in the form of an awning, colonnade, verandah or the like with a width: (a) of 3.2m to 4m; or (b) consistent with the width of shelter provided to adjoining premises.
PO3	The Business activity is in a building which is designed to create vibrant and active streets and public spaces.	**AO3.1**	Development provides for a minimum of 65% of the building frontage to a public street or other public space to present with clear or relatively clear windows and glazed doors.
		AO3.2	The building incorporates activities that are likely to foster casual, social and business interaction for extended periods, such as shops, food and drink outlets and the like.
		AO3.3	Development minimises vehicular access across active street frontages.
Building mass and composition			
PO4	The Business activity is in a building that enhances the character and amenity of streets and neighbouring premises via a built form that: (a) is closely related to streets, public spaces and pedestrian routes; (b) maintains some area free of buildings at ground level to facilitate pedestrian movement and other functions associated with the building; (c) ensures access to attractive views and prevailing cooling breezes; and (d) avoids excessively large building floor plates and building facades.	**AO4.1**	Except where otherwise provided for in a zone or local plan code: (a) site cover of a building does not exceed: (i) 70% for that part of a building not exceeding 8.5m in height; and (ii) 50% for that part of a building exceeding 8.5m in height; (b) buildings are set back from street frontages: (i) not more than 3m for that part of a building not exceeding 8.5m in height; and (ii) at least 6m for that part of a building exceeding 8.5m in height; and (c) buildings are set back from other site boundaries: (i) 0m, if not exceeding 8.5m in height and adjoining an existing blank wall or vacant land on an adjoining site;

Performance Outcomes		Acceptable Outcomes	
			(ii) at least 3m, if not exceeding 8.5m in height and adjoining an existing wall with openings on an adjoining site; and (iii) at least 6m for that part of a building exceeding 8.5m in height.
		AO4.2	Any projection above the podium level outside the boundaries of the building envelope is limited to balconies that do not project more than 1.5m into the setback.
		AO4.3	All storeys of a building above the third storey have a plan area that does not exceed 1,000m² in plan area with no horizontal dimension exceeding 45m.
Building features and articulation			
PO5	The Business activity is in a building, which: (a) provides visual interest through form and facade design; (b) provides outdoor or semi-enclosed public spaces that complement adjoining indoor spaces; and (c) responds to the character and amenity of neighbouring premises and the streetscape.	**AO5.1**	The building has articulated and textured façades that incorporate some or all of the following design features to create a high level of openness and visual interest and provide shading to walls and windows: (a) wide colonnades, verandahs, awnings, balconies and eaves; (b) recesses, screens and shutters; and/or (c) windows that are protected from excessive direct sunlight during warmer months.
		AO5.2	Outdoor or semi-enclosed public spaces are sited to promote an attractive central core or entrance space, with plantings and seating arrangements that foster its function as a desirable meeting or resting point.
		AO5.3	The building is articulated and finished in ways that respond to significant built form elements of adjacent buildings and the streetscape, such as continuity of colonnades, verandahs, balconies, eaves, parapet lines and roof forms.
		AO5.4	The building incorporates vertical and horizontal articulation, such that no unbroken elevation is longer than 15m.
		AO5.5	The building has a top level and roof form that is shaped to: (a) provide a visually attractive skyline silhouette; and (b) screen mechanical plant and equipment from view.

Performance Outcomes		Acceptable Outcomes	
PO6	Where the Business activity involves the development of a multi storey building the building is designed to display the functional differences between the ground level and above ground level spaces.	**AO6.1**	A building, having a height of more than 8.5m, incorporates built form elements that help to differentiate between the podium and other building levels.
Environmental management and amenity of residential premises			
PO7	The Business activity does not unreasonably impact upon the amenity or environmental quality of its environs and especially any nearby sensitive uses.	**AO7.1**	Undesirable visual, noise and odour impacts on public spaces and sensitive uses are avoided or reduced by: (a) where appropriate, limiting the hours of operation of the Business activity to maintain acceptable levels of residential amenity relative to the site context and setting; (b) providing vehicle loading/unloading and refuse storage/collection facilities within enclosed service yards or courtyards; and (c) not locating site service facilities and areas along any frontage to a public street, sensitive uses or other urban space.
		AO7.2	Where the Business activity requires the use of acoustic attenuation measures to mitigate adverse impacts on nearby sensitive uses, such measures are designed and constructed to be compatible with surrounding development and the local streetscape.
		AO7.3	Glare conditions or excessive light spill onto adjacent sites and public spaces are avoided or minimised through measures, such as: (a) selection and location of light fixtures; (b) use of building design/architectural elements or landscape treatments to block or reduce excessive light spill to locations where it would cause a nuisance to residents or the general public; and (c) alignment of streets, driveways and servicing areas to minimise vehicle headlight impacts on adjacent residential premises.
PO8	The Business activity maintains the reasonable privacy and amenity of Accommodation activities, such that the use of indoor and outdoor living areas by residents is not unreasonably diminished.	**AO8.1**	Where the development is adjacent to an existing or approved building containing Accommodation activities, the reasonable privacy and amenity of such uses is maintained by:

Performance Outcomes		Acceptable Outcomes	
			(a) siting and orienting buildings to minimise the likelihood of overlooking occurring; (b) having windows and outdoor areas, including balconies and terraces, located and designed to not look into dwellings or rooming units; and (c) incorporating screening over building openings.
PO9	Where the Business activity is part of a mixed use development involving Accommodation activities in the same building, the development provides residents with reasonable levels of privacy and security.	**AO9.1**	Entry areas for the residents of, and visitors to, dwellings or rooming units are provided: (a) separately from entrances for other building users; and (b) for safe entry from streets, car parking areas and servicing areas.
		AO9.2	Clearly marked, safe and secure parking areas are provided for residents and visitors, which are separate from parking areas provided for other building users.
		AO9.3	Security measures are installed, such that other building users do not have access to areas that are intended for the exclusive use of residents of, and visitors to, Accommodation activities.
		AO9.4	Buildings provide opportunities for casual surveillance of any adjoining street or other public space.
		AO9.5	All access points, footpaths, car parks, building entrances and foyers are illuminated.
		AO9.6	The Business activity achieves the environmental values for the acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the *Environmental Protection (Noise) Policy 2008*.
Requirements for a shop (corner store) in a residential zone			
PO10	Where the Business activity involves the establishment of a corner store in a residential zone, the corner store is: (a) appropriately located in the residential zone taking into account the size and configuration of the neighbourhood and the location of other existing or approved retail facilities; and (b) compatible with the scale and intensity of development in the neighbourhood.	**AO10.1**	The corner store is located on a site that is more than 400m radial distance from any: (a) existing shop; (b) site with a current approval for a shop; or (c) land included in a centre zone.
		AO10.2	The building in which the corner store is located does not exceed a gross floor area of 150m².
Requirements for a Business activity in an industry zone			

Performance Outcomes		Acceptable Outcomes	
PO11	Buildings and structures associated with the Business activity are: (a) of a scale and design which is appropriate to an industrial setting, whilst contributing positively to the visual character and streetscape of the area; and (b) designed to avoid or mitigate the potential for adverse amenity impacts on adjoining or nearby sensitive uses.	**AO11.1**	Buildings and structures are setback a minimum of: (a) 9m to the primary street frontage; (b) 3m to any secondary street frontage; and (c) 10m from any side or rear boundary where adjoining a sensitive land use or land in a residential zone or the Community facilities zone; or (d) 0.75m from any side or rear boundary, where not adjoining a sensitive land use, land in a residential zone or the Community facilities zone; or (e) where less than 0.75m to the boundary, maintenance free.

9.3.2 Caretaker's accommodation code

9.3.2.1 Application

This code applies to accepted and assessable development:

(a) being a material change of use for caretaker's accommodation; and

(b) identified as requiring assessment against the Caretaker's accommodation code by the tables of assessment in Part 5 (Tables of assessment).

9.3.2.2 Purpose and overall outcomes

(1) The purpose of the Caretaker's accommodation code is to provide for the development of caretaker's accommodation use, which provides acceptable levels of amenity for occupants.

(2) The purpose of the Caretaker's accommodation code will be achieved through the following overall outcomes:

(a) caretaker's accommodation is used for genuine caretaking or property management purposes;

(b) caretaker's accommodation remains ancillary to non-residential premises on the same site;

(c) an acceptable level of residential amenity is provided for occupants of caretaker's accommodation; and

(d) caretaker's accommodation does not adversely impact upon the amenity of the local area.

9.3.2.3 Assessment benchmarks

Table 9.3.2.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Use requirements			
PO1	The caretaker's accommodation is used for genuine caretaking or property management purposes.	**AO1.1**	The caretaker's accommodation is occupied by a person or persons having responsibility for the security, maintenance or management of non-residential activities conducted on the same site and, if applicable, that person's immediate family.
PO2	The caretaker's accommodation is ancillary to the non-residential premises on the same site.	**AO2.1**	The caretaker's accommodation has a gross floor area not exceeding 70m².
		AO2.2	No more than one caretaker's accommodation is established on the site.
		AO2.3	The caretaker's accommodation does not have a separate land title from the balance of the site.
Protection of residential amenity			
PO3	The design of the caretaker's accommodation achieves an acceptable level of residential amenity for residents of the caretaker's accommodation.	**AO3.1**	Bedrooms and living rooms of the caretaker's accommodation face away from, and do not adjoin, noise generating activities conducted on the site or adjoining sites.

Performance Outcomes		Acceptable Outcomes	
		AO3.2	Waste service areas are located at least: (a) 1m away from any adjacent side or rear property boundary; and (b) 3m from bedrooms, living rooms and private open space of the caretaker's accommodation.
PO4	The caretaker's accommodation is provided with adequate private open space that is useable and directly accessible from the caretaker's accommodation.	**AO4.1**	The caretaker's accommodation contains an area of private open space, which is directly accessible from a habitable room and: (a) if at ground level, has an area of not less than 16m², with no horizontal dimension of less than 4m; or (b) if a balcony, verandah or deck has an area of not less than 10m², with no horizontal dimension of less than 2.5m.
PO5	The design of the caretaker's accommodation is compatible with the preferred character of the zone in which it is located.	**AO5.1**	The caretaker's accommodation does not exceed the maximum building height for the zone in which it is located, as specified in the applicable zone code.
On-site car parking			
PO6	Sufficient on-site car parking is provided to satisfy the projected needs of the caretaker's accommodation and is appropriately designed to facilitate ease of use.	**AO6.1**	A minimum of 1 on-site parking space is provided for exclusive use by the occupants of the caretaker's accommodation.
		AO6.2	Development provides access driveways, internal circulation, manoeuvring areas and on site car parking areas in accordance with AS2890 (Parking facilities: Off-street car parking).

9.3.3 Child care centre code

9.3.3.1 Application

This code applies to assessable development:

(a) being a material change of use for a child care centre; and

(b) identified as requiring assessment against the Child care centre code by the tables of assessment in Part 5 (Tables of assessment).

9.3.3.2 Purpose and overall outcomes

(1) The purpose of the Child care centre code is to ensure child care centres are appropriately located and are designed in a manner which provides a safe environment for users and protects the amenity of surrounding premises.

(2) The purpose of the Child care centre code will be achieved through the following overall outcomes:

(a) a viable child care centre network is established and maintained for the Whitsunday region;

(b) child care centres are conveniently located close to residential communities or major employment nodes;

(c) the health and safety of children is not compromised by incompatible land use activities or poor design; and

(d) a child care centre does not have a detrimental impact on the amenity of surrounding residential premises.

9.3.3.3 Assessment benchmarks

Table 9.3.3.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The child care centre is co-located with other compatible Community activities or Business activities to maximise accessibility.	**AO1.1**	The child care centre is located: (a) within 400m of, or is integrated with, another compatible Community activity; (b) on a conveniently accessible site at the entrance to a residential neighbourhood; or (c) in an activity centre or other employment area.
PO2	The child care centre is located on a road, which is accessible and safe but not predominately used by local residential traffic.	**AO2.1**	The child care centre is located on a site with access and frontage to a collector street.
PO3	The child care centre is located and designed to ensure that children and staff are not exposed to unacceptable levels of noise, unhealthy air emissions contaminants or other unacceptable risks, such asgas, sewerage tanks, medium and high industry, and other nuisances.	**AO3.1**	The child care centre is located on a site where: (a) soils are not contaminated by pollutants, which represent a health or safety risk to children and staff; (b) maximum concentrations of air pollutants are less than those recommended by the National

Performance Outcomes		Acceptable Outcomes	
			Health and Medical Research Council; and (c) noise levels from external sources, measured at the maximum L10 [1 hour], are less than: (i) 35dB(A) within buildings; and (ii) 55dB(A) when measured at the centre of any outdoor play area.
PO4	The child care centre is located on a site that is capable of accommodating a well-designed, safe and integrated facility.	**AO4.1**	The child care centre is located on a site having: (a) a slope of not more than 10%; and (b) a regular shape.
Protection of residential amenity			
PO5	The child care centre is sited and designed to complement the local streetscape and reflect the character of the locality, while maintaining residential amenity and mitigating adverse impacts, such as noise and light nuisance.	**AO5.1**	All buildings, structures and outdoor play areas are setback at least 3m from all site boundaries adjoining an Accommodation activity or land, included in a residential zone.
		AO5.2	A 2m high acoustic screen fence is erected along the full length of all site boundaries adjoining an Accommodation activity or land included in a residential zone.
Services and utilities			
PO6	An appropriate level of water and sewerage infrastructure is provided to the child care centre to: (a) allow for the efficient functioning of the facility; and (b) maintain acceptable public health and environmental standards.	**AO6.1**	(a) The childcare centre is connected to the reticulated water supply and sewerage network; or (b) Where a reticulated water supply and sewerage network is not available: (i) satisfactory alternative means of potable water supply is provided; and (ii) an adequate standard of on site effluent treatment and disposal is provided.
Parking and access			
PO7	A safe set-down and pick-up area is provided, with all on site parking and vehicle manoeuvring areas located and designed to minimise conflicts between private motor vehicles and pedestrians.	**AO7.1**	Set down and pick up areas: (a) provide an appropriate number of bays, with a drive through lane located at the front of the site; (b) provide good visibility; and (c) are adequately covered to provide protection from weather elements.
		AO7.2	Convenient, safe and clearly visible pedestrian access is available within and to the site, which does not cross access driveways.

9.3.4 Dual occupancy code

9.3.4.1 Application

This code applies to accepted and assessable development:

(a) being for building work for a dual occupancy; and

(b) identified as requiring assessment against the Dual occupancy code by the tables of assessment in Part 5 (Tables of Assessment).

9.3.4.2 Purpose and overall outcomes

(1) The purpose of the Dual occupancy code is to ensure that development involving a dual occupancy achieves a high level of comfort and amenity for occupants, maintains the amenity and enjoyment of neighbouring premises and is compatible with the character of the streetscape and surrounding area.

(2) The purpose of the Dual occupancy code will be achieved through the following overall outcomes:

(a) a dual occupancy makes a positive contribution to the streetscape character of the area in which it is located;

(b) a dual occupancy is sited and designed to protect the amenity, privacy and access to sunlight of adjoining residential premises;

(c) a dual occupancy provides a high level of amenity and safety for residents of the dual occupancy; and

(d) a dual occupancy is provided with an acceptable level of infrastructure and services.

9.3.4.3 Assessment benchmarks

Table 9.3.4.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Site suitability			
PO1	The dual occupancy is located close to local services and public transport and has sufficient area to accommodate the dual occupancy and associated access, parking, landscaping and setback requirements.	**AO1.1**	The dual occupancy is located on a lot in the Low-medium density residential zone or a centre zone.
		AO1.2	The dual occupancy is located on a lot having a minimum area of 800m².
Road setbacks			
PO2	The location of a building or structure facilitates an acceptable streetscape, appropriate for: (a) the bulk of the building or structure; (b) the road boundary setbacks of neighbouring buildings or structures; (c) the outlook and views of neighbouring residents; and (d) safety to the public.	**AO2.1**	The dual occupancy is setback in accordance with MP 1.3 A1 of the QDC.
		AO2.2	Garage openings facing the street do not exceed 6m or 50% of the street frontage, whichever is the lesser.
Building and structures			

Performance Outcomes		Acceptable Outcomes	
PO3	Buildings and structures: (a) provide adequate daylight and ventilation to habitable rooms; (b) allow adequate light and ventilation to habitable rooms of buildings on adjoining lots; and (c) do not adversely impact on the amenity and privacy of residents on adjoining lots.	**AO3.1**	The dual occupancy and associated structures have a side and rear boundary setback in accordance with MP 1.3 A2 of the QDC.
Site cover			
PO4	Adequate open space is provided for recreation, service facilities and landscaping.	**AO4.1**	The maximum site cover of the dual occupancy is provided in accordance with MP 1.3 A3 of the QDC.
Building height			
PO5	The height of a building does not unduly: (a) overshadow adjoining dwellings; (b) obstruct the outlook from adjoining lots; or (c) dominate the intended streetscape character.	**AO5.1**	The maximum building height of the dual occupancy is provided in accordance with MP 1.3 A4 of the QDC.
		AO5.2	The maximum building height of a garage, carport or shed is 5.5m above ground level to the highest point.
Visual privacy			
PO6	Buildings are sited and designed to provide adequate visual privacy for neighbours.	**AO6.1**	The dual occupancy is provided in accordance with MP1.3 A5 of the QDC.
Structure on corner sites			
PO7	The size and location of structures on corner sites provide for adequate sight lines.	**AO7.1**	The dual occupancy is provided in accordance with MP 1.3 A7 of the QDC.
Building maintenance			
PO8	The location of a building or structure facilitates normal maintenance.	**AO8.1**	A wall is set back in accordance with MP 1.3 A6 of the QDC.
On-site car parking			
PO9	Development provides sufficient space for on-site car parking to satisfy the projected needs of residents and visitors, appropriate for: (a) the availability of public transport; (b) the availability of on-street parking; (c) the desirability of on-street parking in respect to the streetscape; and (d) the residents' likelihood to have or need a vehicle.	**AO9.1**	Parking is provided in accordance with MP 1.3 A8 of the QDC.
		AO9.2	Car parking spaces may be in tandem, provided one space is behind the road setback required in AO2.1.
PO10	Development ensures that the layout and design of vehicle access, on-site circulation systems and parking areas are safe, convenient and legible.	**AO10.1**	Development provides access driveways, internal circulation, manoeuvring areas and parking areas in accordance AS2890 (Parking facilities: Off street car parking).
Private open space			

Performance Outcomes		Acceptable Outcomes	
PO11	Each dwelling has private open space available, which is: (a) a suitable size, dimension and slope to allow residents to extend their living activities outdoors; (b) available for the sole use of the residents of individual dwellings; and (c) adequately separated from each other to provide visual privacy.	**AO11.1**	Each dwelling has clearly defined private open space, which is provided in accordance with MP 1.3 A9 of the QDC.
Services and utilities			
PO12	The dual occupancy is provided with, and connected to, essential infrastructure and services.	**AO12.1**	The dual occupancy is connected to the reticulated water supply, sewerage and stormwater drainage infrastructure networks and has an electricity supply.
PO13	The dual occupancy is provided with adequate areas for the storage of waste and recyclable items, in appropriate containers, which are convenient to use and service.	**AO13.1**	Waste storage areas are provided as: (a) separate areas for each dwelling to accommodate the permanent storage of waste and recyclable items in standard waste containers; or (b) shared areas over which each dwelling has control via access rights or ownership is provided to accommodate the permanent storage of waste and recyclable items in standard waste containers.
		AO13.2	Waste storage areas are screened from public view.
Flood immunity			
PO14	Development involving any habitable part of the building is located and designed to ensure the safety of all persons and buildings from flood hazards.	**AO14.1**	Development of a habitable building: (a) ensures the finished floor levels for all habitable rooms are a minimum of 300mm above the DFL; or (b) is not less than the floor level of existing habitable room(s), where involving an extension for no greater than 75m² to an existing building. Editor's Note – Refer to Overlay map - FH - 01:29 (Flood hazard overlay) for further detail.

9.3.5 Dwelling house code

9.3.5.1 Application

This code applies to accepted and assessable development:

(a) being for building work for a dwelling house; and

(b) identified as requiring assessment against the Dwelling house code by the tables of assessment in Part 5 (Tables of Assessment).

Editor's note – in accordance with Schedule 1 (Definitions), a reference to a dwelling house includes outbuildings and works normally associated with a dwelling, including a secondary dwelling.

9.3.5.2 Purpose and overall outcomes

(1) The purpose of the Dwelling house code is to ensure the design and siting of detached houses protects residential amenity and maintains streetscape character and that associated dwellings and outbuildings are of an appropriate scale and intensity.

(2) The purpose of the Dwelling house code will be achieved through the following overall outcomes:

(a) the building form, siting design and use of the dwelling house is consistent with the desired amenity and character of the area;

(b) a dwelling house is sited and designed to protect the amenity, privacy and access to sunlight of adjoining residential premises;

(c) a dwelling house provides a high level of amenity and safety for residents of the dwelling house;

(d) a dwelling house is provided with an acceptable level of infrastructure and services;

(e) outbuildings are of an appropriate scale and intensity and are compatible with surrounding development;

(f) secondary dwellings are small in scale and ancillary to the principal use for a dwelling house; and

(g) a dwelling house is not at an unacceptable risk from natural hazards.

9.3.5.3 Assessment benchmarks

Editor's note – an approved plan of development for a variation approval overriding the Planning Scheme or reconfiguring a lot may vary or specify alternative assessment benchmarks for a dwelling house. In such cases, compliance with these alternative assessment benchmarks will be deemed to represent compliance with the comparable provisions of the Dwelling house code.

Table 9.3.5.3.1 Benchmarks for acceptable and assessable development

Performance Outcomes		Acceptable Outcomes	
Road setbacks			
PO1	The location of a dwelling house facilitates an acceptable streetscape, appropriate for: (a) the bulk of the building or structure; (b) the road boundary setbacks of neighbouring buildings or structures;	**AO1.1**	Any dwelling house on a lot less than 450m² is setback in accordance with MP 1.1 A1 of the QDC.
		AO1.2	Any dwelling house on a lot greater than or equal to 450m² is setback in accordance with MP 1.2 A1 of the QDC.

Performance Outcomes		Acceptable Outcomes	
	(c) the outlook and views of neighbouring residents; and (d) safety to the public.		
Building structures			
PO2	The location of buildings and structures: (a) provide adequate daylight and ventilation to habitable rooms; (b) allow adequate light and ventilation to habitable rooms on adjoining lots; and (c) does not adversely impact on the amenity and privacy of residents on adjoining lots.	**AO2.1**	Where on a lot less than 450m², the dwelling house and associated structures have a side and rear setback in accordance with MP 1.1 A2 of the QDC.
		AO2.2	Where on a lot greater than or equal to 450m² the dwelling house and associated structures have a side and rear setback in accordance with MP 1.2 A2 of the QDC.
Site cover			
PO3	Adequate open space is provided for recreation, service facilities and landscaping.	**AO3.1**	Where on a lot less than 450m² the maximum site cover of the dwelling house is provided in accordance with MP 1.1 A3 of the QDC.
		AO3.2	Where on a lot greater than or equal to 450m² the maximum site cover of the dwelling house is provided in accordance with MP 1.2 A3 of the QDC.
Building height			
PO4	The height of a dwelling house does not unduly: (a) overshadow adjoining detached dwellings; (b) obstruct the outlook from adjoining lots; and (c) dominate the intended streetscape character.	**AO4.1**	The maximum building height is for a dwelling house: (a) 8.5m above ground level where on a slope up to 15%; or (b) 10m above ground level where on a slope greater than 15%.
		AO4.2	The maximum building height for a garage, carport or shed is 5.5m above ground level to the highest point.
Visual privacy			
PO5	Buildings are sited and designed to provide adequate visual privacy for neighbours.	**AO5.1**	Where on a lot less than 450m², the dwelling house is provided in accordance with MP 1.1 A5 of the QDC.
		AO5.2	Where on a lot greater than or equal to 450m², and the dwelling house is provided in accordance with MP 1.2 A5 of the QDC.
Structures on corner sites			
PO6	The size and location of structures on corner sites provide for adequate sight lines.	**AO6.1**	Where on a lot less than 450m², the dwelling house is provided in accordance with MP 1.1 A7 of the QDC.
		AO6.2	Where on a lot greater than or equal to 450m², the dwelling house is provided in accordance with MP 1.2 A7 of the QDC.

Performance Outcomes		Acceptable Outcomes	
On site car parking			
PO7	Sufficient space for on site car parking to satisfy the projected needs of residents and visitors, appropriate for: (a) the availability of public transport; (b) the availability of on-street parking; (c) the desirability of on-street parking in respect to the streetscape; and (d) the resident's likelihood to have, or need, a vehicle.	**AO7.1**	Where on a lot less than 450m², parking is provided in accordance with MP 1.1 A8 of the QDC.
		AO7.2	Where on a lot greater than or equal to 450m², parking is provided in accordance with MP 1.2 A8 of the QDC.
		AO7.3	Development provides access driveways, internal circulation and manoeuvring areas and parking areas in accordance AS2890 (Parking facilities: Off street car parking).
Private open space (for lots less than 450m² only)			
PO8	A detached dwelling has its own individual outdoor living space, which: (a) has suitable size and slope to allow residents to extend their living activities outdoors; (b) is available for the sole use of the residents of individual dwellings; and (c) is adequately separated from each other to provide visual privacy.	**AO8.1**	Where on a lot less than 450m², private open space is provided in accordance with MP 1.1 A9 of the QDC.
Services and utilities			
PO9	The dwelling house is provided with and connected to essential infrastructure and services.	**AO9.1**	The dwelling house is: (a) connected to reticulated water supply, sewerage and stormwater drainage infrastructure networks in accordance with PSP SC6.8 (WRC Development manual); and (b) has an electricity supply.
		AO9.2	The dwelling house, where in a Rural or Rural residential zone, has an electricity supply and is connected to a: (c) reticulated water supply; or potable water supply and water storage collection system having: (i) a minimum storage capacity of 70,000 litres; and (ii) a first flush system; (d) reticulated sewerage system or an alternative on site effluent and wastewater treatment system consistent with the Queensland plumbing and wastewater code.
Flood immunity			
PO10	Development involving any habitable part of the building is	**AO10.1**	Development of a habitable building:

Performance Outcomes		Acceptable Outcomes	
	located and designed to ensure the safety of all persons and buildings from flood hazards.		(a) ensures the finished floor levels for all habitable rooms are a minimum of 300mm above the DFL; or (b) is not less than the floor level of existing habitable room(s) where involving an extension for no greater than 75m² to an existing building. Editor's Note – Refer to Overlay map - FH - 01:29 (Flood hazard overlay) for further detail.
Secondary dwellings			
PO11	A secondary dwelling is subordinate in bulk and scale to maintain the appearance of a dwelling house with ancillary buildings when viewed from the street.	**AO11.1**	Only one secondary dwelling is established in association with a dwelling house.
		AO11.2	A secondary dwelling has a maximum GFA of 70m² and a TUA of 100m², excluding car parking areas.
		AO11.3	A minimum of one on site car parking space is provided to service the secondary dwelling.

9.3.6 Extractive industry code

9.3.6.1 Application

This code applies to assessable development:

(a) being a material change of use for extractive industry; and

(b) identified as requiring assessment against the Extractive industry code by the tables of assessment in Part 5 (Tables of assessment).

Editor's note – The Extractive resource area overlay map also show mining lease areas located within the Planning Scheme area. Mining lease areas are shown for information purposes only with mining operations in these areas regulated under the *Mineral Resources Act 1989.*

9.3.6.2 Purpose and overall outcomes

(1) The purpose of the Extractive industry code is to ensure that the exploitation of extractive resources is undertaken in a sustainable manner which protects environmental and landscape values, public safety and the amenity of surrounding premises.

(2) The purpose of the Extractive industry code will be achieved through the following overall outcomes:

(a) extraction of resources occurs in a sustainable manner;

(b) natural values and water quality are protected from any environmental degradation potentially arising from extractive industry operations;

(c) extractive industry operations are located, designed and constructed to avoid or effectively mitigate adverse impacts on any sensitive use, in particular, residential or rural residential premises;

(d) transport routes allow extractive materials to be transported with the least amount of impact on development along those roads and on the function of those roads; and

(e) land used for extractive industry operations is effectively rehabilitated.

9.3.6.3 Assessment benchmarks

Table 9.3.6.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Site planning			
PO1	The extractive industry is designed and established having regard to the availability of other appropriate infrastructure, characteristics of the natural environment and the proximity of sensitive land uses, to provide: (a) adequate separation distance to protect the surrounding area from significant noise, dust, vibration and visual impacts of operations; (b) suitable vehicle access and haulage routes; (c) protection against erosion;	**AO1.1**	The extractive industry is undertaken in accordance with an approved environmental management plan, which addresses environmental and social impacts of operations.

Performance Outcomes		Acceptable Outcomes	
	(d) acceptable quality of water leaving the site; (e) public safety; (f) acceptable restoration measures; (g) protection of groundwater quality and quantity; (h) avoidance of land contamination; (i) effective stormwater management; and (j) waste management practices, which maximise recycling and reuse of wastes.		
PO2	The extractive industry maintains suitable and sustainable landscaping on the extractions site.	**AO2.1**	The volumes of anticipated extraction are planned and staged, allowing for appropriate landscape form.
Vehicle access and manoeuvring			
PO3	Vehicle access to, from and within the extractive industry site is provided to: (a) be adequate for the type and volume of traffic to be generated; (b) not create or worsen any traffic hazard; (c) not have adverse effects on the amenity of the locality; and (d) ensure disturbance to surrounding land uses is minor and that impacts from emissions are minimised.	**AO3.1**	The proposed transport route to and from the site is along sealed roads and does not require heavy vehicles to traverse residential or rural residential streets.
		AO3.2	All driveways are sealed, with internal manoeuvring and car parking areas suitably surfaced.
		AO3.3	Site ingresses and egresses are located to provide: (a) a minimum sight distance in all directions of 200m; (b) a maximum gradient of 1:10 (10%) on all roads, including haul roads, within 100m of such ingress or egress; (c) a minimum ingress/egress width of 12m; and (d) a minimum separation to any road intersection or property access of 50m.
		AO3.4	Acceleration and deceleration lanes, in accordance with Austroads guidelines, are provided to site ingress and egress points.
		AO3.5	Rubble pad, wheel wash or other suitable method installed at heavy vehicle egresses to prevent material being carried onto roadway during bulk haulage.
		AO3.6	Vehicle access is provided in accordance with the standards specified PSP SC6.8 (WRC development manual).
Separation distances			
PO4	The extractive industry is located on a site which has sufficient area to provide for adequate setback of	**AO4.1**	Extractive industry involving blasting or crushing is not carried out within 1km of any sensitive use.

Performance Outcomes		Acceptable Outcomes	
	operations from road frontages, site boundaries, surrounding sensitive uses, such that the extractive industry achieves an acceptable standard of visual amenity and control of noise, light, dust and vibration impacts.	**AO4.2**	Extractive industry not involving blasting or crushing is not carried out within 100m of any sensitive use.
		AO4.3	A mounded vegetated buffer strip having a minimum width of 10m is provided to all boundaries of the site.
Site drainage			
PO5	The extractive industry provides on site drainage that is designed, constructed and maintained to: (a) prevent ponding in excavated areas; (b) avoid erosion; (c) prevent pollution of groundwater and surface water; (d) protect downstream water quality; and (e) provide opportunities to recycle water for reuse in processing, washing and/or screening materials, dust suppression and on product stockpiles, overburden stockpiles, revegetation or rehabilitation areas and wheel wash facilities.	**AO5.1**	Banks and channels are constructed to divert stormwater run-off away from excavated areas.
		AO5.2	Sediment basins are provided to detain stormwater run-off from disturbed areas, such that there is no off-site discharge likely to cause environmental harm.
		AO5.3	Bunding, treatment and disposal of industrial wastes are carried out, such that no environmental harm is caused.
		AO5.4	Lining or other suitable treatment of erosion-prone areas is established and maintained at discharge points.
Management of blasting and other operations			
PO6	The extractive industry provides for blasting, crushing, screening and loading to be carried out safely and in accordance with best practice management standards, so that disturbance to surrounding land uses is minor and impacts from emissions are minimised.	**AO6.1**	Blasting and other operations are confined to the periods identified in Table 9.3.6.3.2 (Extractive industry operations periods).
		AO6.2	Public signage to warn of operations and safety hazards is provided to all boundaries of the site.
		AO6.3	Blasting and other operations are undertaken in a manner which complies with best practice approaches to vibration avoidance and management, such as those identified in AS2670.2 (Evaluation of human exposure to whole of body vibration - Continuous and shock induced vibration in buildings (1-80Hz)).
		AO6.4	Blasting operations are designed and planned to minimise risk of dust and fume emissions.
Safety fencing			
PO7	Entry to extractive industry operational areas is restricted to authorised personnel and authorised vehicles.	**AO7.1**	A 2m high fence is erected and maintained around all extractive industry operations and associated infrastructure.
Site rehabilitation			
PO8	Rehabilitation of the extractive industry site restores the	**AO8.1**	The extractive industry provides for all rehabilitation works to be undertaken in accordance with an

Performance Outcomes		Acceptable Outcomes	
	environmental and economic values of the land and provides: (a) progressive/staged rehabilitation works; (b) appropriate clean-up works, particularly areas of possible soil contamination; (c) agreed landform and soil profiles; (d) suitable revegetation; and (e) establishment phase requirements.		approved expected final landform design and site rehabilitation plan. Editor's note—the Council may require rehabilitation works to be bonded to ensure the affective return of disturbed areas to acceptable land use suitability.

Table 9.3.6.3.2 Extractive industry operation periods

Extractive industry activity	Hours of operation
Blasting operation	9am to 5pm Monday to Friday
	No operations Saturday, Sunday or public holidays
Other operations	6am to 6pm, Monday to Friday
	7am to 1pm Saturday
	No operations Sunday or public holidays

9.3.7 Home based business code

9.3.7.1 Application

This code applies to accepted and assessable development:

(a) being a material change of use for home based business; and

(b) identified as requiring assessment against the Home based business code by the tables of assessment in Part 5 (Tables of assessment).

9.3.7.2 Purpose and overall outcomes

(1) The purpose of the Home based business code is to facilitate legitimate home based business, conducted in a manner which is appropriate to the preferred character of the area and protects the amenity of surrounding premises.

(2) The purpose of the Home based business code will be achieved through the following overall outcomes:

(a) a home based business is domestic in scale and operates in a manner that is subservient and ancillary to the Accommodation activity of the premises;

(b) a home based business is conducted in a manner that maintains the residential character and amenity of the locality; and

(c) a home based business is operated in a safe manner and does not impose an unreasonable load on infrastructure services.

9.3.7.3 Assessment benchmarks

Table 9.3.7.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Operation of working from home activity			
PO1	The home based business is conducted as a genuine working from home activity.	**AO1.1**	Other than a bed and breakfast, the home based business is conducted within a dwelling house, dual occupancy or multiple dwelling.
		AO1.2	For a home based business operating as a bed and breakfast, the bed and breakfast is conducted only within the dwelling house.
Scale of use and protection of amenity			
PO2	The home based business is limited in size and scale so that: (a) the amenity of the existing neighbourhood is protected; and (b) the home based business remains ancillary to the Accommodation activity of the premises.	**AO2.1**	For a home based business, other than a bed and breakfast, conducted in association with a dwelling house or dual occupancy: (a) the total area, both in and outside of the dwelling, used for the home based business does not exceed: (i) 40m² where the dwelling is located on a lot not more than 2,000m² in area; or (ii) 80m² where the dwelling is located on a lot more than 2,000m² in area; (b) no more than 2 customers or clients are present at any one

Performance Outcomes		Acceptable Outcomes	
			time and no more than 8 customers or clients are present in any one day; and (c) the home based business does not involve more than: (i) 2 persons, including residents of the dwelling; or (ii) where the site is in the Rural zone, 4 persons, including residents of the dwelling.
		AO2.2	For a home based business conducted within a multiple dwelling: (a) the total GFA used for the home based business does not exceed: (i) 20m²; or (ii) 10% of the area of any floor level on which the home based business is located; (b) the home based business does not involve outdoor use areas; (c) no more than 2 customers or clients are present at any one time and no more than 8 customers or clients are present in any one day; and (d) the home based business involves only the persons who are residents of the dwelling.
		AO2.3	For a home based business operating as a bed and breakfast: (a) the use is conducted from a dwelling house; (b) at least one bedroom within the dwelling house is excluded from use by guests; and (c) the maximum number of bedrooms used to accommodate guests is 3 and the maximum number of guests accommodated at any one time is 6.
		AO2.4	Not more than one home based business is conducted on the premises.
PO3	The home based business does not involve any materials, equipment or processes that cause nuisance or detrimentally impact on residential amenity.	**AO3.1**	The home based business does not produce any dust emissions.
		AO3.2	The home based business does not produce any offensive odour emissions beyond the site boundaries.
		AO3.3	The home based business does not produce noise, which exceeds the background noise level plus 5 dB(A)

Performance Outcomes		Acceptable Outcomes	
			from8.00am to 6.00pm, measured as an adjusted sound level.
		AO3.4	Glare conditions or excessive light spill into dwellings, adjacent sites and public spaces is avoided or minimised through measures, such as: (a) the use of building design and architectural elements or landscape treatments to block or reduce excessive light spill to locations where it would cause a nuisance to residents or the general public; and (b) the alignment of driveways and servicing areas to minimise vehicle headlight impacts on residential accommodation and private open space.
		AO3.5	Loading or unloading of goods is not undertaken by a vehicle larger than a SRV.
		AO3.6	A maximum of 1 commercial vehicle, not including a HRV or AV, associated with the home based business is parked/garaged on the premises.
		AO3.7	Not more than 2 customer vehicles are associated with the home based business at any one time.
		AO3.8	In addition to the parking required for the primary Accommodation activity, the following onsite parking is provided, where applicable: (a) 1 space for customer parking; plus (b) 1 space per non-resident employee; plus (c) 1 space per guest room, where a Bed and breakfast. Note – Any required on site parking spaces may be provided in tandem to the residential parking spaces.
		AO3.9	No vehicle is fuelled, serviced or repaired on the premises.
		AO3.10	Materials or equipment used, or goods manufactured, serviced or repaired, are stored within a building on the premises.
		AO3.11	Trade person's storage and activities are located at the rear of the dwelling and any vehicle, or stored equipment or materials, is screened from view from all public places and adjoining residential premise.
		AO3.12	Refuse and waste storage and service areas associated with the

Performance Outcomes		Acceptable Outcomes	
			home based business are suitably screened from the street.
		AO3.13	Quantities of chemicals, gases or other hazardous materials do not exceed the limits normally associated with a residential activity.
		AO3.14	The home based business does not involve any activity defined as an environmentally relevant activity in the *Environmental Protection Regulation 2008*.
PO4	The hours of operation of the home based business do not cause a nuisance or detrimentally impact on residential amenity.	**AO4.1**	Where goods are offered for sale from the premises, there is no public display of such goods.
Signage			
PO5	Signage associated with the home based business is small, unobtrusive and appropriate to its location and setting.	**AO5.1**	Not more than 1 advertising device is erected on the premises and the sign: (a) includes only the name of the occupier, the business conducted on the premises and associated contact/address details; (b) has a maximum sign face area of 0.3m²; (c) is attached to a fence or wall; and (d) is not illuminated or in motion.
Services and utilities			
PO6	The home based business does not detrimentally impact on the capacity of infrastructure services.	**AO6.1**	No greater load is imposed on any public utility than would reasonably be expected from that normally associated with a residential activity.
Storage of chemicals			
PO7	The risk to occupiers, employees and neighbouring residents from the storage of chemicals and hazardous substances is minimised.	**AO7.1**	Storage of flammable and combustible liquids complies with the minor storage provisions of AS1940 (The storage and handling of flammable and combustible liquids).
Additional requirements for bed and breakfast accommodation			
Temporary accommodation			
PO8	Bed and breakfast accommodation is provided for short-term stay only.	**AO8.1**	Guests stay no more than 14 consecutive nights.
Guest facilities			
PO9	An acceptable standard of facilities is provided for guests of the bed and breakfast.	**AO9.1**	Guests are provided with a bedroom capable of being enclosed to prevent visual or other intrusion by members of the host family or other guests.
		AO9.2	A separate bathroom and toilet facility is provided within the dwelling house for the exclusive use of guests.

9.3.8 Industry activities code

9.3.8.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Industry activities code by the tables of assessment in Part 5 (Tables of assessment).

9.3.8.2 Purpose and overall outcomes

(1) The purpose of the Industry activities code is to ensure Industry activities are designed and operated in a manner which meets the needs of the Industry activity, protects public safety and environmental values and appropriately responds to amenity considerations.

(2) The purpose of the Industry activities code will be achieved through the following overall outcomes:

(a) the scale and intensity of an Industry activity is compatible with its location and setting;

(b) an Industry activity incorporates a site layout and building design that provides for the efficient and safe conduct of industrial activities and contributes to a well organised development that is attractive when viewed from the street;

(c) an Industry activity does not cause environmental harm or nuisance, including the contamination of land or water;

(d) an Industry activity avoids or effectively mitigates adverse impacts on the amenity of adjoining and nearby non-industrial activity where these activities are located in a zone other than an industry zone; and

(e) an Industry activity incorporates service areas and waste management processes that are efficient and maximise opportunities for reuse or recycling.

9.3.8.3 Assessment benchmarks

Table 9.3.8.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Built form, streetscape character and protection of amenity			
PO1	Buildings and structures associated with the industrial activity are: (a) of a scale and design, which is appropriate to an industrial setting, whilst contributing positively to the visual character and streetscape of the area; and (b) designed to avoid or mitigate the potential for adverse amenity impacts on adjoining or nearby sensitive land uses.	**AO1.1**	The site cover of all buildings and structures on the site does not exceed 75%.
		AO1.2	Buildings and structures are setback a minimum of: (a) 9m to the primary street frontage; (b) 3m to any secondary street frontage; and (c) 10m from any side or rear boundary, where adjoining a sensitive land use, land in a residential zone or the Community facilities zone; or (d) 0.75m from any the side or rear boundary, where not adjoining a sensitive use, land in a residential zone or the Community facilities zone; or (e) where less than 0.75m to the boundary, maintenance free.

Performance Outcomes		Acceptable Outcomes	
		AO1.3	Where the site has a common boundary with a sensitive land use, land in a residential zone or the Community facilities zone: (a) no openings occur in walls facing a common boundary; (b) acoustic screening is provided to all areas where work could be conducted outside of the building, including waste storage and refuse areas, so that off-site noise emissions are avoided or do not cause a nuisance; and (c) noise emitting services, such as air conditioning equipment, pumps and ventilation fans, are located as far away as possible from residential areas.
		AO1.4	The main entry to any building is easily identifiable and directly accessible from the street or the primary street frontage, if the site has more than one street frontage.
		AO1.5	Where adjoining a sensitive land use, land included in a residential zone or the Community facilities zone, a minimum 2m high solid screen fence is provided for the full length of the common boundary.
PO2	The industrial activity is attractive when viewed from a major road.	**AO2.1**	Where the industrial activity has frontage to, or overlooks, a major road: (a) building design incorporates variations in parapet design, roofing heights and treatments; and (b) any security fencing is set within or located behind the landscaping strip rather than adjacent to the major road.
Services and utilities			
PO3	The industrial activity is provided with: (a) a safe and reliable water supply; (b) a waste disposal system and stormwater drainage, which maintains acceptable public health and environmental standards; (c) electricity infrastructure; (d) appropriate frontage works; and (e) refuse storage areas that are suitably screened from the street.	**AO3.1**	The industrial activity is connected to the reticulated water supply, sewerage, stormwater drainage and electricity infrastructure networks.
		AO3.2	Kerb and channel is constructed for the full length of the road frontage.
		AO3.3	The layout and design of the industrial activity provides for the on-site loading and unloading of goods and the storage of refuse to the rear of the site.
Environmental performance			
PO4	The industrial activity ensures that any emissions of odour, dust, air	**AO4.1**	The industrial activity achieves the environmental values for the

Performance Outcomes		Acceptable Outcomes	
	pollutants, noise, light or vibration does not cause nuisance to, or have an unreasonable adverse impact on, adjoining or nearby premises. Editor's note—development involving Industry activities will need to comply with relevant environmental legislation including the *Environmental Protection Act 1994* and subordinate legislation.		acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the *Environmental Protection (noise) Policy 2008*.
		AO4.2	The industrial activity achieves the environmental values and air quality objectives set out in the *Environmental Protection (air) Policy 2008*.
		AO4.3	The industrial activity does not produce any offensive odour emissions beyond the site boundaries.
		AO4.4	The industrial activity ensures that any external lighting is provided in accordance with AS4282 (Control of the obtrusive effects of outdoor lighting).
		AO4.5	Vibrations resulting from the industrial activity do not exceed the maximum acceptable levels identified in AS2670.2 (Evaluation of human exposure to whole of body vibration -Continuous and shock induced vibration in buildings (1-80Hz)).
PO5	The industrial activity provides for the collection, treatment and disposal of all liquid waste, such that: (a) there is no off-site release of contaminants; (b) all wastes are collected and disposed of in accordance with relevant license and approval conditions and/or relevant government or industry standards; and (c) there are no adverse impacts on the quality of surface water or groundwater resources.	**AO5.1**	Sealed impervious surfaces, draining to receptors and/or storage containers are provided in areas where potential spills of contaminants can occur.
		AO5.2	Waste water associated with the industrial activity is disposed to Council's sewerage system or an on-site industrial waste treatment system.
		AO5.3	Liquid wastes that cannot be disposed to Council's sewerage system or the on-site industrial waste treatment system are disposed of off-site to an approved waste disposal facility.
		AO5.4	No discharge of waste occurs to local waterways (including dry waterways) or natural wetlands.
		AO5.5	Oil arrestor or other pre-treatment infrastructure is provided to remove contaminants from industrial waste water where discharged to the sewer or environment.
PO6	The industrial activity does not contaminate or pollute stormwater runoff from the site.	**AO6.1**	Areas where hazardous materials or potentially contaminating substances are stored or used are roofed.
		AO6.2	Provision is made for spills to be bunded and retained on-site for

Performance Outcomes		Acceptable Outcomes	
			removal and disposal by an approved means.
		AO6.3	Stormwater is diverted away from contaminated areas.
On-site retail sales			
PO7	Any retail sales conducted from the premises are ancillary and subordinate to the industrial activity.	**AO7.1**	On-site retail sales are limited to goods manufactured, assembled on the premises or goods associated with those manufactured on the site.
		AO7.2	Parking for on-site retail sales is provided at the same rate as required for a shop (refer Table 9.4.7.3.3 Minimum on-site parking requirements).

Table 9.3.8.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The Industry activity is established on land included in an industry zone or another zone that is suitable having regard to: (a) the suitability of the land for an Industry activity; (b) the nature, scale and intensity of the Industry activity; (c) the infrastructure and service needs of the Industry activity; and (d) the preferred character of the local area.	**AO1.1**	The Industry activity is established on a site with sufficient area and dimensions to accommodate required buildings, machinery, parking and service areas, storage areas, vehicle access, on-site movement and landscaping.
Site layout			
PO2	The layout and design of the industrial activity is functional and compatible with surrounding development.	**AO2.1**	The industrial activity ensures that: (a) the premises are safe, secure and legible; (b) movement systems, including roads and pathways, and accessible on-site parking and manoeuvring areas, meet the needs of users and employees; (c) the premises addresses the street, with buildings integrated with landscaping and security fencing to provide a quality contemporary appearance; and (d) surplus areas that may become unsightly or difficult to manage, due to their size, configuration or access limitations, are not created.
Requirements for an Industry activity within a centre zone			
Built form			
PO3	The Industry activity is in a building that enhances the character and amenity of streets and neighbouring premises via a built form that:	**AO3.1**	Where within a centre zone: (a) Buildings are set back from street frontages: (i) not more than 3m for that part of a building not

Performance Outcomes		Acceptable Outcomes	
	(a) is closely related to streets, public spaces and pedestrian routes; and (b) maintains some area free of buildings at ground level to facilitate pedestrian movement and other functions associated with the building.		exceeding 8.5m in height; and (ii) at least 6m for that part of a building exceeding 8.5m in height; (b) buildings are set back from other site boundaries: (i) 0m, if not exceeding 8.5m in height and adjoining an existing blank wall or vacant land on an adjoining site; (ii) at least 3m, if not exceeding 8.5m in height and adjoining an existing wall with openings on an adjoining site; and (iii) at least 6m for that part of a building exceeding 8.5m in height.
Relationship of buildings to streets and public areas			
PO4	The Industry activity is in a building that clearly defines frames or encloses the street and other useable public and semi-public open space.	**AO4.1**	The building is located close to the street frontage and other urban spaces for all, or most, of its length to create a continuous or mostly continuous edge.
		AO4.2	The building is sited and designed, such that: (a) the main pedestrian entrance to the building, or group of buildings, is located on the primary street frontage; and (b) pedestrian access to the entrance of the building(s) or individual dwellings are easily discerned from the primary street frontage.
		AO4.3	Car parking areas, service areas and driveways are located and configured, so that they do not dominate the streetscape.
		AO4.4	Vehicular access to the site is separate from the pedestrian access.
PO5	The Industry activity provides for footpaths, walkways and other spaces intended primarily for pedestrians to be comfortable to use and adequately sheltered from excessive sunlight and inclement weather.	**AO5.1**	Any building provides adequate and appropriate shelter along, or around, the street in the form of an awning, colonnade, verandah or the like, with a width of 3.2m to 4m or is otherwise consistent with the width of shelter provided to adjoining premises.
PO6	The Industry activity is in a building which is designed to create vibrant and active streets and public spaces.	**AO6.1**	Development provides for a minimum of 65% of the building frontage to a public street or other public space to present with clear, or relatively clear, windows and glazed doors.

Performance Outcomes		Acceptable Outcomes	
Requirements for an Industry activity in a Rural zone			
PO7	The Industry activity is located on a site which has sufficient area to accommodate the use.	**AO7.1**	Where within a Rural zone: (a) buildings are set back 50m from street frontages; and (b) buildings are setback 10m from other site boundaries.

9.3.9 Market code

9.3.9.1 Application

This code applies to accepted and assessable development:

(a) being a material change of use for a market; and

(b) identified as requiring assessment against the Market code by the tables of assessment in Part 5 (Tables of assessment).

9.3.9.2 Purpose and overall outcomes

(1) The purpose of the Market code is to ensure markets are appropriately located and are operated in a manner, which is economically, environmentally and socially sustainable and appropriately responds to local amenity issues.

(2) The purpose of the Market code will be achieved through the following overall outcomes:

(a) markets are established in locations of community attraction;

(b) markets are established where infrastructure and services are available or can easily be provided to meet the needs of users;

(c) markets operate in a manner, which takes account of:

(i) the amenity of the local area; and

(ii) the viability of local businesses.

9.3.9.3 Assessment benchmarks

Table 9.3.9.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The market is operated at a location where attracting a large number of people is consistent with the preferred character of the local area.	**AO1.1**	The market use is not located in a residential zone.
PO2	The market minimises economic impacts on established businesses near the market.	**AO2.1**	Where market stalls are proposed to be located adjacent to existing shops, the market is not held on more than 2 days per week.
Site layout			
PO3	The market is designed to provide for: (a) convenient pedestrian access and movement; (b) legibility and accessibility between stalls and existing surrounding uses; and (c) pedestrian comfort and safety, including the provision of public convenience facilities.	**AO3.1**	Pedestrian access or pathways are a minimum of 2m wide and provided between: (a) stall fronts; and (b) stalls and existing shop fronts.
		AO3.2	Public toilets: (a) are provided within the area of the market or are located within 250m of the market; (b) remain open and accessible for use during market hours; and (c) are maintained in a clean, safe and tidy state.

Performance Outcomes		Acceptable Outcomes	
		AO3.3	Directional signage is provided to identify the location of, and the entry to, public toilet facilities.
Operation and protection of amenity			
PO4	The market is operated in a manner that does not cause environmental nuisance or adverse amenity impacts to nearby residents and other sensitive uses having regard to the: (a) generation of noise, dust, odour and light; and (b) hours and frequency of operation.	**AO4.1**	The market is conducted, including setup and pack-up, between the hours of 5.00am and 10.00pm.
		AO4.2	The use of amplified music, megaphones, public address systems and noise generating plant equipment is avoided.
		AO4.3	Noise generated from the market complies with the level of noise emissions prescribed under the *Environmental Protection (Noise) Policy 2008* .
		AO4.4	Any outdoor lighting associated with the market is designed, installed, operated and maintained in accordance with AS4282 (Control of the obtrusive effects of outdoor lighting).
		AO4.5	Any temporary lighting is dismantled immediately on closure of the markets.
Waste management			
PO5	The market is established and operated to provide a safe and healthy environment and provides waste disposal facilities, which are appropriate to the type and scale of the market.	**AO5.1**	The area used for market purposes is maintained in a clean, safe and tidy state: (a) during market hours; and (b) at the conclusion of each day's trading.
		AO5.2	An appropriate number of waste containers are provided.
Access and parking			
PO6	The design and management of access, parking and vehicle movement protects the functioning of the road network and provides safe vehicular, pedestrian and cyclist access to and from the site.	**AO6.1**	Where the market is conducted on a footpath, and the adjoining road remains open to vehicle use, a minimum 1.2m clearance from the kerb to any market structure, or use area, is provided.
		AO6.2	Access is provided for emergency services vehicles.

9.3.10 Multi-unit uses code

9.3.10.1 Application

This code applies to assessable development identified as requiring assessment against the Multi-unit uses code by the tables of assessment in Part 5 (Tables of assessment).

9.3.10.2 Purpose and overall outcomes

(1) The purpose of the Multi-unit uses code is to ensure multi-unit uses are of a high quality design which appropriately responds to local character, environment and amenity considerations.

(2) The purpose of the Multi-unit uses code will be achieved through the following overall outcomes:

(a) a multi-unit use is visually attractive with a built form that addresses the street and integrates with surrounding development;

(b) a multi-unit use incorporates building design that responds to the character of the local area;

(c) a multi-unit use incorporates high quality landscaping and well designed, useable communal and private open space areas, that provide visual relief to the built form;

(d) a multi-unit use provides a high standard of privacy and amenity for residents; and

(e) a multi-unit use is supported by infrastructure and services, commensurate with the scale of the use and its location.

9.3.10.3 Assessment benchmarks

Table 9.3.10.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Site layout and relationship of buildings to site features			
PO1	The multi-unit use is located on a site, which has an area and dimensions capable of accommodating a well-designed and integrated multi-unit development, incorporating: (a) vehicle access, parking and manoeuvring areas; (b) communal and private open space areas; and (c) any necessary buffering to incompatible uses or sensitive environments.	**AO1.1**	The multi-unit use is located on a lot having a minimum area of 800m².
Relationship of buildings to streets, public spaces and private open space			
PO2	The multi-unit use is sited and designed to: (a) provide a visibly clear pedestrian entrance to and from the building; and (b) minimise the potential for pedestrian and vehicular conflict.	**AO2.1**	The building is sited and designed, such that: (a) the main pedestrian entrance to the building, or group of buildings, is located on the primary street frontage; (b) pedestrian access to the entrance of the building(s) or individual dwellings is easily discerned; and

Performance Outcomes		Acceptable Outcomes	
			(c) vehicular access to the site is separate from the pedestrian access.
PO3	The multi-unit use is sited and designed to: (a) address and provide a semi-active frontage to the street, adjacent parkland or other public areas; (b) promote casual surveillance of public and semi-public spaces; (c) contribute to a residential character; and (d) achieve a high level of amenity for dwellings within the site.	**AO3.1**	The building is sited and designed, such that: (a) street and parkland frontages of the site comprise semi-active uses/spaces, such as habitable rooms, indoor and outdoor common recreation areas and landscaped areas, to facilitate casual surveillance; and (b) the number of dwellings, rooming units, windows and balconies of habitable rooms that address adjoining streets, communal recreation areas and open spaces is optimised.
PO4	The multi-unit use is designed to ensure that car parking areas, services or any mechanical plant does not visually dominate the site or surrounding area.	**AO4.1**	Any car parking area or other associated structures are integrated into the design of the development, such that: (a) they are screened from view from frontages to streets, parks and adjoining land; (b) they are not located between the building and the street address; and (c) a basement or under croft car parking area does not protrude above the adjacent ground level by more than 1m.
		AO4.2	Services and any mechanical plant, including individual air conditioning equipment for dwellings or rooming units, are visually integrated into the design and finish of the building or are effectively screened from view.
Building mass and composition			
PO5	The multi-unit use is sited and designed in a manner, which: (a) minimises building mass and scale; (b) provides visual interest through building articulation and architectural design features; and (c) allows sufficient area at ground level for communal open space, site facilities, resident and visitor parking, landscaping and maintenance of a residential streetscape.	**AO5.1**	Buildings do not exceed 60% total site coverage.
		AO5.2	The building incorporates most or all of the following design features: (a) vertical and horizontal articulation, such that no unbroken elevation is longer than 15m; (b) variations in plan shape, such as curves, steps, recesses, projections or splays; (c) variations in the treatment and patterning of windows, sun protection and shading devices, or other elements of a façade treatment at a finer scale than the overall building structure; (d) balconies, verandahs or terraces; or

Performance Outcomes		Acceptable Outcomes	
			(e) planting, particularly on podiums, terraces and low level roof decks.
PO6	The multi-unit use is sited and designed to: (a) provide amenity for users of the premises whilst preserving the privacy and amenity of nearby properties; (b) provide adequate separation distance from adjoining uses; (c) preserve any existing vegetation that will buffer the proposed building; (d) allow for landscaping to be provided between buildings and street frontages and between neighbouring buildings; and (e) maintain the visual continuity and pattern of buildings and landscape elements within the street.	**AO6.1**	Buildings and structures comply with the minimum boundary setbacks in Table 9.3.10.3.2 Minimum boundary setbacks for multi-unit uses.
		AO6.2	The building has a top level and roof form that is shaped to: (a) reduce the bulk of the building; (b) provide a visually attractive skyline silhouette; and (c) screen mechanical plant and equipment from view.
Privacy and amenity			
PO7	The multi-unit use ensures that dwellings, rooming units, private open spaces and adjoining Accommodation activities are provided with a reasonable level of privacy and amenity.	**AO7.1**	Non-habitable room windows of a dwelling or rooming unit are not located opposite the non-habitable room windows of another dwelling or rooming unit, unless views are controlled by screening devices, distance, landscaping or design of the opening.
		AO7.2	Where habitable room windows look directly at habitable room windows in an adjacent dwelling or rooming unit within 2m at the ground level or 9m at levels above the ground level, privacy is protected by: (a) window sill heights being a minimum of 1.5m above floor level; (b) fixed opaque glazing being applied to any part of a window below 1.5m above floor level; (c) fixed external screens; or (d) if at ground level, screen fencing to a minimum height of 2m.
		AO7.3	For development up to, and including, 3 storeys in height, the outlook from private, communal and public areas is screened, where direct view is available into the private open space of an existing dwelling.
PO8	The multi-unit use utilises appropriate lighting for the security of residents, whilst not impacting on	**AO8.1**	Glare conditions or excessive light spill into dwellings, rooming units, adjacent sites and public spaces is

Performance Outcomes		Acceptable Outcomes	
	the amenity of surrounding residents.		avoided or minimised through measures, such as: (a) the use of building design and architectural elements or landscape treatments to block or reduce excessive light spill to locations where it would cause a nuisance; and (b) the alignment of driveways and servicing areas to minimise vehicle headlight impacts on residential accommodation and private open space.
		AO8.2	All access points, footpaths, car parks, building entrances and foyers are provided with adequate illumination.
		AO8.3	All external lighting complies with AS4282 Control of the obtrusive effects of outdoor lighting and does not exceed 8 lux measured at any lot boundary and at any level.
Open space and landscaping			
PO9	The multi-unit use provides communal and private open space and landscaping, such that residents have sufficient area to engage in communal activities, enjoy private and semi-private spaces, and accommodate visitors.	**AO9.1**	At least 30% of the site area is provided as communal and private open space.
		AO9.2	Each ground floor dwelling or rooming unit has a courtyard or similar private open space area, directly accessible from the main living area and complying with the following minimum areas and dimensions respectively: (a) 10m² and 2.5m for a studio or rooming unit; (b) 18m² and 2.5m for a 1 bedroom unit; and (c) 20m² and 3.0m for a 2 or more bedroom unit.
		AO9.3	Each dwelling or rooming unit above ground floor level has a balcony or similar private open space area directly accessible from the living area and complying with the following minimum areas and dimensions respectively: (a) 4.5m² and 1.7m for a studio or rooming unit; (b) 5.5m² and 2.1m for a 1 bedroom unit; and (c) 8m² and 2.5m for a 2 or more bedroom unit.
		AO9.4	Where not adjoining a park or similar public open space, a minimum 2m high solid screen fence is provided and maintained along the full length of any side or rear boundary.

Performance Outcomes		Acceptable Outcomes	
		AO9.5	Communal open space is provided on-site and complies with the following minimum areas and dimensions: (a) minimum width of 4m; and (b) area equal to 15% of total area of the site.
Site facilities and waste management			
PO10	Adequate communal clothes drying facilities are provided where dwellings or rooming units are not provided with individual drying facilities.	**AO10.1**	Where dwellings or rooming units are not provided with individual clothes drying facilities, one or more outdoor communal clothes drying areas are provided in an accessible location, equipped with robust clothes lines.
PO11	Refuse disposal areas are located in convenient and unobtrusive positions and are capable of being serviced by the Council's refuse collection contractor.	**AO11.1**	The multi-unit use provides for the on-site storage of refuse.
		AO11.2	Refuse disposal areas and storage areas are screened by a solid fence or wall having a minimum height of 1.2m.
		AO11.3	Refuse storage areas are not directly visible from the road.
Additional requirements for rooming accommodation or short-term accommodation			
PO12	The rooming accommodation or short-term accommodation use is provided with sufficient facilities to accommodate the needs of temporary residents and staff.	**AO12.1**	Facilities including, but not limited to, kitchens, dining rooms, laundries and common rooms are provided for the use of temporary residents and staff.

Table 9.3.10.3.2 Minimum boundary setbacks for multi-unit uses

Building height	Boundary type	Minimum setback
Up to 8.5	Side	2m
	Front (primary)	6m
	Front (secondary)	3m
	Rear	2m
8.5m up to 11m	Side	4m
	Front (primary)	6m
	Front (secondary)	4m
	Rear	6m
11m to 16m	Side	4m
	Front (primary)	6m
	Front (secondary)	4m
	Rear	6m
16m up to 21m	Side	6m
	Front (primary)	6m
	Front (secondary)	6m
	Rear	6m
21m and above	Side	8m
	Front (primary)	6m
	Front (secondary)	6m
	Rear	8m

9.3.11 Relocatable home park and tourist park code

9.3.11.1 Application

This code applies to assessable development:

(a) being a material change of use for a relocatable home park or tourist park ; and

(b) identified as requiring assessment against the Relocatable home park and tourist park code by the tables of assessment in Part 5 (Tables of assessment).

9.3.11.2 Purpose and overall outcomes

(1) The purpose of the Relocatable home park and tourist park code is to ensure relocatable home parks and tourist parks are appropriately located and designed in a manner, which meets the needs of residents and visitors and protects the amenity of surrounding premises.

(2) The purpose of the Relocatable home park and tourist park code will be achieved through the following overall outcomes:

(a) a relocatable home park and tourist park is well designed, located and offers convenient access to the services and facilities required to support residents' and travellers' needs;

(b) a relocatable home park and tourist park provides high quality amenities and facilities commensurate with its setting, the types of accommodation supplied and the length of stay accommodated;

(c) a relocatable home park and tourist park is of a scale and intensity that is compatible with the preferred character of the local area;

(d) a relocatable home park and tourist park does not adversely impact on the amenity of rural and residential areas or the viable operation of Rural activities; and

(e) a relocatable home park and tourist park is provided with appropriate infrastructure services.

9.3.11.3 Assessment benchmarks

Table 9.3.11.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Provisions for combined Relocatable home parks and tourist parks			
Location and site suitability			
PO1	The relocatable home park or tourist park is located so that residents and guests have convenient access to: (a) tourist attractions; (b) everyday commercial, community and recreation facilities; and (c) public transport services.	**AO1.1**	The relocatable home park or tourist park is located: (a) on a site within 1km of a centre zone; or (b) on a site within 400m walking distance of a public transport stop.
PO2	The relocatable home park or tourist park is located on a site of an appropriate size and has suitable levels of accessibility.	**AO2.1**	The site can sufficiently accommodate all the facilities prescribed in this code.
		AO2.2	Roads to which the site has access: (a) have a minimum reserve width of 20m;

Performance Outcomes		Acceptable Outcomes	
			(b) in an urban area, are fully constructed with bitumen paving for the full frontage of the site; (c) in a non-urban area, are constructed to an acceptable all weather standard; and (d) can accommodate any projected increase in traffic generated by the development.
PO3	The relocatable home park or tourist park is located and designed so that residents and users are not exposed to unacceptable levels of noise, unhealthy air emissions or other nuisance.	**AO3.1**	The site is not within: (a) 250m of land included in the Medium impact industry zone; or (b) 500m of land included in the High impact industry or Special industry zone.
		AO3.2	The relocatable home park or tourist park is not located on land where: (a) soils are contaminated by pollutants, which may represent a health or safety risk to residents; or (b) where maximum concentrations of air pollutants exceed those recommended by the National Health and Medical Research Council.
Residential amenity and landscaping			
PO4	The relocatable home park or tourist park does not impact on the amenity of adjoining or nearby residential zones.	**AO4.1**	A 2m high solid screen fence is provided for the full length of any property boundary adjoining an existing Accommodation activity or land included in a residential zone.
		AO4.2	Pools and other potentially noisy activities or mechanical plant are not located where they adjoin an existing Accommodation activity.
Rural amenity and landscaping			
PO5	The relocatable home park or tourist park is designed to integrate into the surrounding rural landscapes and does not conflict with the operations of adjoining Rural activities.	**AO5.1**	Fencing and landscaping is complementary to the surrounding rural landscape, promoting integration.
		AO5.2	Living and activity areas within relocatable home park or tourist parks are adequately buffered by vegetation and space from adjacent intensive agricultural uses in accordance with Table 9.3.11.3.2 Siting and setback requirements for intensive Rural activities.
Recreational open space			
PO6	The relocatable home park or tourist park provides communal open space that is: (a) provided to meet the needs of all residents; and	**AO6.1**	A minimum of 20% of the total site area, exclusive of landscape buffer strips, is provided as communal open space.
		AO6.2	50% of the required open space is provided in one area.

Performance Outcomes		Acceptable Outcomes	
	(b) designed to promote resident safety through casual surveillance.	**AO6.3**	Communal open space: (a) has a minimum dimension, length or width, of 80m; (b) contains one area of at least 150m^2 in size; (c) is located not more than 80m from any caravan or cabin site or 150m from any relocatable home park site; (d) includes a fenced children's playground; and (e) has adequate lighting for the safety of staff, visitors and/or residents.
		AO6.4	A communal recreation building is provided for the use of residents.
Site access and parking			
PO7	The design and management of access and entry parking arrangements facilitates the safe and convenient use of the relocatable home park or tourist park by residents and visitors.	**AO7.1**	Vehicle access is limited to 1 major entry/exit point on 1 road frontage.
		AO7.2	On-site visitor parking is located with direct access from the entry driveway and is located and sign-posted to encourage visitor use.
		AO7.3	No caravan or relocatable home site has direct access to any public road.
Internal access and circulation			
PO8	The design and management of internal vehicle and pedestrian access, parking and vehicle movement on the site facilitates the safe and convenient use of the relocatable home park or tourist park.	**AO8.1**	The design of internal access ways, footpaths and the location of visitor parking areas complies with the following: (a) vehicular access to each site is via shared internal access ways, which are designed to provide safe, convenient and efficient movement of vehicles and pedestrians; (b) access ways are designed to discourage vehicle speeds in excess of 15km/hr; (c) the access way and footpath system provide adequate access for service and emergency vehicles to each site and connect sites with amenities, recreational open space and external roads; and (d) internal access ways comply with the following: (i) carriageway width is not less than 6m for two way traffic and not less than 4m for one way traffic; (ii) the verge width on both sides is not less than 1.5m; (iii) cul-de-sac have turning bays at the end capable of allowing conventional

Performance Outcomes		Acceptable Outcomes	
			service trucks to reverse direction with a maximum of two movements; (iv) all internal access ways are sealed to the carriageway widths stated above; (v) internal footpaths are a minimum width of 1.2m, internal footpaths may be accommodated within the carriageway of internal access ways serving 10 sites or less; and (vi) are adequately lit and provide direct routes to recreation and amenity facilities.
Services and utilities			
PO9	The relocatable home park or tourist park is provided with: (a) a safe and reliable water supply; and (b) a sewerage disposal system, which maintains acceptable public health and environmental standards.	**AO9.1**	(a) each relocatable home, caravan or cabin site is connected to the reticulated water supply, sewerage and stormwater drainage infrastructure networks; or (b) the site has access to: (i) a potable water supply of adequate quantity and quality, capable of generating at least 800 litres per person per day at 100% occupancy, of which at least 250 litres per person per day is potable; and (ii) an effective on-site effluent disposal system capable of accommodating anticipated maximum demand at 100% occupancy.
		AO9.2	Each relocatable home, caravan or cabin site is connected to underground electricity.
PO10	Caravan, tent and cabin sites are provided with adequate access to amenities for day-to-day living.	**AO10.1**	Except where private facilities are provided to each site, toilet, shower and laundry amenities are located: (a) within 100m of every caravan, tent or cabin site; and (b) not closer than 6m to any caravan, tent or cabin site.
		AO10.2	Laundry and clothes drying facilities are provided for guests.
PO11	The relocatable home park or tourist park provides on-site facilities for the storage and collection of refuse, with such facilities:	**AO11.1**	Development: (a) where a tourist park, provides a central waste collection area for every 50 caravan sites; or

Performance Outcomes		Acceptable Outcomes	
	(a) located in convenient and unobtrusive positions; and (b) capable of being serviced by the Council's refuse collection contractor.		(b) where a relocatable home park, provides refuse collection to every relocatable home park site.
Relocatable homes in tourist parks			
PO12	A proportion of a tourist park may be used as a relocatable home park, where: (a) the relocatable home park portion is subservient to that used as a tourist park. .	**AO12.1**	Not more than 40% of the total area of a tourist park is used to accommodate relocatable homes.
Provisions specific to relocatable home parks			
Density			
PO13	The relocatable home park has a density that is compatible with the preferred character of the local area in which it is located.	**AO13.1**	The maximum site density for the relocatable home park does not exceed 30 relocatable homes per hectare.
Privacy and separation			
PO14	A reasonable level of privacy and separation is available to all residents within the relocatable home park.	**AO14.1**	Individual relocatable home sites: (a) are at least 200m² in area; (b) are setback at least 6m from any external road frontage and 5m from any other property boundary; (c) are setback 3 metres from any existing or proposed building on the subject land; (d) have a minimum frontage to any internal access way of 10m; (e) have a private open space area of 16m²; and (f) are clearly delineated and separated from adjoining sites by trees or shrubs.
		AO14.2	Relocatable homes are not sited within 1.5m of the side and rear boundaries or within 3m of the front boundary of the individual relocatable home site.
Services and utilities			
PO15	Relocatable home sites are provided with adequate private amenities.	**AO15.1**	Relocatable homes are provided with private kitchen and ablution facilities.
Provisions specific to tourist parks			
Density			
PO16	The tourist park has a density that is compatible with the preferred character of the local area in which it is located.	**AO16.1**	The maximum site density for the tourist park does not exceed 60 sites per hectare.
Privacy and separation			
PO17	A reasonable level of privacy and separation is available to all residents within the tourist park.	**AO17.1**	Individual sites: (a) are set back at least 12m from any external road frontage and 5m from any other property boundary;

Performance Outcomes		Acceptable Outcomes	
			(b) are sited such that no part of any caravan is within 3m of any other caravan, tent, cabin or building; (c) have a frontage of at least 10m to any internal access way; (d) are clearly delineated and separated from adjoining sites by trees or shrubs; (e) contain a clear area of at least 2.5m by 2.5m for outdoor space; and (f) ensure that no part of any caravan or cabin is within 2m of any internal access way.
Site access and parking			
PO18	The design and management of entry parking arrangements facilitates the safe and convenient use of the tourist park by residents and visitors.	**AO18.1**	A short-term standing area, with a minimum of 2 bays, with the dimension of 4m by 20m, are provided either as separate bays or as part of a one-way entrance road.

9.3.12 Residential care facility and retirement facility code

9.3.12.1 Application

This code applies to assessable development:

(a) being a material change of use for a residential care facility or retirement facility; and

(b) identified as requiring assessment against the Residential care facility and retirement facility code by the tables of assessment in Part 5 (Tables of assessment).

9.3.12.2 Purpose and overall outcomes

(1) The purpose of the Residential care facility and retirement facility code is to ensure residential care facilities and retirement facilities:

(a) are appropriately located to meet the particular needs of residents;

(b) are designed in a manner which provides a comfortable and safe environment for residents; and

(c) protect the amenity of, and integrate with, surrounding premises.

(2) The purpose of the Residential care facility and retirement facility code will be achieved through the following overall outcomes:

(a) a residential care facility or retirement facility is located where residents can have easy and direct access to public transport, community services and facilities;

(b) a residential care facility or retirement facility provides a home-like, non-institutional environment that promotes individuality, sense of belonging and independence;

(c) a residential care facility or retirement facility achieves a balance between providing specialised housing for residents, whilst providing the opportunity for residents to participate in the wider community;

(d) a residential care facility or retirement facility is designed to be integrated with surrounding development;

(e) a residential care facility or retirement facility is sited, such that there is ease of movement, safety and legibility for residents and visitors; and

(f) a residential care facility or retirement facility is designed, such that the comfort, safety, security, individuality, privacy and wellbeing of residents are promoted.

9.3.12.3 Assessment benchmarks

Table 9.3.12.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The residential care facility or retirement facility is located so that residents have convenient access to: (a) everyday commercial facilities; (b) community facilities and social services; and (c) regular public transport or facility specific transport that	**AO1.1**	The residential care facility or retirement facility is located: (a) on a site within 1km of a centre zone; or (b) on a site within 400m walking distance of a public transport stop; or (c) where the residential care facility or retirement facility is

Performance Outcomes		Acceptable Outcomes	
	provides a comparable or better level of service.		not located close to an activity centre or public transport stop, a regular, convenient and affordable transport service is provided for residents by the facility operator to the nearest activity centre or public transport connection.
PO2	The residential care facility or retirement facility is on a site which: (a) is not exposed to unacceptable levels of noise, unhealthy air emissions or other nuisance; and (b) is not constrained by steep slopes or other physical limitations that may represent an impediment for residents and staff using the facility.	**AO2.1**	The site is not within: (a) 250m of land included in the Medium impact industry zone; or (b) 500m of land included in the High impact industry or Special impact industry zone.
		AO2.2	The residential care facility or retirement facility is not located on land where: (a) soils are contaminated by pollutants which may represent a health or safety risk to residents; or (b) maximum concentrations of air pollutants exceed those recommended by the National Health and Medical Research Council.
		AO2.3	The residential care facility or retirement facility is located on land: (a) with a slope not exceeding 10%; or (b) where located on land with a slope exceeding 10%, the facility is designed, such that any areas to be accessed by residents of the facility are not steeper than 5%.
Site area and dimensions			
PO3	The residential care facility or retirement facility is located on a site, which has an area and dimensions suitable to enable the development of a well-designed and integrated facility.	**AO3.1**	The design of the residential care facility or retirement facility needs to incorporate and take into account: (a) accommodation and support facilities; (b) vehicles access, parking and manoeuvring; (c) stormwater treatment areas; (d) open space areas and landscaping; and (e) any necessary buffering to adjoining uses or other elements.
Integration of large sites with neighbourhoods and street networks			
PO4	The residential care facility or retirement facility is integrated with the neighbourhood and local transport network.	**AO4.1**	The residential care facility or retirement facility: (a) is connected to, and forms part of, the surrounding neighbourhood rather than

Performance Outcomes		Acceptable Outcomes	
			establishing a separate private enclave; (b) is integrated with, and extends the, existing or proposed local transport network; (c) provides for legible and direct pedestrian, bicycle and vehicular access for all residents to nearby activity centres, community facilities and public open space; and (d) clearly defines the boundaries of public, communal and private open space.
Building scale and bulk			
PO5	The residential care facility or retirement facility is sited and designed in a manner, which: (a) results in a building scale that is compatible with surrounding development; (b) does not represent an appearance of excessive bulk to adjacent premises, the streetscape or other areas external to the site; (c) allows sufficient area at ground level of private and communal open space, site facilities, resident and visitor parking, landscaping and maintenance of a residential streetscape; and (d) facilitates on-site stormwater management and vehicle access.	**AO5.1**	Site cover does not exceed 50%.
		AO5.2	Building bulk is reduced by incorporating a combination of the following elements in building design: (a) verandahs; (b) recesses; (c) variation in materials, colours and/or textures, including between levels; and (d) variation in building form.
		AO5.3	The length of any unarticulated elevation of a building, fence or other structure visible from the street does not exceed 15m.
		AO5.4	Any building does not exceed 40m in length, with separation between buildings, for the purposes of cross ventilation, articulation and light, of at least 6m.
Building design and streetscape appearance			
PO6	The residential care facility or retirement facility is designed to: (a) create an attractive and functional living environment for residents; (b) take account of its setting and site context; and (c) make a positive contribution to the character of the street and local area.	**AO6.1**	The residential care facility or retirement facility incorporates a high standard of facility design that is responsive to the specific needs of its residents.
		AO6.2	Buildings are oriented to the street and provide casual surveillance of the street.
		AO6.3	Buildings and structures are setback a minimum of: (a) 6m from the front boundary; and (b) 4.5m from the side and rear boundaries.
		AO6.4	Screening of balconies is limited to the side and rear boundaries and the sides of balconies, where needed, to prevent noise and overlooking of other rooming units or dwellings and recreation areas.
		AO6.5	Services structures and mechanical plants are screened or designed as part of the building.

Performance Outcomes		Acceptable Outcomes	
PO7	The site layout and design of buildings forming part of the residential care facility or retirement facility promote a domestic scale, individuality and sense of belonging.	**AO7.1**	Rooming units and dwellings are configured in clusters with each cluster clearly addressing the street and each rooming unit and dwelling having clearly defined private open space and a prominent front door.
		AO7.2	Clusters of rooming units and dwellings are supported by unique design features that help identify and individualise them.
		AO7.3	Rooming units and dwellings have clear addresses within a conventional address system of streets and dwellings.
		AO7.4	Logical, direct and separated pedestrian and vehicle routes are provided between rooming units, dwellings, communal buildings, other on-site facilities and facilities in the neighbourhood.
PO8	The residential care facility or retirement facility ensures that dwellings, rooming units, private open spaces and adjoining Accommodation activities are provided with a reasonable level of privacy.	**AO8.1**	Non-habitable room windows of a dwelling or rooming unit are not located opposite the non-habitable room windows of another dwelling or rooming unit, unless views are controlled by screening devices, distance, landscaping or design of the opening.
		AO8.2	Where habitable room windows look directly at habitable room windows in an adjacent dwelling or rooming unit, within 2m at the ground level or 9m at levels above the ground level, privacy is protected by: (a) window sill heights being a minimum of 1.5m above floor level; or (b) fixed opaque glazing being applied to any part of a window below 1.5m above floor level; or (c) fixed external screens; or (d) if at ground level, screen fencing to a minimum height of 2m.
		AO8.3	For development up to and including 3 storeys in height, the outlook from private, communal or public areas is screened where direct view is available into private open space of an existing dwelling.
Open space			
PO9	The residential care facility or retirement facility incorporates communal and private open space areas that provide:	**AO9.1**	At least 30% of the area of the site is provided as communal open space.
		AO9.2	Each ground floor rooming unit is provided with a courtyard, verandah or similar private open space area

Performance Outcomes		Acceptable Outcomes	
	(a) sufficient spaces for residents to engage in and enjoy outdoor activities; (b) high levels of residential amenity; (c) boundary fences and walls that do not visually dominate; and (d) promote casual surveillance and integration with the street.		not less than 10m², with a minimum dimension of 2.5m directly accessible from the living area.
		AO9.3	Each rooming unit above ground floor level has a balcony or similar private open space area not less than 4.5m² with a minimum dimension of 1.7m directly accessible from the living area.
		AO9.4	A 2m high solid screen fence is provided along the full length of all side and rear boundaries of the site.
		AO9.5	Unless required to ameliorate traffic noise or headlight glare, high solid fences or walls are avoided along street frontages.
Management, residential care and social facilities			
PO10	The residential care facility or retirement facility provides appropriate management, social and care facilities on-site.	**AO10.1**	The residential care facility or retirement facility provides management, supervised care and social facilities in communal buildings.
		AO10.2	Communal buildings are easily accessible and centrally located, permitting residents to easily navigate the site on foot or with the assistance of mobility aids.
Accessibility			
PO11	The residential care facility or retirement facility incorporates easy and safe pedestrian access and movement.	**AO11.1**	No dwelling or rooming unit is more than 250m walking distance from a site entry or exit point.
		AO11.2	All pathways and land used for outdoor recreation have grades of 5% or less, with paths having hard, slip resistant surfaces.
		AO11.3	Internal paths, ramps and hallways are capable of accommodating two wheelchairs (side by side) at any one time.
		AO11.4	Development complies with AS1428 (Design for access and mobility).
		AO11.5	Buildings exceeding one levelin height incorporate lifts to each level and ramped access.
Safety and security			
PO12	The residential care facility or retirement facility provides a safe and secure living environment.	**AO12.1**	Buildings adjacent to public or communal streets or open space have at least one habitable room window with an outlook to that area.
		AO12.2	Entrances and exits to the site are clearly marked and well lit.
		AO12.3	Bollards or overhead lighting, which achieves lighting levels of at least category 2 as specified in AS1158 (Lighting roads and public spaces), is provided along: (a) all footways and roads; and (b) in all car parking areas.

Performance Outcomes		Acceptable Outcomes	
Services and utilities			
PO13	The residential care and retirement facility is provided with: (a) a safe and reliable water supply; and (b) a sewage disposal system, which maintains acceptable public health and environmental standards.	**AO13.1**	The site is connected to the reticulated water supply, sewerage and stormwater drainage infrastructure networks.

9.3.13 Rural activities code

9.3.13.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Rural activities code by the tables of assessment in Part 5 (Tables of assessment).

9.3.13.2 Purpose and overall outcomes

(1) The purpose of the Rural activities code is to facilitate rural uses and ensure Rural activities are developed in a sustainable manner, which conserves the productive characteristics of rural land and protects environmental and landscape values and the amenity of surrounding premises.

(2) The purpose of the Rural activities code will be achieved through the following overall outcomes:

(a) Rural activities are undertaken on a sustainable basis;

(b) agricultural land is conserved and not alienated or encroached upon by incompatible land uses;

(c) uses that support rural production are established on suitable sites where environmental and amenity impacts can be effectively managed; and

(d) adverse impacts on the surrounding or downstream environments or natural environmental processes are avoided.

9.3.13.3 Assessment benchmarks

Table 9.3.13.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
General requirements			
PO1	The Rural activity is conducted on a lot that is of sufficient size to reasonably accommodate the use and mitigate potential nuisance arising from noise, dust, odour and other emissions or contaminants generated by the use.	**AO1.1**	The lot is of an adequate size to sufficiently support the intended Rural activity.
PO2	Buildings and structures associated with the Rural activity are sited and designed to avoid or minimise adverse visual impacts on the rural landscape.	**AO2.1**	Buildings and structures, other than a dwelling house, associated with the Rural activity are set back at least 10m from all site boundaries.
Requirements for permanent plantation			
PO3	The plantation forest is located, such that it conserves the productive characteristics of agricultural land.	**AO3.1**	The plantation forest is not located on agricultural land identified on the Overlay map – AL - 01:29 Agriculture land overlay.
Requirements for roadside stall			
PO4	The roadside stall is limited in scale and appropriate to a rural area.	**AO4.1**	Produce sold at the roadside stall is limited to that which is grown or produced on the site.
		AO4.2	The roadside stall does not involve the sale of manufactured goods, other than those manufactured on the site.

Performance Outcomes		Acceptable Outcomes	
		AO4.3	Buildings and structures associated with the roadside stall: (a) are constructed along the property boundary; (b) occupy not more than 10m² GFA; and (c) are constructed of materials that can easily be dismantled following the cessation of the use.
		AO4.4	The roadside stall is ancillary to a Rural activity occurring on the same site.
PO5	The roadside stall does not have an adverse impact on the safety and functioning of the road network.	**AO5.1**	The roadside stall is located on a site adjoining a road other than a State controlled road.
		AO5.2	The location of the road side stall provides sufficient area for parking and for the safe entry and exit of vehicles from the site.
PO6	Signage associated with the roadside stall is small, unobtrusive and appropriate to a rural location.	**AO6.1**	Not more than 1 sign is erected on the premises and the sign: (a) has a maximum sign face area of 0.5m² per side; and (b) is not illuminated or in motion.

Table 9.3.13.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Requirements for intensive Rural activities (Animal keeping, Aquaculture, Intensive animal industry, Intensive horticulture and Rural industry)			
PO1	The intensive Rural activity is sited and designed on a lot of sufficient area to: (a) accommodate the use, including buildings, pens, ponds, other structures and waste disposal areas involved in the use; (b) provide for adequate setbacks to: (i) road frontages; (ii) site boundaries; (iii) sensitive uses on surrounding land; and (iv) waterways or wetlands; and (c) avoid or minimise adverse visual impacts on the rural landscape.	**AO1.1**	The intensive Rural activity is located on a site, which has a minimum area and setbacks complying with Table 9.3.13.3.3 Siting and setback requirements for intensive Rural activities unless for a: (a) Caretakers accommodation; or (b) Rural workers' accommodation.
PO2	The intensive Rural activity is located on a site, which is sufficiently separated from any existing or planned residential, rural residential area or other sensitive activity, to avoid any adverse impacts with regard to noise, dust, odour, visual impact, traffic generation, lighting, radiation, other emissions or contaminants.	**AO2.1**	The intensive Rural activity is located on a site, which is not less than: (a) 1km from land included in a residential zone; (b) 1km from land included in the Rural residential zone; and (c) 1km from any Community activity where people gather, such as educational

Performance Outcomes		Acceptable Outcomes	
			establishment or child care centre; or (d) if the intensive Rural activity is a rural industry, the use is located on a site, which is not less than 500m from a sensitive use.
PO3	The intensive Rural activity is located, such that it conserves the productive characteristics of agricultural land.	**AO3.1**	The intensive Rural activity: (a) is not located on agricultural land identified on the Overlay map – AL - 01:29 Agriculture land overlay; or (b) where located on agricultural land identified on the Overlay map – AL - 01:29 Agriculture land overlay, the use and associated activities conserves the productive characteristics of the agricultural land.
Environmental and amenity impacts			
PO4	The intensive Rural activity provides for the appropriate disposal of waste and contaminants.	**AO4.1**	The intensive Rural activity incorporates waste disposal systems and practices, which: (a) ensures that off-site release of contaminants does not occur; (b) ensures no significant adverse impacts on surface or ground water resources; and (c) complies with relevant Government or industry guidelines, codes and standards applicable to a specific use or on–site waste disposal.

Table 9.3.13.3.3 Siting and setback requirements for intensive Rural activities.

Rural activity	Min. site area (ha)	Min. boundary setbacks (m)	Min. distance from a sensitive use on a surrounding land (m)
Animal keeping	4ha	50m from any road frontage and 15m from any side or rear boundary.	300m
Aquaculture	5ha	50m from any road frontage and 15m from any side or rear boundary.	100m
Intensive animal industry, such as a piggery or feedlot.	20ha	200m from any road frontage and 15m from any side or rear boundary.	250m
Intensive animal industry, such as poultry farms.	50ha	100m from any road frontage and 100m from any side or rear boundary.	400m
Intensive animal industry, such as emu or ostrich hatching and brooding facility.	4ha	60m from any road frontage and 15m from any side or rear boundary.	400m
Intensive animal industry, where not previously specified.	20ha	200m from any road frontage and 15m from any side or rear boundary.	250m

Rural activity	Min. site area (ha)	Min. boundary setbacks (m)	Min. distance from a sensitive use on a surrounding land (m)
Intensive horticulture	10ha	50m from any road frontage and 15m from any side or rear boundary.	100m
Rural industry	1ha	50m from any road frontage and 10m from any side or rear boundary	100m

9.3.14 Sales office code

9.3.14.1 Application

This code applies to accepted and assessable development:

(a) being a material change of use for a sales office; and

(b) identified as requiring assessment against the Sales office code by the tables of assessment in Part 5 (Tables of assessment).

9.3.14.2 Purpose and overall outcomes

(1) The purpose of the Sales office code is to ensure sales offices are temporary in nature and are developed in a manner, which protects the amenity of surrounding premises.

(2) The purpose of the Sales office code will be achieved through the following overall outcomes:

(a) the siting, layout, design and operation of a sales office is commensurate to, and does not adversely impact upon, the character and amenity of the surrounding area; and

(b) a sales office is operated for a temporary duration only.

9.3.14.3 Assessment benchmarks

Table 9.3.14.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Operational characteristics			
PO1	The duration of the use of premises for a sales office does not extend beyond a reasonable period.	**AO1.1**	A sales office, where: (a) a display dwelling, display village or estate sales office, operates for a maximum period of 2 years; or (b) a dwelling offered as a prize, operates for a maximum period of 6 months.
		AO1.2	Any temporary building or structure associated with the operation of the sales office is removed from the site within 14 days of the end of the period of operation and the site is left in a clean and tidy condition.
PO2	Where the temporary use of a sales office is contained within a structure intended to become a genuine residential dwelling, it is constructed in accordance with the relevant requirements for the ultimate use.	**AO2.1**	Where a sales office is located in a Class 1 building (Dwelling house) this dwelling must comply with Part 9.3.5 Dwelling house code.
PO3	The location, hours of operation and activities of the sales office does not adversely affect the amenity of nearby existing and potential future residential premises.	**AO3.1**	A sales office: (a) is located at the major entry to the development site; (b) only operates between 8.00am and 6.00pm; and (c) sales and promotional activities do not create a nuisance to adjoining residents or residents in the immediate locality.
PO4	The number of employees engaged in the operation of the sales office	**AO4.1**	A sales office, where a:

Performance Outcomes		Acceptable Outcomes	
	does not adversely affect the amenity of nearby residential premises.		(a) display dwelling, dwelling offered as a prize or estate sales office, has a maximum of 2 employees engaged in the operation at any one time; or (b) display village, has a maximum of 2 employees per display home engaged in the operation at any one time.
Public convenience facilities			
PO5	The sales office provides appropriate public convenience facilities for users of the sales office.	**AO5.1**	Public toilet facilities are provided for a display village comprising 4 or more display dwellings.
On-site car parking			
PO6	Sufficient car parking is provided to satisfy the projected needs of the sales office and is appropriately designed.	**AO6.1**	A sales office ensures: (a) a minimum of 2 on-site parking spaces are provided, where on-street parking is not available; or (b) a minimum of 2 on-street car parking spaces are available within 50m of the sales office.

9.3.15 Service station code

9.3.15.1 Application

This code applies to assessable development:

(a) being a material change of use for a service station; and

(b) identified as requiring assessment against the Service station code by the tables of assessment in Part 5 (Tables of assessment).

9.3.15.2 Purpose and overall outcomes

(1) The purpose of the Service station code is to ensure service stations are developed in appropriate locations and in a manner, which meets the needs of users, provides safe access and protects the environment and amenity of surrounding premises.

(2) The purpose of the Service station code will be achieved through the following overall outcomes:

(a) a service station is established at a suitable location, on a site that is capable of accommodating all necessary and associated activities;

(b) a service station does not adversely impact upon the amenity of the surrounding local area;

(c) a service station incorporates a high standard of built form and landscaping;

(d) a service station is provided with safe and convenient access to the road network;

(e) a service station incorporates appropriate environmental management measures; and

(f) minimises the risk of land, ground and surface water contamination.

9.3.15.3 Assessment benchmarks

Table 9.3.15.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The service station is located on a site having sufficient area and dimensions to accommodate required buildings, structures, vehicle access, manoeuvring areas, site landscaping and buffer areas.	**AO1.1**	The service station site is located on a site that: (a) is at least 1,500m² in area; and (b) has a street frontage of at least: (i) 35m, where the site is a corner site; or (ii) 40m otherwise.
PO2	The service station is located so that it does not adversely impact upon the amenity of existing or future planned residential areas.	**AO2.1**	The service station is located: (a) on land included in a centre or industry zone; or (b) in the Rural zone on a major road and at least 15km from any existing or approved service station.
Siting of building and structures			
PO3	Buildings and structures associated with the service station are sited to:	**AO3.1**	Buildings and structures are setback a minimum of: (a) 9m to the primary street frontage;

Performance Outcomes		Acceptable Outcomes	
	(a) ensure the safe and efficient use of the site and operation of the facility; (b) protect streetscape character; and (c) provide adequate separation to adjoining land uses.		(b) 3m to any secondary street frontage; and (c) 5m from any side or rear boundary, where adjoining a sensitive use or land in a residential zone or the Community facilities zone; or (d) where not adjoining a sensitive use or land in a residential zone or the Community facilities zone, no minimum side or rear boundary setback applies.
		AO3.2	For front boundary setbacks fuel pumps and canopies are setback a minimum of 7.5m from the property boundary.
		AO3.3	On-site storage of refuse is located so that it is not visible from the street.
PO4	Development maintains and contributes to the visual amenity of the locality.	**AO4.1**	Development ensures a 4m wide landscaping strip containing ground cover and small shrubs is maintained along: (a) a minimum 50% of the primary frontage; or (b) a minimum 75% of the total frontage, where a secondary frontage exists.
Location of fuel pumps and bulk fuel storage			
PO5	Fuels pumps and bulk fuel storage tanks are located: (a) wholly within the site; (b) such that vehicles, while refuelling, are standing wholly within the site and are parked away from entrances and circulation driveways; and (c) a safe distance from all site boundaries.	**AO5.1**	Fuel pumps are located in accordance with AS1940 (The storage and handling of flammable and combustible liquids).
		AO5.2	Inlets to bulk fuel storage tanks are located to ensure that tankers, while discharging fuel, are standing wholly within the site and are on level ground.
Access and parking			
PO6	The service station: (a) does not impair traffic flow or road safety; and (b) facilitates, through the design and arrangement of vehicular crossovers and on-site circulation, safe and convenient movement to, from and within the site.	**AO6.1**	Separate entrances and exits are provided, and these are clearly marked for their intended use.
		AO6.2	Vehicle crossovers are at least 8m wide.
		AO6.3	No part of a vehicle crossover is closer than: (a) 14m from any other vehicle crossover on the same site; (b) 12m from an intersection; and (c) 3m from any property boundary.
		AO6.4	Adequate queuing areas are provided for refuelling, washing and related facilities.
		AO6.5	Bulk delivery area is located so that the site access and traffic flow is not restricted during delivery.
Environmental performance			

Performance Outcomes		Acceptable Outcomes	
PO7	The service station is designed and constructed to ensure that on-site operations: (a) do not cause any environmental nuisance or harm; (b) do not result in the release of contaminants or untreated pollutants; (c) achieve acceptable levels of stormwater run-off quality and quantity; and (d) where practical, minimise wastage through recycling of liquid and solid waste.	**AO7.1**	Sealed impervious surfaces are provided in areas, where potential spills of contaminants may occur.
		AO7.2	Grease and oil arrestors or other infrastructure is provided to prevent the movement of contaminants from the site.
		AO7.3	Storm water is diverted away from the forecourt area or areas of potential contamination.
		AO7.4	The collection, treatment and disposal of solid and liquid wastes ensures that: (a) off-site releases of contaminants do not occur; and (b) measures to minimise waste generation and to maximise recycling are implemented.
		AO7.5	Ancillary automatic mechanical carwash facilities, where provided, are designed to collect, treat and recycle waste water for reuse.
Protection of residential amenity			
PO8	The service station ensures the amenity of existing or planned residential areas is protected and air pollutants, noise, light or odour nuisance is avoided.	**AO8.1**	Where the service station adjoins an Accommodation activity or land included in a residential zone: (a) a 2m high solid screen fence is provided along all common property boundaries of the site; and (b) the hours of operation of the service station are limited to between 7.00am to 10.00pm.
		AO8.2	The layout and design of the service station provides for the storage and collection of waste and is screened from public view.
		AO8.3	The service station limits the generation of noise, such that: (a) nuisance is not caused to a sensitive land use; (b) desired ambient noise levels for residential areas are not exceeded; and (c) applicable legislative requirements are met.
		AO8.4	The service station prevents or minimises any emissions of odour, dust and air pollutants, such that: (a) nuisance is not caused beyond the site boundaries; and (b) air quality conducive to the health and wellbeing of people is maintained.
PO9	External lighting is designed, located and operated to avoid any adverse impacts on the amenity of neighbouring premises.	**AO9.1**	External lighting is provided in accordance with AS4282 (Control of obtrusive effects of outdoor lighting).

Performance Outcomes		Acceptable Outcomes	
Ancillary on-site amenities			
PO10	Customer air and water facilities, and any ancillary automatic mechanical car washing facilities are provided in a way that protects the amenity of nearby Accommodation activities.	**AO10.1**	Ancillary facilities are located such that: (a) vehicles using, or waiting to use, such facilities are standing wholly within the site; and (b) an adequate buffer is provided to any adjoining Accommodation activities.
Extent of retail sale of goods			
PO11	The associated sale of goods, including food stuffs, is ancillary to the provision of fuel and automotive repairs and service.	**AO11.1**	The GFA used for the associated retail sale of goods is limited to 150m².
		AO11.2	Liquid contaminants are stored: (a) in a bunded area capable of containing 125% of the largest package; or (b) are located so that a spill can be contained within an existing contaminated area, such as the forecourt.

9.3.16 Telecommunications facility code

9.3.16.1 Application

This code applies to accepted and assessable development:

(a) being a material change of use for a telecommunications facility; and

(b) identified as requiring assessment against the Telecommunications facility code by the tables of assessment in Part 5 (Tables of assessment).

Editor's note—this code primarily deals with telecommunications facilities involving the erection of a telecommunications tower.

9.3.16.2 Purpose and overall outcomes

(1) The purpose of the Telecommunications facility code is to ensure telecommunication facilities are developed in a manner, which protects public health, the environment and the amenity of surrounding premises.

(2) The purpose of the Telecommunication facility code will be achieved through the following overall outcomes:

(a) a telecommunications facility is located with compatible uses and facilities;

(b) a telecommunications facility does not adversely impact upon community wellbeing;

(c) a telecommunications facility does not adversely affect the amenity of surrounding premises;

(d) a telecommunications facility is visually integrated with its natural, rural or townscape setting; and

(e) a telecommunications facility is sited and constructed to minimise detrimental environmental impacts.

9.3.16.3 Assessment benchmarks

Table 9.3.16.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Location and site suitability			
PO1	The telecommunications facility is located to minimise any adverse impacts on the amenity of a local area and protect community wellbeing.	**AO1.1**	The telecommunications facility is located at least: (a) 400m from any residential activity; (b) 500m from any childcare centre, community care centre, educational establishment or park; (c) 20m from any public pathway; and (d) 1km from any other existing or approved telecommunications facility, except where a co-located telecommunications tower uses a single structure.
Protection of visual amenity and landscape character			

Performance Outcomes		Acceptable Outcomes	
PO2	Development is visually integrated with its landscape or townscape setting to not be visually dominant or unduly obtrusive.	**AO2.1**	The telecommunications facility is unobtrusive when viewed from scenic corridors and routes.
Access, safety and security			
PO3	The telecommunications facility is accessible and secure, public safety is protected and potential damage from vandalism is minimised.	**AO3.1**	The telecommunications facility is provided with adequate access to allow periodic servicing and maintenance of the facility.
		AO3.2	Warning information signs and security fencing are provided around the perimeter of the telecommunications facility site to prevent unauthorised entry.

9.4 Other development codes

9.4.1 Advertising devices code

9.4.1.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Advertising devices code by the tables of assessment in Part 5 (Tables of assessment).

9.4.1.2 Purpose and overall outcomes

(1) The purpose of the Advertising devices code is to ensure that advertising devices are established in a manner, which is consistent with the desired character and amenity of the Whitsunday region.

(2) The purpose of the Advertising devices code will be achieved through the following overall outcomes:

(a) an advertising device complements and does not detract from the desirable characteristics of the natural and built environment in which the advertising device is exhibited;

(b) an advertising device is designed and integrated into the built form to minimise visual clutter;

(c) an advertising device does not adversely impact on the visual amenity of a heritage or neighbourhood character area or public open space;

(d) an advertising device does not adversely impact on the amenity of rural, rural residential or residential areas;

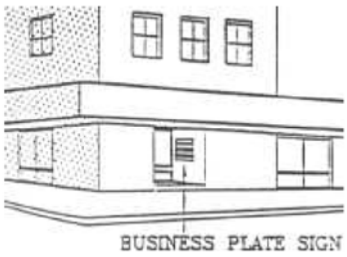
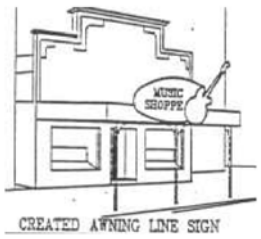
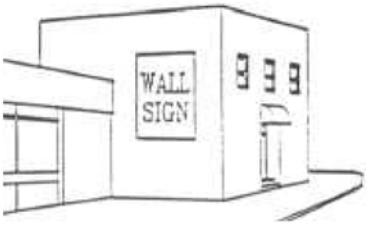
(e) an advertising device does not pose a hazard for pedestrians, cyclists or drivers of motor vehicles; and

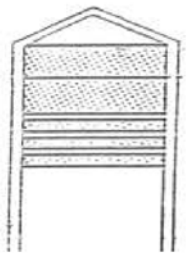
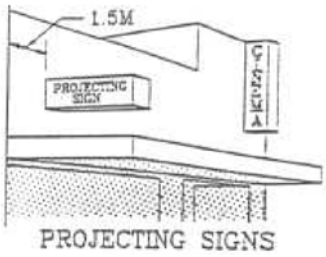
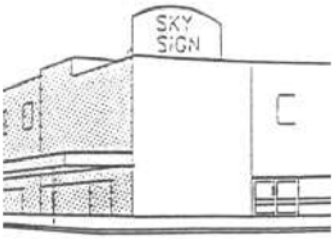
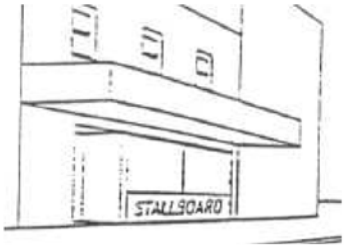
(f) an advertising device accommodates the legitimate need to provide directions and business identification in a manner that is consistent with achieving overall outcomes (a) to (e) above.

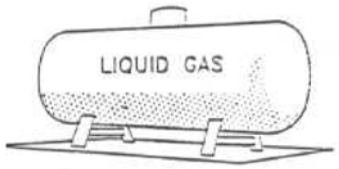
9.4.1.3 Description of advertising devices

Table 9.4.1.3.1 Description of advertising device types

Advertising device type	Written description	Pictorial description
Above awning sign	An advertising device located on top of and attached to an awning or verandah.	

Advertising device type	Written description	Pictorial description
Awning fascia or return fascia sign	An advertising device painted or otherwise affixed to a solid or flexible material suspended from an awning, verandah or wall.	
Blind sign	An advertising device painted or otherwise affixed to a solid or flexible material suspended from an awning, verandah or wall.	
Business name plate	An advertising device displaying the name, occupation and contact details for the business occupant, which may also include the hours of operation of the business.	
Canopy sign	An advertising device painted on a canopy structure.	
Created awning sign	An advertising device positioned on the face, or aligned with the face of an awning, where the shape interrupts the natural line of the awning.	
Flush wall sign	An advertising device painted or otherwise affixed upon, and confined within, the limits of a wall.	

Advertising device type	Written description	Pictorial description
Freestanding sign	An advertising device that is independent of a building and is supported by one or more columns, poles or pylons. The term includes devices containing third party advertising.	
Ground sign	An advertising device that is independent of a building that is normally erected at a driveway entrance to identify the business or points of entry.	
Hamper sign	An advertising device painted or otherwise affixed above the door head or its equivalent height and below the awning level or verandah of a building.	
Projecting sign	An advertising device attached and mounted at a right angle to the façade of a building.	
Sky sign	An advertising device placed at or near the top of a building and projecting above the building.	
Stallboard sign	An advertising device located below the ground level window of a building.	

Advertising device type	Written description	Pictorial description
Structure sign	An advertising device painted or otherwise affixed to any structure, which is not a building.	
Written roof sign	An advertising device painted or otherwise affixed to the roof cladding of a building.	
Three dimensional replica object or shape sign	An advertising device that replicates a real world object or shape. The replica may be enlarged, miniaturised or equal in scale and be freestanding or form part of another advertising device.	
Under awning sign	An advertising device attached or suspended under an awning or verandah.	
Window sign	An advertising device painted or otherwise affixed to the exterior or on the inner surface of a glazed area of any window. It includes any devices that are suspended from the window frame. The term does not include product displays or showcases for viewing by pedestrians.	

9.4.1.4 Assessment benchmarks

Table 9.4.1.4.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Requirements for all advertising device types			
General			
PO1	All advertising devices are: (a) compatible with the existing and future planned character of the locality in which they are erected; (b) compatible with the scale, proportion, bulk and other characteristics of buildings, structures, landscaping and other advertising devices on the site; (c) of a scale, proportion and form that is appropriate to the streetscape or other setting in which they are located; (d) sited and designed to: (i) be compatible with the nature and extent of development and advertising devices on adjoining sites; (ii) not interfere with the reasonable enjoyment of adjoining sites; (iii) not unreasonably obstruct lawfully established advertising devices; (iv) not unduly dominate the visual landscape; (v) maintain views or vistas of public value; and (vi) protect the visual amenity of scenic routes and lookouts; (e) designed, sited and integrated to avoid the proliferation of visual clutter.	**AO1.1**	The advertising device complies with the specific requirements of Table 9.4.1.4.2 Requirements of particular advertising devices.
		AO1.2	A three dimensional replica object or shape sign complies with the acceptable outcomes relating to wall, façade, awning, roof and freestanding signs, as applicable depending on the proposed location of the sign on the site.
Movement and illumination			
PO2	An advertising device: (a) does not incorporate elements that move; and (b) incorporates illumination and lighting only where required and in a manner that does not create nuisance or detract from the amenity of the area.	**AO2.1**	The advertising device does not flash, revolve, move or contain mechanisms that give the impression of movement.
		AO2.2	Moving or variable message advertising devices are not located: (a) within 50 metres of land developed or intended for residential purposes; and (b) adjacent to any road which has a traffic speed of more than 60km/hr.
Maximum site based sign face area			
PO3	The maximum sign face area of an advertising device does not unduly	**AO3.1**	The total sign face area of all advertising devices on a site does

Performance Outcomes		Acceptable Outcomes	
	detract from a building or location where the device is positioned, including: (a) visually dominating the appearance of a building; or (b) being visually intrusive in the streetscape or natural landscape setting.		not exceed 0.75m² of sign face area per linear metre of the street front boundary length.
Construction standards			
PO4	An advertising device is constructed to an appropriate and safe standard.	**AO4.1**	No support, fixing or other system required for the proper installation of an advertising device is exposed or protrudes in a manner that would create a potential safety hazard.
		AO4.2	The advertising devices are to be constructed from non-reflective materials that incorporate colours and finishes that complement and blend with the surrounding natural and built environment.
Traffic and safety hazards			
PO5	An advertising device does not cause a traffic or safety hazard.	**AO5.1**	The advertising device is not located in a position: (a) that presents a physical danger to pedestrians; (b) that disrupts pedestrian movement along the footpath or from the road to the footpath; or (c) that distracts the attention of motorists or obscures the view of drivers or road users.
		AO5.2	An advertising device adjacent to a State controlled road complies with the Department of Transport and Main Roads *Roadside advertising manual 2017* and must not: (a) give instructions to traffic; or (b) imitate a traffic control device.
Requirements for particular advertising device types			
Freestanding signs			
PO6	A Freestanding sign is designed and sited to comply with the general amenity outcomes sought by PO1 of this code.	**AO6.1**	The total number of all freestanding signs on a site does not exceed: (a) one sign where the street front boundary length of the site is 30m or less; or (b) two signs where the total street front boundary length of the site is more than 30m.

Table 9.4.1.4.2 Requirements for particular advertising devices.

Advertising device type	Permitted zone	Orientation	Design Characteristics	Maximum surface area	Minimum clearance
Above awning sign	All zones, where associated with the lawful use of the land, except a home based business.	(a) Orientated at right angles to the building frontage; and (b) centrally located along the frontage of each shop or tenancy.	(a) Do not extend past the width of the awning or verandah to which it is attached; (b) do not exceed a maximum height of 600mm and a maximum depth of 300mm; and (c) rigidly fixed and not constructed from materials that are potentially dangerous (e.g. Glass).	(a) Maximum sign face area of 1.4m².	Not specified.
Awning fascia or return fascia signs	All zones, where associated with the lawful use of the land, except a home based business.	Not specified.	(a) Do not exceed a depth of 100mm; (b) do not project above or below the awning line by more than 20% of the vertical depth of the awning face; and (c) do not project out from either face of the awning.	(a) In accordance with Table 9.4.1.4.1.	(a) Minimum clearance of 2.4m between the footway pavement and the lowest part of the sign.
Blind signs	All zones, where associated with the lawful use of the land, except a home based business.	Not specified.	(a) Not illuminated.	(a) Maximum sign face area does not exceed 50% of the blind.	(a) Minimum clearance of 2.1m between the footpath pavement and any flexible part of the blind; and (b) 2.4m between the footpath pavement and rigid part of the blind.

Advertising device type	Permitted zone	Orientation	Design Characteristics	Maximum surface area	Minimum clearance
Business name plates	All zones.	(a) Limited to one sign per business entry point.	(a) In accordance with Table 9.4.1.4.1.	(a) Maximum sign face area of 1.0m².	Not applicable.
Canopy signs	All zones, where associated with the lawful use of the land, except a home based business.	Not applicable.	(a) Do not exceed a height of 600mm; (b) do not project out from the surface of the canopy; (c) do not project above or below the canopy on which it is displayed; and (d) not illuminated.	(a) In accordance with Table 9.4.1.4.1.	(a) Minimum clearance of 2.1m between the footpath pavement and any flexible part of the canopy; and (b) 2.4m between the footway pavement and rigid part of the canopy.
Created awning signs	All zones, where associated with the lawful use of the land, except a home based business.	Not applicable.	(a) Do not project out from either face of the awning; and (b) do not extend more than 600mm above the fascia to which it is attached.	(a) 'Created' sign face area not exceeding 25% of the existing awning face area.	(a) Minimum clearance of 2.4m between the footway pavement and the lowest part of the sign.
Flush wall signs	All zones, where associated with the lawful use of the land, except a home based business.	(a) Do not obscure any window or architectural feature of the building on which it is located.	(a) Do not project more than 300mm from the wall on which it is affixed; and (b) do not project beyond the property boundary, except as an authorised encroachment onto a road reserve.	(a) Maximum display area, the lesser of: (i) 30m²; or (ii) 20% of the area of the wall.	Not applicable.
Freestanding signs - In the form of a billboard	(a) The Rural zone, only where adjacent to a State controlled road.	(a) Minimum spacing between freestanding signs is: (i) 3km, if erected on land in the Rural zone; and	(a) Do not project beyond the front alignment of the site; (b) mounted as a freestanding structure in a landscape environment;	(e) Maximum of two sign faces; and (f) each sign face has a maximum area of 18m².	Not applicable.

Advertising device type	Permitted zone	Orientation	Design Characteristics	Maximum surface area	Minimum clearance
		(ii) situated at least 3m from any adjoining site boundary.	(c) designed and treated in such a way that the supporting framework, supports and back of the sign face area blend with the surrounding streetscape or field of view; and (d) has a maximum height of 9m.		
Freestanding signs – Not in the form of a billboard	(a) A centre zone; (b) an industry zone; (c) the Recreation and open space zone; (d) the Community facilities zone; (e) the Mixed use zone; and (f) the Rural zone, only where adjacent to a State controlled road.	(a) Minimum spacing between freestanding signs is: (i) 3km, if erected on land in the Rural zone; or (ii) not less than the combined height of all freestanding signs on the site multiplied by 4, if erected on land in another permitted zone; and (iii) situated at least 3m from any adjoining site boundary.	(a) Do not project beyond the front alignment of the site; (b) mounted as a freestanding structure in a landscape environment; (c) designed and treated in such a way that the supporting framework, supports and back of the sign face area blend with the surrounding streetscape or field of view; and (d) has a maximum height of 9m.	(a) Maximum of two sign faces; and (b) each sign face has a maximum area of 4.5m².	Not applicable.
Ground signs	All zones, where associated with the lawful use of the land, except a home based business.	(a) Displayed within a landscaped environment; and (b) separated from another ground sign by a minimum of 100m of	(a) Maximum height of 1.5m.	(a) Maximum of two sign faces; and (b) each sign face has a maximum area of 4m².	Not applicable.

Advertising device type	Permitted zone	Orientation	Design Characteristics	Maximum surface area	Minimum clearance
		street front boundary length.			
Hamper signs	All zones, where associated with the lawful use of the land, except a home based business.	Not applicable.	(a) Project no more than 300mm from the wall to which it is attached; (b) do not extend below the door head of the main entrance; and (c) do not extend beyond the length of the building wall above the door head.	(a) Maximum sign face area limited to that area between the door head and the underside of the verandah or awning roof.	Not applicable.
Projecting signs	All zones, where associated with the lawful use of the land, except a home based business.	(a) Situated at least 2m from any site boundary; and (b) not more than one projecting sign is erected for the premises.	(a) Do not project higher than the gutter line of the building on which it is erected.	(a) If a vertical projecting sign, maximum sign face area of 2m² ; or (b) if a horizontal projecting sign, maximum sign face area of 1m².	(a) Minimum of clearance of 2.4m between the footpath pavement and the lowest part of the sign.
Sign written roof sign	Is not erected within the Planning Scheme area.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Sky sign	Is not erected within the Planning Scheme area.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Stallboard signs	All zones, where associated with the lawful use of the land, except a home based business.	(a) Are designed such that the sign face is recessed inside the Stallboard facing.	(a) Do not project beyond the property boundary, except as an authorised encroachment onto a road reserve.	(a) Maximum sign face area limited to the Stallboard area below a street front window.	Not applicable.
Structure signs	(a) A centre zone; (b) an industry zone; and	Not applicable.	(a) Does not project beyond the surface of the structure; and	(a) Maximum sign face area of 4m².	Not applicable.

Advertising device type	Permitted zone	Orientation	Design Characteristics	Maximum surface area	Minimum clearance
	(c) the Mixed use zone.		(b) must be on a structure ancillary to the use of the premises.		
Three dimensional replica object or shape sign	(a) A centre zone; (b) an industry zone; and (c) the Mixed use zone.	Not applicable.	(a) In accordance with Table 9.4.1.4.1.	(a) In accordance with Table 9.4.1.4.1, where the surface area is the largest two dimensional cross section of the object multiplied by two.	(a) In accordance with Table 9.4.1.4.1.
Under awning signs	(a) A centre zone; (b) an industry zone; and (c) the Mixed use zone.	(a) Oriented at right angles to the building frontage; and (b) centrally located along the frontage of each shop or tenancy, provided that one additional sign may also be erected at the entrance of an arcade.	(a) No longer than the width of the awning or veranda to which it is attached; (b) has a maximum height of 600mm and maximum depth of 300mm; and (c) rigidly fixed and not constructed from materials that are potentially dangerous (e.g. glass) to pedestrians.	(a) Maximum sign face area of 2.5m².	(a) Minimum clearance of 2.4m from the footway pavement to any part of the sign.
Window sign	All zones, where associated with the lawful use of the land, except a home based business.	(a) Only located on the premises which the advertisement relates to; and (b) located on ground storey windows only.	(a) Does not contain running lights giving the illusion of movement, if illuminated.	(a) In accordance with Table 9.4.1.4.1.	Not applicable.

9.4.2 Construction management code

9.4.2.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Construction management code by the tables of assessment in Part 5 (Tables of assessment).

9.4.2.2 Purpose and overall outcomes

(1) The purpose of the Construction management code is to ensure that development works meets the needs of the development and is undertaken in a sustainable manner in accordance with best practice.

(2) The purpose of the Construction management code will be achieved through the following overall outcomes:

(a) works are undertaken such that environmental harm and nuisance resulting from construction activities is avoided or minimised and the environmental values of water are protected;

(b) development is designed and constructed to a standard that meets community expectations, maintains public health and safety, prevents unacceptable off-site impacts and minimises whole of life cycle costs; and

(c) development does not compromise or interfere with the integrity or function of existing utilities, road or infrastructure.

9.4.2.3 Assessment benchmarks

Table 9.4.2.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Construction management			
PO1	Air emissions, noise or lighting arising from construction activities and works do not adversely impact on surrounding areas.	**AO1.1**	Dust emissions do not cause environmental nuisance beyond the boundary of the site.
		AO1.2	Air emissions, including odours, are not detectable at the boundary of the site.
		AO1.3	Noise generating equipment is enclosed, shielded or acoustically treated in a manner which ensures the equipment achieves the environmental values for the acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the *Environmental Protection (Noise) Policy 2008*.
		AO1.4	Outdoor lighting complies with AS4282 (Control of the obtrusive effects of outdoor lighting).
PO2	Construction activities and works are managed such that all reasonable and practicable measures are taken to protect	**AO2.1**	Development is located, designed and constructed in accordance with an Erosion and sediment control plan, prepared

Performance Outcomes		Acceptable Outcomes	
	the environmental values of water and the functionality of stormwater infrastructure from the impacts of erosion, turbidity and sedimentation, both on and downstream of the development site.		in accordance with the requirements specified in AP1: Application procedures, CP1: Construction procedures and D5: Stormwater quality of PSP SC6.8 WRC development manual.
PO3	Construction activities and works are undertaken such that existing utilities, roads and drainage infrastructure: (a) continue to function efficiently; and (b) can be accessed by the relevant authority for maintenance purposes.	**AO3.1**	Existing utilities, roads and drainage infrastructure are protected or relocated in accordance with the standards specified in PSP SC6.8 WRC development manual.
		AO3.2	The costs of any alterations or repairs to utilities, roads and drainage infrastructure are met by the developer.
PO4	Traffic and parking generated during construction activities are well planned and managed.	**AO4.1**	Any traffic or parking generated as a result of construction activities are managed to minimise potential impacts on the amenity of the surrounding area.
PO5	Construction activities and works provide appropriate opportunities for waste minimisation and recycling where possible.	**AO5.1**	Construction activities and works provide for: (a) separation of recyclable material; (b) storage of waste and recyclable material; and (c) collection of waste and recyclable material in a manner that minimises adverse impacts on the amenity and safety of surrounding areas.
Vegetation Clearing			
PO6	Vegetation is protected to ensure that: (a) ecological processes, biodiversity and the habitat values of native flora and fauna are protected and enhanced; (b) ecosystems are protected from weed invasion and edge effects; (c) the functioning and connectivity of biodiversity corridors and fauna movement networks is maintained; (d) the ecological health and integrity of riparian corridors, waterways and wetlands are maintained; (e) soil resources are protected against the loss of chemical and physical fertility through processes, such as erosion,	**AO6.1**	Vegetation clearing, other than exempt vegetation clearing: (a) does not occur; or (b) where any permanent, irreversible loss of identified ecological values occurs due to vegetation clearing, rehabilitation is undertaken in accordance with D2: Site regrading and D9: Landscaping of PSP SC6.8 WRC development manual. Note— The assessment and deciding of vegetation clearing issues will include but not necessarily be limited to: (a) any current development approval attached to the land which may include conditions or measures relating to vegetation retention or protection; (b) whether the vegetation is specifically protected by a vegetation protection order, covenant, easement or similar

Performance Outcomes		Acceptable Outcomes	
	mass movement, salinity and water logging; and (f) vegetation of historical, cultural or visual significance is retained.		legally binding mechanism that seeks to protect the values and functions of recognised significant vegetation; (c) whether the vegetation is identified or referred to in State or Federal legislation; (d) whether the vegetation is located on a prominent hillside, slope or ridgeline; (e) whether vegetation clearing may cause or contribute to erosion or slippage; (f) whether the vegetation is or forms part of a riparian area or other habitat network and is valuable to the functioning of that network; (g) whether the vegetation is or is capable of forming or contributing to a buffer between different land uses; (h) whether the vegetation is or is capable of forming or contributing to a visual buffer, agricultural buffer or a buffer against pollution, light spillage or noise; (i) whether the vegetation contributes to visual amenity, landscape quality or cultural heritage significance; and (j) the likely effectiveness of any proposed rehabilitation measures.
PO7	Vegetation clearing on slopes is minimised to maintain slope stability and prevent erosion and slippage to maintain slope.	**AO7.1**	Vegetation clearing on slopes15% or greater is avoided or where unavoidable, minimised. Note – This may be demonstrated by undertaking a Vegetation management plan in accordance with PSP SC6.2 Environmental features.
PO8	Construction activities and works provide for: (a) the protection of the aesthetic and ecological values of retained vegetation; and (b) impacts on fauna to be minimised.	**AO8.1**	The health and stability of retained vegetation is maintained or enhanced during construction activities by: (a) clearly marking vegetation to be retained with temporary fencing and flagging tape; (b) installing secure barrier fencing around the outer drip line and critical root zone of the vegetation; (c) preventing any filling, excavation, stockpiling, storage of chemicals, fuel or machinery within the fenced protection area; (d) using low impact construction techniques in the vicinity of vegetation to minimise interference with the vegetation; and (e) removing all declared noxious weeds and

Performance Outcomes		Acceptable Outcomes	
			environmental weeds from the site. Note – This may be demonstrated by undertaking a Vegetation management plan in accordance with PSP SC6.2 Environmental features.
		AO8.2	All works carried out in the vicinity of retained vegetation comply with D9: Landscaping of PSP SC6.8 WRC development manual and AS4970 (Protection of trees on development sites) and AS4687 (Temporary fencing and hoarding).
PO9	Vegetation clearing activities do not directly, indirectly or cumulatively interfere with, or have a worsening effect on, natural stormwater flows within the site.	**AO9.1**	Following any vegetation clearing, natural stormwater flows within the site are identified, captured and diverted to a lawful point of discharge.

9.4.3 Excavation and filling code

9.4.3.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Excavation and filling code by the tables of assessment in Part 5 (Tables of assessment).

9.4.3.2 Purpose and overall outcomes

(1) The purpose of the Excavation and filling code is to ensure that development works meets the needs of the development and is undertaken in a sustainable manner in accordance with best practice.

(2) The purpose of the Excavation and filling code will be achieved through the following overall outcomes:

(a) excavation and filling is completed to a standard that meets community expectations, maintains public health and safety, prevents unacceptable off-site impacts and minimises whole of life cycle costs; and

(b) excavation and filling does not adversely or unreasonably impact on the natural environment, drainage conditions or adjacent properties.

9.4.3.3 Assessment benchmarks

Table 9.4.3.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
PO1	Filling or excavation does not prevent or create difficult access to the property.	**AO1.1**	Driveways are able to be constructed and maintained in accordance with the requirements of the D2: Site regrading and S1: Earthworks of PSP SC6.8 WRC development manual.
PO2	Excavation and filling: (a) does not cause environmental harm; (b) does not impact adversely on visual amenity or privacy; (c) maintains natural landforms as far as possible; and (d) is stable in both the short and long term.	**AO2.1**	Development provides that: (a) on sites of: (i) 15% slope or more, the extent of excavation (cut) and fill does not involve a total change of more than 1.5m relative to the natural ground level at any point; or (ii) in other areas, the extent of excavation (cut) and fill does not involve a total change of more than 1.0m relative to the natural ground level at any point; (b) no part of any cut or fill batter is within 1.5m of any property boundary except cut and fill involving a change in ground level of less than 200mm that does

Performance Outcomes		Acceptable Outcomes	
			not necessitate the removal of any vegetation; (c) retaining walls are no greater than 1.0m high; (d) retaining walls are constructed a minimum 150mm from property boundaries; (e) all stored material is: (i) contained wholly within the site; (ii) located in a single manageable area that does not exceed 50m^2; (iii) located at least 10m from any property boundary; and (f) any batter or retaining wall is structurally adequate.
PO3	Filling or excavation does not interfere with natural stormwater flows.	**AO3.1**	Any filling or excavation does not restrict or interfere with overland flow.
PO4	Filling or excavation does not directly, indirectly or cumulatively change flood characteristics which may cause adverse impacts external to the development site.	**AO4.1**	Development does not result in a reduction in flood storage capacity.
		AO4.2	Development does not change flood flows, velocities or levels external to the development site.
PO5	Filling or excavation does not result in any contamination of land or water, or pose a health or safety risk to users and neighbours of the site.	**AO5.1**	Development provides that: (a) no contaminated material is used as fill; (b) for excavation, no contaminated material is excavated or contaminant disturbed; and (c) waste materials are not used as fill, including: (i) commercial waste; (ii) construction/demolition waste; (iii) domestic waste; (iv) garden/vegetation waste; and (v) industrial waste.

9.4.4 Infrastructure code

9.4.4.1 Application

This code applies to assessable development identified as requiring assessment against the Infrastructure code by the tables of assessment in Part 5 (Tables of assessment).

9.4.4.2 Purpose and overall outcomes

(1) The purpose of the Infrastructure code is to ensure that development works and the provision of infrastructure and services meets the needs of the development, and is undertaken in a sustainable manner in accordance with best practice.

(2) The purpose of the Infrastructure code will be achieved through the following overall outcomes:

(a) infrastructure networks that provide basic and essential services and facilities to local communities are able to meet the planned increase in demand resulting from a planned increase in development density;

(b) development is provided with an appropriate level of water, wastewater treatment and disposal, drainage, energy and communications infrastructure and other services;

(c) infrastructure is designed, constructed and provided in a manner which maximises resource efficiency and achieves acceptable maintenance, renewal and adaptation costs;

(d) infrastructure is integrated with surrounding networks; and

(e) development over or near infrastructure does not compromise or interfere with the integrity of the infrastructure.

9.4.4.3 Assessment benchmarks

Table 9.4.4.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Infrastructure, services and utilities			
PO1	Development is provided with infrastructure, services and utilities appropriate to its location and setting and commensurate with its needs.	**AO1.1**	Where available, development is provided with appropriate connection to reticulated sewerage, water supply, stormwater drainage, electricity, telecommunications and gas services, where available in the street, at no cost to the Council, including provision by way of dedicated road, public reserve or by way of easements to ensure continued access is available to these services.
		AO1.2	In an urban area, electricity infrastructure is provided underground where: (a) five or more new lots are created; (b) a new road is created; or (c) there is existing underground power in the

Performance Outcomes		Acceptable Outcomes	
			vicinity of the development site.
		AO1.3	Where reticulated sewerage is not available, an on-site treatment and disposal system is provided that complies with the requirements of the *Plumbing and Drainage Act* 2002.
		AO1.4	Where reticulated water supply is not available, development is provided with adequate on-site rainwater collection.
PO2	Development provides for infrastructure, services and utilities that are planned, designed and constructed in a manner which: (a) ensures appropriate capacity to meet the current and planned future needs of the development; (b) is integrated with and efficiently extends existing networks; (c) minimises risk to life and property; (d) avoids ecologically important areas; (e) minimises risk of environmental harm; (f) achieves acceptable maintenance, renewal and adaptation costs; (g) can be easily and efficiently maintained; (h) minimises potable water demand and wastewater production; (i) ensures the ongoing construction or operation of the development is not disrupted; (j) where development is staged, each stage is fully serviced before a new stage is released; (k) ensures adequate clearance zones are maintained between utilities and dwellings to protect residential amenity and health; and (l) minimises visual and amenity impacts.	**AO2.1**	Infrastructure is planned, designed and constructed with PSP SC6.8 WRC development manual for development works, or where applicable, the requirements of the service provider.
		AO2.2	Development occurs in a logical sequence and facilitates the efficient and timely provision of infrastructure and services, taking into account the capacity of existing and future infrastructure.
		AO2.3	Compatible public utility services are co-located in common trenching, in order to minimise the land required and costs for underground services.
		AO2.4	Infrastructure, services and utilities are located and aligned to: (a) avoid disturbance of ecologically important areas; (b) minimise earthworks; and (c) avoid crossing waterways or wetlands.
		AO2.5	Where the crossing of a waterway or wetland cannot be avoided tunnel boring techniques are used to minimise disturbance and disturbed areas are reinstated and revegetated on completion of works.
		AO2.6	The selection of materials used in the construction of

Performance Outcomes		Acceptable Outcomes	
			infrastructure is suitable, durable, easy to maintain and cost effective, taking into account the whole of life cycle cost, and achieves best practice environmental management and energy savings.
		AO2.7	Access easements for maintenance purposes are provided over Council infrastructure within privately owned land.
Stormwater management infrastructure			
PO3	Development provides for the effective drainage of lots and roads in a manner that: (a) maintains the pre-existing or natural flow regime; (b) effectively manages stormwater quality and quantity; and (c) ensures no adverse impacts on receiving waters, adjacent properties on surrounding land.	**AO3.1**	The development of stormwater management infrastructure is designed in accordance with D4: Stormwater drainage, D5: Stormwater quality and S4: Stormwater drainage of PSP SC6.8 WRC development manual.
Works over or near sewerage, water and stormwater drainage infrastructure			
PO4	Building or operational work near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure: (a) protects the infrastructure from physical damage; and (b) allows ongoing necessary access for maintenance purposes.	**AO4.1**	Building or operational work near or over the Council's stormwater infrastructure and/or sewerage and water infrastructure complies with the PSP SC6.8 WRC development manual.
Plan to avoid/minimise new impacts on water quality			
PO5	The development is planned and designed considering the land use constraints of the site for achieving stormwater design objectives.	**AO5.1**	A site stormwater quality management plan (SQMP) is prepared, and: (a) is consistent with any local area stormwater management planning, and (b) provides for achievable stormwater quality treatment measures meeting design objectives listed below in Table 9.4.4.3.2 (construction phase) and Table 9.4.4.3.3 (post construction phase), or current best practice environmental managements, reflecting land use constraints, such as: • erosive, dispersive, sodic and/or saline soil types;

Performance Outcomes		Acceptable Outcomes	
			• landscape features (including landform); • acid sulfate soil and management of nutrients of concern; • rainfall erosivity. Editor's note: Local area stormwater management planning may include Urban Stormwater Quality Management Plans, or Catchment or waterway management plans, Healthy Waters Management Plans, Water Quality Improvement Plans, Natural Resource Management Plans.
PO6	Development does not discharge wastewater to a waterway or off site unless demonstrated to be best practice environmental management for that site.	**AO6.1**	A wastewater management plan (WWMP) is prepared by a suitably qualified person and addresses: (a) wastewater type, and (b) climatic conditions, and (c) water quality objectives (WQOs), and (d) best-practice environmental management, and
		AO6.2	The WWMP provides that wastewater is managed in accordance with a waste management hierarchy that: (a) avoids wastewater discharges to waterways, or (b) if wastewater discharge to waterways cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and groundwater.
PO7	Any non-tidal artificial waterway is located in a way that is compatible with the land use constraints of the site for protecting water environmental values in existing natural waterways.	**AO7.1**	If the proposed development involves a non-tidal artificial waterway: (a) environmental values in downstream waterways are protected, and (b) any groundwater recharge areas are not affected, and (c) the location of the waterway incorporates low lying areas of a catchment connected to an existing waterway, and (d) existing areas of ponded water are included, and
		AO7.2	Non-tidal artificial waterways are located: (a) outside natural wetlands and any associated buffer areas, and

Performance Outcomes		Acceptable Outcomes	
			(b) to minimise disturbing soils or sediments, and (c) to avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.
PO8	Any non-tidal artificial waterway is located in a way that is compatible with existing tidal waterways.	**AO8.1**	Where a non-tidal artificial waterway is located adjacent to, or is connected to, a tidal waterway by means of a weir, lock, pumping system or similar: (a) there is sufficient flushing or a tidal range of >0.3 m, or (b) any tidal flow alteration does not adversely impact on the tidal waterway, or (c) there is no introduction of salt water into freshwater environments.
Design to avoid/minimise new impacts on water quality			
PO9	Stormwater does not discharge directly to a non-tidal artificial waterway without treatment to manage stormwater quality management.	**AO9.1**	Any non-tidal artificial waterway is designed and managed for any of the following end-use purposes: (a) amenity including aesthetics, landscaping and recreation, or (b) flood management, or (c) stormwater harvesting as part of an integrated water cycle management plan, or (d) aquatic habitat, and
		AO9.2	The end-use purpose of any non-tidal artificial waterway is designed and operated in a way that protects water environmental values.
Construct to avoid/minimise new impacts on water quality			
PO10	Construction activities for the development avoid or minimise adverse impacts on stormwater quality.	**AO10.1**	An erosion and sediment control plan (ESCP) demonstrates that release of sediment-laden stormwater is avoided for the nominated design storm, and minimised when the nominated design storm is exceeded, by addressing design objectives listed below in Table 9.4.4.3.4 (construction phase) or local equivalent, for: (a) drainage control, and (b) erosion control, and (c) sediment control, and (d) water quality outcomes, and
		AO10.2	Erosion and sediment control practices (including any proprietary erosion and sediment control products) are

Performance Outcomes		Acceptable Outcomes	
			designed, installed, constructed, operated, monitored and maintained, and any other erosion and sediment control practices are carried out in accordance with local conditions and appropriate recommendations from a suitably qualified person.
Operate to avoid/minimise new impacts on water quality			
PO11	Operational activities for the development avoid or minimises changes to waterway hydrology from adverse impacts of altered stormwater quality and flow.	**AO11.1**	Development incorporates stormwater flow control measure to achieve the design objectives set out below in Table 9.4.4.3.5 (post construction phase). The operational phases for the development comply with design objectives in Table 9.4.4.3.6 (post construction phase), or current best practice environmental management, including management of frequent flows, and peak flows.
PO12	Any treatment and disposal of waste water to a waterway accounts for: • the applicable water quality objectives for the receiving waters, and • adverse impact on ecosystem health or receiving waters, and • in waters mapped as being of high ecological value, the adverse impacts of such releases and their offset.	**AO12.1**	Implement the WWMP prepared in accordance with.AO6.1.
PO13	Wastewater discharge to a waterway is managed in a way that maintains ecological processes, riparian vegetation, waterway integrity, and downstream ecosystem health.	**AO13.1**	Wastewater discharge waterways is managed to avoid or minimize the release of nutrients of concern so as to minimize the occurrence, frequency and intensity of coastal algal blooms, and
		AO13.2	Development in coastal catchments avoids or minimises and appropriately manages soil disturbance or altering natural hydrology, and
		AO13.3	Development in coastal catchments: (a) avoids lowering groundwater levels where potential or actual acid sulfate soils are present, and (b) manages wastewaters so that:

Performance Outcomes		Acceptable Outcomes	
			i. the pH of any wastewater discharged is maintained between 6.5 and 8.5 to avoid mobilisation of acid, iron, aluminium, and metals, and ii. holding times of neutralised wastewaters ensures the flocculation and removal of any dissolved iron prior to release, and iii. visible iron floc is not present in any discharge, and iv. precipitated iron floc is contained and disposed of, and v. wastewater and precipitates that cannot be contained and treated for discharge on site are removed and disposed of through trade waste or another lawful method.
PO14	Any non-tidal artificial waterway is managed and operated by suitably qualified persons to achieve water quality objectives in natural waterways.	**AO14.1**	Any non-tidal artificial waterway is designed, constructed and managed under the responsibility of a suitably qualified registered professional engineer, Queensland (RPEQ) with specific experience in establishing and managing artificial waterways, and
		AO14.2	Monitoring and maintenance programs adaptively manage water quality in any non-tidal artificial waterway to achieve relevant water-quality objectives downstream of the waterway, and
		AO14.3	Aquatic weeds are managed in any non-tidal artificial waterway to achieve a low percentage of coverage of the water surface area (less than 10%). Pests and vectors (such as mosquitoes) are managed through avoiding stagnant water areas, providing for native fish predators, and any other best practices for monitoring and treating pests, and
		AO14.4	Any non-tidal artificial waterway is managed and operated by a responsible entity under agreement for the life of the

Performance Outcomes		Acceptable Outcomes	
			waterway. The responsible entity is to implement a deed of agreement for the management and operation of the waterway that: (a) identifies the waterway, and (b) states a period of responsibility for the entity, and (c) states a process for any transfer of responsibility for the waterway, and (d) states required actions under the agreement for monitoring the water quality of the waterway and receiving waters, and (e) states required actions under the agreement for maintaining the waterway to achieve the outcomes of this code and any relevant conditions of a development approval, and (f) identifies funding sources for the above, including bonds, infrastructure charges or levies.
Fire services in developments accessed by common private title			
PO15	Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	**AO15.1**	Residential streets and common access ways within a common private title should have hydrants placed at intervals of no more than 120m and at each intersection. Hydrants may have a single outlet and should be situated above or below ground.
		AO15.2	Commercial and industrial streets and access ways within streets serving commercial properties, such as factories, warehouses and offices, should be provided with above or below ground fire hydrants at not more than 90m intervals and at each street intersection. Above ground fire hydrants should have dual valved outlets.
PO16	Road widths and construction within the development are adequate for fire emergency vehicles to gain access to a safe working area close to dwellings and near water supplies, whether or not on-street parking spaces are occupied.	**AO16.1**	Road access minimum clearances of 3.5m wide and 4.8m high are provided for safe passage of emergency vehicles.
PO17	Hydrants are suitably identified, so that fire services can locate them at all hours.	**AO17.1**	Hydrants are identified as specified in the *Traffic and Road Use Management*

Performance Outcomes		Acceptable Outcomes	
			Manual, Volume 1: Guide to traffic management, Part 10: Traffic Control and Communication Devices, Section 6.7.2-1 Fire hydrant indication system. Editor's Note - Document available on the Department of Transport and Main Roads Website.

Table 9.4.4.3.7 Stormwater management design objectives – Construction phase (Ref: SPP Appendix 3)

Issue		Design Objectives
Drainage control	Temporary drainage works	(1) Design life and design storm for temporary drainage works: (a) disturbed area open for <12 months—1 in 2-year ARI event; (b) disturbed area open for 12–24 months—1 in 5-year ARI event; (c) disturbed area open for > 24 months—1 in 10-year ARI event. (2) Design capacity excludes minimum 150 mm freeboard. (3) Temporary culvert crossing—minimum 1 in 1-year ARI hydraulic capacity.
Erosion control	Erosion control measures	(1) Minimise exposure of disturbed 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 identified erosion risk rating.
Sediment control	Sediment control measures Design storm for sediment control basins Sediment basin dewatering	(1) Determine appropriate sediment control measures using: (a) potential soil loss rate; or (b) monthly erosivity; or (c) average monthly rainfall. (2) Collect and drain stormwater from disturbed soils to sediment basin for design storm event: (a) design storm for sediment basin sizing is 80th% five-day event or similar. (3) Site discharge during sediment basin dewatering: (a) TSS < 50 mg/L TSS; (b) turbidity not >10% receiving waters turbidity; and (c) pH 6.5–8.5.
Water quality	Litter and other waste, hydrocarbons and other contaminants	(1) Avoid wind-blown litter; remove gross pollutants. (2) Ensure there is no visible oil or grease sheen on released waters. (3) Dispose of waste containing contaminants at authorised facilities.

Issue		Design Objectives
Waterway stability and flood flow management	Changes to the natural waterway hydraulics and hydrology	(1) For peak flow for the 1-year and 100-year ARI event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site.

Table 9.4.4.3.8 Stormwater Management Design Objectives - Post construction phase (Ref: SPP Appendix 3)

Climatic region	Design Objectives Minimum reductions in mean and annual load from unmitigated development (%)				Application
	Total suspended solids	Total phosphorus	Total Nitrogen	Gross pollutants >5mm	
Central Queensland (North)	75	60	40	90	Development for urban purposes within population centres greater than 3,000 persons.
All	N/A	N/A	N/A	N/A	Excludes development that is less than 25% impervious. In lieu of modelling, the default bio-retention treatment area to comply with load reduction targets for all Queensland regions is 1.5% of the contributing catchment area.
	Waterway stability management Limit the peak 1-year ARI event discharge within the receiving waterway to the pre-development peak 1-year ARI event discharge.				Catchments contributing to un-lined receiving waterway may not require compliance if the waterway is degraded. For peak flow the 1-year ARI event, use co-located storages to attenuate site discharge rate of stormwater.

9.4.5 Landscaping code

9.4.5.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Landscaping code by the tables of assessment in Part 5 (Tables of assessment).

9.4.5.2 Purpose and overall outcomes

(1) The purpose of the Landscaping code is to ensure that landscaping is provided in a manner which is consistent with the desired character and amenity of the Whitsunday region.

(2) The purpose of the Landscaping code will be achieved through the following overall outcomes:

(a) development provides landscaping that retains, as far as practicable, existing vegetation and topographic features for their biodiversity, ecological, wildlife habitat, recreational, aesthetic and cultural values;

(b) development provides landscaping that creates new landscape environments that co-ordinate and complement the natural elements of climate, vegetation, drainage, aspect, landform and soils;

(c) development provides landscaping that successfully integrates the built form with the local landscape character, enhances the tropical qualities of the Whitsunday region and mitigates the impact of increased urbanisation;

(d) development provides landscaping that minimises the consumption of energy and water, and encourages the use of local native plant species and landscape materials;

(e) public landscaping works are provided in a manner consistent with Council's relevant requirements and standards;

(f) development provides landscaping that enhances personal safety, security and universal access;

(g) development provides landscaping that is functional and durable; and

(h) development provides landscaping that is practical and economic to maintain with on-going management considered as an integral part of the overall landscape design.

9.4.5.3 Assessment benchmarks

Table 9.4.5.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Landscape design generally			
PO1	Landscaping is established on the site to maintain the amenity enjoyed by people using the premises and the adjoining premises.	**AO1.1**	Development provides for landscaping that contributes to and creates a high-quality landscape character for the site, street, local area and the Whitsunday region, by: (a) promoting the character of the Whitsunday region as a tropical environment;

Performance Outcomes		Acceptable Outcomes	
			(b) being sensitive to site conditions, natural landforms and landscape characteristics; (c) protecting and enhancing native vegetation, wildlife habitat and ecological values; (d) protecting and framing significant views, vistas and areas of high scenic quality; and (e) being of an appropriate scale to integrate successfully with development. (f) Note – This may be demonstrated by preparing a site specific Landscaping plan in accordance with PSP SC6.4 Landscaping.
Retention of vegetation and topographic features in layout and design of landscaping			
PO2	Development provides landscaping that, as far as practicable, retains, protects and enhances existing trees, vegetation and topographic features of ecological, recreational, aesthetic and cultural value.	**AO2.1**	Existing remnant vegetation and native non-remnant vegetation is retained and integrated within the landscaping concept of new development.
		AO2.2	Where established vegetation is removed or damaged to make way for new development, it is replaced with vegetation of the same or similar species within the development site.
Character and amenity			
PO3	Development provides for landscaping that protects and enhances the character and amenity of the site, streetscape and surrounding locality.	**AO3.1**	Built form is softened and integrated with the broader landscape by structured landscape planting.
		AO3.2	Unless otherwise specified, car parks and driveways are screened by: (a) a planting bed of at least 1.5m wide where adjacent to an Accommodation activity; or (b) a planting bed of at least 3m wide where adjacent to a street frontage or public open space.
		AO3.3	Car parking areas are provided with a minimum of 1 shade tree for every 4 car parking spaces. All trees are to be planted within a deep natural ground/structured soil garden bed, protected by raised kerbs,

Performance Outcomes		Acceptable Outcomes	
			wheel stops or bollards as required.
		AO3.4	Front boundary fences and walls are articulated by recesses that: (a) allow for dense vegetative screening; and (b) have a minimum depth of 1m to the full height of the fence or wall for at least 50% of the length.
		AO3.5	Storage and utility areas are completely screened by vegetation or built screens, except for access ways to these areas.
Streetscape landscaping			
PO4	Development provides for a streetscape landscaping that contributes to the character and amenity of surrounding development and assists in fostering social interaction.	**AO4.1**	Streetscape landscaping: (a) incorporates shade trees; (b) contributes to the continuity and character of existing and proposed streetscapes; (c) in established urban areas, incorporates landscape design, such as planting, pavements, furniture and structures, that reflect and enhance the character of the streetscape; (d) in new or establishing urban areas, incorporates landscape design, such as planting, pavements, furniture and structures, that is consistent with and complementary to the natural landscape character of the local area; and (e) incorporates garden planting in conjunction with street tree planting at major junctions only.
Species selection			
PO5	Development provides for landscaping, which incorporates plant species that are: (a) fit for the intended purpose; (b) suited to local environmental conditions; (c) non-toxic; and (d) not declared environmental weeds.	**AO5.1**	Landscaping planting utilises locally endemic and/or other native species, in accordance with the PSP SC6.4 Landscaping.
		AO5.2	Species that have the potential to become an environmental weed or are known to be toxic to people or animals are not used in any landscaping works.
Safety, security and accessibility			
PO6	Development provides for landscaping that: (a) clearly defines public and private spaces;	**AO6.1**	Development provides landscaping, which: (a) defines territory and ownership of public,

Performance Outcomes		Acceptable Outcomes	
	(b) promotes passive surveillance of public and semi-public spaces; (c) enhances personal safety and security; and (d) provides universal and equitable access.		common, semi-private and private space and does not create ambiguous spaces that encourage loitering; (b) allows passive surveillance into, and visibility within, communal recreational spaces, children's play areas/playgrounds, pathways and car parks; (c) incorporates trees with a minimum of 1.8m clear trunk and understorey planting that is a maximum of 0.3m in height where located immediately adjacent to pathways, entries, parking areas, street corners, street lighting and driveways; (d) minimises the use of dense shrubby vegetation over 1.5m in height along street frontages and adjacent to open space areas; (e) incorporates pedestrian surfaces that are slip-resistant, stable and trafficable in all weather conditions; (f) provides security and pathway level lighting to site entries, driveways, parking areas, building entries and pedestrian pathways; and (g) provides universal access in accordance with AS1428 Design for access and mobility.
		AO6.2	Fences and screens to street frontages are visually permeable for 50% of their face area to provide opportunities for passive surveillance.
Climate control and energy efficiency			
PO7	Development provides landscaping that assists in passive solar access, the provision of shade, microclimate management and energy conservation.	**AO7.1**	Landscaping elements are positioned to shade walls, windows and outdoor areas from summer sun.
		AO7.2	Landscaping allows winter sun access to living areas, north facing windows and public spaces.
		AO7.3	Landscaping, fences and walls allow exposure of living and public areas to prevailing summer breezes and protection against winter winds.
Water sensitive urban design			

Performance Outcomes		Acceptable Outcomes	
PO8	Development provides for landscaping that promotes the efficient and sensitive use of water through appropriate plant selection, layout and by maximising opportunities for water infiltration.	**AO8.1**	Landscaping maximises the infiltration and conservation of water by: (a) selecting locally endemic and/or other native plant species and appropriate turf species that require minimal irrigation after establishment; (b) grouping plants and street trees, where appropriate, in mulched beds; (c) minimising impervious surfaces; (d) incorporating semi-porous pavement surfaces as an alternative to impervious surfaces; and (e) draining hard surface areas to landscaped areas and water sensitive urban design devices.
Landscaped separation buffers and environmental management			
PO9	Development provides for landscaped separation buffers that: (a) effectively protect matters of environmental significance or the edges of existing native vegetation; and (b) provide separation between incompatible land uses or between major infrastructure elements, such as State-controlled roads, and land uses.	**AO9.1**	The ecological values of a site or adjoining land is protected and enhanced by landscaping and landscape buffers. Note – This may be demonstrated by preparing a site specific Landscaped separation buffer plan in accordance with PSP SC6.4 Landscaping.
		AO9.2	Where a landscaped separation buffer is required, it is designed, constructed and maintained to achieve visual screening and acoustic attenuation of major infrastructure elements. Note – This may be demonstrated by preparing a site specific Landscaped separation buffer plan in accordance with PSP SC6.4 Landscaping.
Traffic safety and infrastructure			
PO10	Development ensures that landscaping does not impede traffic visibility at access points, speed control devices and intersections.	**AO10.1**	Landscaping does not: (a) unreasonably restrict sightlines for vehicles, pedestrians or cyclists; (b) obscure warning signs, information signs or road signs; (c) compromise building foundations, roads and paths; and (d) compromise services such as pipelines, underground cabling and overhead powerlines.

Performance Outcomes		Acceptable Outcomes	
		AO10.2	Where restrictions occur, suitable alternative landscaping is provided.
PO11	Development ensures that landscaping does not adversely impact upon the provision, operation and maintenance of infrastructure.	**AO11.1**	Planting and landscape structures are located to enable tradespersons to access, view and inspect switchboards, substations, service meters and the like.
		AO11.2	Root barriers are installed around tree root balls to minimise the risk of damage to infrastructure, services or utilities.
		AO11.3	Trees and large shrubs are located clear of underground services and utilities and in accordance with D9.07 of PSP SC6.8 WRC development manual.
		AO11.4	Planting in landscaping areas adjacent to electricity substations or high voltage transmission line easements complies with the PSP SC6.8 WRC development manual, in addition to: (a) for Ergon Energy's assets, the Ergon Energy Vegetation management standard; and (b) for Powerlink's assets, Powerlink's Easement co-use guideline and Screening your home from powerlines guideline.
		AO11.5	Where restrictions occur, suitable alternative landscaping is provided.
Requirements for Accommodation activities (Dual occupancy, Multi-unit uses, Residential care facility and retirement facility)			
PO12	Development provides for landscaping that contributes to and creates a high-quality landscape for the site and streetscape.	**AO12.1**	A landscaped buffer strip at least 3m wide is provided within the boundaries of the site, adjacent to the full street frontage of the site.
Requirements for Business activities (Business, Child care centre, Relocatable home park and tourist park and Sales office)			
PO13	The development provides streetscape landscaping that creates a high level of comfort, safety and visual attractiveness for users.	**AO13.1**	Streets are provided with turfed verges and constructed footpaths.
		AO13.2	Where provided, street trees are located between footpaths and the street or parking lanes.
		AO13.3	Shade trees are provided throughout public and semi-public spaces and provide shade to footpaths, activity

Performance Outcomes		Acceptable Outcomes	
			areas and open car parking areas.
		AO13.4	Street furniture, including seats, bollards, grates, grilles, screens and fences, bicycle racks, flag poles, banners, litter bins, telephone booths and drinking fountains, are co-ordinated with other elements of the streetscape.
PO14	The Business activity provides for the premises to be attractively landscaped in a manner that is consistent with the function, location and setting of the premises.	**AO14.1**	A minimum of 10% of the site is provided as landscaped area.
		AO14.2	Landscaping is provided on-site, in accordance with the following: (a) shade trees, low planting and hard landscaping are provided along street frontages not occupied by buildings or driveways; (b) a landscaped buffer strip is provided between the use and any adjacent Accommodation activities, which: (i) has a minimum width of 3m; (ii) is planted with a variety of screening trees and shrubs; (iii) incorporates a minimum 2m high solid screen fence along the full length of the common boundary; and (c) planting is provided on top of podium levels and on the roof or roof level of car parking structures. Note – A Landscaping plan may be prepared in accordance with the PSP SC6.4 Landscaping.
Requirements for Industry activities (Extractive industry, Industry and Service station)			
PO15	The development provides streetscape landscaping that creates a high level of comfort, safety and visual attractiveness for users.	**AO15.1**	Streets are provided with turfed verges and constructed footpaths.
PO16	The industrial use incorporates landscaping that: (a) makes a positive contribution to the streetscape; and (b) buffers the development from adjoining sensitive uses.	**AO16.1**	A minimum of 10% of the site is provided as landscaped area.
		AO16.2	Landscaping is provided on-site, in accordance with the following: (a) a 3m landscaping buffer is provided along street

Performance Outcomes		Acceptable Outcomes	
			frontages not occupied by buildings or driveways; (b) a landscaped buffer strip is provided between the use and any adjacent Accommodation activities, which: (i) has a minimum width of 3m; (ii) is planted with a variety of screening trees and shrubs; (iii) incorporates a minimum 2m high solid screen fence along the full length of the common boundary; and (c) any security fencing is set within or located behind the landscaping strip rather than adjacent to the major road. Note – A Landscaping plan may be prepared in accordance with the PSP SC6.4 Landscaping.

9.4.6 Reconfiguring a lot code

9.4.6.1 Application

This code applies to assessable development:

(a) being reconfiguring a lot; and

(b) identified as requiring assessment against the Reconfiguring a lot code by the tables of assessment in Part 5 (Tables of assessment).

9.4.6.2 Purpose and overall outcomes

(1) The purpose of the Reconfiguring a lot code is to ensure that new lots are configured in a manner which:

(a) is appropriate for their intended use;

(b) is responsive to site constraints;

(c) provides appropriate access; and

(d) supports high quality urban design outcomes.

(2) The purpose of the Reconfiguring a lot code will be achieved through the following overall outcomes:

(a) development provides for lots that are of a size and have dimensions that:

(i) are appropriate for their intended use;

(ii) promote a range of housing types in the case of residential development;

(iii) are compatible with the prevailing character and density of surrounding development; and

(iv) sensitively respond to site constraints;

(b) development provides for lots that have a suitable and safe means of access to a public road;

(c) development provides for reconfiguration that result in the creation of safe and healthy communities by:

(i) incorporating a functional and efficient lot layout that promotes the use of active and public transport;

(ii) incorporating a transport network with a grid or modified grid street pattern that is responsive to, and integrated with, the natural topography of the site, existing or planned adjoining development and supports the circulation of public transport with no, or only minimal, route redundancy;

(iii) avoiding adverse impacts on economic or natural resource areas;

(iv) avoiding adverse impacts on native vegetation, waterways, wetlands and other ecologically important areas present on, or adjoining the site;

(v) avoiding, or if avoidance is not practicable, mitigating the risk to people and property of natural hazards, including hazards posed by bushfire, flooding, coastal erosion/inundation, landslide and steep slopes; and

(vi) providing timely, efficient and appropriate infrastructure, including reticulated water and sewerage, sealed roads, pedestrian and bicycle paths, open space and community facilities in urban areas.

9.4.6.3 Assessment benchmarks

Table 9.4.6.3.1 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Size and dimensions of lots			
PO1	Development provides for the size, dimensions and orientation of lots to: (a) be appropriate for their intended use; (b) be compatible with the preferred character for the zone and local area in which the land is located; (c) where within the Rural zone; maintain the productive use and amenity of rural lands, (d) provide suitable building envelopes and safe pedestrian, bicycle and vehicular access without the need for major earthworks and retaining walls; and (e) take account of, and respond sensitively to, site constraints.	**AO1.1**	Unless otherwise specified in this code or a Local plan code, a lot complies with the minimum lot size specified in Table 9.4.6.3.2 Minimum lot size and dimensions.
		AO1.2	Lots are designed to contain the minimum width and depth requirements specified in Table 9.4.6.3.2 Minimum lot size and dimensions.
		AO1.3	A lot located on land identified on an overlay map contains a development envelope marked on a plan of development that demonstrates that there is an area sufficient to accommodate the intended purpose of the lot, that is not subject to the constraint or valuable resource or that appropriately responds to the constraint or valuable resource.
		AO1.4	Vehicular and active transport corridors are sensitively designed with the landscape to minimise the need for major earthworks and retaining walls.
		AO1.5	A lot has a development envelope of land with a slope no greater than 15%.
		AO1.6	No additional lots are created on land included in an Extractive resource or Transport route separation area identified on the Overlay map - ER - 01:29 (Extractive resources overlay).
		AO1.7	Lot boundaries are aligned to avoid traversing matters of environmental significance.
Small residential lots (Lots less than 600m^2)			
PO2	To facilitate and encourage urban consolidation and housing diversity, development	**AO2.1**	The small residential lots are located on land included in the Low-medium density residential

Performance Outcomes		Acceptable Outcomes	
	may provide for small residential lots to be created where: (a) they are within easy walking distance of an activity centre or public transport stop; (b) the development will be consistent with the preferred character for the zone and local area in which the land is located; and (c) the land is fit for purpose and not subject to significant topographic constraints.		zone, where the parent lot has a minimum area of 2,000m².
		AO2.2	The land does not have a slope of greater than 10%.
PO3	Small residential lots are dispersed across a development in a configuration that: (a) promotes variety in streetscape character; and (b) avoids an area being dominated by a particular lot type.	**AO3.1**	Not more than four lots of a particular type, such as small lots, are located in a row.
		AO3.2	A maximum of 50% of all lots within any neighbourhood block are of a particular type, such as small lots.
Irregular shaped lots			
PO4	Development provides for irregular shaped lots to be created only where: (a) the creation of regular lots is impractical, such as at a curve in the road; (b) safe access to and from the site can be provided while not adversely impacting on the functionality of the surrounding road network; and (c) the irregular lot is suitable for its intended purpose.	**AO4.1**	Irregular lots are designed to incorporate a building envelope that contains the minimum width and depth requirements specified in Table 9.4.6.3.2 Minimum lot sizes and dimensions.
Rearrangement of lot boundaries			
PO5	Development provides that the rearrangement of lot boundaries: (a) does not result in the creation, or in the potential creation of, additional lots; and (b) is an improvement on the existing situation.	**AO5.1**	The rearrangement of lot boundaries results in an improvement to the existing situation whereby the size and dimensions of proposed lots comply more fully with Table 9.4.6.3.2 Minimum lot size and dimensions, and at least one of the following is achieved: (a) the rearrangement of lots remedies an existing boundary encroachment by a building, structure or other use areas; (b) the rearranged lots will be made more regular in shape; and

Performance Outcomes		Acceptable Outcomes	
			(c) access is provided to a lot that previously had no access or an unsuitable access.
Lot layout and site responsive design			
PO6	Development provides for a lot layout and configuration of roads and other transport corridors that sensitively respond to surrounding environmental values and development.	**AO6.1**	Development layout and configuration responds appropriately to: (a) any areas of environmental significance or natural hazards present on, or adjoining the site; (b) the location and management of natural stormwater flows present on, or adjoining the site; (c) any places of cultural heritage significance or character areas present on, or adjoining the site; (d) any important landmarks, views, vistas or other areas of high scenic value present on, or able to be viewed from the site; (e) creates legible and interconnected movement and open space networks; (f) provides for a grid or modified movement network, which avoids or minimises the use of cul-de-sac; and (g) provides defined edges to public open space and avoids or minimises direct interface between public open space and freehold lots.
Lot layout and neighbourhood/estate design			
PO7	Development is appropriately planned, encompassing best practice lot layout and neighbourhood/estate design, whilst providing efficient land use pattern and effectively connecting the site with existing or planned development.	**AO7.1**	Development provides for a lot layout and infrastructure configuration that: (a) provides for the efficient movement of pedestrians, cyclists, public transport and private motor vehicles in that order of priority; (b) avoids narrow pathways and/or drainage reserves between lots; (c) provides for the creation of a diverse range of lot sizes capable of accommodating a mix of housing types and other uses required to support the community as appropriate to the zone and,

Performance Outcomes		Acceptable Outcomes	
			where applicable, local plan area; (d) promotes a sense of community identity and belonging; (e) provides for a high level of amenity having regard to potential noise, dust, odour and lighting nuisance sources; (f) accommodates and provides for the efficient and timely delivery of infrastructure appropriate to the site's context and setting; and (g) avoids the sporadic, or out of sequence, creation of lots.
Landscaped separation buffers to sensitive land, incompatible uses and infrastructure			
PO8	Development provides for lots to be created in locations that: (a) are adequately buffered to prevent potential adverse impacts on future users of the lots; (b) separate the lots from incompatible uses and infrastructure; and (c) do not create "reverse amenity" situations where the continued operation of existing uses is compromised by the proposed development.	**AO8.1**	Where any part of a lot included in a Residential zone, Emerging community zone or Rural residential zone is adjacent to a Rural or Industry zone or existing Rural or Industry activity the following landscaped separation buffers are provided: (a) 40m from a: (i) Rural zone; (ii) Low impact industry zone; (iii) Medium impact industry zone; (iv) Rural activities; (v) Low impact industry use; (vi) Medium impact industry use; (vii) Research or technology industry; (viii) Service industry use; or (ix) Warehouse use; (b) 50m from a: (i) High impact industry zone; or (ii) high impact industry use; (c) 60m from a: (i) Special industry zone; or (ii) Special industry use; and (d) 40m from a: (i) Waterfront and marine industry zone; or (ii) Marine industry use.

Performance Outcomes		Acceptable Outcomes	
			Note – This may be demonstrated by preparing a site specific Landscaped separation buffer in accordance with PSP SC6.4 Landscaping.
		AO8.2	Where a landscaped separation buffer is required, it is designed, constructed and maintained to achieve visual screening and acoustic attenuation of major infrastructure elements. Note – This may be demonstrated by preparing a site specific Landscaped separation buffer plan in accordance with PSP SC6.4 Landscaping.
Public parks and open space infrastructure			
PO9	Development provides for public parks and open space for the enjoyment of residents and visitors that add to the character and amenity of future and existing surrounding development.	**AO9.1**	Development provides a variety of public parks and open space infrastructure that: (a) provides for a range of passive and active recreation settings and can accommodate adequate facilities to meet the needs of the community; (b) is well distributed and contributes to the legibility, accessibility and character of the locality; (c) creates attractive settings and focal points for the community; (d) benefits the amenity of adjoining land uses; (e) incorporates appropriate measures for stormwater and flood management; (f) facilitates the retention of native vegetation, waterways, wetlands and other ecologically important areas and natural and cultural features; (g) facilitates the retention or enhancement of ecological corridors and connections to surrounding areas of open space; (h) is cost effective to maintain; and (i) is dedicated as public land in the early stages of the subdivision. Note—Section 9.4.5 Landscaping code and PSP SC6.8 WRC development manual includes requirements for the design and construction of landscape elements in public parks and open space infrastructure.

Table 9.4.6.3.2 Minimum lot sizes and dimensions

Zone	Minimum lot sizes	Minimum width (Road frontage)	Minimum depth
Major centre	400m²	Not applicable	Not applicable
District centre	400m²	Not applicable	4:1 (depth: width)
Local centre	400m²	Not applicable	4:1 (depth: width)
Neighbourhood centre	400m²	Not applicable	4:1 (depth: width)
Mixed use	800m²	20m	40m
Low density residential	600m²	18m	20m
Low-medium density residential	450m²	15m	20m
Tourist accommodation	800m²	20m	40m
Rural residential	4000m²	40m	50m
Low impact industry	1000m²	20m	50m
Medium impact industry	2000m²	30m	50m
High impact industry	2000m²	30m	50m
Special industry	2000m²	30m	50m
Waterfront and marine industry	4000m²	40m	100m
Environmental conservation and management	Not applicable	Not applicable	Not applicable
Recreation and open space	Not applicable	Not applicable	Not applicable
Community facilities	Not applicable	Not applicable	Not applicable
Rural	100ha	200m	800m
Emerging communities	10ha	100m	400m
Industry investigation	10ha	100m	400m

9.4.7 Transport and parking code

9.4.7.1 Application

This code applies to accepted and assessable development identified as requiring assessment against the Transport and parking code by the tables of assessment in Part 5 (Tables of assessment).

9.4.7.2 Purpose and overall outcomes

(1) The purpose of the Transport and parking code is to ensure that transport infrastructure including pathways, public transport infrastructure, roads, parking and service areas, are provided in a manner which meets the needs of the development, whilst promoting active and public transport use and preserving the character and amenity of the Whitsunday region.

(2) The purpose of the Transport and parking code will be achieved through the following overall outcomes:

(a) development is consistent with the objectives of the strategic transport network, which are to:

(i) provide for a highly permeable and integrated movement network;

(ii) improve coordination between land use and transport to maximise the potential for walking, cycling and public transport use and reduce reliance on private motor vehicle travel;

(iii) achieve acceptable levels of access, convenience, efficiency and legibility for all transport users;

(iv) limit road construction to the minimum necessary to meet the endorsed standards of service for the future development of the Whitsunday Region; and

(v) provide for staging of Council's limited trunk road construction program to maximise sustainability;

(b) transport infrastructure is designed and constructed to acceptable standards and operates in a safe and efficient manner that meets community expectations, prevents unacceptable off-site impacts and reduces whole of life cycle costs, including reduced ongoing maintenance costs; and

(c) development provides for on-site parking, access, circulation and servicing areas that are safe, convenient and meet the reasonable requirements of the development.

9.4.7.3 Assessment benchmarks

Table 9.4.7.3.1 Benchmarks for accepted and assessable development

Performance Outcomes		Acceptable Outcomes	
Layout and design of on-site parking and access			
PO1	Development ensures that the layout and design of vehicle access, on-site circulation systems and parking areas are safe, convenient and legible for all users including people with	**AO1.1**	Development provides access driveways, internal circulation and manoeuvring areas, service areas and parking areas that comply with D1: Road geometry of PSP SC6.8 WRC

Performance Outcomes		Acceptable Outcomes	
	disabilities, pedestrians, cyclists and public transport services, where relevant.		development manual and AS2890 (Parking facilities) ensuring: (a) the number and type of vehicles planned for the development can be accommodated on the site; (b) on-site vehicle parking and manoeuvring areas provide for vehicles to enter and leave the site in a forward motion; and (c) a progressive reduction in vehicle speed between the external transport corridor and internal parking spaces, such that lower speeds occur near areas of high pedestrian activity.
Site access			
PO2	Development ensures that the location and design of any new site access does not interfere with the planned function, safety, capacity and operation of the transport network.	**AO2.1**	The location and design of any new site access complies with D1: Road geometry of PSP SC6.8 WRC development manual, AS2890.1 (Parking facilities: Off-street car parking), AS2890.2 (Parking facilities: Off-street commercial vehicle facilities) and, where applicable, in accordance with the Department of Transport and Main Roads requirements where state roads are affected.
On-site car parking			
PO3	Development provides on-site car parking for the demand anticipated to be generated by the development and existing conditions.	**AO3.1**	Development provides on-site car parking spaces at the minimum rates outlined in Table 9.4.7.3.3 Minimum on-site parking requirements. Note—where the calculated number of spaces is not a whole number, the required number of parking spaces is the nearest whole number.
		AO3.2	Where development is proposed for existing Business or Entertainment activities within Airlie Beach Precinct D and Precinct E, car parking is only provided for additional GFA at the rates provided in Table 9.4.7.3.3 Minimum on-site parking requirements.
PO4	Development provides for a reasonable portion of the total number of on-site car parking spaces to be wheelchair accessible spaces and to be	**AO4.1**	Development provides the number of parking spaces for people with disabilities, required by the Building code of Australia and, in any case, provides a minimum of one space.

Performance Outcomes		Acceptable Outcomes	
	identified and reserved for such purposes.	**AO4.2**	Parking spaces for people with disabilities and access to them complies with AS1428 (General requirements for access: Buildings) and AS2890.6 (Parking facilities: Off-street parking for people with disabilities).
Service vehicle requirements			
PO5	Development provides sufficient parking and access for service vehicles to meet the needs of the development.	**AO5.1**	Development provides on-site service vehicle parking bays at the minimum rates outlined in Table 9.4.7.3.3 Minimum on-site parking requirements.
		AO5.2	Service vehicle access, manoeuvring and parking is designed in accordance with AS2890.2 (Parking facilities: Off-street commercial vehicle facilities).
PO6	Development provides for driveways, internal circulation areas and service areas to be designed to: (a) ensure that proposed loading, unloading, waste collection and fuel delivery facilities, if required, can satisfactorily accommodate the number and type of service vehicles expected on-site; and (b) the movement of service vehicles on-site and loading and unloading operations do not interfere with on-site amenity and the safe and convenient movement of other vehicles and pedestrians on the site.	**AO6.1**	Driveways, internal circulation areas and service areas are provided to accommodate the nominated design vehicles for each development type.
		AO6.2	Driveways, internal circulation areas, manoeuvring areas, loading and unloading areas and refuse collection facilities are designed and constructed in accordance with D1: Road geometry of PSP SC6.8 WRC development manual and AS2890 (Parking facilities).
Access and parking site access			
PO7	Development is designed such that turning traffic minimises the impact of the development on external traffic systems.	**AO7.1**	Turns to and from the development are designed in accordance with the standards specified in D1: Road geometry of PSP SC6.8 WRC development manual.
PO8	Development provides for sight distances to and from driveways sufficient to ensure safe operation.	**AO8.1**	Available sight distances from driveways comply with the standards specified in D1: Road geometry of PSP SC6.8 WRC development manual.
PO9	Development provides appropriate and sufficient signage to ensure safe and convenient usage of site access systems	**AO9.1**	Appropriate direction, regulatory, warning and information signage and line marking is provided in accordance with the requirements of PSP SC6.8

Performance Outcomes		Acceptable Outcomes	
			WRC development manual and the Department of Transport and Main Roads' *Queensland manual of uniform traffic control devices*.

Table 9.4.7.3.2 Benchmarks for assessable development

Performance Outcomes		Acceptable Outcomes	
Layout and design of on-site parking and access			
PO1	Development ensures that the layout and design of vehicle access, on-site circulation systems and parking areas are safe, convenient and legible for all users including people with disabilities, pedestrians, cyclists and public transport services, where relevant.	**AO1.1**	Development provides clearly defined pedestrian paths within and around on-site vehicle parking areas that: (a) are located in areas where people will choose to walk; and (b) ensure pedestrian movement through vehicle parking areas is along aisles rather than across them.
PO2	Development provides for shared or multiple use of car parking areas.	**AO2.1**	Development provides for the shared or multiple use of car parking, particularly large car parking areas: (a) at times when car parking areas would otherwise not be occupied, such as weekends; (b) when car parking spaces service two or more land uses with varying peak usage times, such as food and drink outlets and Entertainment activities, which generate peak parking demands in periods when retail or office uses are relatively inactive; and (c) to reduce the amount and size of the car parking area.
PO3	Development ensures that car parking areas, service areas and access driveways do not impede on the useability of the network or amenity of surrounding uses.	**AO3.1**	Parking areas and service areas and access driveways are located where: (a) they will not dominate the streetscape; and (b) will not unduly intrude upon pedestrian use of footpaths, through: (i) the use of rear access lanes; (ii) car parking areas and service areas situated at the rear of the premises or below ground level; or (iii) shared driveways.
Site access			

Performance Outcomes		Acceptable Outcomes	
PO4	Development ensures that the location and design of any new site access does not interfere with the planned function, safety, capacity and operation of the transport network.	**AO4.1**	The number of site access driveways is minimised (usually one), with access to the lowest order transport corridor to which the site has frontage, consistent with amenity impact constraints.
PO5	An acceptable level of flood immune access is provided.	**AO5.1**	Roads providing access to lots have the same flood immunity as the road network they adjoin, specified in accordance with D4: Stormwater drainage of PSP SC6.8 WRC development manual.
Road and transport network			
PO6	Development, particularly where involving the creation of new roads and other transport corridors is appropriately planned, designed and managed, taking into account existing and future networks and surrounding development.	**AO6.1**	Development of roads and transport corridors ensures that the road network: (a) is in accordance with the Queensland streets and DP1: Development principles DP1 – DP1.07 and D1: Road geometry of PSP SC6.8 WRC development manual; (b) provides visible distinction of roads, based on function and design features; (c) provides convenient, safe and efficient movement for all modes of transport between land use activities with priority given to pedestrian movement and bicycle use over vehicle movements; (d) allows for unimpeded and practical access to the development site and each proposed lot; (e) accommodates or facilitates access to cycle and pedestrian pathways; (f) facilitates a high standard of urban design, which reflects a grid pattern to assist in connectivity and permeability, particularly for pedestrians and cyclists; (g) connects to and integrates with existing roads and other relevant facilities within and external to the land to be developed or subdivided; (h) provides for the dedication and construction of roads where required to allow access to, and proper development of, adjoining

Performance Outcomes		Acceptable Outcomes	
			vacant land that is intended for development; (i) provides for the construction and adequate drainage of all proposed roads, pathways, laneways and bikeways within and adjoining the land to be developed; (j) does not unreasonably adversely impact on existing vehicular traffic, active transport users or the amenity of the surrounding environment; and (k) does not adversely impact on wildlife movement corridors. Note – D1: Road geometry of PSP SC6.8 WRC development manual specifies standards and provides guidance for the design and construction of roads and transport corridors.
PO7	Development involving high trip generating land uses minimises any adverse impacts on surrounding land uses and the external transport network.	**AO7.1**	Development of high trip generating land uses appropriately allows for the provision of infrastructure and services to increase the use of public and active transport. Note – A Traffic impact assessment report prepared in accordance with PSP SC6.7 Growth management may assist in demonstrating compliance with the performance outcome.
PO8	Development facilitates orderly provision of the transport network.	**AO8.1**	Development provides for upgrades or contributes to the construction of transport network improvements.
		AO8.2	Required upgrading of the transport network is provided in accordance with the hierarchy characteristics and requirements outlined in DP1: Development principles of PSP SC6.8 WRC development manual.
Pedestrian and bicycle network and facilities			
PO9	Development in the Major centre, District centre, Local centre, Mixed use, Low-medium density residential and Tourist accommodation zones provide on-site parking facilities for bicycles to encourage use of this mode of transport and support the demand anticipated to be generated by the development.	**AO9.1**	Development provides on-site bicycle spaces that meet the needs of all users of the development, including but not limited to, employees, customers, students and visitors. Note – The minimum on-site bicycle parking rates specified in PSP SC6.8 WRC development manual.

Performance Outcomes		Acceptable Outcomes	
PO10	Development provides for the establishment of a safe and convenient network of pedestrian and bicycle paths.	**AO10.1**	Development allows for the provision of pedestrian and bicycle networks that: (a) provide a high level of permeability and connectivity; (b) provide for joint usage where appropriate; (c) maximise opportunities to link activity centres, employment areas, residential areas, community facilities, open space and public transport stops located internally and externally to the site; (d) have an alignment that maximises visual interest, allows for the retention of trees and other significant features and does not compromise the operation of or access to other infrastructure; (e) incorporate safe street crossings with adequate sight distances, pavement markings, warning signs and safety rails; and (f) are well lit and located where there is casual surveillance from nearby premises. Note — D1: Road geometry PSP SC6.8 WRC development manual and Complete Streets specify standards and provides guidance for the design and construction of pedestrian and bicycle paths.
PO11	Appropriate on-site end of trip facilities are provided to encourage walking and cycling as an alternative to private car travel.	**AO11.1**	Development for a Business activity, Community activity, Recreation activity, or for a hostel, short term accommodation, resort complex, residential care facility, air services or marina, provides residents, employees and visitors with shower cubicles and ancillary change rooms and lockers, including provision for both males and females, at the following rates: (a) 1 cubicle and 5 lockers for the first 5,500m^2 of gross floor area, provided that the development exceeds a minimum GFA of 1,500m^2; plus

Performance Outcomes		Acceptable Outcomes	
			(b) 1 additional cubicle and 5 additional lockers for that part of the development that exceeds 5,500m² gross floor area up to a maximum of 30,000m² GFA; plus (c) 2 additional cubicles and 10 additional lockers for that part of the development that exceeds 30,000m² GFA.
		AO11.2	Development provides bicycle access, parking and storage facilities that: (a) are located close to the building's pedestrian entrance; (b) are obvious and easily and safely accessible from outside the site; (c) do not adversely impact on visual amenity; and (d) are designed in accordance with the Austroads: Guide to road design part 6A: Pedestrian and cyclist paths.
Public transport facilities			
PO12	Development encourages the use of public transport through the appropriate provision of on-site or off-site public transport facilities, having regard to the specific nature and scale of development and the number of people or lots involved.	**AO12.1**	Development is designed and arranged to provide safe, convenient and functional linkages to existing and proposed public transport facilities.
		AO12.2	On-site public transport facilities are provided in conjunction with the following development: (a) shopping centre, where having a GFA of greater than 10,000m²; (b) tourist attraction, having a TUA of greater than 10,000m²; (c) educational establishment, where accommodating more than 500 students; (d) major sport, recreation and entertainment facility; (e) indoor sport and recreation, where having a GFA of more than 1,000m² or for spectator sports; and (f) outdoor sport and recreation where for spectator sports.
		AO12.3	On-street public transport facilities are provided as part of the following development: (a) shopping centre, where having a GFA of 10,000m² or less;

Performance Outcomes		Acceptable Outcomes	
			(b) tourist attraction, where having a GFA of 10,000m^2 or less; (c) educational establishment, where accommodating 500 or less students; and (d) indoor sport and recreation where having a GFA of 500m^2 or less and not for spectator sports.
		AO12.4	Where not otherwise specified above, on street public transport facilities are provided where development is located on an existing or future public transport route. Public transport facilities are located and designed in accordance with the standards specified in D1: Road geometry of PSP SC6.8 WRC development manual.
		AO12.5	Public transport facilities are located and designed in accordance with the standards specified in D1: Road geometry of PSP SC6.8 WRC development manual.
PO13	Development involving the creation of new roads provides for and maintains connectivity to existing and future public transport routes.	**AO13.1**	Development ensures that a network of public transport routes is provided, such that public transport can efficiently service the neighbourhood/ estate with no, or only minimal, route redundancy.
		AO13.2	Development ensures that the design of streets and roads to be used as a public transport route allows for the efficient and unimpeded movement of buses without facilitating high traffic speeds.
Amenity and environmental impacts of transport infrastructure			
PO14	The environmental impacts of transport infrastructure are minimised by appropriate design and the use of low impact construction techniques.	**AO14.1**	Development ensures that the environmental impacts of transport infrastructure are minimised by the use of low impact construction techniques, including: (a) co-location of transport corridors within an existing or planned infrastructure corridor; (b) location of transport corridors within an area clear of, or consisting of, disturbed vegetation; (c) avoidance of clearing of native vegetation and provision of fauna

Performance Outcomes		Acceptable Outcomes	
			underpasses and associated fencing, where appropriate; (d) minimisation of changes to the hydrological regime, including drainage patterns, run-off and water quality; (e) avoidance of crossing waterways, drainage lines and wetlands, where such crossings are unavoidable, disturbed areas are reinstated and revegetated on completion of works; and (f) minimisation of changes to the natural landform and extensive earthworks.
		AO14.2	Transport corridor design and construction is undertaken in accordance with DP1: Development principles of PSP SC6.8 WRC development manual.
PO15	A development's parking areas incorporate appropriate landscaping and, where possible, minimises adverse impacts on people, properties or activities with regard to light, noise, emissions or stormwater run-off.	**AO15.1**	Development provides appropriate landscaping for on-site vehicle access and parking areas to: (a) provide shade; (b) maximise infiltration of stormwater runoff; (c) define parking areas; and (d) soften views of hardstand areas. Note – D9: Landscaping of PSP SC6.8 WRC development manual sets out requirements for landscaping.
Transport corridor widths, pavement, surfacing and verges			
PO16	Development provides external road works along the full extent of the site frontage appropriate to the function and amenity of the transport corridor, including where applicable: (a) paved roadway; (b) kerb and channel; (c) safe vehicular access; (d) safe footpaths and bikeways; (e) safe on-road cycle lanes or verges for cycling; (f) stormwater drainage; and (g) conduits to facilitate the provision of street lighting systems and traffic signals.	**AO16.1**	The design and construction of external road works is: (a) undertaken in accordance with the D1: Road geometry of PSP SC6.8 WRC development manual; and (b) consistent with the characteristics intended for the particular type of transport corridor specified in the DP1: Development principles of PSP SC6.8 WRC development manual.
PO17	Development provides for the reserve width, pavement, edging, streetscaping and landscaping of a transport	**AO17.1**	Transport corridor design and construction is: (a) undertaken in accordance with the standards specified

Performance Outcomes		Acceptable Outcomes	
	corridor to support the intended functions and amenity of the transport corridor.		in the DP1: Development principles of PSP SC6.8 WRC development manual and (b) consistent with the characteristics intended for the particular type of transport corridor specified in DP1: Development principles of PSP SC6.8 WRC development manual.
PO18	Development provides for road pavement and surfacing that: (a) is sufficiently durable to carry wheel loads for design traffic; (b) provides adequate area for parked vehicles; (c) ensures the safe passage of vehicles, pedestrians and bicycles; (d) ensures appropriate management of stormwater and maintenance of all-weather access; and (e) allows for reasonable travel comfort.	**AO18.1**	Road pavement design and construction is undertaken in accordance with the standards specified in the D3: Road pavements and S2: Road pavements of PSP SC6.8 WRC development manual.
PO19	Development provides pavement edging that controls: (a) vehicle movements by delineating the extent of the carriageway; and (b) stormwater runoff.	**AO19.1**	Design and construction of pavement edging is undertaken in accordance with the standards specified in the D1: Road geometry and S2: Road pavements of PSP SC6.8 WRC development manual.
PO20	Development provides verges and footpaths that: (a) allow safe access for pedestrians clear of obstructions; (b) allow safe passage of wheel chairs and other mobility aids; (c) allow safe passage of cyclists; (d) allow access for vehicles onto properties; (e) include an area for public utility services; (f) allow signage and line marking; and (g) contribute to the amenity of transport corridors.	**AO20.1**	Verge and footpath design and construction is undertaken in accordance with the: (a) standards specified in the D1: Road geometry of PSP SC6.8 WRC development manual; and (b) characteristics intended for the particular type of transport corridor specified in the DP1: Development principles of PSP SC6.8 WRC development manual.
Intersections and traffic controls			
PO21	Development provides for traffic speeds and volumes to be catered for through the design and location of intersections and traffic controls to: (a) avoid stop-start conditions;	**AO21.1**	Intersections and speed control devices are designed and constructed in accordance with the D1: Road geometry of PSP SC6.8 WRC development manual and Part 4 of

Performance Outcomes		Acceptable Outcomes	
	(b) provide for appropriate sight distances; (c) avoid increased vehicle emissions; (d) minimise unacceptable traffic noise to adjoining land uses; (e) maintain convenience and safety levels for pedestrians, cyclists and public transport; and (f) integrate traffic controls with landscaping and streetscape design.		AustRoads (Intersections and crossings).
Development staging			
PO22	Staged development is planned, designed and constructed to ensure uninterrupted transport service and connectivity.	**AO22.1**	Development ensures: (a) each stage of the development can be constructed without interruption to services and utilities provided to the previous stages; (b) transport infrastructure provided is capable of servicing the entire development; (c) early bus access and circulation is achieved through the connection of collector roads; and (d) materials used are consistent throughout the development.

Table 9.4.7.3.3 Minimum on-site parking requirements

Land use	Cars	Service vehicles
Residential activities		
Caretakers residence	1 space for exclusive use by the occupants of the caretaker's accommodation	Not required
Community residence	2 plus 1 for a manager residence or resident support worker	Not required
Dwelling house	2 spaces, 1 of which is covered, spaces may be in tandem	Not required
Dual occupancy	1 bedroom: 1 space per unit 2 bedroom: 1.5 space per unit 3 or more bedroom: 2 spaces per unit	Not required
Home based business	As per dwelling house: plus 1 space customer parking; plus 1 space non-resident employee; plus 1 space per guest room, where a Bed and breakfast	1 SRV

Land use	Cars	Service vehicles
Multiple dwelling	1 bedroom: 1 space per unit 2 bedroom: 1.5 space per unit 3 or more bedroom: 2 spaces per unit Visitor spaces: 1 space per 5 units	1 SRV where more than 10 dwellings
Nature based tourism	1 space per cabin/site plus 1 manager space	Not required
Non-resident workforce accommodation	1 bedroom: 1 space per unit 2 bedroom: 1.5 space per unit 3 or more bedroom: 2 spaces per unit Visitor spaces: 1 space per 5 units	1 SRV where more than 10 dwellings
Relocatable home park	1 space van/tent/cabin site (adjacent to site) plus 1 visitors space per 4 van/tent/cabin sites	1 SRV where more than 10 relocatable home sites
Residential care facility	1 space per 6 dormitory type bed; 1 space per 4 hostel type units; 1 space per self-contained unit; and visitor parking equal to 50% of the resident parking requirement	1 MRV plus 1 ambulance
Resort complex	As per separately defined uses	As per separately defined uses
Retirement facility	1 space per 6 dormitory type bed; 1 space per 4 hostel type units; 1 space per self-contained unit; and visitor parking equal to 50% of the resident parking requirement	1 MRV plus 1 ambulance
Rooming accommodation	1 space per 6 dormitory type bed; 1 space per 4 hostel type units; 1 space per self-contained unit; and visitor parking equal to 50% of the resident parking requirement	1 SRV
Short-term accommodation	1 bedroom: 1 space per unit 2 bedroom: 1.5 space per unit 3 or more bedroom: 2 spaces per unit Visitor spaces: 1 space per 5 units	1 SRV where more than 10 dwellings
Tourist park	1 space van/tent/cabin site (adjacent to site) plus 1 visitors space per 4 van/tent/cabin sites	1 LRV
Business activities		

Land use	Cars	Service vehicles
Adult store	1 space per 25m² TUA	Not specified
Agricultural supplies store	1 space per 25m² of sales area plus 1 space per 200m² TUA	Not specified
Food and drink outlet	1 space per 25m² TUA, excluding footpath dining areas located within the road reserve	1 SRV
Garden Centre	1 space per 25m² of sales area plus 1 space per 200m² TUA	1 SRV if less than 500m² GFA 1 SRV and 1 LRV if 500m² to 1,999m² GFA Not specified if 2,000m² GFA or above
Hardware and trade supplies	1 space per 25m² of sales area plus 1 space per 200m² TUA	1 SRV if less than 500m² GFA 1 SRV and 1 LRV if 500m² to 1,999m² GFA Not specified if 2,000m² GFA or above
Market	1 space per 25m² GFA or total use area	Not specified
Office	1 space per 40m² GFA	Not specified
Outdoor sales	1 space per 150m² TUA	1 AV
Service station	4 spaces per service bay plus parking requirements for ancillary uses as detailed herein, such as a Shop, with a minimum of 8 spaces	1 AV
Shop	1 space per 25m² TUA	1 SRV if less than 500m² GFA 1 SRV and 1 LRV if 500m² to 1,999m² GFA Not specified if 2,000m² GFA or above
Shopping centre	1 space per 25m² GFA	1 SRV if less than 500m² GFA 1 SRV and 1 LRV if 500m² to 1,999m² GFA Not specified if 2,000m² GFA or above
Showroom	1 space per 50m² TUA	1 AV
Veterinary services	1 space per 25m² TUA	1 SRV
Entertainment activities		
Bar	1 space per 10m² GFA	Not specified
Club	1 space per 25m² TUA plus sufficient room for queuing. Accommodation and food and drink outlet as per separate defined uses	Not specified
Function facility	1 space per 15m² GFA	1 SRV
Hotel	1 space per 25m² TUA plus sufficient room for queuing. Accommodation and food and drink outlet as per separate defined uses	1 MRV
Nightclub entertainment facility	1 space per 25m² TUA plus sufficient room for queuing.	1 SRV

Land use	Cars	Service vehicles
	Accommodation and food and drink outlet as per separate defined uses	
Theatre	1 space per 20m^2 of TUA;	Not specified
Tourist attraction	Not specified	Not specified
Industrial activities		
Bulk landscape supplies	A minimum of 6 car parks plus 1 space per 25m^2 of sales area plus 1 space per 200m^2 TUA.	1 LRV
Extractive industry	1 space per 100m^2 GFA	Not specified
Low impact industry	1 space per 50m^2 GFA	Not specified
High impact industry	1 space per 100m^2 GFA	Not specified
Marina	0.6 spaces per wet berth 0.2 spaces per dry storage berth 0.5 spaces per marina employee 0.2 spaces per swing mooring licensed to the marina.	Not specified
Medium impact industry	1 space per 100m^2 GFA	Not specified
Service industry	1 space per 50m^2 GFA	1 MRV
Special industry	1 space per 100m^2 GFA	Not specified
Warehouse	1 space per 150m^2 site area plus provisions to provide for the loading and unloading facilities instead of car parks in self-storage facilities	Not specified
All other industrial activities	1 space per 50m^2 if less than 500m^2 GFA plus 1 space per 100m^2 GFA for that part exceeding 500m^2 GFA	1 AV
Community activities		
Cemetery	Not specified	Not specified
Child care centre	2 spaces for every 4 children in attendance plus 1 per employee	Not specified
Community care centre	1 space per 25m^2 plus parking for emergency service vehicles	Not specified
Community use	1 space per 15m^2 of TUA	Not specified
Crematorium	Not specified	Not specified
Educational establishment	1 space per 10 seats plus drop off pick up	Not specified
Emergency services	1 space per employee plus 1 visitor space per 4 employees	Not specified
Funeral parlour	1 space per 15m^2 GFA where memorials are conducted and 1 space per 40m^2 GFA for all others	1 SRV
Health care services	1 space per 25m^2 plus parking for emergency service vehicles	1 SRV plus Ambulance
Hospital	1 space per 25m^2 plus parking for emergency vehicles	Not specified
Place of worship	1 space per 15m^2 of TUA	SRV

Land use	Cars	Service vehicles
Recreation activities		
Outdoor sport and recreation	6 spaces per court (tennis or court game); 30 spaces per pitch/field plus 1 per person able to be seated in stands (cricket or football); 30 spaces per green (lawn bowls); and 15 spaces, plus one space per 100m^2 of site area (swimming pool)	Not specified
Indoor sport and recreation	1 space per 20m^2 of TUA	Not specified
All other recreational activities	Not specified	Not specified
Rural activities		
Rural industry	1 space per 50m^2 GFA	1 AV
Wholesale nursery	1 space per 25m^2 of sales area plus 1 space per 200m^2 TUA	1 AV
All other Rural activities	Not specified	Not required
Other activities		
All Other activities	Sufficient car parking is demonstrated by a Traffic assessment report prepared in accordance with PSP SC6.7 Growth management.	Not specified

Contents of Part 10

Part 10 Other plans

There are no other plans for the planning scheme.

Contents of Schedule 1

Tables of Schedule 1

Schedule 1 Definitions

SC1.1 Use definitions

(1) Use definitions have a particular meaning for the purpose of the Planning Scheme.

(2) Any use not listed in Table SC1.1.2 (Use definitions) column 1 is an undefined use.

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 (Use definitions) column 1 has the meaning set out beside that term in column 2.

(4) The use definitions listed here are the definitions used in this Planning Scheme.

(5) Column 3 of Table SC1.1.2 (Use definitions) identifies examples of the types of activities that are consistent with the use identified in column 1.

(6) Column 4 of Table SC1.1.2 (Use definitions) identifies examples of activities that are not consistent with the use identified in column 1.

(7) Columns 3 and 4 of Table SC1.1.2 (Use definitions) are not exhaustive lists.

(8) Uses listed in Table SC1.1.2 (Use definitions) columns 3 and 4 that are not listed in column 1 do not form part of the definition.

(9) All use definitions are derived from the Planning Regulations 2017, where any discrepancy occurs the Planning Regulation 2017 use definition prevails.

Table SC 1.1.1 Index of use definitions

Adult store	Health care services	Port services
Agricultural supplies store	High impact industry	Relocatable home park
Air service	Home based business	Renewable energy facility
Animal husbandry	Hospital	Research and technology industry
Animal keeping	Hotel	Residential care facility
Aquaculture	Indoor sport and recreation	Resort complex
Bar	Intensive animal industry	Retirement facility
Brothel	Intensive horticulture	Roadside stall
Bulk landscape supplies	Landing	Rooming accommodation
Caretaker's accommodation	Low impact industry	Rural industry
Car wash	Major electricity infrastructure	Rural workers' accommodation
Cemetery	Major sport, recreation and entertainment facility	Sales office
Child care centre	Marine industry	Service industry
Club	Market	Service station
Community care centre	Medium impact industry	Shop
Community residence	Motor sport facility	Shopping centre
Community use	Multiple dwelling	Short-term accommodation
Crematorium	Nature-based tourism	Showroom
Cropping		Special industry

Detention facility Dual occupancy Dwelling house Dwelling unit Educational establishment Emergency services Environment facility Extractive industry Food and drink outlet Function facility Funeral parlour Garden centre Hardware and trade supplies	Nightclub entertainment facility Non-resident workforce accommodation Office Outdoor sales Outdoor sport and recreation Outstation Park Parking station Permanent plantation Place of worship	Substation Telecommunications facility Theatre Tourist attraction Tourist park Transport depot Utility installation Veterinary services Warehouse Wholesale nursery Winery

Table SC 1.1.2 Use definitions

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Adult store	Premises for the primary purpose of displaying or selling sexually explicit materials; or products and devices that are associated with, or used in, a sexual practice or activity.	Sex shop	Shop, newsagent, registered pharmacist or video hire, where the primary use of these are concerned with: • the sale, display or hire of printed or recorded matter (not of a sexually explicit nature); or • the sale or display of underwear or lingerie; or • the sale or display of an article or thing primarily concerned with or used in association with a medically recognised purpose.
Agricultural supplies store	Premises used for the sale of agricultural supplies and products. Examples of agricultural supplies and products		Bulk landscape supplies, garden centre, outdoor sales wholesale nursery

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	include animal feed, bulk veterinary supplies, chemicals, farm clothing, fertilisers, irrigation materials, saddlery, and seeds.		
Air services	Premises used for— • the arrival or departure of aircraft; • housing, servicing, refuelling, maintaining or repairing aircraft; • the assembly and dispersal of passengers or goods on or from an aircraft; • training and education facilities relating to aviation; • aviation facilities; or • an activity that is ancillary to an activity or facility that directly services the needs of aircraft passengers.	Airport, airstrip, helipad, public or private airfield	
Animal husbandry	Premises used for producing animals or animal products on native or improved pastures or vegetation. Where ancillary the use may include yards, stables, temporary holding facilities or machinery repairs and servicing.	Cattle studs, grazing of livestock, non-feedlot dairy	Animal keeping, intensive animal industry, aquaculture, feedlots, piggeries
Animal keeping	Premises used for boarding, breeding or training of animals. Where ancillary the use may include holding facilities and repair and servicing of machinery.	Aviaries, catteries, kennels, stables, wildlife refuge	Aquaculture, cattle studs, domestic pets, feedlots, grazing of livestock, non-feedlot dairying, piggeries, poultry meat and egg production, animal husbandry
Aquaculture	Premises used cultivation of live fisheries resources for sale.	Pond farms, tank systems, hatcheries, raceway system, rack and	Intensive animal industry

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
		line systems, sea cages	
Bar	Premises used primarily to sell liquor for consumption on the premises and that has seating for 60 or less people. . Where ancillary the use may include entertainment activity, or preparing and selling food and drink for consumption on the premises..		Club, hotel, nightclub entertainment facility, tavern
Brothel	Premises made available for prostitution by two or more prostitutes at the premises. (Source - *Prostitution Act 1999)*		Adult store, club, nightclub entertainment facility, shop
Bulk landscape supplies	Premises used for the bulk storage and sale of mainly non-packaged landscaping and gardening supplies, including, for example, soil, gravel, potting mix or mulch.		Garden centre, outdoor sales, wholesale nursery
Caretaker's accommodatio n	Premises used for a dwelling for a caretaker of a non-residential use on the same premises.		Dwelling house
Car wash	Premises primarily used for commercially cleaning motor vehicles.		Service station
Cemetery	Premises used for interment of bodies or ashes after death.	Burial ground, crypt, columbarium, lawn cemetery, pet cemetery, mausoleum	Crematorium, funeral parlour
Child care centre	Premises used for minding, education and care, but not residence, of children.	Crèche, early childhood centre, kindergarten, outside hours school care, vacation care	Educational establishment, home based child care, family day care

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Club	Premises used by an association established for social, literary, political, sporting, athletic or other similar purposes. Where ancillary the use may include the preparation and selling of food and drink.	Club house, guide and scout clubs, surf lifesaving club, RSL, bowls club	Hotel, nightclub entertainment facility, place of worship, theatre
Community care centre	Premises used for providing social support to members of the public. Where ancillary the use may include medical care.	Disability support services, drop in centre, respite centre, integrated Indigenous support centre	Child care centre, family day care, home based child care, health care services, , accommodation activities
Community residence	Premises used for residential accommodation for no more than 6 children if the accommodation is provided as part of a program or service under the Youth Justice Act 1992; or 6 persons who require assistance or support with daily living needs; and no more than 1 support worker. It includes a building or structure that is reasonably associated with the primary use.	Hospice	Dwelling house, dwelling unit, residential care facility, rooming accommodation, short-term accommodation
Community use	Premises used for providing artistic, social or cultural facilities or community services to the public. The ancillary use may include the preparation and selling of food and drink.	Art gallery, community centre, community hall, library, museum	Cinema, club, hotel, nightclub entertainment facility, place of worship
Crematorium	Premises used for the cremation or aquamation of bodies.		Cemetery
Cropping	Premises used for growing and harvesting	Forestry for wood production, fodder	Permanent plantations,

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	plants, or plant material, that are cultivated in soil, for commercial purposes. Where ancillary the use may include harvesting, storing or packing plants or plant material grown on the premises, or repairing and servicing machinery used on the premises.	and pasture production, producing fruit, nuts, vegetables and grains, plant fibre production, sugar cane growing, vineyard	intensive horticulture, rural industry
Detention facility	Premises used for the lawful detention of persons.	Prison, detention centre	
Dual occupancy	A residential use of premises for 2 households involving 2 dwellings (whether attached or detached) on a single lot or 2 dwellings (whether attached or detached) on separate lots that share a common property. The use may include any domestic outbuilding associated with the dwellings; but does not include a residential use of premises that involves a secondary dwelling.	Duplex, 2 dwellings on a single lot (whether or not attached), 2 dwellings within one single community title scheme under the *Body Corporate and Community Management Act 1997, 2* dwellings within the 1 body corporate to which the *Building Units and Group Title Act 1980* continues to apply	Dwelling house, multiple dwelling
Dwelling house	Residential use of premises involving 1 dwelling for a single household and any domestic outbuildings associated with the dwelling; or 1 dwelling for a single household, a secondary dwelling and any domestic outbuildings associated with either dwelling.		Caretaker's accommodation, dual occupancy, rooming accommodation, short-term accommodation, student accommodation, multiple dwelling
Dwelling unit	Premises containing a non-residential use for a single dwelling, other than a dwelling for a caretaker of the non-residential use.	Shop-top apartment	Caretaker's accommodation, dwelling house

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Educational establishment	Premises used for training and instruction to impart knowledge and develop skills. Where ancillary the use may include student accommodation, before or after school care or vacation care.	College, outdoor education centre, primary school, secondary school, special education facility, technical institute, university	Child care centre, home based child care, family day care
Emergency services	Premises used by a government entity or community organisations to provide essential emergency services or disaster management services or management support facilities for the services.	Ambulance station, evacuation centre, fire station, police station	Community use, hospital, residential care facility
Environment facility	Premises used for a Facility for the appreciation, conservation or interpretation of an area of cultural, environmental or heritage value, but does not include the provision of accommodation for tourists and travellers.	Nature-based attractions, walking tracks, seating, shelters, boardwalks, observation decks, bird hides	Accommodation activities
Extractive industry	Premises used for extracting or processing extractive resources and any related activities including, for example, transporting the resources to market.	Quarry	
Food and drink outlet	Premises used for preparation and sale of food and drink for consumption on or off the premises. Where ancillary the use may include the sale of liquor for consumption on premises.	Bistro, café, coffee shop, drive-through facility, kiosk, milk bar, restaurant, snack bar, take-away, tea room	Bar, club, hotel, shop, theatre, nightclub entertainment facility
Function facility	Premises used for receptions or functions that may include the preparation and provision of food and	Conference centre, reception centre	Community use, hotel

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	liquor for consumption on premises as part of a reception or function.		
Funeral parlour	Premises used to arrange and conduct funerals, memorial and other similar events. The premises may include a mortuary or the storage and preparation of bodies for burial or cremation, but does not include the use of premises for the burial or cremation of bodies.		Cemetery, crematorium, place of worship
Garden centre	Premises used for the selling of plants; or selling gardening and landscape products and supplies that are mainly in pre-packaged form. Where ancillary the use may include a food and drink outlet.	Retail plant nursery	Bulk landscape supplies, wholesale nursery, outdoor sales
Hardware and trade supplies	Premises used for the sale, display or hire of hardware and trade supplies including, for example, household fixtures, timber, tools, paint, wallpaper and plumbing supplies.		Shop, showroom, outdoor sales and warehouse
Health care services	Premises used for medical purposes, paramedical purposes, alternative health therapies or general health care, if overnight accommodation is not provided on the premises.	Dental clinics, medical centres, natural medicine practices, nursing services, physiotherapy clinic	Community care centre, hospital
High impact industry	Premises used for an industrial activity that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products, the use must be	Abattoirs, concrete batching plant, boiler making and engineering and metal foundry Note—additional examples may be shown in SC1.1.2.1 Industry thresholds.	Tanneries, rendering plants, oil refineries, waste incineration, manufacturing or storing explosives, power plants, manufacturing fertilisers, service

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	identified in, and not exceed the thresholds of the Industry thresholds table SC1.1.2.1.		industry, low impact industry, medium impact industry, special industry
Home based business	A dwelling or domestic outbuilding on premises used for a business activity that is subordinate to the residential use of the premises.	Bed and breakfast, home office, home based child care	Hobby, office, shop, warehouse, transport depot
Hospital	Premises used for medical or surgical care or treatment of patients, or providing accommodation for patients. Any other use, including providing accommodation for employees, must be ancillary to the hospital use.		Health care services, residential care facility
Hotel	Premises used primarily to sell liquor for consumption on the premises. Where ancillary the use may include accommodation to tourists or travellers, dining and entertainment activities. The use does not include a bar.	Pub, tavern	Nightclub entertainment facility, bar
Indoor sport and recreation	Premises used for leisure, sport or recreation conducted wholly or mainly indoors.	Amusement parlour, bowling alley, gymnasium, squash courts, enclosed tennis courts	Cinema, hotel, nightclub entertainment facility, theatre
Intensive animal industry	Premises used for the intensive production of animals or animal products in an enclosure that requires the provision of food and water either mechanically or by hand.	Feedlots, piggeries, poultry and egg production	Animal husbandry, aquaculture, drought feeding, milking sheds, shearing sheds, weaning pens, cultivation of aquatic animals

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	Where ancillary the use may include storage and packing of feed and produce, but does not include the cultivation of aquatic animals.		
Intensive horticulture	Premises used for the intensive production of plants or plant material carried out indoors on imported media; or the intensive production of plants or plant material carried out outside using artificial lights or containers. Where ancillary the use may include storage and packing of plants or plant material grown on the premises, but does not include the cultivation of aquatic plants.	Greenhouse and shade house plant production, hydroponic farms, mushroom farms	Wholesale nursery, cultivation of aquatic plants
Landing	Premises used for a structure for mooring, launching, storage and retrieval of vessels and from which passengers embark and disembark.	Boat ramp, jetty, pontoon	Marina
Low impact industry	Premises used for an industrial activity that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and the use be identified in, and not exceed the thresholds of the Industry thresholds table SC1.1.2.1.	Repairing motor vehicles, fitting and turning workshop Note—additional examples may be shown in SC1.1.2.1 Industry thresholds.	Panel beating, spray painting or surface coating, tyre recycling, drum re-conditioning, wooden and laminated product manufacturing, service industry, medium impact industry, high impact industry, special industry
Major electricity infrastructure	Premises used for a transmission grid or supply network, or an ancillary telecommunication facility.	Power lines greater than 66kV	Minor electricity infrastructure, substation

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	It does not include a supply network or private electricity works being 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. The use may involve a new zone substation or bulk supply substation; or 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	Premises used for large-scale events including, for example, major sporting, recreation, conference or entertainment events.	Convention and exhibition centres, entertainment centres, sports stadiums, horse racing facility	Indoor sport and recreation, local sporting field, motor sport, park, outdoor sport and recreation
Marine industry	Waterfront premises used for the manufacturing, storage, repair or servicing of vessels and maritime infrastructure. Where ancillary the use may include the provision of fuel and disposal of waste.	Boat building, boat storage, dry dock	Marina
Market	Premises used on a regular basis for the selling of goods to the public mainly from temporary structures, including for example, stalls, booths or trestle tables. Where ancillary the use may include entertainment.	Flea market, farmers market, car boot sales	Shop, roadside stall

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Medium impact industry	The use of premises for an industrial activity that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and the use be identified in, and not exceed the thresholds of the Industry thresholds table SC1.1.2.1.	Spray painting and surface coating, wooden and laminated product manufacturing (including cabinet making, joining, timber truss making or wood working) Note—additional examples may be shown in SC1.1.2.1 Industry thresholds.	Concrete batching, tyre manufacturing and retreading, metal recovery (involving a fragmentiser), textile manufacture, chemically treating timber and plastic product manufacture, service industry, low impact industry, high impact industry, special industry
Motor sport facility	Premises used for organised or recreational motor sports. Where ancillary the use may include facilities for spectators including stands, amenities and food and drink outlets.	Go-karting, lawn mower race tracks, trail bike parks, 4WD and all terrain parks, motocross tracks, off road motorcycle facility, motorcycle or car race tracks	Major sport, recreation and entertainment facility, outdoor sport and recreation
Multiple dwelling	Residential use of premises involving three or more dwellings, whether attached or detached, for separate households.	Apartments, flats, units, townhouses, row housing, triplex	Rooming accommodation, dual occupancy, duplex, granny flat, residential care facility, retirement facility
Nature-based tourism	The use of premises for a tourism activity, including accommodation for tourists, for the conservation, interpretation and appreciation of an area of environmental, cultural or heritage value, a local ecosystem or the natural environment.	Environmentally responsible accommodation facilities including lodges, cabins, huts and tents	Environment facility
Nightclub entertainment facility	Premises used to provide entertainment, that is cabaret, dancing or music. Where ancillary the use may include the sale of		Club, hotel, tavern, pub, indoor sport and recreation, theatre, concert hall

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	liquor and the preparing and selling of food for consumption on site.		
Non-resident workforce accommodation	Premises used to provide accommodation for non-resident workers. Where ancillary the use may include recreational and entertainment facilities for persons residing at the premises and their visitors.	Contractor's camp, construction camp, single person's quarters, temporary workers' accommodation	Relocatable home park, short-term accommodation, tourist park
Office	Premises used for • providing an administrative, financial, management or secretarial service or function; • the practice of a profession; or • providing business or professional advice or services. The use does not include the use of premises for making, selling or hiring goods.	Bank, real estate agent, administration building	Home based business, home office, shop, outdoor sales
Outdoor sales	Premises used for the display, sale, hire or lease of vehicles, boats, caravans, machinery, equipment or other similar products where the use is conducted mainly outdoors. Where ancillary the use may include the repair or servicing activities and sale or fitting of accessories for the above products.	Agricultural machinery sales yard, motor vehicles sales yard	Bulk landscape supplies, market
Outdoor sport and recreation	Premises used for a recreation or sport activity that is carried on outdoors and requires areas of open space. Where ancillary the use may include providing	Driving range, golf course, swimming pool, tennis courts, football ground, cricket oval	Major sport, recreation and entertainment facility, motor sport, park, community use

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	and selling of food and drink, change room facilities or storage facilities		
Outstation	Premises used for cultural and/or recreational activities undertaken by Aboriginal and Torres Strait Islander people. Where ancillary the use may include facilities for short-term or long-term camping activities.	Indigenous camp site	Dwelling house, hostel, multiple dwelling, relocatable home park, short term accommodation, tourist park
Park	The use of premises, accessible to the public free of charge, for sport, recreation and leisure activities and facilities.	Urban common	Tourist attraction, outdoor sport and recreation
Parking station	Premises used for parking vehicles, other than parking that is ancillary to another use.	Car park, park and ride, bicycle parking	
Permanent plantation	Premises used for growing, but not harvesting, plants for carbon sequestration, biodiversity, natural resource management or another similar purpose.	Permanent plantations for carbon sequestration, biodiversity or natural resource management	Forestry for wood production, biofuel production
Place of worship	Premises used by an organised group for worship and religious activities. Where ancillary the use may include social, educational or charitable activities.	Church, chapel, mosque, synagogue, temple	Community use, child care centre, funeral parlour, crematorium
Port services	Premises used for the following: • the arrival and departure of vessels; • the movement of passengers or goods on or off vessels; • storing, servicing, maintaining or repairing vessels; or	Marina, ferry terminal	Landing

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	• ancillary uses that directly service the needs of the passengers of the vessels.		
Relocatable home park	Premises used for relocatable dwellings for long-term residential accommodation. Where ancillary the use may include a manager's residence, amenity facilities, food and drink outlets, or recreation facilities for the exclusive use of residents.		Tourist park
Renewable energy facility	Premises used for the generation of electricity or energy from a renewable energy source, but does not include the use of premises to generate electricity or energy to be used mainly on the premises.	Solar farm, tidal power, bioenergy, geothermal energy, hydropower, ocean energy production	Wind turbine or solar panels supplying energy to domestic or rural activities on the same site
Research and technology industry	Premises used for an innovative or emerging industry that involves designing and researching, assembling, manufacturing, maintaining, storing or testing machinery or equipment.	Aeronautical engineering, biotechnology industries, computer component manufacturing, computer server facilities, energy industries, medical laboratories	
Residential care facility	The use of premises for supervised accommodation, medical and other support services, for persons who cannot live independently, and require regular nursing or personal care.	Convalescent home, nursing home	Community residence, dwelling house, dual occupancy, hospital, multiple dwelling, retirement facility
Resort complex	Premises used for tourist and visitor accommodation that includes integrated leisure facilities, ancillary	Island resort	

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	staff accommodation, and transport facilities for the premises including, for example, a ferry terminal or air service. Examples of integrated leisure facilities includes bars, meeting and function facilities, restaurants, sporting and fitness facilities.		
Retirement facility	A residential use of premises for accommodation for older members of the community, or retired persons, in independent living units or serviced units. Where ancillary the use may include amenity and community facilities, a manager's residence, health care and support services, preparing food and drink or staff accommodation.	Retirement village	Residential care facility
Roadside stall	Premises used for the roadside display and sale of goods in a rural area.	Produce stall	Market
Rooming accommodation	Premises used for residential accommodation, if each resident— • has a right to occupy 1 or more rooms on the premises; • does not have a right to occupy the whole of the premises; • does not occupy a self-contained unit, as defined under the *Residential Tenancies and Rooming Accommodation Act 2008*, schedule 2, or has only limited	Boarding house, hostel, monastery, off-site student accommodation	Hospice, community residence, dwelling house, short-term accommodation, multiple dwelling

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	facilities available for private use; and • 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. Where ancillary the use may include a manager's residence, an office or providing food or other services to residents.		
Rural industry	Premises used for storing, processing or packaging products from a rural use carried out on the premises or adjoining premise. Where ancillary the use may include selling products from a rural use carried out on the premises or adjoining premises.	Packing shed	Intensive animal husbandry, intensive horticulture, roadside stall, wholesale nursery, winery, abattoir, agricultural supply store
Rural workers' accommodation	Any premises used as 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; and the employees are not non-resident workers.	Farm workers' accommodation	Short-term accommodation, caretaker's accommodation, dual occupancy, dwelling house, nature or rural based tourist accommodation, non-resident workforce accommodation, multiple dwellings
Sales office	The use of premises for the temporary display of land parcels or buildings that are for sale, or proposed to be sold; or can be won as a prize in a competition.	Display dwelling	Bank, office

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Service industry	Premises used for an industrial activity that does not result in off-site air, noise or odour emissions; and is suitable for location with other non-industrial uses.	Audio visual equipment repair, film processing, bicycle repairs, clock and watch repairs, computer repairs, dry cleaning, hand engraving, jewellery making, laundromat, locksmith, picture framing, shoe repairs, tailor	Small engine mechanical repair workshop, cabinet making, shop fitting, sign writing, tyre depot, low impact industry, medium impact, high impact industry, special industry
Service station	Premises used for the sale of fuel including, for example, petrol, liquid petroleum gas, automotive distillate and alternative fuels. Where ancillary the use may include a food and drink outlet, shop, trailer hire, or maintaining, repairing, servicing or washing vehicles.		Car wash
Shop	Premises used for the display, sale or hire of goods or the provision of personal services or betting to the public.	Betting agency, corner store, department store, discount variety store, hair dressing salon, liquor store, supermarket	Adult store, food and drink outlet, showroom, market
Shopping centre	Premises used for an integrated shopping complex consisting mainly of shops.		
Short-term accommodation	Premises used to provide accommodation of less than 3 consecutive months to tourists or travellers. Where ancillary the use may include a manager's residence, office, or recreation facilities for the exclusive use of guests.	Motel, backpackers accommodation, cabins, serviced apartments, hotel, farm stay	Hostel, rooming accommodation, tourist park hotel, nature-based tourism, resort complex or tourist park.

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
Showroom	Premises used the sale of goods that are of in a related product line, and a size, shape or weight that requires a large area for handling, display or storage, and direct vehicle access to the building that contains the goods, by members of the public, to enable the loading and unloading of the goods.	Bulky goods sales, motor vehicles sales showroom, bulk stationary supplies, bulk home supplies	Food and drink outlet, shop, outdoor sales
Special industry	The use of premises for an industrial activity that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products, and the use be identified in, and not exceed the thresholds of the Industry thresholds table SC1.1.2.1.	Tanneries, rendering plants, oil refineries, waste incineration, manufacturing or storing explosives, power plants, manufacturing fertilisers Note—additional examples may be shown in SC1.1.2.1 Industry thresholds.	Low impact industry, medium impact industry, high impact industry, service industry
Substation	The use of premises— • as part of a transmission grid or supply network to— o convert or transform electrical energy from one voltage to another; o regulate voltage in an electrical circuit; o control electrical circuits; or o switch electrical current between circuits; or • for a telecommunications facility for works are anything used for, or in association with, the generation, transmission or supply of electricity; or workforce	Substations, switching yards	Major electricity infrastructure, minor electricity infrastructure

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	operational and safety communications.		
Telecommunications facility	Premises used for a facility that is capable of carrying communications and signals by guided or unguided electromagnetic energy.	Telecommunication tower, broadcasting station, television station	Aviation facility, "low-impact telecommunications facility" as defined under the *Telecommunications Act 1997*
Theatre	Premises used for presenting movies, live entertainment or music to the public or the production of film or music. Where ancillary the use may include preparing and selling food and drink for consumption on the premises, facilities for editing and post-production, facilities for wardrobe, laundry and make-up, set construction workshops, and sound stages.	Cinema, movie house, concert hall, dance hall, film studio, music recording studio	Community hall, hotel, indoor sport and recreation facility, temporary film studio
Tourist attraction	Premises used for providing entertainment to, or a recreation facility for, the general public. Where ancillary the use may include preparing and selling food and drink for consumption on the premises.	Theme park, zoo	Hotel, major sport, recreation and entertainment facility, nightclub entertainment facility
Tourist park	Premises used to provide for holiday accommodation in caravans, self-contained cabins, tents or other similar structures. Where ancillary the use may include amenity facilities, a food and drink outlet, a manager's residence, offices, recreation facilities for the use of occupants	Camping ground, caravan park, holiday cabins	Relocatable home park, tourist attraction, short-term accommodation, non-resident workforce accommodation

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	and their visitors or staff accommodation.		
Transport depot	Premises used for storing vehicles, or machinery, that are used for a commercial or public purpose. Where ancillary the use may include cleaning, repairing or servicing vehicles or machinery.	Contractor's depot, bus depot, truck yard, heavy machinery yard	Home based business, warehouse, low impact industry, service industry
Utility installation	Premises used for: • a service for supplying or treating water, hydraulic power or gas; • a sewerage, drainage or stormwater service; • a transport service; or • a waste management service. Where ancillary the use may include maintenance and storage depots or other facility for a service.	Sewerage treatment plant, mail depot, pumping station, water treatment plant	Telecommunications tower, major electricity infrastructure, minor electricity infrastructure, substation, renewable energy facility, transport depot
Veterinary services	Premises used for the medical or surgical treatment of animals. Where ancillary the use may include the short-term stay of animals.		Animal keeping
Warehouse	Premises used for storing or distributing goods, whether or not carried out in a building. Where ancillary the use may include the wholesale of goods.	Self-storage sheds	Hardware and trade supplies, outdoor sales, showroom, shop
Wholesale nursery	Premises used for the wholesale of plants grown on or next to the premises.		Bulk landscape supplies, garden centre

Column 1 Use	Column 2 Definition	Column 3 Examples include	Column 4 Does not include the following examples
	Where ancillary the use may include selling garden materials.		
Winery	Premises used for making wine, or selling wine that is made on the premises.		Rural industry

SC1.1.1 Defined activity groups

(1) Defined use terms listed in Table SC1.1.2 (Defined uses) are able to be clustered into activity groups.

(2) An activity group listed in Table SC1.1.1.2 (Defined activity groups) column 1 clusters the defined use terms listed in column 2.

(3) An activity group is able to 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.

Table SC 1.1.1.1 Index of defined activity groups

Accommodation activities	Entertainment activities	Rural activities
Business activities	Industry activities	Other activities
Community activities	Recreation activities	

Table SC 1.1.1.2 Defined activity groups

Column 1 Activity group	Column 2 Use Terms
Accommodation activities	Caretaker's accommodation Community residence Dual occupancy Dwelling house Dwelling unit Home based business Multiple dwelling Nature-based tourism Non-resident workforce accommodation Relocatable home park Residential care facility Resort complex Retirement facility Rooming accommodation Rural workers' accommodation Short term accommodation Tourist park
Business activities	Adult store Agricultural supplies store Brothel Bulk landscape supplies Car wash Food and drink outlet Garden centre Hardware trade supplies Market Office Outdoor sales Sales office Service station Shop Shopping centre Showroom Veterinary services

Column 1 Activity group	Column 2 Use Terms
Community activities	Cemetery Child care centre Community care centre Community use Crematorium Educational; establishment Emergency services Funeral parlour Health care services Hospital Outstation Place of worship
Entertainment activities	Bar Club Function facility Hotel Nightclub entertainment facility Theatre Tourist attraction
Industry activities	Extractive industries High impact industry Low impact industry Marine industry Medium impact industry Research and technology industry Service industry Special industry Warehouse
Recreation activities	Environment facility Indoor sport and recreation Major sport, recreation and entertainment facility Motor sports facility Outdoor sport and recreation Park
Rural activities	Animal husbandry Animal keeping Aquaculture Cropping Intensive animal industry Intensive horticulture Permanent plantation Roadside stall Rural industry Wholesale nursery Winery
Other activities	Air services Detention facility Landing Major electrical infrastructure Parking station Port services Renewable energy facility Substation Telecommunications facility Transport depot Utility installation

SC1.1.2 Industry thresholds

The industry thresholds listed below are to be used in conjunction with the defined uses listed in Table SC1.1.2 (Defined use terms) - Low impact industry, Medium impact industry, High impact industry and Special industry.

Table SC 1.1.2.1 Industry thresholds

Column 1 Use Terms	Column 2 Additional examples include
High impact industry	(1) Metal foundry producing 10 tonnes or greater of metal castings per annum; (2) Boiler making or engineering works producing 10 000 tonnes or greater of metal product per annum; (3) Major hazard facility for the storage and distribution of dangerous goods not involving manufacturing processes; (4) Scrap metal yard including a fragmentiser; (5) Manufacturing clay or ceramic products including bricks, tiles, pipes and pottery goods, greater than 200 tonnes per annum; (6) Processing, smoking, drying, curing, milling, bottling or canning food, beverages or pet food, greater than 200 tonnes per annum; (7) Vegetable oil or oilseed processing in works with a design production capacity of greater than 1000 tonnes per annum; (8) Manufacturing wooden products including cabinet making, joinery, wood working, producing greater than 500 tonnes per annum; (9) Manufacturing medium density fibreboard, chipboard, particle board, plywood, laminated board or wood veneer products, 250 tonnes or greater per annum; (10) Sawmilling, wood chipping and kiln drying timber and logs, producing greater than 500 tonnes per annum; (11) Manufacturing or processing plaster, producing greater than 5000 tonnes per annum; (12) Enamelling workshop using 15 000 litres or greater of enamel per annum; (13) Galvanising works using 100 tonnes or greater of zinc per annum; (14) Anodising or electroplating workshop where tank area is 400 square metres or greater; (15) Powder coating workshop using 500 tonnes or greater of coating per annum; (16) Spray painting workshop (including spray painting vehicles, plant, equipment or boats) using 20 000 litres or greater of paint per annum; (17) Concrete batching and producing concrete products; (18) Treating timber for preservation using chemicals including copper, chromium, arsenic, borax and creosote; (19) Manufacturing soil conditioners by receiving, blending, storing, processing, drying or composting organic material or organic waste, including animal manures, sewage, septic sludge and domestic waste; (20) Manufacturing fibreglass pools, tanks and boats;

Column 1 Use Terms	Column 2 Additional examples include
	(21) Manufacturing, fibreglass, foam plastic, composite plastic or rigid fibre-reinforced plastic or plastic products, 5 tonnes or greater per annum (except fibreglass boats, tanks and swimming pools); (22) Manufacturing PET, PETE, polypropylene and polystyrene plastic or plastic products, 10 000 tonnes or greater per annum; (23) Manufacturing tyres, asbestos products, asphalt, cement, glass or glass fibre, mineral wool or ceramic fibre; (24) Abattoir; (25) Recycling chemicals, oils or solvents; (26) Waste disposal facility (other than waste incinerator); (27) Recycling, storing or reprocessing regulated waste; (28) Manufacturing batteries; (29) Manufacturing wooden products including cabinet making, joinery, wood working, producing greater than 500 tonnes per annum; (30) Abrasive blasting facility using 10 tonnes or greater of abrasive material per annum; (31) Crematoria; (32) Glass fibre manufacture producing 200 tonnes or greater per annum; and (33) Manufacturing glass or glass products, where not glass fibre, less than 250 tonnes per annum.
Low impact industry	(1) Repairing and servicing motor vehicles, including mechanical components, radiators, electrical components, wheel alignments, exhausts, tyres, suspension or air conditioning, not including spray painting; (2) Repairing and servicing lawn mowers and outboard engines; (3) Fitting and turning workshop; (4) Assembling or fabricating products from sheet metal or welding steel, producing less than 10 tonnes a year and not including spray painting; (5) Assembling wood products not involving cutting, routing, sanding or spray painting; and (6) Dismantling automotive or mechanical equipment, not including debonding brake or clutch components.
Medium impact industry	(1) Metal foundry producing less than 10 tonnes of metal castings per annum; (2) Boiler making or engineering works producing less than 10 000 tonnes of metal product per annum; (3) Facility, goods yard or warehouse for the storage and distribution of dangerous goods not involving manufacturing processes and not a major hazard facility under the *Work Health and Safety Act 2011*; (4) Abrasive blasting facility using less than 10 tonnes of abrasive material per annum; (5) Enamelling workshop using less than 15 000 litres of enamel per annum; (6) Galvanising works using less than 100 tonnes of zinc per annum; (7) Anodising or electroplating workshop where tank area is less than 400 square metres; (8) Powder coating workshop using less than 500 tonnes of coating per annum;

Column 1 Use Terms	Column 2 Additional examples include
	(9) Spray painting workshop (including spray painting vehicles, plant, equipment or boats) using less than 20 000 litres of paint per annum; (10) Scrap metal yard (not including a fragmentiser), dismantling automotive or mechanical equipment including debonding brake or clutch components; (11) Manufacturing clay or ceramic products including bricks, tiles, pipes and pottery goods, less than 200 tonnes per annum; (12) Processing, smoking, drying, curing, milling, bottling or canning food, beverages or pet food, less than 200 tonnes per annum; (13) Vegetable oil or oilseed processing in works with a design production capacity of less than 1000 tonnes per annum; (14) Manufacturing wooden products including cabinet making, joinery, wood working, producing less than 500 tonnes per annum; (15) Manufacturing medium density fibreboard, chipboard, particle board, plywood, laminated board or wood veneer products, less than 250 tonnes per annum; (16) Sawmilling, wood chipping and kiln drying timber and logs, producing less than 500 tonnes per annum; (17) Recycling and reprocessing batteries; (18) Repairing or maintaining boats; (19) Manufacturing substrate for mushroom growing; (20) Manufacturing or processing plaster, producing less than 5000 tonnes per annum; (21) Recycling or reprocessing tyres including retreading; (22) Printing advertising material, magazines, newspapers, packaging and stationery; (23) Transport depot, distribution centre, contractors depot and storage yard; (24) Manufacturing fibreglass, foam plastic, composite plastic or rigid fibre-reinforced plastic or plastic products, less than 5 tonnes per annum (except fibreglass boats, tanks and swimming pools); (25) Manufacturing PET, PETE, polypropylene and polystyrene plastic or plastic products, less than 10 000 tonnes per annum; (26) Reconditioning metal or plastic drums; (27) Glass fibre manufacture less than 200 tonnes per annum; and (28) Manufacturing glass or glass products, where not glass fibre, less than 250 tonnes per annum.
Special industry	a) Oil refining or processing; b) Producing, refining or processing gas or fuel gas; c) Distilling alcohol in works producing greater than 2 500 litres per annum; d) Power station; e) Producing, quenching, cutting, crushing or grading coke; f) Waste incinerator; g) Sugar milling or refining; h) Pulp or paper manufacturing; i) Tobacco processing;

Column 1 Use Terms	Column 2 Additional examples include
	j) Tannery or works for curing animal skins, hides or finishing leather; k) Textile manufacturing, including carpet manufacturing, wool scouring or carbonising, cotton milling, or textile bleaching, dyeing or finishing; l) Rendering plant; m) Manufacturing chemicals, poisons and explosives; n) Manufacturing fertilisers involving ammonia; and o) Manufacturing polyvinyl chloride plastic.

SC1.2 Administrative terms

(1) Administrative terms and definitions assist with the interpretation of the Planning Scheme but do not have a meaning in relation to a use.

(2) An administrative term listed in Table SC1.2.2 (Administrative definitions) column 1 has the meaning set out beside that administrative term in column 2.

(3) The administrative terms and definitions listed here are the terms and definitions for the purpose of the Planning Scheme.

Table SC 1.2.1 Index of administrative definitions

Adjoining premises	Demand unit	Non-resident workers
Advertising device	Development footprint	Obstacle limitation surfaces
Affordable housing	Display home	Outermost projection
Agricultural land	Domestic outbuilding	Planning assumptions
Annual exceedance probability (AEP)	Dune crest height	Plot ratio
Area of environmental significance	Dwelling	Projection area(s)
Average width	Flood hazard area	Secondary dwelling
Base date	Gross floor area	Sensitive use
Basement	Gross leasable area	Service catchment
Boundary clearance	Ground level	Setback
Building height	Hazardous material	Significant attributes
Bushfire prone area	Heritage place	Site
Centre zones	Household	Site cover
Coastal dependant development	Industrial zones	Storey
Coastal hazard area	Landslide hazard	Stream protection zone
Coastal environment work	Maritime development	Temporary development
Communal open space	Minor building work	Total use area
Community infrastructure	Minor electricity infrastructure	Transit oriented development
Corner Store	Minor marine development	Ultimate development
Country living	Multi-unit uses	Urban area
Defined flood event (DFE)	Net developable area	Urban purposes
Defined flood level (DFL)	Netserv plan	Urban services
Defined storm tide event (DSTE)		

Table SC 1.2.2 Administrative definitions

Column 1 Term	Column 2 Definition
Adjoining premises	Premises that share a common boundary, including premises that meet at a single point on a common boundary.

Column 1 Term	Column 2 Definition
	(Source— Planning Regulation 2017)
Advertising device	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. (Source—Planning Regulation 2017)
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. (Source—Planning Regulation 2017)
Agricultural land	An area that is identified as agricultural land classification class A, agricultural land classification class B, state important agricultural land or locally important agricultural land on the Agricultural land overlay.
Annual exceedance probability (AEP)	The likelihood of occurrence of a flood of a given size or larger in any one year, usually expressed as a percentage. Editor's Note—for example, if a peak flood discharge of 500m^3/ second has an AEP of five percent; it means that there is a five percent risk, that is the probability of 0.05 or a likelihood of one in twenty, of a peak flood discharge of 500m^3/second or larger occurring in any one year. Note—the AEP of a flood event gives no indication of when a flood of that size will occur next. (Source—State Planning Policy July 2014)
Area of environmental significance	An area that is: (a) identified as a Matter of local or state environmental significance on: (i) Overlay map - ES - 01:29 (Environmental significance overlay); or (ii) Overlay map - WW1 - 01:29 (Waterways and wetlands overlay); or (b) if not identified on map (i) or (ii) above, an area of land affected by a waterway stream protection zone buffer as detailed in Table 8.2.12.3.4 (Waterways and wetland overlay code).
Average width	In regard to a lot, the distance measured in metres, between the midpoint on each side boundary of the lot. (Source—Planning Regulation 2017)
Base date	The date from which a local government has estimated its projected infrastructure demands and costs for the local government area. (Source—Planning Regulation 2017)
Basement	A space that is situated between one floor level and the floor level immediately below it where no part of the space projects more than one metre above ground level. (Source—Planning Regulation 2017)

Column 1 Term	Column 2 Definition
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— (a) an architectural or ornamental attachment; or (b) a rainwater fitting. (Source—Planning Regulation 2017)
Building height	Building height, of a building, means: (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. (Source—Planning Regulation 2017)
Bushfire prone area	An area that is: (a) identified as medium, high or very high risk on Overlay map - BH - 01:29 (Bushfire hazard overlay); or (b) if not identified on the Bushfire hazard overlay map, an area of land with a medium, high or very high risk on the relevant State mapping.
Centre zones	Centre zones is an Area classification for the purposes of the Local government infrastructure plan only and includes the following zones: • Major centre; • District centre; • Local centre; and • Neighbourhood centre.
Coastal dependent development	Development that in order to function must be located in tidal waters or be able to access tidal water and: (a) may include, but is not limited to: (i) industrial and commercial facilities such as ports, public marine development, harbours and navigation channels and facilities, aquaculture involving marine species, desalination plants, tidal generators, coastal protection works, erosion control structures and beach nourishment; (ii) tourism facilities for marine (boating) purposes; (iii) community facilities and sporting facilities which require access to tidal water in order to function, such as surf clubs, marine rescue, rowing and sailing clubs; or (iv) co-located residential and tourist uses that are part of an integrated development proposal (e.g. mixed use development) incorporating a marina, if these uses are located directly land ward of the marina and appropriately protected from natural hazards; but (b) does not include: (i) residential development, including canal development, as the primary use; (ii) waste management facilities, such as landfills, sewage treatment plants; or

Column 1 Term	Column 2 Definition
	(iii) transport infrastructure, other than for access to the coast. (Source – State Planning Policy July 2017)
Coastal hazard area	An area that is: (a) identified as medium or high hazard area on Overlay map - CP1 - 01:14 (Coastal environment overlay: Storm tide inundation); (b) identified as coastal erosion subcategory or permanent inundation due to seal level rise at 2100 sub category on Overlay map - CP2 - 01:14 (Coastal environment overlay: Erosion prone areas and permanent inundation); or (c) if not identified on the Coastal environment overlay maps, an area of land affected by the Defined Storm Tide Event (DSTE).
Coastal environment work	Any permanent or periodic work undertaken primarily to manage the impacts of coastal hazards, including altering physical coastal processes, such as sediment transport. (Source—State Planning Policy July 2014)
Communal open space	Common outdoor open space which is accessible to and shared by all residents of a development. This space can be used for recreation and/or relaxation purposes.
Community infrastructure	Any one or more of the following: (a) Accommodation activities; or (b) Community activities; or (c) Industry activities; or (d) Other activities; or (e) Recreation activities. (Source—Planning Act 2016)
Corner store	A single small store, no larger than 150m^2 in an accessible location that sells a limited variety of daily necessities to local residents and visitors.
Country living	Country living is an Area classification for the purposes of the Local government infrastructure plan only and includes the following zones: • Emerging communities; • Rural residential; and • Rural.
Defined flood event (DFE)	The defined flood event adopted by the Council. For the purposes of the Planning Scheme, the DFE is the 1 % Annual Exceedance Probability (AEP) event, equivalent to a 1 in 100 year average recurrence interval (ARI) event unless indicated otherwise.
Defined flood level (DFL)	The level to which it is reasonably expected flood waters may rise. (Source – Building Regulation 2006) A flood water level adopted by the Council that represents the defined flood event (DFE) at the development site. The DFL is also the adopted flood level for the purpose of

Column 1 Term	Column 2 Definition
	section 13(1)(b) of the *Building Regulation 2006* and Queensland development code MP3.5 (Construction of buildings in flood hazard areas).
Defined storm tide event (DSTE)	The event (measured in terms of the likelihood of reoccurrence) and associated inundation level adopted to manage the development of a particular area. The DSTE is the 1% annual exceedance probability (AEP) storm tide, equivalent to a 1 in 100 year average recurrence interval (ARI) unless otherwise indicated for essential community service infrastructure.
Demand unit	Demand units provide a standard of unit measurement to measure the level of demand for infrastructure. (Source—Planning Regulation 2017)
Development footprint	A part of the premises that the development relates to, including, for example, any part of the premises that, after the development is carried out, will be covered by— (a) buildings or structures measured to their outermost projection; (b) landscaping or open space; (c) facilities relating to the development; (d) on-site stormwater drainage or wastewater treatment; (e) a car park, road, access track or area used for vehicle movement; or (f) another area of disturbance. (Source— Planning Regulation 2017)
Display home	The temporary use of premises for: (a) display to the general public as a type of Accommodation activity that can be built; (b) the display of an Accommodation activity for the general public for some other business or commercial purpose including the promotion of a contest for which the premises are offered as a prize; or (c) the promotion and sale of land within a residential estate or other Accommodation activities within which it is located.
Domestic outbuilding	A non-habitable Class 10a building, as defined in the Building Code of Australia, that is ancillary to a residential use on the premises and is limited to a shed, garage and carport. (Source—Planning Regulation 2017)
Dwelling	A building or part of a building used or capable of being used as a self-contained residence that must include the following: (a) food preparation facilities; (b) a bath or shower; (c) a toilet and wash basin; and (d) clothes washing facilities. (Source—Planning Regulation 2017)

Column 1 Term	Column 2 Definition
Flood hazard area	An area that is: (a) identified as a flood hazard area on Overlay map - FH - 01:29 (Flood hazard overlay); or (b) if not identified on the Flood hazard overlay map, an area of land affected by the predicted 1 percent AEP flood event.
Gross floor area	The total floor area of all storeys of a building (measured from the outside of the external walls or the centre of a common wall), other than areas used for the following: (a) building services, plant and equipment; (b) access between levels; (c) ground floor public lobby; (d) a mall; (e) the parking, loading and manoeuvring of motor vehicles; or (f) unenclosed private balconies, whether roofed or not. (Source—Planning Regulation 2017)
Ground level	The level of the natural ground; or level of the natural ground has been changed, the level as lawfully changed. (Source – Planning Regulation 2017)
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, and sunroom; but (b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods. (Source—Building Code of Australia 1996 – Volume One)
Hazardous material	A substance with potential to cause harm to persons, property or the environment because of one or more of the following: (a) the chemical properties of the substance; or (b) the physical properties of the substance; or (c) the biological properties of the substance. (Source – State Planning Policy July 2017)
Heritage place	A Queensland heritage place or a local heritage place. A place that is: (a) identified as a Local heritage place on Overlay map - HER - 01:29 (Heritage overlay); or (b) listed on the Whitsunday Regional Council Local Heritage Register. (Source – Queensland Heritage Act 1992)
Household	1 or more individuals who live in a dwelling with the intent of living together on a long-term basis and make common provision for food and other essentials for living. (Source—Planning Regulations 2017)

Column 1 Term	Column 2 Definition
Industrial zones	Industrial zones is an Area classification for the purposes of the Local government infrastructure plan only and includes the following zones: • High impact industry; • Medium impact industry; • Low impact industry; • Special industry; • Waterfront and marine industry; and • Industry investigation.
Landslide hazard	An area that is: (a) identified as slope greater than, or equal to 15% on Overlay map - LH - 01:29 (Landslide hazard overlay); or (b) if not identified on the Landslide hazard overlay map, an area of land with a slope greater than, or equal to 15%.
Maritime development	Businesses, infrastructure, services or the like that relate to, or must be adjacent to tidal waters to function.
Minor building work	building work that increases the gross floor area of a building by no more than the lesser of the following— (a) 50m²; (b) an area equal to 5% of the gross floor area of the building. (Source—Planning Regulation 2017)
Minor electricity infrastructure	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— (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. (Source—Planning Regulation 2017)
Minor marine development	An alteration, addition or extension to an existing maritime development where the floor area, including balconies, is less than five per cent of the building or 50m², whichever is the lesser.
Multi-unit uses	A premise that contains three or more dwellings for separate households.
Net developable area	The area of the premises that is able to be developed; and is not subject to a development constraint, including, for example, a constraint relating to acid sulfate soils, flooding or slope. Note—for the purpose of a local government infrastructure plan, net developable area is usually measured in hectares, net developable hectares (net dev ha). (Source—& Planning Regulations 2017)
Netserv plan	A distributor-retailer's plan about its water and wastewater networks and provision of water service and wastewater service pursuant to section 99BJ of the *South East*

Column 1 Term	Column 2 Definition
	Queensland water (Distribution and retail restructuring) Act 2009. (Source—Planning Regulation 2017)
Non-resident workers	Means a person who— a) performs work as part of— i. a resource extraction project; ii. a project identified in a Planning Scheme as a major industry or infrastructure project; or iii. a rural use; and b) lives, for extended periods, in the locality of the project, but has a permanent residence elsewhere. (Source—Planning Regulation 2017)
Obstacle limitation surface	The surface that defines the height limit for obstacles located on land surrounding an airport and includes the obstacle limitation surface area and associated obstacle limitation surface contours, as shown on the mapping. (Source – State Planning Policy July 2017)
Outermost projection	The outermost projection of a building or structure, means the outermost part of the building or structure, other than a part that is a retractable blind, a fixed screen, a rainwater fitting, an ornamental attachment. (Source—Planning Regulation 2017)
Planning assumptions	Assumptions about the type, scale, location and timing of future growth in the local government area. (Source – Planning Regulation 2017)
Plot ratio	The ratio of the gross floor area of a building on a site to the area of the site. (Source—Planning Regulation 2017)
Projection area(s)	A part of the local government area for which the local government has carried out demand growth projection. (Source—Planning Regulation 2017)
Secondary dwelling	A dwelling, whether attached or detached, that is used in conjunction with, and subordinate to, a dwelling house on the same lot. (Source—Planning Regulation 2017)
Sensitive land use	Any of the following defined uses— (a) caretaker's accommodation; (b) a childcare centre; (c) a community care centre; (d) a community residence; (e) a detention facility; (f) a dual occupancy; (g) a dwelling house; (h) a dwelling unit; (i) an educational establishment; (j) a health care service; (k) a hospital;

Column 1 Term	Column 2 Definition
	(l) a hotel, to the extent the hotel provides accommodation for tourists or travellers; (m) a multiple dwelling; (n) non-resident workforce accommodation; (o) a relocatable home park; (p) a residential care facility; (q) a resort complex; (r) a retirement facility; (s) rooming accommodation; (t) rural workers' accommodation; (u) short-term accommodation; (v) a supervised accommodation service; or (w) a tourist park. (Source – Planning Regulation 2017)
Service catchment	An area serviced by an infrastructure network. (Source—Planning Regulation 2017)
Setback	For a building or structure, the shortest distance measured horizontally from the outer most projection of a building or structure to the vertical projection of the boundary of the lot where the building or structure is. (Source — Planning Regulation 2017)
Significant attributes	The significant attributes of a heritage place or area include the streetscape, heritage character, landscape, topography, landmarks and views.
Site	The land that the development is to be carried out on. Examples— a) If development is to be carried out on part of a lot, the site of the development is that part of the lot. b) 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. (Source—Planning Regulation 2017)
Site cover	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; (b) a basement that is completely below ground level and used for car parking; (c) the eaves of a building; or (d) a sun shade. (Source—Planning Regulation 2017)
Storey	A space within a building between 2 floor levels, or a floor level and a ceiling or roof, other than— (a) a space containing only a lift shaft, stairway or meter room, a space containing only a bathroom, shower room, laundry, toilet or other sanitary compartment, or a combination of the above;

Column 1 Term	Column 2 Definition
	(b) a basement with a ceiling that is not more than 1m above ground level; and includes a messanine; and a roofed structured that is on, or part of, a rootop, if the structure does not only accommodate building plant and equipment. (Source—Planning Regulation 2017)
Stream protection zone	An area along a shoreline, wetland, or stream where development is restricted or prohibited. The primary function of a protection zone is to physically protect and separate a stream, lake or wetland from future disturbance or encroachment.
Temporary use	A use that— (a) is carried out on a non-permanent basis; and (b) does not involve the construction of, or significant changes to, permanent buildings or structures. (Source—Planning Regulation 2017)
Ultimate development	The likely extent of development anticipated to be achieved when a site (or projection area or infrastructure service catchment) is fully developed. (Source—Planning Regulation 2017)
Urban area	Means: (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 specifically for urban purposes, including future urban purposes (but not rural residential or future rural residential purposes) on a map in a Planning Scheme that— (i) identifies the areas using cadastral boundaries; and (ii) is used exclusively or primarily to assess development applications. (Source—Planning Regulation 2017)
Urban purposes	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. (Source—Planning Regulation 2017)
Urban services	Public services and public facilities at an intensity historically and typically provided in cities. Urban services specifically include: (a) sanitary sewer systems; (b) storm drainage systems; (c) domestic water systems; (d) street cleaning services; (e) fire and police protection services; (f) public transit services; and (g) other public utilities associated with urban areas and normally not associated with rural areas.

Contents of Schedule 2

Tables of Schedule 2

Schedule 2 Mapping

SC2.1 Map index

The table below lists any strategic framework, zoning, local plan and overlay maps applicable to the planning scheme area

Editor's note—Mapping for the LGIP is contained in Schedule 3 (LGIP mapping and supporting material).

Table SC 2.1.1 Map index

Map number(s)	Map title	Gazettal date
Overview map		
WRC - 01	Local government planning scheme area and context	
Strategic framework maps		
SFM - 01:05	Strategic framework map	
Zone maps		
ZM - 01:29	Zoning map	
Local plan maps		
HILP - 01	Hamilton island local plan: Heights plan	
Overlay maps		
ASS - 01:14A	Acid sulfate soil overlay	
AL - 01:29	Agriculture land overlay	
AE - 01:02	Airport environs overlay	
BH - 01:29	Bushfire hazard overlay	
CP1 - 01:14	Coastal protection overlay: Storm tide inundation	
CP2 - 01:14	Coastal protection overlay: Erosion prone areas and permanent inundation	
ES - 01:29	Environmental significance overlay	
ER - 01:29	Extractive resources overlay	
FH - 01:29	Flood hazard overlay	
HER - 01:29	Heritage overlay	
INF1 - 01:29	Infrastructure overlay: Transport infrastructure	
INF2 - 01:29	Infrastructure overlay: Utility infrastructure	
LH - 01:29	Landslide hazard overlay	
WW1 - 01:29	Waterways and wetlands overlay	
WW2 - 01	Waterways and wetlands overlay: Climatic region	

SC2.2 Overview map

SC2.3 Strategic framework maps

SC2.4 Zone maps

SC2.5 Local plan maps

SC2.6 Overlay maps

Contents of Schedule 3

Tables in Schedule 3

Maps in Schedule 3

Schedule 3 Local government infrastructure plan mapping and tables

SC3.1 Planning assumption tables

Table SC 3.1.1 Existing and projected population

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected population				
		2016	2021	2026	2031	Ultimate development
Abbot Point	Single dwellings	1,491	801	801	801	809
	Multiple dwellings	92	50	50	50	51
	Other dwellings	277	149	149	149	157
	Total	1,860	1,000	1,000	1,000	1,017
Bowen North	Single dwellings	6,113	6,109	6,152	6,171	6,617
	Multiple dwellings	2,136	2,254	2,395	2,531	2,762
	Other dwellings	21	27	33	38	45
	Total	8,270	8,390	8,580	8,740	9,425
Bowen South	Single dwellings	828	1,124	1,452	1,769	7,211
	Multiple dwellings	287	399	526	654	770
	Other dwellings	5	8	12	17	110
	Total	1,120	1,530	1,990	2,440	8,091
Collinsville	Single dwellings	1,345	1,324	1,352	1,362	2,914
	Multiple dwellings	816	820	854	878	901
	Other dwellings	799	796	824	841	858
	Total	2,960	2,940	3,030	3,080	4,673
Balance former Bowen Shire	Single dwellings	1,021	1,020	1,004	1,003	994
	Multiple dwellings	194	196	194	196	196
	Other dwellings	214	214	211	211	210
	Total	1,430	1,430	1,410	1,410	1,400
Whitsunday Islands	Single dwellings	127	128	129	130	132
	Multiple dwellings	622	612	603	593	586
	Other dwellings	1,091	1,109	1,128	1,147	1,172
	Total	1,840	1,850	1,860	1,870	1,890
Jubilee Pocket / Shute Harbour	Single dwellings	1,817	2,219	2,639	3,116	4,792
	Multiple dwellings	785	1,002	1,246	1,537	1,843
	Other dwellings	8	19	35	57	100
	Total	2,610	3,240	3,920	4,710	6,735
Cannonvale / Airlie Beach	Single dwellings	4,384	5,161	6,024	6,859	15,059
	Multiple dwellings	2,869	3,365	3,913	4,438	7,102
	Other dwellings	27	34	43	53	81
	Total	7,280	8,560	9,980	11,350	22,242

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected population				
		2016	2021	2026	2031	Ultimate development
Proserpine	Single dwellings	2,985	3,056	3,124	3,197	3,260
	Multiple dwellings	647	703	761	823	886
	Other dwellings	18	22	25	29	231
	Total	3,650	3,780	3,910	4,050	4,377
Balance former Whitsunday Shire	Single dwellings	4,893	5,157	5,457	5,737	5,989
	Multiple dwellings	454	485	521	556	588
	Other dwellings	13	17	22	28	33
	Total	5,360	5,660	6,000	6,320	6,610
Inside priority infrastructure area (total)	Single dwellings	17,151	18,646	20,438	22,205	39,853
	Multiple dwellings	6,107	7,062	8,037	9,028	14,265
	Other dwellings	1,696	1,712	1,804	1,893	1,425
	Total	24,953	27,420	30,279	33,127	55,542
Outside priority infrastructure area (total)	Single dwellings	7,853	7,452	7,695	7,939	7,924
	Multiple dwellings	2,796	2,823	3,026	3,228	1,421
	Other dwellings	777	684	679	677	1,572
	Total	11,426	10,960	11,400	11,844	10,917
Whitsunday Region	Single dwellings	25,005	26,098	28,134	30,144	47,777
	Multiple dwellings	8,903	9,885	11,063	12,256	15,686
	Other dwellings	2,473	2,396	2,483	2,570	2,997
	Total	36,380	38,380	41,680	44,970	66,460

Table SC 3.1.2 Existing and projected employees

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected employees				
		2016	2021	2026	2031	Ultimate development
Abbot Point	Retail	20	21	22	22	23
	Commercial	75	78	80	83	85
	Industrial	131	166	200	234	269
	Community	38	40	41	43	44
	Other	161	182	203	224	245
	Total	425	486	546	607	667
Bowen North	Retail	624	634	643	653	663
	Commercial	1,030	1,075	1,120	1,165	1,210
	Industrial	798	816	834	852	870
	Community	529	563	596	629	662
	Other	923	914	905	896	887
	Total	3,903	4,000	4,097	4,194	4,291
Bowen South	Retail	45	50	55	59	64
	Commercial	87	91	94	97	100
	Industrial	61	63	64	66	68
	Community	41	45	49	53	57
	Other	92	100	108	116	124
	Total	327	348	369	391	412
Collinsville	Retail	101	103	105	108	110
	Commercial	194	198	202	206	210
	Industrial	125	153	181	209	238
	Community	123	124	126	127	129
	Other	146	160	174	188	202
	Total	689	739	788	838	888
Balance former Bowen Shire	Retail	57	58	59	59	60
	Commercial	93	92	92	91	90
	Industrial	37	32	27	22	18
	Community	39	37	35	33	31
	Other	1,442	1,567	1,692	1,817	1,941
	Total	1,668	1,786	1,904	2,022	2,140
Whitsunday Islands	Retail	166	174	181	189	197
	Commercial	701	740	778	817	855
	Industrial	9	9	9	9	10
	Community	31	34	36	38	40
	Other	33	36	39	43	46
	Total	940	992	1,044	1,096	1,148
Jubilee Pocket / Shute Harbour	Retail	235	247	259	270	282
	Commercial	378	401	424	447	470
	Industrial	116	118	119	121	123

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected employees				
		2016	2021	2026	2031	Ultimate development
	Community	77	91	104	117	130
	Other	149	153	156	160	164
	Total	955	1,008	1,061	1,115	1,168
Cannonvale / Airlie Beach	Retail	785	906	1,027	1,148	1,269
	Commercial	1,565	1,924	2,283	2,643	3,002
	Industrial	575	685	795	905	1,015
	Community	580	674	768	863	957
	Other	542	596	649	702	755
	Total	4,047	4,785	5,522	6,260	6,998
Proserpine	Retail	233	235	238	240	243
	Commercial	556	576	596	617	637
	Industrial	393	404	415	426	437
	Community	301	319	337	355	374
	Other	305	311	317	323	329
	Total	1,787	1,845	1,903	1,961	2,019
Balance former Whitsunday Shire	Retail	162	168	174	180	186
	Commercial	454	480	506	532	559
	Industrial	245	245	245	245	245
	Community	286	298	310	323	335
	Other	1,072	1,067	1,063	1,058	1,054
	Total	2,218	2,258	2,298	2,338	2,378
Inside priority infrastructure area (total)	Retail	1,680	1,819	1,956	2,095	2,233
	Commercial	3,551	3,962	4,374	4,788	5,205
	Industrial	1,722	1,884	2,047	2,210	2,373
	Community	1,415	1,558	1,701	1,845	1,989
	Other	3,365	3,564	3,759	3,952	4,145
	Total	11,731	12,787	13,837	14,889	15,945
Outside priority infrastructure area (total)	Retail	749	777	806	835	864
	Commercial	1,583	1,694	1,801	1,908	2,014
	Industrial	768	806	843	881	918
	Community	631	666	700	735	770
	Other	1,500	1,523	1,548	1,575	1,604
	Total	5,230	5,466	5,698	5,934	6,169
Whitsunday Region	Retail	2,428	2,595	2,762	2,929	3,096
	Commercial	5,133	5,654	6,175	6,696	7,217
	Industrial	2,489	2,689	2,890	3,090	3,290
	Community	2,045	2,223	2,401	2,580	2,758
	Other	4,864	5,085	5,306	5,527	5,748
	Total	16,959	18,246	19,534	20,821	22,109

Table SC 3.1.3 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-residential plot ratio (m² of GFA/dev ha)	Residential density (dwellings/dev ha)	Water supply network (EP/dev ha)	Sewerage network (EP/dev ha)	Transport network (vpd/dev ha)	Parks and land for community facilities network (ha/1000 persons)
Residential development							
Low density	Single dwellings	Not applicable	10	28	28	90	3.5
Low medium density	Single dwellings Multiple dwellings	Not applicable	20	48	48	110	3.5
Mixed use[1]	Multiple dwellings	Not applicable	30	57	57	87	3.5
Tourist Accommodation[1]	Multiple dwellings Other dwellings	Not applicable	8	38	38	58	3.5
Country living	Single dwellings Multiple dwellings Other dwellings	Not applicable	2	Not applicable	Not applicable	18	3.5
Non-residential development and mixed development							
Centre zones	Retail Commercial	4000	Not applicable	88	52	4840	Not applicable
Industrial zones	Industry	2500	Not applicable	32.5	17.5	112.5	Not applicable
Community facilities	Community purpose	2000	Not applicable	22	14	90	Not applicable
Mixed use[1]	Retail Commercial	4000	Not applicable	88	52	4840	Not applicable
Tourist accommodation[1]	Retail Commercial	100	Not applicable	33	27	1800	Not applicable

Note—1. Table SC 3.1.3 Column 1 Mixed use and Tourist accommodation development may generate residential or non-residential demand or both. Where development has elements of both residential and non-residential demand generation rates must be applied accumulatively considering the nature of all uses.

Table SC 3.1.4 Existing and projected residential dwellings

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected residential dwellings				
		2016	2021	2026	2031	Ultimate development
Abbot Point	Single dwellings	537	292	294	297	303
	Multiple dwellings	59	32	32	32	32
	Other dwellings	277	149	149	149	157
	Total	873	473	475	478	492
Bowen North	Single dwellings	2,416	2,434	2,471	2,498	2,701
	Multiple dwellings	1,180	1,246	1,323	1,398	1,526
	Other dwellings	21	27	33	38	45
	Total	3,617	3,707	3,827	3,934	4,271
Bowen South	Single dwellings	279	382	499	613	2,519
	Multiple dwellings	172	237	311	385	450
	Other dwellings	5	8	12	17	110
	Total	456	627	822	1,015	3,079
Collinsville	Single dwellings	587	581	596	603	1,294
	Multiple dwellings	396	398	415	426	438
	Other dwellings	799	796	824	841	858
	Total	1,782	1,775	1,835	1,870	2,590
Balance former Bowen Shire	Single dwellings	404	406	403	406	406
	Multiple dwellings	92	93	93	93	93
	Other dwellings	214	214	211	211	210
	Total	710	713	707	710	709
Whitsunday Islands	Single dwellings	50	51	52	52	54
	Multiple dwellings	295	290	286	281	278
	Other dwellings	1,091	1,109	1,128	1,147	1,172
	Total	1,436	1,450	1,466	1,480	1,504
Jubilee Pocket / Shute Harbour	Single dwellings	721	887	1,064	1,267	1,964
	Multiple dwellings	429	548	681	840	1,007
	Other dwellings	8	19	35	57	100
	Total	1,158	1,454	1,780	2,164	3,071
Cannonvale / Airlie Beach	Single dwellings	1,713	2,032	2,391	2,744	6,073
	Multiple dwellings	1,479	1,734	2,017	2,288	3,661
	Other dwellings	27	34	43	53	81
	Total	3,219	3,800	4,451	5,085	9,815
Proserpine	Single dwellings	1,166	1,203	1,240	1,279	1,315
	Multiple dwellings	412	448	485	524	564
	Other dwellings	18	22	25	29	231
	Total	1,596	1,673	1,750	1,832	2,110
Balance former Whitsunday Shire	Single dwellings	1,897	2,015	2,148	2,277	2,395
	Multiple dwellings	238	254	273	291	308
	Other dwellings	13	17	22	28	33

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected residential dwellings				
		2016	2021	2026	2031	Ultimate development
	Total	2,148	2,286	2,443	2,596	2,736
Inside priority infrastructure area (total)	Single dwellings	6,513	7,154	7,910	8,663	15,866
	Multiple dwellings	3,168	3,674	4,193	4,721	7,645
	Other dwellings	1,649	1,667	1,760	1,850	1,425
	Total	11,330	12,496	13,864	15,234	24,936
Outside priority infrastructure area (total)	Single dwellings	3,257	3,128	3,248	3,372	3,158
	Multiple dwellings	1,584	1,606	1,722	1,838	711
	Other dwellings	824	729	723	720	1,572
	Total	5,665	5,463	5,692	5,930	5,441
Whitsunday Region	Single dwellings	9,770	10,282	11,157	12,035	19,024
	Multiple dwellings	4,752	5,280	5,914	6,559	8,357
	Other dwellings	2,473	2,396	2,483	2,570	2,997
	Total	16,995	17,958	19,554	21,164	30,378

Table SC 3.1.5 Existing and projected non-residential floor space

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected non-residential floor space (m^2 GFA)				
		2016	2021	2026	2031	Ultimate development
Abbot Point	Retail	629	659	688	718	747
	Commercial	1,501	1,552	1,602	1,653	1,703
	Industrial	15,779	19,899	24,018	28,137	32,256
	Community	2,671	2,778	2,884	2,991	3,098
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	20,580	24,888	29,192	33,499	37,804
Bowen North	Retail	19,963	20,275	20,586	20,898	21,210
	Commercial	20,592	21,493	22,394	23,294	24,195
	Industrial	95,724	97,884	100,044	102,204	104,364
	Community	37,057	39,378	41,699	44,019	46,340
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	173,337	179,030	184,723	190,416	196,109
Bowen South	Retail	1,441	1,593	1,745	1,896	2,048
	Commercial	1,749	1,810	1,871	1,931	1,992
	Industrial	7,319	7,517	7,715	7,914	8,112
	Community	2,890	3,157	3,424	3,691	3,959
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	13,400	14,078	14,755	15,433	16,111
Collinsville	Retail	3,231	3,303	3,375	3,448	3,520
	Commercial	3,889	3,965	4,042	4,118	4,195
	Industrial	15,008	18,381	21,754	25,127	28,500
	Community	8,575	8,680	8,785	8,890	8,995
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	30,702	34,329	37,956	41,583	45,210
Balance former Bowen Shire	Retail	1,836	1,855	1,875	1,894	1,914
	Commercial	1,858	1,844	1,830	1,817	1,803
	Industrial	4,408	3,834	3,260	2,686	2,112
	Community	2,709	2,574	2,439	2,305	2,170
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	10,810	10,107	9,404	8,701	7,999
Whitsunday Islands	Retail	5,310	5,556	5,803	6,049	6,296
	Commercial	14,020	14,792	15,564	16,335	17,107
	Industrial	1,100	1,113	1,126	1,139	1,152
	Community	2,196	2,351	2,505	2,660	2,814
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	22,626	23,811	24,997	26,183	27,369
Jubilee Pocket / Shute Harbour	Retail	7,531	7,906	8,280	8,655	9,030
	Commercial	7,551	8,011	8,471	8,931	9,391
	Industrial	13,907	14,105	14,303	14,502	14,700

Column 1 Projection area	Column 2 LGIP development type	Column 3 Existing and projected non-residential floor space (m^2 GFA)				
		2016	2021	2026	2031	Ultimate development
	Community	5,417	6,338	7,259	8,179	9,100
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	34,406	36,360	38,314	40,268	42,221
Cannonvale / Airlie Beach	Retail	25,126	28,993	32,859	36,726	40,592
	Commercial	31,294	38,482	45,669	52,857	60,044
	Industrial	68,970	82,181	95,391	108,602	121,812
	Community	40,571	47,173	53,775	60,377	66,980
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	165,962	196,829	227,695	258,561	289,428
Proserpine	Retail	7,448	7,530	7,612	7,694	7,776
	Commercial	11,119	11,523	11,927	12,331	12,735
	Industrial	47,121	48,436	49,750	51,065	52,380
	Community	21,062	22,333	23,604	24,874	26,145
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	86,750	89,822	92,893	95,965	99,036
Balance former Whitsunday Shire	Retail	5,182	5,370	5,559	5,747	5,936
	Commercial	9,078	9,601	10,124	10,647	11,170
	Industrial	29,344	29,370	29,396	29,422	29,448
	Community	20,024	20,876	21,728	22,580	23,433
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	63,627	65,217	66,807	68,397	69,987
Inside priority infrastructure area (total)	Retail	63,065	67,927	72,775	77,614	82,445
	Commercial	83,321	92,495	101,687	110,894	120,115
	Industrial	242,434	263,988	285,527	307,057	328,582
	Community	116,213	127,314	138,419	149,528	160,641
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	505,033	551,723	598,407	645,094	691,784
Outside priority infrastructure area (total)	Retail	14,631	15,112	15,607	16,111	16,624
	Commercial	19,330	20,578	21,807	23,020	24,220
	Industrial	56,244	58,732	61,231	63,739	66,255
	Community	26,961	28,325	29,684	31,039	32,392
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	117,166	122,748	128,328	133,909	139,491
Whitsunday Region	Retail	77,696	83,039	88,382	93,725	99,069
	Commercial	102,652	113,073	123,494	133,914	144,336
	Industrial	298,678	322,720	346,758	370,797	394,837
	Community	143,174	155,638	168,103	180,567	193,033
	Other	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Total	622,199	674,471	726,735	779,003	831,275

Table 3.1.6 Existing and projected demand for the water supply network

Column 1 Service catchment[1]	Column 2 LGIP development category	Column 3 Existing and projected demand (EP)				
		2016	2021	2026	2031	Ultimate development
Catchment 1- Town of Whitsunday	Residential	10,847	13,021	15,440	17,962	31,853
	Non-residential	3,166	3,700	4,234	4,769	5,302
	Total	14,012	16,721	19,674	22,730	37,155
Catchment 2 - Bowen	Residential	10,124	10,789	11,590	12,353	18,513
	Non-residential	2,743	2,835	2,927	3,020	3,112
	Total	12,866	13,624	14,518	15,373	21,625
Catchment 3 - Collinsville	Residential	4,157	4,140	4,279	4,360	6,262
	Non-residential	446	494	543	591	639
	Total	4,603	4,635	4,822	4,950	6,901
Catchment 4 - Proserpine	Residential	4,227	4,425	4,623	4,834	5,414
	Non-residential	1,253	1,294	1,336	1,378	1,420
	Total	5,480	5,719	5,959	6,212	6,834
Inside priority infrastructure area (total)	Residential	29,355	32,375	35,933	39,508	62,042
	Non-residential	7,607	8,324	9,040	9,757	10,473
	Total	36,962	40,699	44,973	49,265	72,515
Outside priority infrastructure area (total)	Residential	3,418	3,218	3,279	3,347	3,623
	Non-residential	1,818	1,898	1,978	2,058	2,138
	Total	5,236	5,116	5,257	5,404	5,761
Whitsunday Region	Residential	32,773	35,593	39,212	42,855	65,665
	Non-residential	9,425	10,222	11,018	11,815	12,611
	Total	42,198	45,815	50,230	54,669	78,276

Note—2. Table SC 3.1.6 Column 1 The service catchments for the water supply network are identified on Local government infrastructure plan maps – PFTI WN – 01A:01E (LGIP Plans for Trunk Infrastructure Water Network Catchment Map) in Schedule 3 (local government infrastructure mapping and tables).

Table 3.1.7 Existing and projected demand for the sewerage network

Column 1 Service catchment[2]	Column 2 LGIP development category	Column 3 Existing and projected demand (EP)				
		2016	2021	2026	2031	Ultimate development
Catchment 1 - Town of Whitsunday	Residential	10,847	13,021	15,440	17,962	31,853
	Non-residential	1,837	2,147	2,458	2,768	3,078
	Total	12,684	15,168	17,898	20,730	34,931
Catchment 2 - Bowen	Residential	10,124	10,789	11,590	12,353	18,513
	Non-residential	1,570	1,625	1,679	1,733	1,787
	Total	11,694	12,413	13,269	14,086	20,300
Catchment 3 - Collinsville	Residential	4,157	4,140	4,279	4,360	6,262
	Non-residential	258	284	310	336	363
	Total	4,415	4,424	4,589	4,696	6,625
Catchment 4 - Proserpine	Residential	4,227	4,425	4,623	4,834	5,414
	Non-residential	719	743	767	792	816
	Total	4,946	5,168	5,391	5,625	6,231
Inside priority infrastructure area (total)	Residential	29,355	32,375	35,933	39,508	62,042
	Non-residential	4,384	4,799	5,214	5,630	6,045
	Total	33,739	37,174	41,147	45,137	68,087
Outside priority infrastructure area (total)	Residential	3,418	3,218	3,279	3,347	3,623
	Non-residential	1,054	1,099	1,144	1,189	1,234
	Total	4,472	4,317	4,424	4,536	4,857
Whitsunday Region	Residential	32,773	35,593	39,212	42,855	65,665
	Non-residential	5,437	5,898	6,358	6,819	7,279
	Total	38,211	41,491	45,570	49,674	72,945

Note—3. Table SC 3.1.7 Column 1 The service catchments for the sewer network are identified on Local government infrastructure plan maps – PFTI SN – 01A:01E (LGIP Plans for Trunk Infrastructure Sewer Network Catchment Map) in Schedule 3 (local government infrastructure mapping and tables).

Table 3.1.8 Existing and projected demand for the stormwater network

Column 1 Service catchment[3]	Column 2 LGIP development category	Column 3 Existing and projected demand (imp ha)				
		2016	2021	2026	2031	Ultimate development
Catchment 1 - Town of Whitsunday	Residential					
	Non-residential					
	Total					
Catchment 2 - Bowen	Residential					
	Non-residential					
	Total					
Catchment 3 - Collinsville	Residential					
	Non-residential					
	Total					
Catchment 4 - Proserpine	Residential					
	Non-residential					
	Total					
Inside priority infrastructure area (total)	Residential					
	Non-residential					
	Total					
Outside priority infrastructure area (total)	Residential					
	Non-residential					
	Total					
Whitsunday Region	Residential					
	Non-residential					
	Total					

Due to incomplete network information, a table of existing and projected demand for the stormwater network is unable to be included.

Recommendations identified as a result of future network planning is anticipated to be incorporated into future amendments to the LGIP.

Note—4. Table SC 3.1.8 Column 1 The service catchments for the stormwater network are identified on Local government infrastructure plan maps – PFTI SWN – 01A:01E (LGIP Plans for Trunk Infrastructure Stormwater Network Catchment Map) in Schedule 3 (local government infrastructure mapping and tables).

Table SC 3.1.9 Existing and projected demand for the transport network

Column 1 Service catchment[4]	Column 2 LGIP development category	Column 3 Existing and projected demand (vpd)				
		2016	2021	2026	2031	Ultimate development
Catchment 1 - Town of Whitsunday	Residential	29,645	35,567	42,130	48,960	88,532
	Non-residential	111,458	130,694	149,928	169,163	188,398
	Total	141,103	166,261	192,058	218,123	276,930
Catchment 2 - Bowen	Residential	28,068	30,004	32,335	34,554	53,733
	Non-residential	75,608	78,708	81,805	84,903	88,002
	Total	103,676	108,712	114,140	119,457	141,735
Catchment 3 - Collinsville	Residential	12,307	12,251	12,655	12,886	18,975
	Non-residential	13,149	13,527	13,907	14,286	14,667
	Total	25,456	25,778	26,562	27,172	33,642
Catchment 4 - Proserpine	Residential	12,284	12,826	13,372	13,949	15,081
	Non-residential	34,063	35,284	36,503	37,721	38,939
	Total	46,347	48,110	49,875	51,670	54,020
Catchment 5 – Non-urban Balance	Residential	42,938	41,524	43,378	45,252	50,323
	Non-residential	61,809	63,644	65,477	67,310	69,145
	Total	104,747	105,168	108,855	112,562	119,468
Inside priority infrastructure area (total)	Residential	82,303	90,647	100,491	110,350	176,321
	Non-residential	234,278	258,213	282,143	306,073	330,006
	Total	316,581	348,860	382,634	416,423	506,327
Outside priority infrastructure area (total)	Residential	42,938	41,524	43,378	45,252	50,323
	Non-residential	61,809	63,644	65,477	67,310	69,145
	Total	104,747	105,168	108,855	112,562	119,468
Whitsunday Region	Residential	125,241	132,171	143,869	155,601	226,644
	Non-residential	296,087	321,857	347,620	373,383	399,151
	Total	421,328	454,028	491,489	528,984	625,795

Note—5. Table SC 3.1.9 Column 1 The service catchments for the transport network are identified on Local government infrastructure plan map – PFTI TN – 01A:1E (LGIP Plans for Trunk Infrastructure Transport Network Catchment Map) in Schedule 3 (local government infrastructure mapping and tables).

Table SC 3.1.10 Existing and projected demand for the parks and land for community facilities network

Column 1 Service catchment[5]	Column 2 LGIP development category	Column 3 Existing and projected demand (ha/1000 persons)				
		2016	2021	2026	2031	Ultimate development
Catchment 1 - Town of Whitsunday	Residential	33.3	39.9	47.1	54.5	99.0
	Non-residential	0	0	0	0	0
	Total	33.3	39.9	47.1	54.5	99.0
Catchment 2 - Bowen	Residential	31.6	33.4	35.6	37.7	58.7
	Non-residential	0	0	0	0	0
	Total	31.6	33.4	35.6	37.7	58.7
Catchment 3 - Collinsville	Residential	9.6	9.4	9.6	9.6	13.7
	Non-residential	0	0	0	0	0
	Total	9.6	9.4	9.6	9.6	13.7
Catchment 4 - Proserpine	Residential	12.8	13.2	13.7	14.2	15.3
	Non-residential	0	0	0	0	0
	Total	12.8	13.2	13.7	14.2	15.3
Catchment 5 – Non-urban Balance	Residential	40.0	38.4	39.9	41.5	46.0
	Non-residential	0	0	0	0	0
	Total	40.0	38.4	39.9	41.5	46.0
Inside priority infrastructure area (total)	Residential	87.3	96.0	106.0	115.9	186.7
	Non-residential	0	0	0	0	0
	Total	87.3	96.0	106.0	115.9	186.7
Outside priority infrastructure area (total)	Residential	40.0	38.4	39.9	41.5	46.0
	Non-residential	0.0	0.0	0.0	0.0	0.0
	Total	40.0	38.4	39.9	41.5	46.0
Whitsunday Region	Residential	127.3	134.3	145.9	157.4	232.6
	Non-residential	0	0	0	0	0
	Total	127.3	134.3	145.9	157.4	232.6

Note—6. Table SC 3.1.10 Column 1 The service catchments for the parks and land for community facilities network are identified on Local government infrastructure plan map – PFTI PCFN – 01A:1E (LGIP Plans for Trunk Infrastructure Parks and Land for Community Facilities Network Catchment Map) in Schedule 3 (local government infrastructure mapping and tables).

SC3.2 Schedules of works

Table SC3.2.1 Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost[7]
W1	New DN500 Main 9050m long from Lot 104 N25576 Proserpine Water Treatment Plant to Lot 22 RP882994 Coastal Water Treatment Plant, Proserpine to Mount Marlow	2017	$15,542,325
W2	Upgrade DN450 Main 333m long from Proserpine high level tank to existing DN250 in Faust St, Proserpine (replacing WM_P_964; WM_P_981; WM_P_1078; WM_P_971; & WM_P_852)	2017	$408,156
W3	New DN250 Main 130m long from Faust Street to Ann Street, Proserpine (joining WM_P_971 to WM_P_837)	2017	$111,644
W4	New Water Intake System for Bowen Water Treatment Plant at Proserpine River - Up River Road, Crystal Brook	2017	$1,130,000
W5	Upgrade Booster Pump Station No.2 capacity to 200L/s at Lot 1 RP739344 Coastal Water Treatment Plant, Mount Marlow (WCGR20)	2017/2018	$581,950
W6	New DN200 Main 100m long connecting Anzac Road to Hinschen Street (joining WM_P_844 to WM_P_1346 under railway line), Proserpine	2022-2026	$200,688
W7	One new 12ML Reservoir including two new DN500 Mains 790m long each from new Reservoir to existing trunk Main at Shute Harbour Road and 60mx100m Land (6000m²) on Lot 9 SP218209, Cannonvale	2022-2026	$13,288,800
W8	**LGIP ID W8 has been left intentionally blank**		
W9a	Upgrade DN200 Main 164m long in Bruce Highway from Main Street to Fuljames Street, Proserpine (replacing WM_P_925)	2022-2026	$151,951
W9b	New DN200 Main 186m long from Bruce Highway to Horsford Place, Proserpine (joining WM_P_925 to WM_P_1048)	2022-2026	$160,889
W10	Upgrade DN200 Main 190m long in Stanbury Street from Holmes Street to Ruge Street, Proserpine (replacing WM_P_872; & WM_P_874)	2022-2026	$171,331
W11	Upgrade DN200 Main 368m long in Ridge View Road, Cannonvale (replacing WM_P_346; WM_P_487; & WM_P_504 - first 42m only)	2022-2026	$331,840
W12	Upgrade Reservoir capacity to 90kL at Pepperberry Lane, Lot 990 SP178725, Cannon Valley (WCGR14)	2022-2026	$714,725
W13	Two new Bores including associated new DN300 Main 157m long at Foxdale Road, Foxdale and new DN300 Main 10m long at Bruce Highway, Foxdale	2027-2031	$655,400
W14	Two new Bores including two associated new DN300 Mains 100m long each at Proserpine Water Treatment Plant Crystalbrook Road, Proserpine	2027-2031	$655,400

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost[8]
W15	Upgrade DN250 Main 1124m long in Jubilee Pocket Road, Jubilee Pocket (replacing WM_P_616; WM_P_726; WM_P_727; WM_P_729; & WM_P_730)	2027-2031	$1,115,753
W16	Upgrade DN200 Main 731m long in Erromango Drive, Jubilee Pocket (replacing WM_P_668; WM_P_748; WM_P_707; WM_P_710; WM_P_712; & WM_P_714)	2027-2031	$669,819
W17	Upgrade Reservoir capacity to 100kL at Lot 94 RP748476 Moonlight Drive, Jubilee Pocket (WCGR01)	2027-2031	$991,575
W18	Upgrade Reservoir capacity to 160kL at Lot 103 RP743876 Macona Crescent, Cannonvale (WCGR07)	2027-2031	$413,354
W19	Upgrade Reservoir capacity to 110kL at Lot 163 HR1525 Parkwood Terrace, Cannonvale (WCGR06)	2027-2031	$346,684
W20	Upgrade Booster Pump Station No.2 capacity to 260L/s at Lot 1 RP739344 Coastal Water Treatment Plant, Mount Marlow (WCGR20)	2027-2031	$1,115,753
TOTAL			**$38,314,634**

[7] The establishment cost is expressed in current cost terms as at the base date.

[8] The establishment cost is expressed in current cost terms as at the base date.

Table SC3.2.2 Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost[9]
S1	Upgrade Sewer Pump Station 1 capacity to 88L/s @ 62m at Lot 1 RP742660 Shute Harbour Road, Jubilee Pocket (JUBI1-PS1), including bypass of Cannonvale Sewer Pump Station 6	2018	$151,307
S2	Upgrade Sewer Pump Station 12 capacity to 64L/s @ 24m at Lot 61 RP800716 Carlo Drive, Cannonvale (CANN12-PS12)	2018	$104,751
S3	Upgrade Bowen Sewer Treatment Plant capacity at Lot 207 RP800719 Elphinstone Street, Bowen, inclusive of a recycled local water system	2021	$44,748,000
S4	Upgrade Sewer Pump Station 3 capacity to 62L/s @ 57m at Lot 1 RP725974 Dalrymple Street, Bowen (PS3)	2022-2026	$140,459
S5	Upgrade DN225 Rising Main 925m long from Cannonvale Pump Station 12 (CANN12-PS12) to Cannonvale Sewer Treatment Plant (CANN1-STP at Lot 164 HR1551), Cannonvale (replacing SM_P_3076)	2022-2026	$778,717
S6	New DN375 Combined Rising Main 870m long from SM_P_3428 at Edwards Street to Proserpine Sewer Treatment Plant Lot 1 SP241784 Bruce Highway, Proserpine, incorporating an aerial crossing at Proserpine River and a DN200 Main 40m long micro-tunnelled under Bruce Highway	2022-2026	$908,915
S7	Upgrade Sewer Pump Station Z capacity to 92L/s @ 21m (Bowen Z)	2022-2026	$115,938
TOTAL			**$46,984,087**

[9] The establishment cost is expressed in current cost terms as at the base date.

Table SC3.2.3 Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
TOTAL			

Due to incomplete network information, a schedule of works for the stormwater network is unable to be included.

Recommendations identified as a result of future network planning is anticipated to be incorporated into future amendments to the LGIP.

Table SC3.2.4 Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost[10]
T1	Upgrade Beach Road to Minor Collector 200m from Herring Lane to Schnapper Street, Cannonvale (21085) including road upgrade, widening and drainage	2017	$581,700
T2	Upgrade Dalrymple Street to Minor Collector 245m from Brisbane Street to Hay Street, Bowen (10185) including road upgrade, widening and drainage	2017/2018	$811,112
T3	Upgrade Leichhardt Street to Minor Collector 705m from Don Street to Sunset Crescent, Bowen (10345) including road upgrade, widening, drainage and footpath	2017/2018	$1,001,804
T4	Upgrade West Street to Minor Collector 760m from Richmond Road to Russell Street, Bowen (10585) including road upgrade, widening and drainage	2017/2018	$759,223
T5	Upgrade Abell Road to Major Collector 180m from Hamilton Avenue to Parker Road, Cannonvale (21005) including road upgrade, widening and drainage	2019	$549,707
T6	Upgrade Erromango Drive to Major Collector 695m from Shute Harbour Road to end, Jubilee Pocket (21275) including road upgrade, widening and drainage	2019	$2,122,478
T7	New road part Erromango Drive to Major Collector 640m from Erromango Drive end to St Bees Boulevarde, Jubliee Pocket (new part 21275) including road resumption and new road construction to Major Collector standard	2020	$2,001,048
T8	Upgrade Bootooloo Road to Minor Collector 1000m from Bruce Highway to Catherine Drive, Bowen (10095) including road upgrade, widening and drainage	2020	$1,720,892
T9	Upgrade Dalrymple Street to Minor Collector 245m from Herbert Street to Brisbane Street, Bowen (10185) including road upgrade, widening and drainage	2021	$653,672
T10	Upgrade Golf Links Road to Minor Collector 1300m from Tollington Road to Mt Nutt Road, Bowen (11165) including road upgrade, widening and drainage	2022-2026	$3,499,997
T11	Upgrade Jasinique Drive to Rural Collector 889m from Shute Harbour Road to end, Flametree (21425) including road upgrade, widening and drainage	2022-2026	$1,521,710
T12	Upgrade Mt Nutt Road to Major Collector 2000m from Richmond Road to Golf Links Road, Bowen (11285) including road upgrade, widening and drainage	2022-2026	$6,631,380
T13	**LGIP ID T13 has been left intentionally blank**		
T14	Upgrade Riordanvale Road to Sub-Arterial 1650m from Dunning Road to Cutuli Road, Cannon Valley/Cannonvale (21730) including road upgrade, widening and drainage	2027-2031	$6,832,980
T15	Upgrade Tollington Road to Major Collector 980m from Soldiers Road to Argyle Park Road, Bowen (11435) including road upgrade, widening and drainage	2027-2031	$3,306,383

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost[10]
T16	Upgrade Country Road to Minor Collector 545m from Links Drive to Tropic Road, Cannonvale (21215) including road upgrade, widening and drainage	2027-2031	$1,533,401
T17	New road part Parker Road to Major Collector 200m from end Parker Road to start new Quarry Road, Cannonvale (new part 21645) including new road construction to Major Collector standard	2027-2031	$680,589
T18	Upgrade Argyle Park Road to Major Collector 1400m from Hillview Road to Golflinks Road, Bowen (11005) including road upgrade, widening and drainage	2027-2031	$4,764,123
T19	New road Quarry Road to Major Collector 1200m from Shute Harbour Road to new part Parker Road, Cannonvale including road resumption and new road construction to Major Collector standard	2027-2031	$4,083,534
T20	Upgrade Riordanvale Road to Rural Collector 1350m from Dunning Road to Sugarloaf Road, Cannonvale (21730) including road upgrade, widening and drainage	2027-2031	$2,391,890
T21	Upgrade Queens Road to Major Collector 960m from Powell Street to Avoca Road, Bowen (10463) including road upgrade, widening and drainage	2027-2031	$3,322,670
T22	Upgrade Queens Road to Major Collector 1100m from Avoca Road to Tollington Road, Bowen (10463) including road upgrade, widening and drainage	2027-2031	$3,807,227
T23	Upgrade Richardson Road to Sub-Arterial 3310m from Gregory-Cannon Valley Road to Riordanvale Road, Cannon Valley (21725) including part new road, part road resumption, road upgrade, widening and drainage	2027-2031	$14,180,040
T24	Upgrade Chapman Street to Major Collector 500m from Taylor Street to Marathon Street, Proserpine (20085) including road upgrade, widening and drainage	2027-2031	$1,745,100
T25	Upgrade Links Drive to Minor Collector 310m from Valley Drive to Country Road, Cannonvale (21500) including road upgrade, widening and drainage	2027-2031	$902,286
TOTAL			**$69,404,945**

[10] The establishment cost is expressed in current cost terms as at the base date.

Table SC3.2.5 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[11]
P1	New Regional Sports Park 10-18Ha, Cannon Valley area	2027-2031	$5,327,700
TOTAL			**$5,327,700**

[11] The establishment cost is expressed in current cost terms as at the base date.

SC3.3 Local government infrastructure plan maps

Local government infrastructure plan map – PAM – 01:06 Projection area, priority infrastructure area and zone map

Local government infrastructure plan map – PFTI WN – 01:06 Water network plans for trunk infrastructure map

Local government infrastructure plan map – PFTI SN – 01:05 Sewerage network plans for trunk infrastructure map

Local government infrastructure plan map – PFTI SWN – 01:05 Stormwater network plans for trunk infrastructure map

Local government infrastructure plan map – PFTI TN – 01:05 Transport network plans for trunk infrastructure map

Local government infrastructure plan map – PFTI PCFN – 01:06 Parks and land for community facilities network plans for trunk infrastructure map

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Schedule 4 Notations required under the *Planning Act 2016*

SC4.1 Notation of decisions affecting the planning scheme under section 89 of the Act

Table SC 4.1.1 Notation of decisions under section 89 of the Act

Date of decision	Location (real property description)	Decision type	File/Map reference
20/04/2004	2SP220384	Development permit for material change of use and era - roof and sheet metal manufacturing.	20040024
19/12/2005	900, 901, 951, 953, 957 & 959SP194473 & 1& 2SP172275	Preliminary approval - all stages including residential use, tavern, golf club, service station, commercial uses, child care centre, medical centre, motel and motor home site and retirement resort.	DA04/398
28/09/2006	4RP743558	Development permit for material change of use and reconfiguration of a lot - 34 lots.	DA05/388
20/12/2006	6, 14, 15, 131, 132, 200 & 201 SP225070 & 16SP178753	Preliminary approval for a material change of use to override council planning scheme under section 3.1.6 of the integrated planning act for a staged integrated community titled development comprising residential (short and long term accommodation), retail and commercial premises, eighteen (18) hole golf course and ancillary uses in accordance with the Whitsunday springs master plan.	20050622
12/12/2006	Part 2 RP741932, Part 4 RP726985	Preliminary approval for a material change of use overriding Council's Planning scheme under Section 3.1.6 of the Integrated Planning Act for Stage Integrated Development comprising residential, showroom and commercial premises in accordance with the Whitsunday Springs Master Plan.	20050619
18/12/2007	102SP219982	Development permit for reconfiguration of a lot - two (2) lots into two hundred and fifty two (252) lots comprising two hundred and forty (240) residential lots, two (2) buffer lots, ten (10) public open space lots in stages.	20070500
4/12/2008	31RP885979	Development permit for material change of use - rural service industry and reconfiguration of a lot - one (1) lot into thirteen (13) lots.	DA07/414

Date of decision	Location (real property description)	Decision type	File/Map reference
4/12/2008	Part of 2RP729167, being proposed 21SP201458	Development permit for material change of use - rural service industry/produce store and warehouse.	DA08/013
11/12/2008	101 & 100 SP167803	Development permit for reconfiguration of a lot and material change of use of land - residential subdivision comprising sixty eight (68) dwelling house lots including two (2) lots for multiple dwellings/accommodation units and preliminary approval for material change of use for accommodation units/multiple dwelling units over proposed lot 76 (175 persons) and proposed lot 100 (216 persons) and clearing of vegetation.	20070807
17/04/2009	6RP737335	Development permit for material change of use from rural zone to urban residential zone; development permit for staged reconfiguration of a lot - stage 1a - one (1) lot into twenty residential lots, one (1) drainage lot and balance lot; and stage 1c - one (1) lot into twenty (20) urban residential lots and one(1) single dwelling lose, easement and preliminary approval overriding the planning scheme to alter the level of assessment for material change of use of premises for eleven (11) code assessable dual occupancy lots.	20070720
10/03/2010	35RP705716	Development permit for material change of use of premises for forty-three (43) dwelling houses & reconfiguration of a lot - one (1) lot into forty-three (43) lots.	DA09/035
11/08/2010	1&2RP710765	Development permit for material change of use - sales or hire premises.	20100051
8/09/2010	15RP745336	Preliminary approval to override the Bowen shire planning scheme - material change of use to facilitate industrial development - changes to levels of assessment for produce store, caretaker's residence, rural service industry, light industry, vehicle depot and machinery repair station; change to the development assessment provisions for caretakers residence; introduction of new definitions being bulk store, freight store, machinery showroom and warehouse.	DA09/324
28/10/2010	42RP727501	Preliminary permit to override the planning scheme for a material change of use of premises to facilitate industrial development in accordance with the industrial zone.	DA09/006

Date of decision	Location (real property description)	Decision type	File/Map reference
13/12/2011	6SP171809	Development permit for reconfiguration of lot (1 into 43 lots) and material change of use (43 dwelling houses).	20101136
26/04/2012	6RP706708 & 5K103854	Development permit for material change of use - commercial premises consisting of four (4) refreshment premises and ancillary car parks and structures.	20110549
15/07/2013	7RP729788 & 259HR1534	Development permit for reconfiguration of a lot - stage development - two (2) lots into one hundred and fifty two (152) lots and open space/parkland.	20120784
25/07/2013	111SP129633	Preliminary approval for material change of use and reconfiguration of a lot to vary the effect of the 2006 Bowen shire planning scheme to facilitate future industrial development.	20121022

Editor's note—This schedule must include details of:

- Development approvals that are substantially inconsistent with the planning scheme
- variation approvals
- decisions agreeing to a superseded planning scheme request to apply to a superseded scheme to a particular development.

SC4.2 Notation of resolution(s) under Chapter 4, Part 2, Division 2 of the Act

Table SC 4.2.1 Notation of resolutions under Chapter 4, Part 2, Division 2 of the Act

Date of	Date of effect	Details	Contact

Editor's note—This schedule must provide information about the adopted infrastructure charges for the local government and where a copy of the adopted charges can be obtained.

SC4.3 Notation of registration for urban encroachment provisions under section 267 of the Act

Table SC 4.3.1 Notation of registrations made under section 267 of the Act

Date of decision	Location of premises (real property description)	Details of registration	Term of registration

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Schedule 5 Designation of premises for development

Table SC 5.1 Designation of premises for development of infrastructure under section 42 of the Act

Date the designation, amendment, extension or repeal takes effect	Location of premises (real property description)	Street address	Type of infrastructure
23/11/2012	2SP204635	Power House Road, Collinsville	Powerlink Queensland's proposed Collinsville Substation Replacement (Collinsville North) Project, which consists of a new 132 kilovolt substation to replace the existing Collinsville Substation, and reconfiguration of the transmission lines from the existing Collinsville Substation into the new Collinsville North Substation.
Designation matters Nil			
18/11/2011	5 on Crown Plan B6677, 1 & 3 RP700122, 11 & 12 SP166797, 13 & 14 SP194471	Gregory Street, Bowen	Bowen Health Service which will provide public and private health facilities plus support facilities including relative, staff and non-acute accommodation, paediatric, commercial and medical services, engineering and maintenance services, teaching and research facilities, car parking and helipad.
Designation matters Nil			
27/02/2009	2RP742329, 61 & 86 DK155, 5047PH370, 33RP802431, 38RP908340, 161SP122361, 31SP108590, 3RP739389, 121SP122358, 101SP122357, 28HR410, 3RP738754, 4RP738754, 25HR1317, 1SP115943, 551H12423, 698, 491 & 162 SP138969, 1RP730524, 1 & 4 RP730832, 1RP740830		Whitsunday Regional Council - Powerlink Queensland's proposed Strathmore to Bowen 132 kilovolt transmission line (Stage 1).
Designation matters			

Date the designation, amendment, extension or repeal takes effect	Location of premises (real property description)	Street address	Type of infrastructure
Nil			
17/04/2009	AP12411, AP12412, AP12413, SR2500, SR2501	Unnamed road, Springlands Strathalbyn Road, Bogie Unnamed Road, Bogie Tabletop Road, Springlands Johnny Cake Road, Springlands	Whitsunday Regional Council; Burdekin Shire Council; Townsville City Council - Queensland Electricity Transmission Corporation Limited, trading as Powerlink Queensland, proposes to build community infrastructure.
Designation matters Nil			
30/10/2009	43K12448, 33RP746283, 41SP122354, 23SP106414, 3RP742547, 16SP129649, 3RP742546, 111HR1821, 110HR1989, 72 – 79 M4881		Whitsunday Regional Council - Powerlink Queensland's proposed Strathmore to Bowen 132 kilovolt (kV) transmission line (Stage 2) and Bowen North substation.
Designation matters Nil			
29/06/2001	121HR687	18 Mill Street, Proserpine	Proserpine Magistrates Court & Queensland Police Service (joint facility)
Designation matters Nil			
06/02/2016	121SP117924	56 Coral Esplanade, Cannonvale	Cannonvale State School
Designation matters Nil			
10/04/2015	25C74042	Garrick St Collinsville QLD 4804	Collinsville Healthcare Precinct
Designation matters Nil			
27/11/2015	170SP277854, 236HR1153	Kelsey Creek Road Proserpine	Proserpine Substation and the Upgrade Project consisting of the installation of a new 132/66 kV transformer, capacitor bank and associated equipment to expand the existing Powerlink Queensland substation at Kelsey Creek Road, Kelsey Creek, which is located approximately 4.3

Date the designation, amendment, extension or repeal takes effect	Location of premises (real property description)	Street address	Type of infrastructure
			kilometres north of Proserpine.
Designation matters Nil			

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Schedule 6 Planning scheme policies

SC6.1 Planning scheme policy index

The table below lists all the planning scheme policies applicable to the Planning Scheme area.

Table SC 6.1.1 Planning scheme policy index

Policy	Planning scheme policy title
SC6.2	Environmental features planning scheme policy
SC6.3	Heritage planning scheme policy
SC6.4	Landscaping planning scheme policy
SC6.5	Natural hazards planning scheme policy
SC6.6	Third party advice or comment planning scheme policy
SC6.7	Growth management planning scheme policy
SC6.8	Whitsunday Regional Council development manual planning scheme policy

SC6.1.1 Scope of the Planning Scheme Policies

The table below lists the scope of all the planning scheme policies, providing an indication as to when Council may request an applicant to provide further information in the form of a planning scheme policy.

Table SC 6.1.1.1: Scope of the Planning Scheme Policies

Planning Scheme Policy/Report	Scope
Environmental features planning scheme policy	
Acid sulfate soils assessment report	Applications triggering assessment against the Acid sulfate soils overlay code.
Acid sulfate soils management plan	Applications triggering assessment against the Acid sulfate soils overlay code and found to be disturbing acid sulfate soils within the acid sulfate soils assessment report.
Ecological assessment report	Applications triggering assessment against the: a) Environmental significance overlay code; or b) Waterway and wetland overlay code.
Vegetation management plan	Applications triggering assessment against the: a) Construction management code; or b) Waterway and wetlands overlay code.
Heritage planning scheme policy	
Heritage impact assessment report	Applications triggering assessment against the Heritage overlay code.
Heritage management plan	Applications triggering assessment against the Heritage overlay code.
Archaeological management plan	Applications triggering assessment against the Heritage overlay code.
Landscaping planning scheme policy	
Landscaping plan	Applications triggering assessment against the Landscaping code.

Landscaped separation buffer	Applications triggering assessment against the: a) Landscaping code; or b) Reconfiguring a lot code; or c) Agricultural land overlay code.
Planting species list	All development is to have regard for the Planting species list.
Natural hazard planning scheme policy	
Bushfire hazard assessment report	Applications triggering assessment against the Bushfire hazard overlay code.
Bushfire hazard management plan	Applications triggering assessment against the Bushfire hazard overlay code.
Coastal hazard assessment report	Applications triggering assessment against the Coastal environment overlay code.
Flood hazard assessment report	Applications triggering assessment against the Flood hazard overlay code
Landslide hazard (geotechnical) assessment report	Application triggering assessment against the Landslide hazard overlay code.
Growth management planning scheme policy	
Development needs assessment report	At Council discretion. Applications proposing the development of five (5) or more lots (including those lots created under a community title scheme), outside of the existing urban footprint may be required to undertake this report.
Economic impact assessment report	At Councils discretion. Applications proposing the development of Business or Entertainment Activities may be required to undertake this report where the development is: a) outside of a designated Centre zone and exceeding a GFA of 150m^2; or b) within a designated Centre zone, but exceeding the maximum GFA for that Centre zone; or c) within the Mixed use zone and exceeding a GFA of 1,500m^2.
Structure plan	At Councils discretion. Applications proposing the development of five (5) or more lots (including those lots created under a community title scheme) may be required to undertake this report.
Traffic impact assessment report	At Councils discretion. Applications proposing the development of the following activities may be required to undertake this report: a) Accommodation activities: Five (5) or more lots (including those lots created under a community title scheme); or b) Business, Entertainment, Industry, Recreation or Other Activities: Exceeding a GFA of 1,500m^2; or c) Community Activities: Exceeding a GFA of 500m^2.

SC6.2 Environmental features planning scheme policy

SC6.2.1 Introduction

SC6.2.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy provides:

(a) information the Council may request for a development application; and

(b) guidance or advice about satisfying an assessment benchmark which identifies this planning scheme policy as providing that guidance or advice.

SC6.2.1.2 Purpose

(1) The purpose of this planning scheme policy is to provide information, guidance and advice for satisfying the assessment benchmarks for the preparation of a site specific:

(a) Acid sulfate soil assessment report;

(b) Acid sulfate soils management plan;

(c) Ecological assessment report; and

(d) Vegetation management plan.

SC6.2.1.3 Environmental features overlay mapping

(1) Environmental features overlay mapping has been prepared for the local government area, showing the areas of environmental and waterway (water quality) health. This mapping has been prepared in accordance with the requirements of the State Planning Policy (SPP). The specific environmental and waterways overlays to which this PSP applies are:

(a) Acid sulphate soils overlay code. Mapping:
- (i) identifies the Known presence of acid sulfate soils for; Land at or below 5m AHD and Land above 5m AHD and below 20m AHD sub-categories; and
- (ii) has been prepared at a scale at which a site specific investigation of acid sulfate soils will be necessary to determine the presence and extent of acid sulfate soil on a site (Acid sulfate soils assessment report) and the necessity for an Acid sulfate soils management plan;

(b) Environmental significance overlay code. Mapping:
- (i) identifies Regulated vegetation, Wildlife habitat, Protected and Regulated vegetation features; and
- (ii) is not a substitute for a site based assessment. A site specific Ecological assessment report should be undertaken and prepared to verify, specific to the site, the presence of Matters of environmental significance on a site and necessity for a Vegetation management plan;

(c) Waterways and wetlands overlay code. Mapping:
- (i) identifies Matters of state environmental significance: High ecological value waters (watercourse), High ecological value waters (wetlands), High ecological significance wetlands, Marine

(ii) parks and Declared fish habitat area and Matters of local environmental significance: Stream order 1 - 5 sub-categories; and is not a substitute for a site based assessment. A site specific Ecological assessment report should be undertaken and prepared to verify, specific to the site, the presence of matters of environmental significance on a site and necessity for a Vegetation management plan.

SC6.2.2 Requirements of environmental features documentation

(1) Environmental features documentation is to be prepared in a clear and concise manner, consistent with the elements identified in Table SC 6.2.2.1 (Requirements of Environmental features documentation) below, as well as any specific requirements identified in the relevant sub-sections of this report.

Table SC 6.2.2.1 Requirements of environmental features documentation

Documentation	Preparation	Report requirements
Acid sulfate soils assessment report	• Prepared by a suitably qualified professional with appropriate technical expertise in the field of acid sulfate soils identification and management. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Acid sulfate soils assessment report may be requested to provide additional information to Council. • A site specific Acid sulfate soil assessment report is to be prepared in accordance with SC6.2.3 (Acid sulfate soils assessment report). • An Acid sulfate soils assessment is to be prepared in accordance with the Queensland Acid Sulfate Soils Technical manual (Queensland Government, 2014), or any later guideline as agreed by Council and is to be provided as part of the site specific Acid sulphate soil assessment report. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Acid sulfate soils management plan	• Prepared by a suitably qualified professional with appropriate technical expertise in the field of acid sulfate soils identification and management. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Acid sulfate soils management plan may be requested to provide additional information to Council. • A site specific Acid sulfate soil management plan is to be prepared in accordance with: a) SC6.2.4 (Acid sulfate soils management plan); and b) State Planning Policy – State interest guideline: Water quality, August 2014, or any later guideline as agreed by Council.
Ecological assessment report	• Prepared by a suitably qualified professional with a relevant tertiary qualification in ecology, conservation biology or environmental planning and at least 5 years' experience in ecology surveys, assessment and reporting. • Consultation with other entities may also be necessary including Council, State	• A site specific Ecological assessment report may be requested to provide additional information to Council. • A site specific Ecological assessment report is to be prepared in accordance with SC6.2.5 (Ecological assessment report).

	government and other relevant agencies or individuals.	
Vegetation management plan	• Prepared by a suitably qualified professional with a relevant tertiary qualification in ecology, conservation biology or environmental planning and at least 5 years' experience in vegetation management, assessment and reporting. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Vegetation management plan may be requested to provide additional information to Council. • A site specific Vegetation management plan is to be prepared in accordance with SC6.2.6 (Vegetation management plan).

SC6.2.3 Acid sulfate soils assessment report

SC6.2.3.1 Purpose of an Acid sulfate soils assessment report

(1) An Acid sulfate soils assessment report is required to:

(a) quantify the extent and severity of acid sulfate soils for a particular site;

(b) ensure appropriate methods are implemented to mitigate or avoid the disturbance of acid sulfate soils; and

(c) provide information and guidance to support the outcomes required by the Acid sulfate soils overlay code.

SC6.2.3.2 Preparation of an Acid sulfate soils assessment report

(1) The site-specific Acid sulfate soils assessment report is to include an acid sulfate soils assessment, as detailed in Table SC 6.2.2 (Requirements of environmental features documentation) of this planning scheme policy.

(2) An Acid sulfate soil assessment report is to:

(a) explain the methodology and findings of the acid sulfate soils assessment to determine the presence, extent and severity of any actual acid sulfate soils or potential acid sulfate soils on the site;

(b) evaluate the potential for harm to the environment or to constructed assets as a result of the development; and

(c) make recommendations as to whether management measures are needed.

(2) If the acid sulfate soil assessment report finds that acid sulfate soils will be affected by the development, then an Acid sulfate soil management plan is to be prepared in accordance with SC6.2.4 (Acid sulfate soils management plan).

SC6.2.4 Acid sulfate soils management plan

SC6.2.4.1 Purpose of an Acid sulfate soils management plan

(1) An Acid sulfate soils management plan is required to:

(a) explain how acid sulfate soils will be managed on the site to minimise or prevent harm to the environment or to constructed assets; and

(b) provide information and guidance to support the outcomes required by the Acid sulfate soil overlay code.

SC6.2.4.2 Preparation of an Acid sulfate soils management plan

(1) An Acid sulfate soil management plan is to include at a minimum:

(a) a two-dimensional map of the actual or potential acid sulfate soils to the depth of disturbance;

(b) details that reflect potential on-site and off-site impacts of the disturbance on the soil and the groundwater levels;

(c) the methods that will be used to avoid, treat or otherwise manage acid sulfate soils, including the contained on-site management and treatment of potential and actual acid sulfate soils;

(d) the details of any pilot project or field trial to be undertaken to prove the effectiveness of any new technology or innovative management practice being proposed;

(e) details of the management of the height of the groundwater table on-site and off-site both during and after construction;

(f) details of all soil and water monitoring, both manual and automated, to be performed during and after treatment, and including verification testing of soils;

(g) details of the handling and storage of neutralising agents;

(h) details of contained on-site treatment and management of potentially contaminated stormwater run-off, and leachate including details of groundwater management associated with the works both in the short and long term;

(i) a description of contingency measures to be implemented on and off the site if the management procedures prove to be unsuccessful and acid is generated or leachate problems occur; and

(j) details of the treatment and management of surface drainage waters for disturbed acid sulfate soils.

(2) The Acid sulfate soil management plan is to provide for the ongoing management and monitoring of impacts of acid sulfate soil material throughout the construction and operation of the project and describe the construction schedules and environmental management procedures.

(3) The development is to be staged so that the potential impact of any area disturbed at any one time is limited and easily managed. Documentation containing the schedule of monitoring is to be made available for Council inspections.

(4) Action is to be taken to prevent or minimise any adverse impacts on surface water, groundwater, the site and surrounding areas. These actions are to be documented in the acid sulfate soil management plan and include:

(a) objectives and outcomes;

(b) management measures;

(c) performance indicators;

(d) elements to be monitored;

(e) a monitoring schedule;

(f) contingency plans;

(g) responsibilities;

(h) reporting and review requirements; and

(i) training arrangements.

SC6.2.5 Ecological assessment report

SC6.2.5.1 Purpose of an Ecological assessment report

(1) An Ecological assessment report is required to:

(a) quantify the matters of environmental significance on a particular site;

(b) ensure appropriate methods are implemented to appropriately protect, manage or restore matters of environmental significance on the site; and

(c) provide information and guidance to support the outcomes required by the Environmental significance overlay code and Waterways and wetlands overlay code.

SC6.2.5.2 Undertaking an Ecological assessment report

(1) An Ecological assessment report is to incorporate a tree survey plan in accordance with SC6.2.5.3 (Preparation of a Tree survey plan), which identifies all the trees on the development site.

(2) Prior to any field survey work commencing, records are to be investigated to identify likely regional ecosystems, flora, and fauna species (including weed and pest animal species) which may occur on the site or on adjoining lands within a one kilometre radius of the site. Records to be investigated include:

(a) research reports;

(b) local knowledge (such as from local catchment and environment groups);

(c) databases, such as the Council and Queensland Government regional ecosystem mapping, and flora and fauna records held by the Queensland Government (Wildnet), Queensland Museum and Queensland Herbarium; and

(d) published literature.

(3) The field survey is to assess the presence or likely presence of ecological features, significant vegetation communities, and flora and fauna species (including weed and pest animal species) on the site. Specifically, it should:

(a) incorporate coverage of all major habitat types on the site;

(b) use survey techniques suited to a diversity of flora and fauna; and

(c) consider seasonal variations, survey duration and climatic conditions.

(4) Ecological features and processes are essential to the conservation of biodiversity and the maintenance of ecosystem services. Some examples of ecological features and processes which need to be identified on or adjoining the site are:

(a) areas that contain nationally and internationally important flora, fauna, ecological communities and heritage places as identified in the *Environment Protection and Biodiversity Conservation Act 1999*;

(b) areas declared as Fish Habitat Areas under the *Fisheries Act 1994*;

(c) areas prescribed under the *Nature Conservation Act 1992*, including areas subject to an Interim Conservation Order and areas subject to a conservation plan;

(d) areas identified as having conservation significance under the *Coastal Protection and Management Act 1995*;

(e) important habitat features or evidence of fauna species, such as trees supporting scratch marks and hollows, stags, scats, tracks and other traces, fruit and seed falls, fauna trails, fallen logs, termite mounds, ground diggings, rock outcrops, nests in banks and roost, nest and den trees;

(f) areas that would be suitable for habitat restoration, consolidating any existing habitat on site or on adjoining sites.

(5) To identify flora and vegetation communities, plot or transect-based survey methods are to be used when establishing a flora species inventory, weed survey, or searching for significant flora species. All vegetation communities, including wetlands and, within these, all microhabitats (such as dry gullies) are to be identified. The regional ecosystem type is to be classified and the age, structure, composition and condition of the vegetation is to be assessed. Plans and literature may also have flora and fauna records.

(6) For fauna surveys, a minimum of 4 days and 4 nights of survey time are recommended to minimise any sampling duration influences within any given sampling period. Regard must also be had for any migratory species which may not be present but habitually use the location. In circumstances where less sampling effort is proposed, appropriate justification is to be provided in the ecological assessment report. The biodiversity survey principles to be considered when undertaking a fauna survey include:

(a) survey methodology which accounts for habitat diversity and species requirements;

(b) survey design to minimise factors which may reduce the quality of the survey results;

(c) data is collected in a consistent format; and

(d) ecological investigations in accordance with best-practice research ethics.

(7) Fauna data is to be supported by the start and end dates of the survey, coordinates of the survey location, scientific and common name of identified species and the location precision.

(8) Identify any existing impacts or threatening processes to the ecological features, vegetation communities (regional ecosystems) and flora and fauna species on the site.

(9) Outline the likely impacts of development on the ecological features and flora and fauna species. Examples of spatial and temporal impacts from development include:

(d) loss or fragmentation of habitat;

(e) decrease or change in structure, composition, complexity and connectivity of vegetation;

(f) increased edge effects, such as noise and light;

(g) earthworks and installation of infrastructure, such as retaining walls, paths, roads, stormwater treatment devices;

(h) weed and pest animal invasion;

(i) changes to fire risks and regimes;

(j) changes to flow regimes, nutrients, sediment and pollutant loads;

(k) barriers to safe wildlife movement such as roads or fences; and

(l) introduction of domestic animals.

SC6.2.5.3 Preparation of a Tree survey plan

(1) A Tree survey plan forms part of the Ecological assessment report (SC6.2.5.4 Preparation of an Ecological assessment report) and involves identifying, assessing and surveying all trees on a site and provides a description of the site and the proposed works.

(2) The Tree survey plan comprises a map and a supporting table or report outlining the location and other attributes of trees located on the site. It is to incorporate the following information:

(a) a scaled tree survey map overlaid on the development layout, identifying the location of:
- (i) individual trees, ensuring each tree is numbered and the area of the canopy spread is shown indicatively;
- (ii) those trees proposed for retention;
- (iii) those trees proposed for removal; and
- (iv) any tree protection zones;

(b) a table which includes:
- (i) the number for each tree identified on the tree survey map;
- (ii) tree species (botanical and common names);
- (iii) height;
- (iv) diameter at breast height;
- (v) canopy spread (in square metres);
- (vi) condition/health;
- (vii) evidence of fauna use or habitat value including scratch marks, hollows, nests, termites and scats;
- (viii) trees to be removed or root zones to be impacted; and
- (ix) trees to be retained;

(c) photographs of the site, key tree species and evidence of fauna use, where relevant; and

(d) any other supporting information provided by a qualified arborist.

SC6.2.5.4 Preparation of an Ecological assessment report

(1) The Ecological assessment report informs the design of the development layout and footprint and is to be completed prior to the development design and layout.

(2) The level of detail contained within the Ecological assessment report will vary, reflecting the nature of the development and site attributes. The report is to include at a minimum:

(a) a description of the methodology used to complete the assessment:
- (i) provide a full description of the field survey methodology used and assumptions made;

(ii) detail all background investigations undertaken including literature reviewed, and recognised specialists, authorities and local naturalists consulted or referenced; and

(iii) reports that rely primarily on desktop research with little or no field-based work are not acceptable;

(b) a description and map of the ecological features and processes, vegetation communities and flora and fauna species of the site and adjacent lands will at a minimum:

(i) identify and detail ecological features and provide a map displaying the location and extent of the ecological features. This is referred to as an ecological features map. Appropriate photographs and figures will enable the identification and location of ecological features on the ground;

(ii) in addition to identifying ecological features, the Ecological Features map is also to include:

(A) 1m contours for the existing site topography;

(B) areas included in the Environmental significance overlay map;

(C) location of waterway corridors and wetlands as shown on the Waterway and wetlands overlay map;

(D) existing buildings and infrastructure such as roads or sewer lines; and

(E) nature and extent of any vegetation protected under the *Vegetation Management Act 1999*;

(iii) describe key ecological processes occurring on the site and adjacent lands;

(iv) include appropriate photographs, figures and maps that will enable the identification and location of ecological features on the ground;

(v) accurately map and describe the vegetation communities, (remnant and non-remnant vegetation) in the site and on adjacent lands. Include details such as age, structure, composition and condition of vegetation communities on the site and on adjacent lands;

(vi) describe and map accurately the terrestrial and aquatic flora species and vegetation communities (including details such as age, structure, composition, condition, State/national significance and regional ecosystem status) in the site and on adjacent lands. A table outlining the location and attributes of trees on the development site should also be provided;

(vii) document and describe the presence of any flora species listed as threatened under Commonwealth or State legislation;

(viii) provide any past flora and fauna records of the site and adjoining lands within a 1km radius of the site. Records include research reports, local knowledge and databases, such as the Queensland Museum and Queensland Herbarium records;

(ix) identify terrestrial and aquatic fauna species present or likely to be present within the site and adjacent lands;

(x) prepare an appropriately scaled map identifying the location of key habitat features or evidence of fauna species, including trees supporting scratch marks and hollows, stags, fruit and seed falls, fauna trails, fallen logs, termite mounds, ground diggings, rock outcrops, nests in banks and roost, nest and den trees; and

(xi) document and describe the presence of any fauna species.

(c) document potential development impacts on ecological features and processes including:

(i) an outline of the proposed development:

(A) nature of the land use;

(B) the extent of the development footprint and details of the site layout; and

(C) development design including the building height in metres, location of any outdoor lighting, audio systems or other noise generating activities;

(ii) identification of the proposed hours of operation if non-residential including:

(A) the number of people anticipated on site at various times during the day and night; and

(B) the number and type of vehicle movements anticipated on site during the ongoing operation phase;

(iii) for the construction phase, details of the sequence of any proposed vegetation clearing, type of construction machinery and proposed barriers to restrict site access to ecologically sensitive areas;

(iv) differentiation between the impacts likely to occur during the construction of the development versus those impacts resulting from the ongoing operation of the development (including cumulative impacts of the development); and

(v) details of potential spatial (on-site and off-site) and temporal (short- and long-term) direct and in-direct impacts from the development on flora and fauna species and vegetation communities, including consideration of the construction and operational phases of the development. Specifically discuss the likely consequences of the identified impacts for the site and adjacent lands;

(vi) the degree of confidence with which the impacts of the action are known and understood;

(d) detail how the layout of the development avoids impacts to the ecological features and processes and significant flora and fauna species and outline the impact mitigation measures that will be undertaken to reduce the impacts to ecological features and processes by:

(i) clearly demonstrating how the proposed mitigation strategies will enable the development to meet the nature conservation obligations as described in the relevant statutory planning mechanisms; and

(ii) providing information about development designs to mitigate impacts to ecological features and processes, such as:

(A) protecting ecological connectivity;

(B) enhancing habitat extent and condition; and

(C) rehabilitating degraded areas.

SC6.2.6 Vegetation management plan

SC6.2.6.1 Purpose of a Vegetation management plan

(1) A Vegetation management plan is required to ensure appropriate methods are implemented to appropriately protect against, manage or restore the disturbance of vegetation before, during and after construction works on a site.

(2) A Vegetation management plan may be required prior to or as a condition of a development approval; in which case it is required to be lodged before the commencement of site works or any interference with vegetation.

SC6.2.6.2 Preparation of a Vegetation management plan

(1) A Vegetation management plan is to comprise a plan of layout and supporting text.

(2) The plan of layout is to include the following standard features as a minimum:

(a) cadastral and property boundaries and dimensions adequate to interpret the plan;

(b) layout of development, including existing and proposed alignments of services and infrastructure;

(c) location and description of vegetation to be retained, cleared and restored, including drainage lines, waterway corridors, wetlands and other ecological features;

(d) location of protective fences or other vegetation protection measures such as designated vehicle access, signage, tree guards and retaining clumps of trees for wind and storm protection;

(e) contours (including areas for proposed filling and excavation);

(f) location and type of erosion measures;

(g) location of dedicated work areas including stockpile and disposal sites; and

(h) location of machinery access ways.

(3) The supporting text is a critical component of a Vegetation management plan and reports on the four main steps of vegetation management processes, namely:

(a) project management;

(b) vegetation protection;

(c) clearing and disposal; and

(d) rehabilitation and maintenance.

(4) Each step is presented in Table SC 6.2.6.2.1 (Vegetation management plan preparation) with suggested approaches as to how to achieve the key aims and outcomes.

Table SC 6.2.6.2.1 Vegetation management plan preparation

Key aims or outcomes	Suggested approach
A. Project Management	

• To formulate and implement vegetation management actions. • To clearly identify objectives, methods and reporting lines. • To inform all relevant people, companies and workers of their responsibilities.	• Vegetation management plan to be prepared in conjunction with engineering requirements. • Vegetation management to be an integral part of the construction and operational phases. • Nominate a person with responsibility for overseeing development works (such as the site supervisor), a person responsible for implementing vegetation management plan actions on site, and a person for point-of-contact for the Council. • Instruct all workers and contractors as to their role in vegetation management. • Provide the method of assessing compliance with the vegetation management plan.
B. Vegetation protection	
• To effectively protect vegetation during construction and operational phases.	• Identify vegetation for removal and protection on a vegetation retention plan. • Refer to appropriate Australian Standards e.g. AS 4970-2009 (Protection of trees on development sites), and AS 4373-2007 (Pruning of amenity trees). • Implement vegetation protection measures during construction. These commonly include designated vehicle access ways, signage, protective barrier fences, silt fences, tree guards and dedicated work areas. Establish these measures prior to works commencing and maintain the measures throughout the construction phase. • Protect the root zones of individual trees or clumps of trees from compaction, filling, stockpiling or excavation. Refer to AS 4373-2007 (Pruning of amenity trees). • Identify a replacement formula for trees which are damaged.
C. Clearing and disposal	
• To minimise the adverse impacts of vegetation clearance. • To maximise recycling or re-use of cleared vegetation. • To minimise the impacts on existing fauna.	• Clearly identify and indicate on a plan the area of vegetation proposed to be cleared in relation to tree protection zones and structural root protection zones. • Use clearing methods that will not damage adjacent protected vegetation and that will minimise soil profile disturbance. Match the type of equipment to be used with the specific clearing task. There are many options available, including excavator-mounted hydraulic grabs etc. • Recycle cleared vegetation for re-use on or off site. Recycling techniques include mulching, tub-grinding, wood chipping

	and salvage. Do not recycle weed materials as this has potential to spread weed propagules. • Obtain advice from a qualified arborist when work is proposed within the tree protection zone. • Clear vegetation sequentially to allow for natural retreat of fauna. • Employ a suitably qualified fauna spotter and a fauna catcher during the vegetation clearing and disposal phase of the project.
D. Rehabilitation and maintenance	
• To restore and enhance areas in the post- construction phase. • To maximise survival opportunities for areas of retained vegetation and newly rehabilitated areas.	• Use species native to the site, including species known to provide food and habitat for native fauna or those species identified in SC6.4.5 (Planting species list). • Use a mix of species which replicate all strata in the nominated Regional Ecosystem that was originally on site pre-clearing. • Use species to augment the functioning of ecological corridors and nodes through the site. • Do not use plants that will compete with or displace existing local native species, or that have the potential to become new and emerging weed species. • Specify a maintenance program in the Vegetation management plan to ensure the long-term health and vigour of retained vegetation and healthy growth of new plantings, including specified growth targets. Give details on mulching, watering and fertiliser regimes, regular inspection schedules for damage or disease, replacement planting criteria and weed control measures.

SC6.3 Heritage planning scheme policy

SC6.3.1 Introduction

SC6.3.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy provides:

(a) information the Council may request for a development application; and

(b) guidance or advice about satisfying an assessment benchmarks which identifies this planning scheme policy as providing that guidance or advice.

Note – This planning scheme policy does not remove obligations under the *Queensland Heritage Act 1992* for places identified on the Queensland Heritage Register.

SC6.3.1.2 Purpose

(1) The purpose of this planning scheme policy is to provide information, guidance and advice for satisfying the assessment benchmarks for the preparation of a site specific:

(a) Heritage impact assessment report;

(b) Heritage management plan; and

(c) Archaeological management plan.

SC6.3.1.3 Heritage overlay mapping

(1) Heritage overlay mapping has been prepared for the local government area, showing the areas of local and state heritage significance. This mapping has been prepared in accordance with the requirements of the SPP. The specific overlay to which this PSP applies is:

(a) Heritage overlay code. Mapping:

(i) identifies the State heritage place and Local heritage place features.

SC6.3.2 Requirements of heritage documentation

(1) Heritage documentation to be prepared in a clear and concise manner, consistent with the elements identified in Table SC 6.3.2.1 (Requirements of heritage documentation) below, as well as any specific requirements identified in the relevant sub-sections of this report.

Table SC 6.3.2.1 Requirements of heritage documentation

Documentation	Preparation	Report requirements
Heritage impact assessment report	• Prepared by a suitably qualified professional with tertiary qualification in an area related to heritage conservation and appropriate technical expertise in the field of cultural heritage identification and mitigation. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Heritage impact assessment report may be requested to provide additional information to Council. • A site specific Heritage impact assessment report is to be prepared in accordance with: a) SC6.3.3 (Heritage impact assessment report); b) the Burra Charter: The Australian ICOMOS Charter for places of cultural heritage significance (1999); and c) the *Aboriginal Cultural Heritage Act 2003*. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Heritage management plan	• Prepared by a suitably qualified professional with tertiary qualification in an area related to heritage conservation and appropriate technical expertise in the field of cultural heritage identification and mitigation. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Heritage management plan may be requested to provide additional information to Council. • A site specific Heritage management plan is to be prepared in accordance with: a) SC6.3.4 (Heritage management plan); b) the Burra Charter: The Australian ICOMOS Charter for places of cultural heritage significance (1999); and c) the *Aboriginal Cultural Heritage Act 2003*. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Archaeological management plan	• Prepared by a suitably qualified professional with tertiary qualification in archaeology and appropriate technical expertise in the surveying, identification, recording, assessment and	• A site specific Archaeological management plan may be requested to provide additional information to Council. • A site specific Archaeological management plan is to be prepared in accordance with:

	evaluation archaeological sites. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	c) SC6.3.5 (Archaeological management plan); d) Guideline: Archaeological investigations, DEHP, 2013. e) the Burra Charter: The Australian ICOMOS Charter for places of cultural heritage significance (1999); and f) the *Aboriginal Cultural Heritage Act 2003*. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.

SC6.3.3 Heritage impact assessment report

SC6.3.3.1 Purpose of a Heritage impact assessment report

(1) A Heritage impact assessment report is required to:

(a) quantify the extent and severity of potential damage to or impacts on a Heritage place; and

(b) provide information and guidance to support the outcomes required by the Heritage overlay code.

SC6.3.3.2 Preparation of a Heritage impact assessment report

(1) A Heritage impact assessment report is to include at a minimum:

(a) a description of the history of the place and a description of the place (including any relevant components, contents, spaces and views that contribute to the significance of the place noted in the Place Card);

(b) a review of the Statement of Significance of the place;

(c) reference to an existing Conservation management plan or Archaeological management plan and the management policies included in either plan (if available);

(d) plans or some form of documentation that illustrate the development plan and site layout;

(e) a heritage impact statement (based on the principles of the Burra Charter: The Australian ICOMOS Charter for places of cultural heritage significance), including:
   (i) photographs of the Heritage place;
   (ii) the identification of the aesthetic, architectural, historical, scientific and social or technological significance; and
   (iii) the demonstration that proposed development conserves, or minimises the impact on, the significance of the place and, if relevant, reflects the management policies contained in the Conservation management plan or Archaeological management plan;

(f) if it is determined that the proposed development will impact the significance of the place, information must be provided to demonstrate why the change is required, what options were considered and what measures are provided to reduce the detrimental impact that may result from the change; and

(g) list any references used in the production of the statement and any relevant technical information or correspondence from government departments.

SC6.3.4 Heritage management plan

SC6.3.4.1 Purpose of a Heritage management plan

(1) A Heritage management plan is required to:

(a) identify the strategies and management techniques a development is to implement to mitigate or reduce adverse impacts on a Heritage place as a result of development; and

(b) provide information and guidance to support the outcomes required by the Heritage overlay code.

SC6.3.4.2 Preparation of a Heritage management plan

(1) A Heritage management plan is to include at a minimum:

(a) an outline of the significance of the place, the conditions of approval for development to a Heritage place and particular requirements to manage the significance of the place during development, including where necessary an archival recording of the place where demolition or removal is required;

(b) a description of the extent of the heritage boundary and the specific heritage features within the boundary;

(c) an outline of the requirements for the management of any approved works within sensitive areas, including:
   (i) council conditions of approval for the work;
   (ii) work method statements for work requiring particular care and attention to appropriate conservation methods; and
   (iii) training of contractors, including 'tool box talks';

(d) an assessment of the risk inherent in particular activities to the significance of the place and appropriate mitigation and/or monitoring responses; and

(e) a procedure for the incidental discovery of items of potential cultural heritage significance, including archaeological artefacts.

SC6.3.5 Archaeological management plan

SC6.3.5.1 Purpose of an Archaeological management plan

(1) An Archaeological management plan is required to:

(a) provide additional information regarding the extent and severity of ground-breaking activities on a site;

(b) identify the management activities which will be undertaken to reduce adverse impacts as a result of development that has been identified as an archaeological place; and

(c) provide information and guidance to support the outcomes required by the Heritage overlay code.

SC6.3.5.2 Preparation of an Archaeological management plan

(1) An Archaeological management plan is to be prepared in accordance with Table SC6.3.2 (Requirements of heritage documentation) and include at a minimum:

(a) descriptions of the significant archaeological features and artefacts of a place, or the potential for archaeological features and artefacts to be present, and the proposed methodology to manage impacts on the features and artefacts during approved ground-breaking activity, including the procedure to manage unexpected discoveries;

(b) outline of the methodology for evaluating the extent, nature and integrity of the site and its significance should ground breaking activities be unavoidable;

(c) definitions of the appropriate management measures for the site, having regard to its potential significance, inclusive of the establishment of any ground disturbance exclusion zones and/or monitoring areas;

(d) specification of the process for dealing with new/unexpected finds of an archaeological nature resulting from ground-breaking activities, including advising Council of any such discovery; and

(e) an outline of the process for the curation and long-term ownership and management of any archaeological material collected as a result of development activities within the curtilage of a Heritage place that has been identified as an archaeological place.

SC6.4 Landscaping planning scheme policy

SC6.4.1 Introduction

SC6.4.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy provides:

(a) information the Council may request for a development application; and

(b) guidance or advice about satisfying an assessment benchmarks which identifies this planning scheme policy as providing that guidance or advice.

SC6.4.1.2 Purpose

(1) The purpose of this planning scheme policy is to provide information, guidance and advice for satisfying the assessment benchmarks for the preparation of a site specific:

(a) Landscaping plan;

(b) Landscaped separation buffer plan; and

(c) Planting species list.

SC6.4.2 Requirements of landscaping documentation

(1) Landscaping documentation to be prepared in a clear and concise manner, consistent with the elements identified in Table SC 6.4.2.1 (Requirements of landscaping documentation) below, as well as any specific requirements identified in the relevant sub-sections of this report.

Table SC 6.4.2.1 Requirements of landscaping documentation

Documentation	Preparation	Report requirements
Landscaping plan	• Prepared by a suitably qualified professional with appropriate technical expertise in landscape architecture, horticulture or similar • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Landscaping plan may be requested to provide additional information to Council. • A site specific Landscaping plan is to be prepared in accordance with a) SC6.4.3 (Landscaping plan); b) SC6.4.5 (Planting species list); and c) SC6.8 (WRC development manual).
Landscaped separation buffer plan	• Prepared by a suitably qualified professional with appropriate technical expertise in the identification and mitigation of agricultural or industrial impacts or the design of landscaped buffers. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific landscaped separation buffer plan may be requested to provide additional information to Council. • A site specific Landscaped separation buffer plan is to be prepared in accordance with a) SC6.4.4 (Landscaped separation buffer plan); b) SC6.4.5 (Planting species list); and c) SC6.8 (WRC development manual).
Planting species list	-	-

SC6.4.3 Landscaping plan

SC6.4.3.1 Purpose of a Landscaping plan

(1) A landscaping plan is required to:

(a) identify the suitable purposes and specifies plants recommended to be established on the site; and

(b) ensure appropriate methods and management activities are implemented to ensure survival of vegetation; and

(c) provide information and guidance to support the outcomes required by the Landscaping code.

SC6.4.3.2 Preparation of a Landscaping plan

(1) A Landscaping plan is to include a plan of layout and supporting text.

(2) A description and dimensioned site plan (drawn to an appropriate metric scale) is to include at a minimum:

(a) the project description and location;

(b) landscape architect / designer's name and contact details;

(c) the date on which the plan was prepared together with a plan number which clearly identifies the plan and any amendments thereof;

(d) the location of property boundaries, road alignments and street names;

(e) the location of underground and overhead services, including drainage, sewerage, power lines, electricity, telephone and gas;

(f) the location, botanical name and size of existing trees and shrubs and intended retention or removal of these plants to be clearly nominated;

(g) contours and spot levels, both existing and proposed to all surfaces, including levels at the base of all existing vegetation to be retained, and surface levels of paved areas and access covers;

(h) location and design of proposed stormwater drainage works including direction of overland flow, location of field inlets (as required) and methods to ensure erosion control;

(i) details of the location of any earth cuts, fills or mounds within landscaped areas and details of proposed measures to ensure stability, including location, height and materials of retaining walls;

(j) location of all existing and proposed buildings, landscape structures, storage areas, pathways, driveways and parking areas, outdoor furniture (where relevant e.g. centres) and fencing;

(k) details including design, materials used and colours of proposed edging, surface treatments, fencing, pergolas and raised gardens;

(l) location and nature of all proposed vegetation including:
   (i) a graphic code/key (as nominated on the plan);
   (ii) scientific or botanical names of plants;
   (iii) common names of plants (not essential);

(iv) spread at maturity;
(v) height at time of planting (measured from pot soil level to top of growing tip) (not essential);
(vi) crown width at time of planting (not essential); and
(vii) quantity of each species used;

(m) evidence of measures taken for conservation, protection and maintenance of sites which have environmental, ecological, cultural, architectural, historic, scenic, visual, streetscape or scientific significance; and

(n) a maintenance plan, detailing the intended arrangements for maintenance of the landscaping, and the conservation, protection and maintenance of significant sites, including at a minimum, the schedule for:
(i) weed control;
(ii) irrigation and watering;
(iii) plant maintenance and pruning; and
(iv) fertilizer management.

SC6.4.4 Landscaped separation buffer plan

SC6.4.4.1 Purpose of a Landscaped separation buffer plan

(1) A landscaped buffer plan is required to:

(a) achieve appropriate separation between:
  (i) sensitive land uses and Rural, Special industry or High impact industry zones; or
  (ii) major infrastructure elements (such as State-controlled roads) and sensitive uses; or
  (iii) environmentally significant areas or edges of existing Native vegetation from development;

(b) ensure appropriate mitigation methods and management activities are implemented to reduce the potential conflict between incompatible uses; and

(c) provide information and guidance to support the outcomes required by the Landscaping code, Reconfiguring a lot code and the Agricultural land overlay code.

SC6.4.4.2 Preparation of a Landscaped separation buffer plan

(1) A Landscaped separation buffer plan is to include a plan of the layout and supporting text.

(2) A description and dimensioned site plan (drawn to an appropriate metric scale) is to include at a minimum:

(a) the project description and location;

(b) landscape architect / designer's name and contact details;

(c) the date on which the plan was prepared together with a plan number which clearly identifies the plan and any amendments thereof;

(d) the location of property boundaries, road alignments and street names;

(e) consideration and descriptions of the existence and location of surrounding land uses. The development should be in a position which will not result in the potential for land use conflict between neighbouring land uses;

(f) consideration of the nature of the buffer. Buffer areas may be temporary and can be reserved for public open spaces or further residential development once conflicting land use has ceased. Residential subdivision applications may contain mandatory identified buffer areas for development unless the development occurs after neighbouring agricultural activities have ceased;

(g) the extent of the buffer area, the location and spacing of the trees and shrubs with the provision of a list of tree and shrub species, having regard to the type of buffer required.

(10) Separation buffers are to be provided between sensitive uses or any part of a lot included in a Residential zone, Emerging community zone or Rural residential zone and Rural or Industry zones. This buffer may be provided in the form of a landscaped separation buffer (distances set out in Table SC 6.4.4.2.1) or as an open space separation buffer (distances set out in Table SC 6.4.4.2.2).

(a) To be effective, a landscaped separation buffer is to meet the following criteria:
  (i) be located as close as practicable to the point of release of the spray;
  (ii) not be located on land used for a Rural activity;
  (iii) provide a minimum landscaped separation distance in accordance with the dimensions of Table SC 6.4.4.2.1 (Landscaped separation buffer distances).

Table SC 6.4.4.2.1 Landscaped separation buffer distances

Zone/Existing Use	Total landscaped separation buffer distance (including fire break)
Rural zone	40m
Low impact industry zone	
Medium impact industry zone	
Waterfront and marine industry zone	
Low impact industry use	
Marine industry use	
Medium impact industry use	
Research and technology industry use	
Service industry use	
Warehouse use	
High impact industry zone	50m
High impact industry use	
Special impact zone	60m
Special industry use	

  (iv) provide a 10m cleared fire break area on either side of a vegetated strip (this fire break area is included within the total width of the landscaped separation buffer. Where the total width of landscaped separation buffer is 40m, 10m cleared area is located either side of a 20m wide vegetated area).
  (v) the vegetated area is to be comprised of a minimum of three rows ensuring there is foliage from base to crown with no gaps in the lower canopy:
    (A) rows 1 and 3 are composed of short to medium sized tree species; and
    (B) row 2 is composed of taller tree species.
  (vi) contain random plantings of a variety (at least 3) of tree and shrub species of differing growth habits, at a spacing of 2.5m and listed in Table SC 6.4.5.2.3 (Large screening shrubs and windbreaks) of PSP SC6.4.5 (Planting species list);
  (vii) provide a permeable barrier which allows air to pass through the buffer. A porosity of 0.5 is acceptable (that is, approximately 50% of the screen should be air space);
  (viii) have a mature tree height of 1.5 times the spray release height or target vegetation height, whichever is the highest;
  (ix) have mature height and width dimensions which do not detrimentally impact upon adjacent cropped land;
  (x) be planted in accordance with PSP SC6.8 (WRC development manual);
  (xi) be contained within a legal covenant which outlines maintenance requirements; and
  (xii) will not be considered operational until the trees reach the minimum effective height to control spray drift (1.5 times the spray release height or target vegetation height, whichever is the highest). Until then the landscaped separation buffer is to be maintained in line with a scheduled maintenance plan. The maintenance plan is to include at a minimum a schedule for:

(A) weed control;
(B) irrigation and watering;
(C) plant maintenance and pruning; and
(D) fertilizer management.

(xiii) Residential areas should not be developed within 300metres of the incompatible land uses until the buffer is considered as operational;

Note –

(1) The precise design of the buffer will depend on many different factors including the chemicals used, method of application, the site, the proposed land-uses and the adjacent or nearby land uses and characteristics including road reserves and existing vegetation; and

(2) Natural geographical features (watercourses and ridge lines), public open spaces, road reserves etc. can be incorporated into meeting the required distances.

(b) To be effective, an open space buffer is to meet the following criteria:
(i) be located as close as practicable to the point of release of the spray;
(ii) not be located on land used for a Rural activity; and
(iii) provide a minimum open space separation distance in accordance with Table SC 6.4.4.2.2 (Open space separation distances).

Table SC 6.4.4.2.2 Open space buffer distances

Industry	Open Space
Sugarcane	300m
Small Crops	300m
Orchards	300m
Grazing	60m

(11) Landscaped separation buffers between major infrastructure elements (such as State-controlled roads) and sensitive uses or between environmentally significant areas or edges of existing native vegetation and development are to meet the following criteria:

(a) earth mounding is provided where necessary to achieve satisfactory attenuation, visual screening or land use separation;

(b) selected plant species are appropriate to the location, drainage and soil type; meet the buffer's functional requirements and require minimal ongoing maintenance;

(c) plant selection includes a range of species in accordance with the SC6.4.5 (Planting species list) to provide variation in form, colour and texture to contribute to the natural appearance of the buffer;

(d) planting density results in the creation of upper, mid and understorey strata with:
(i) large trees planted at 6m centres;
(ii) small trees planted at 2m centres;
(iii) shrubs planted at 1m centres;
(iv) one plant per 1m along each row;
(v) each row being 3m apart;
(vi) a minimum of six species used in the buffer with a maximum species of 2 species of shrubs; and
(vii) tufting plants, vines and groundcovers are planted at 0.5m to 1m centres;

(e) where adjoining the edge of native vegetation or waterway understorey, shrubs and vines are used to bind appropriately the buffer edges against degradation and weed infestation; and

(f) is maintained in line with a scheduled maintenance plan until reaching its growth maturity. The maintenance plan is to include at a minimum a schedule for:
   (i) weed control;
   (ii) irrigation and watering;
   (iii) plant maintenance and pruning; and
   (iv) fertilizer management.

SC6.4.5 Planting species list

SC6.4.5.1 Purpose of the planting species list

(1) The purpose of this planting species list is to:

(a) identify suitable species of plants for establishing within the region; and

(b) identify suitable purposes for the species of plants recommended.

SC6.4.5.2 Planting species list

(1) It should be noted that plants have been categorised according to their most likely purpose, but some will be multipurpose, for example most street trees can also be used in parks, and some of the smaller, compact street or park trees will also be useful screening plants.

(2) The Planting species list contains the following recommended species:

Table SC 6.4.5.2.1 Verge/street trees plant list

Species	Common name	Wet/Dry	Height (m)	Locally Available
Acacia leptostachya	Townsville Wattle	D	2-5	
Acacia oraria	Coastal Wattle	W/D	5-10	Y
Acmena smithii	Lilly pilly	W	5-10	
Alphitonia excelsa	Red Ash	W	8-10	Y
Brachychiton acerifolius	Flame tree	W	10-15	Y
Brachychiton australis	Broad-leaved Bottle Tree	D	6-10	
Callistemon viminalis	Weeping Bottlebrush	W/D	8-18	Y
Cassia brewsteri syn Senna brewsteri	Leichardt Bean	W/D	2-8	
Cassia tomentella	Velvet Bean tree	W/D	6-12	Y
Chionanthus ramiflora	Native Olive	W	3-5	Y
Cupaniopsis anacardioides	Tuckeroo	W/D	15-25	Y
Cupaniopsis wadsworthii	Cut leaf tuckeroo	W	3-5	Y
Diploglottis obovata	Blunt Leaved Tamarind	W	5-10	Y
Evodiella muelleri	Little pink evodia	W	5-10	Y
Gossia bidwillii	Python wood	W	5-10	
Grevillea baileyana	Scrub Beefwood	W/D	10-15	
Harpulia hillii	Tulipwood	W	10-20	Y
Harpulia pendula	Tulip wood	W	10-20	Y
Hymnosporum flavum	Native frangipani	W	5-12	
Larsenaikia jardinei	Shiny Leaved Larsenaikia	W/D	10-15	Y
Lysiphyllum hookeri	White Bauhinia	D	4-8	
Petalostigma pubescens	Quinine Berry	D	5-10	
Pittosporum ferrugineum	Rusty Pittosporum	W	8-10	Y
Planchonia careya	Cocky apple	W/D	8-15	Y
Randia fitzlanni	Native Gardenia	W/D	5-10	Y
Syzigium australe	Lilly pilly	W	5-12	Y
Syzigium luehmanni	Lilly pilly	W	5-12	
Syzigium paniculatum	Magenta Lilly Pilly	W	10-15	
Xanthostemon chrysanthus	Golden penda	W	8-20	Y

Table SC 6.4.5.2.2 Large and/or park trees plant list

Species	Common name	Wet/Dry	Height (m)	Locally Available
Alphitonia petriei	Pink Ash	W	10-25	Y
Auranticarpa rhombifolia	Diamond Leaf Pittosporum	W	20-25	
Arytera divaricata	Gap Axe	W	30-35	
Alstonia scholaris	Milky pine	W	15-30	Y
Agathis robusta	Qld Kauri	W	20+	
Araucaria cunninghammii	Hoop pine	W/D	20-30	
Backhousia citriodora	Lemon Ironwood	W	5-10	Y
Brachychiton acerifolius	Flame tree	W/D	10-15	Y
Brachychiton compactus	Whitsunday bottle tree	W/D	10-20	Y
Cassia brewsteri	Brewsters Cassia	W/D	6-12	
Cassia tomentella	Velvet Bean tree	W	6-12	Y
Casuarina cunninghamiana	River She-oak	W/D	10-30	Y
Cordia subcordata	Orange cordia	W	8-15	
Corymbia tessellaris	Moreton Bay Ash	W/D	10-30	Y
Cupaniopsis anacardioides	Tuckeroo	W/D	15-25	Y
Commersonia bartramia	Brown Kurrajong	W	12-20	
Elaeocarpus grandis	Blue Quandong	W	20-30	Y
Elaeocarpus obovatus	Hard Quandong	W	30-40	
Eucalyptus raveretianna	River Black Butt, Black Ironbox	W/D	18-25	Y
Eucalyptus tereticornis	Blue Gum, Forest Red Gum	W/D	20-30	Y
Euroschinus falcata	Ribbonwood, Pink Poplar	W/D	20-30	Y
Flindersia australis	Crows Ash	W	15-25	Y
Flindersia schottiana	Bumpy Ash	W	25-40	Y
Harpulia hillii	Tulipwood	W	10-20	Y
Harpulia pendula	Tulip wood	W	10-20	Y
Jagera pseudorhus	Pink tamarind, Foambark	W	6-10	Y
Lophostemon confertus	Brush box	W	20-30	Y
Mallotus philippensis	Red Kamala	W	10-20	Y
Melaleuca dealbata	Blue tea tree	W	12-25	Y
Melaleuca leucadendra	Weeping paperbark	W/D	20-30	Y
Melaleuca quinquenervia	Broad-leaved Paperbark	D	15-20	
Millettia pinnata	Pongamia	W/D	8-20	Y
Melicope elleryana	Pink Euodia	W	15-30	Y
Mimusops elengi	Spanish cherry	W/D	15-18	Y
Nauclea orientalis	Leichardt tree	W	20-30	Y
Paraserianthes toona	Mackay Cedar	W/D	20-30	Y
Pleiogynium timorense	Burdekin plum	W/D	10-20	Y
Syzigium australe	Lilly pilly	W	5-12	Y
Terminalia porphyrocarpa		D	10-15	
Terminalia sericocarpa	Damson	W	20-30	Y
Toona australis	Red Cedar	W	15-25	Y
Waterhousia florabunda	Weeping Lilly Pilly	W/D	20-30	Y
Xanthostemon chrysanthus	Golden penda	W	8-20	Y

Table SC 6.4.5.2.3 Large screening shrubs and windbreaks plant list

Species	Common name	Wet/Dry	Height (m)	Locally Available
Acacia decora		W/D	2-5	
Acacia flavescens	Yellow wattle	W/D	4-10	Y
Acacia holosericea	Soapbush Wattle	D	4-5	Y
Acacia leptocarpa		D	6-10	Y
Acacia leptostachya	Townsville wattle	D	2-5	Y
Callistemon spp.	Bottlebrush	W/D	5-12	Y
Cassia brewsteri	Brewsters Cassia	W/D	6-12	
Cassia brewsteri syn Senna brewsteri	Leichardt Bean	W/D	1-8	
Cassia tomentella	Velvet Bean tree	W	6-12	
Clerodendrum floribundum	Lolly Bush	W/D	3-5	
Cordia subcordata	Orange cordia	W	8-15	
Cupaniopsis wadsworthii	Cut leaf tuckeroo	W/D	3-5	
Dodonaea triquetra	Large-leaved Hop Bush	W/D	3-5	
Dodonaea viscosa	Sticky Hop Bush	W/D	1.5-4	Y
Eugenia reinwardtiana	Beach Cherry	W/D	2-6	
Glochidion lobocarpum	Cheese Tree	W/D	1-6	Y
Glochidion summatranum	Umbrella Cheese Tree	W	3-8	Y
Hibiscus tiliaceus	Native hibiscus	W	4-10	Y
Macaranga involucrata	Brown Macaranga	W/D	4-10	
Macaranga tanarius	Macaranga	W/D	4-10	
Pipturis argenteus	Native mulberry	W	4-10	
Syzigium australe	Lilly pilly	W/D	5-12	Y

Table SC 6.4.5.2.4 Small to medium shrubs plant list

Species	Common name	Locally Available
Abelia grandiflora 'Dwarf'	Glossy Abelia	
Acalypha Inferno		Y
Acalypha Firestorm		Y
Ardisia crenulata		
Baeckia 'La Petite'		
Baeckia virgata	Twiggy Health Myrtle	
Banksia robur	Swamp Banksia	
Banksia spinulosa	Hairpin Banksia	
Bauhinia galpinii	Orange Bachinia	
Bouganvillea-Smarty Pants	Dwarf Bonganvillea	
Breynia disticha	Snow Bush	
Bromeliad Spp.		
Calathea zebrina	Zebra Plant - Ground cover	
Calliandra tweedi		
Callistemon 'Little John'		
Callistemon 'Wildfire'		
Callistemon pachyphylus - green		
Canna Lily - all varieties		
Cassia odorata		
Codiaem - all varieties	Croton	
Codiaeum 'Golddust'		
Codiaeum 'Norma'		
Codiaeum 'Petra'		
Cordyline - all varieties		
Cordyline 'Rubra'		
Cordyline stricta		
Cordyline terminalis		
Cuphea ignea	Cigar Flower	
Dracaena - all varieties		Y
Drejerella guttata	Shrimp Plant	
Duranta 'Aussie 2000'		Y
Duranta 'Sheena's Gold'		Y
Duranta repens 'Alba'		Y
Euphorbia pulcherrima	Poinsetta	
Gordonia exillaris		
Graptophyllum excelsum	Scarlet Fuchsia	
Graptophyllum pictum	Caricature Plant	
Graptophyllum tricolor		
Grevillia 'Superb'	Gordonia	
Hakea plurinervia		
Hakea purpurea		
Heliotropium arborescens	Cherry Pie	
Hemerocallis littoralis	Spider Lilly	
Hibiscus - all varieties		
Hibiscus spp.	Chinese Rose	
Ixora - 'Red Sunkist, Little Willy'		Y
Ixora - dwarf varieties		Y
Ixora 'Prince of Orange'		Y
Ixora 'Pygmy Pink' Twilight Glow		Y
Ixora 'Sunshine'		Y
Justica carnea	Flamingo Plant	
Leea indica	Hawaiian Holly	Y
Leptospermum flavescens		
Melaleuca 'Claret Tops'		Y
Melaleuca thymifolia	Thyme honey myrtle	
Melaleuca trichoscatachya 'Compacta'		

Metrosideros Springfire		
Metrosideros Tahiti		
Murraya paniculata	Mock Orange	Y
Murraya Min a Min	Mini Mock Orange	Y
Mussaenda sp	Bankock Rose	
Odontonema strictum	Firespike	
Pachystachys lutea	Lollipop Plant or Super Goldie	
Pedilanthes - 'Exotica & Tricolour'		
Pentas lanceolata	Star – cluser	
Persoonia falcata	Geebung	Y
Philodendron 'Xanadu'		
Philodendron roystonii		
Philodendron selloum	Lacy Tree Philodendron	
Phyllanthus multiflorus	Waterfall Plant	Y
Phyllanthus cuscutiflorus		Y
Plumbago capensis 'Blue'		
Poinsettia - all varieties		
Polyscias sp.	Aralia	Y
Russellia equisetiformis	Coral Plant	
Scaevola taccada	Sea Lettuce	Y
Schefflera arboricola	Dwarf Umbrella Tree	
Steptosolen jamesohnii	Marmalade Bush	
Syzygium paniculatum - 'Dwarf'		
Syzygium var 'Aussie Copper'		
Syzygium var 'Bush Christmas'		
Syzygium zeherii		
Szyzigium wilsonnii	Powder Puff Lilly Pilly	
Thuja orientalis		
Tibouchina 'Jules'		
Westringia fruticosa Zena		Y

Table SC 6.4.5.2.5 Groundcover, boarders and tufted or clumping plants plant list

Species	Common name	Locally Available
Abelia grandiflora 'Nana'		
Adenium obesum		Y
Agapanthus orientalis 'White' & 'Blue'		
Aglaonema sp	Chinese Evergreen	
Ajuga reptans 'Burgundy'	Wild Mint	
Alpinia caerulia	Native Ginger	Y
Alpinia zerumpet	Green Ginger	Y
Ardisia crenata	Spice berry	
Aspidistra elatior	Cast Iron Plant	
Babingtonia tozerensis		
Babingtonia bidwillii	Howies Sweet Midget	
Baeckia virgata 'Mt Tozer'		
Baeckia virgata 'Sweet Midget'		
Baeckia virgata dwarf		
Beaucarnia recurvata	Ponytail palm	Y
Brachycome spp	Rock Daisy	
Chlorophytum spp.	Spider Plant	Y
Clivia miniata 'Belgian Hybrid'	Kaffir Lilly	
Cordyline australis		
Crinum pedunculatum	Native Spider Lilly	Y
Cuphea 'Madhatter'	False heather	Y
Cuphea 'Mexican Heath'		Y
Dampiera diversifolia		
Dianella Border Silver		Y
Dianella caerulea	Paroo Lilly	Y
Dieffenbachia maculata	Dumb Cane	
Dietes bicolor	Flax Lilly	Y
Dietes grandiflora	Fortnight Lilly	
Erigeron karvinskianus	Seaside Daisy	
Eustrephus latifolius	Wombat Berry	Y
Evolvulus 'Blue Saphire'	Wild Ins	Y
Ferns - all varieties		
Furcraea foetida varigata	Hemp Plant	Y
Gardenia 'Radicans'	Minature Gardenia	Y
Gazania - perennial varieties		
Gazania 'Sunshine'		
Gloriosa superba	Glowy Lily	
Grevillea 'Bronze Rambler'		
Grevillea 'Fanfare'		
Grevillea biternata		
Heliconia psittacorum'	'Parrot Flower'	
Heliconia spp		
Hemerocallis	Day Lilies	
Hemigraphis alternata	Purple Wattle Plant	Y
Heterocentron elegans	Lascondra 'Peal Flower'	
Hibertia scandens		Y
Hippeastrum sp		
Hymenocallis	Thai Spider lilly	Y
Liriope evergreen giant		Y
Liriope Stripey White		Y
Lomandra hystrix	Mat-rush	Y
Lomandra longifolia	Mat Rush	
Lonicera nitida	Box Honeysuckle	
Medinilla magnifica		Y
Medinilla Pixie Pink		Y
Ophiopogon japonicus	Mondo Grass	Y

Philodendron xanadu		Y
Scaevola 'Purple Fanfare'		
Sedum spp.		Y
Spathiphyllum	Madonna Lily	Y
Spathiphyllum 'La Petite'	Peace Lilly	Y
Strelitzia reginae	Bird of Paradise	Y
Strelitzia nicholai		Y
Tropaeolum sp	Nasturtium	
Verberba xhlybrida	Gloria Lily	
Viola hedracea	Native Violet	
Xanthorrhoea australis	Grasstree	
Xanthorrhoea fulva	Grasstree	
Xerochrysum bracteatum	Everlasting Paper Daisy	Y
Zamioculcas zammifolia	Zanzibar Gem	Y
Zoyzia	No Mow Grass	Y

Table SC 6.4.5.2.6 Palms, ferns and cycads plant list

Species	Common name	Locally Available
Archontophoenix alexandrae	Alexander Palm	Y
Archontophoenix cunninghamiana	Bangalow Palm	
Asplenium Nidus	Bird Nest Fern - Shade	
Bismarckia nobilis	Bismarch Palm	
Carpentaria acuminata	Carpentaria Palm	
Chamaedorea atrovirens	Cascade Palm	
Chamaedorea metalica		
Chamaedorea safritzii	Bamboo Palm	
Chrysalidocarpus cabadae		
Chrysalidocarpus lucubensis	Madagascar Palm	
Chrysalidocarpus lutescens	Golden Cane Palm	
Cyathea cooperii	Tree Fern	
Cycas revoluta	Sago Palm	
Cyrtostachys renda	Sealing Wax	
Dictyosperma album	Princess Palm Red Hurricane Palm	
Elaeis guineensis	Africian Oil	
Howea forsteriana	Kenna Palm	
Hyophorbe lagenicaulis	Bottle Palm	
Hyophorbe verschaffeltii	Spindle Palm	
Laccospadix australasica	Atherton Palm	
Licuala grandis	Fan	
Licuala ramsayi		
Livistona australis	Cabbage Palm	
Livistona chinensis	Chinese Fan palm	
Livistona decora	Weeping Cabbage Palm	Y
Macrozamia miquellii		
Macrozamia moorei	Cycad	
Neodypsis decaryi	Triangle Palm	
Normanbya normanbyi	Black Palm	
Pandanus pedunculatus	Screw Pine	
Phoenix canariensis	Canary Island Date	
Pritchardia pacifica	Fijian Fan Palm	
Ptychosperma elegans	Solitaire Palm	
Ptychosperma macarthurii	Macarthur Palm	
Ravenea rivularis	Majestic Palm	
Rhapis excelsa	Lady Palm	
Rhapis hunillis	Dwarf Lady cluster	
Roystonea oleracea	Carribean Royal	
Roystonea regia	Cuban Royal	
Sabal palmetto	Palme Ho Palm	
Veitchia joannis	Handsome solitany feather palm	
Veitchia mernillin	Christmas Palm	
Washingtonia robusta	Cotton Palm	
Wodyetia bifurcata	Foxtail Palm	
Zamia furfuracea	Jamaica sagotree cardboard cycad	
Zamia furfuracea	*Cardboard Cycad*	

Table SC 6.4.5.2.7 Climbers and creepers plant list

Species	Common name	Locally Available
Aristolochia acuminata	Native Dutchman's Pipe	Y
Clamatis Vitalba	Old Man's Beard	
Cougea tomenhosa	Shower orchid	

Species	Common name	Locally Available
Ficus pumila	Climbing Fig	
Hardenbergia violacea	Sarsparilla vine	
Hibbertia scandens	Twining guinea flower	
Hoya carnosa	Wax Plant	
Jasminum aemulum		
Jasminum didymum	Coastal Jasmine	Y
Jasminum sambac	Grand Duke of Tuscany	
Lonicera – multiflora	Honeysuckle	
Lonicera heckrottii	Honeysuckle	
Lonicera japonica	Japanese Honeysuckle	
Mandevilla x amabilis	Dipladenia	
Milletia megasperma	Native Wisteria	
Mucuma Bennettii	New Guinea Creeper	
Pandorea jasminoides	Bower of Beauty	
Pandorea pandorama	Wonga-Wonga Vine	Y
Passiflora coccinea	Red Passion Flower	
Passiflora edulis	Passionfruit	
Quisqualis indica	Rangoon Creeper	
Solanum jasminoides	Jasmine Nightshade	
Stephanotis floribunda	Clustered Wax Flower	
Strongylodon macrobotrys	Jade Vine	
Trachelospernum jasminoides	Star Jasmine	
Vitex rotundifolia	Creeping vitex	Y

SC6.5 Natural hazards planning scheme policy

SC6.5.1 Introduction

SC6.5.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy provides:

(a) information the Council may request for a development application; and

(b) guidance or advice about satisfying an assessment benchmarks which identifies this planning scheme policy as providing that guidance or advice.

SC6.5.1.2 Purpose

(1) The purpose of this planning scheme policy is to provide information, guidance and advice for satisfying the assessment benchmarks for the preparation of a site specific:

(a) Bushfire hazard assessment report;

(b) Bushfire management plan;

(c) Coastal hazard assessment report;

(d) Flood hazard assessment report;

(e) Landslide hazard (geotechnical) assessment report.

SC6.5.1.3 Hazard overlay mapping

(1) Natural hazard mapping has been prepared for the local government area, showing the areas natural hazard susceptibility. This mapping has been prepared in accordance with the requirements of the SPP. The specific hazard overlays to which this PSP applies are:

(a) Bushfire hazard overlay code. Mapping:
- (i) identifies the Very high risk, High risk and Medium risk sub-categories; and
- (ii) has been prepared at a scale at which a site specific investigation of bushfire hazard will be necessary to determine the exact nature of the hazard on a site (Bushfire hazard assessment report) and the necessity for a Bushfire management plan;

(b) Coastal environment overlay code. Mapping:
- (i) identifies Maritime development areas, High hazard and Medium hazard sub-categories for storm tide inundation, Coastal erosion and Permanent inundation due to sea level rise at 2100 sub-category;
- (ii) is not a substitute for a site based assessment. A site specific Coastal hazard assessment should be undertaken to verify, specific to the site, the coastal hazard risk (unless provided by council) and appropriate mitigation responses to this;

(c) Flood hazard overlay code. Mapping:
- (i) identifies predicted 1% AEP flood extent and Flood hazard area;
- (ii) is not a substitute for a site based assessment. A site specific flood hazard assessment should be undertaken to verify, specific to the

site, the flood hazard risk (unless provided by council) and appropriate mitigation responses to this;

(d) Landslide hazard overlay code. Mapping:
  (i) identifies slope of 15% or greater; and
  (ii) is not a substitute for a site based assessment. A site specific geotechnical assessment report should be undertake to verify, specific to the site, the landslide risk and appropriate mitigation responses to this.

SC6.5.2 Requirements of natural hazard documentation

(1) Natural hazard documentation is to be prepared in a clear and concise manner, consistent with the elements identified in Table SC 6.5.2.1 (Requirements of natural hazard documentation) below, as well as any specific requirements identified in the relevant sub-sections of this report.

Table SC 6.5.2.1 Requirements of natural hazard documentation

Documentation	Preparation	Report requirements
Bushfire hazard assessment report	• Prepared by a suitably qualified professional with appropriate technical expertise in the identification of bushfire hazard. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. Rural fire brigade).	• A site specific Bushfire hazard assessment report may be requested to provide additional information to Council. • A site specific Bushfire hazard assessment report is to be prepared in accordance with SC6.5.3 (Bushfire hazard assessment report). • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Bushfire hazard management plan	• Prepared by a suitably qualified professional with appropriate technical expertise in the identification and mitigation and have: a) knowledge and experience in applying relevant legislation, plans, policies, standards and guidelines relating to bushfire hazard and fire ecology relating to Queensland requirements; or b) have knowledge and experience in developing bushfire management plans in accordance with the methodology set out in SC6.5.4 (Bushfire hazard management plan) of this planning scheme policy; or c) be accredited practitioner (BPAD Level 2/3) under the Bushfire Planning and Design Accreditation Scheme from the Fire Protection Association of Australia; or d) have qualifications and experience in the field of ecology, environmental management or similar to assess and protect site-	• A site specific Bushfire hazard management plan may be requested to provide additional information to Council. • A site specific Bushfire hazard management plan is to be prepared in accordance with SC6.5.4 (Bushfire hazard management plan) • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.

	based and strategic biodiversity values. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. Rural fire brigade).	
Coastal hazard assessment report	• Prepared by a Registered Professional Engineer Queensland or equivalent with experience in coastal or flood management. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. Utility providers).	• A site specific Coastal hazard assessment report may be requested to provide additional information to Council. • A site specific Coastal hazard assessment is to be carried out in accordance with: a) SC6.5.5 (Coastal hazard assessment report); b) Guideline: A risk assessment approach to development assessment in coastal hazard areas, DEHP, 2013; c) AS/NZS ISO 31000: 2009 Risk management– Principles and guidelines; d) Draft SPP Guideline, state interest—natural hazards, Guidance on coastal hazards; and e) current engineering best practice. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Flood hazard assessment report	• Prepared by a Registered Professional Engineer Queensland or equivalent with experience in flood hazard assessment and flood management. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. Utility providers).	• A site specific Flood hazard assessment report may be requested to provide additional information to Council. • A site specific Flood hazard assessment is to be conducted in accordance with: a) SC6.5.6 (Flood hazard assessment report); and b) AS/NZS ISO 31000: 2009 Risk management – Principles and guidelines; • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.
Landslide hazard (geotechnical) assessment report	• Prepared by a Registered Professional Engineer Queensland or equivalent: a) who holds a degree in civil engineering or engineering geology with current membership of a	• The site-specific Landslide hazard (geotechnical) assessment report may be requested to provide additional information to Council.

	recognised professional institution and whose primary business (with a minimum of 10 years of experience) is in the field of geotechnical engineering or engineering geology; or b) who has local experience with landslides or demonstrable general experience with landslides and their mitigation and rehabilitation. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A site specific Landslide hazard (geotechnical) assessment report is to be prepared in accordance with SC6.5.7 • A Landslide risk assessment is to be prepared in accordance with the Landslide Risk Management Guidelines (Australian Geomechanics Society 2007, c and d) in Australian Geomechanics, Volume 42, No. 1 March 2007, or any later guideline of the Australian Geomechanics Society as agreed by Council and is to be provided as part of the site specific Landslide hazard (Geotechnical) assessment report. • All investigations, testing and design should be undertaken in accordance with industry practice and the provisions of relevant Australian Standards.

SC6.5.3 Bushfire hazard assessment report

SC6.5.3.1 Purpose of a Bushfire hazard assessment report

(1) A Bushfire hazard assessment report is required to:

(a) quantify the bushfire hazard for a particular site;

(b) ensure appropriate methods are implemented to appropriately mitigate or avoid the risk of bushfire hazard; and

(c) provide information which supports the outcomes required by the Bushfire hazard overlay code.

SC6.5.3.2 Undertaking a Bushfire hazard assessment report

(1) The method for assessing bushfire hazard involves quantitative and qualitative assessments. The quantitative element requires an assessment of three key characteristics of land that have been found to be the main determinants of the severity of bushfire hazard. These factors are vegetation communities, slope and aspect. The qualitative review should consider the known bushfire behaviour.

(2) For most types of development, bushfire risk is assessed based on the vegetation existing on and in proximity to the site. However if reconfiguring a lot, the level of bushfire hazard should be assessed as if the vegetation in that area, including any areas designated for revegetation, has reached its mature state.

(3) The steps to be followed and information provided when preparing a Bushfire hazard assessment report are outlined below.

Step 1: Assessment of vegetation communities
The type of vegetation community can determine the rate at which dry fuel accumulates and its susceptibility to bushfire. Some vegetation communities protect fuel from drying out in all but extreme bushfire seasons and can then be susceptible to very destructive bushfires.

Alternatively, vegetation communities may expose fuels to drying and therefore be frequently available for burning. Frequent bushfires can result in the development of bushfire-tolerant grassy woodlands or grasslands and less destructive bushfire behaviour.

Table SC 6.5.3.2.1 (Hazard scores and associated fire behaviours for vegetation communities) lists hazard scores for a range of vegetation community types for the purpose of assessing bushfire hazard.

Table SC 6.5.3.2.1 Hazard scores and associated fire behaviours for vegetation communities

Vegetation Communities	Fire behaviour	Hazard score
Wet sclerophyll forest, tall eucalypts (>30 m), with grass and mixed shrub understorey.	Infrequent fires under severe conditions, flame lengths may exceed 40 m, floating embers attack structures for 1 hour, radiant heat and direct flame are destructive for 30 minutes.	10
Paperbark heath and swamps, eucalypt forest with dry-shrub ladder fuels.	Fire intensity depends on fuel accumulation, but can be severe, with flame lengths to 20 m, spot fires frequent across firebreaks, radiant heat and direct flame for 15 minutes.	8
Grassy eucalypt and acacia forest, exotic pine plantations,	Fire intensity may be severe with flame lengths to 20 m, but less attack from embers.	6

cypress pine forests, wallum heath.		
Native grasslands (ungrazed), open woodlands, canefields.	Fast moving fires, available to fire annually to 4 years. Usually no ember attack, radiant heat for >10 m, duration <2 minutes.	5
Intact acacia forests, with light grass to leaf litter, disturbed rainforest.	Fires infrequent, usually burn only under severe conditions, relatively slow fires, usually little ember attack.	4
Orchards, farmlands, kikuyu pastures.	Fires very infrequent, slow moving, may be difficult to extinguish, frequent fire breaks.	2
Grazed grasslands, slashed grass.	Grazing reduces intensity and rate of spread of fire, duration <2 minutes.	2
Desert lands (sparse fuels), mowed grass.	Gaps in fuel, usually slow fire spread.	1
Intact rainforest, mangrove forest, intact riverine rainforest.	Virtually fireproof.	0

Note – Vegetation assessment should be based upon examination of the vegetation on and surrounding the subject site. Narrow strips of vegetation may be flammable; however, bushfires will not generally reach their full intensity where bushfire fronts are less than 100 metres wide. For this reason the following examples may be viewed as having the next lower hazard score (i.e. paperbark heath would have a score of 6 not 8, cypress pine forest 5 not 6):

a) areas with a linear shape (e.g. roadside vegetation beside a cleared paddock); and
b) units of vegetation less than 50 hectares in area and more than one kilometre from the nearest extensive vegetation.

Where the vegetation community is assessed as having a vegetation community hazard score of zero, no other factors need to be taken into account. No further action is required.

Step 2: Assessment of slope

Studies have shown that fires burn more quickly and with greater intensity up slopes, generally doubling every 10 degrees of slope. Also, the steeper the slope, the more difficult it is to construct ring roads, firebreaks and provide access for emergency crews. Trees situated downhill from structures will have their crowns close to the structures. This presents bushfire hazards particularly for exposed structures such as timber decks.

Table SC 6.5.3.2.2 (Hazard scores for slope) presents the hazard scores for different categories of slope.

Table SC 6.5.3.2.2 Hazard scores for slope

Slope	Hazard score
Gorges and mountains (>30%)	5
Steep hills (>20% to 30%)	4
Rolling hills (>10% to 20%)	3
Undulating (>5% to 10%)	2
Plain (0% to 5%)	1

Note – For site-specific assessment of bushfire hazard, if the site is downhill from the hazard, the slope effect may be taken as zero as the fire intensity will be less. However, burning heavy fuels may roll downhill and trees may fall down, so recommended setbacks from the hazard still need to be observed.

Step 3: Assessment of aspect

Aspect affects bushfire hazard due to the effects that exposure to direct sunlight has on different vegetation communities, including the drying rates of fuels. Aspect also correlates closely with exposure to low humidity winds that increase bushfire intensity. In extremely broken country where there is a range of aspects, the predominant aspect should be used.

As aspect has only a minor influence on flatter land, aspect is not considered to be significant on land with a slope less than 5%. Table SC 6.5.3.2.3 (Hazard score for aspect) lists the hazard score for different aspects.

Table SC 6.5.3.2.3 Hazard score for aspect

Aspect	Hazard score

North to north-west	3.5
North-west to west	3
West to south	2
North to east	1
East to south and all land under 5% slope	0

Step 4: Combining scores to identify the severity of bushfire hazard
The scores for the individual factors determined for vegetation communities, slope and aspect are added to give a total for each sub-unit as follows:

Total hazard score = vegetation community hazard score + slope hazard score + aspect hazard score.

The total hazard score determines the severity of bushfire hazard for each sub-unit as set out in Table SC 6.5.3.2.4 (Hazard score ranges to identify the severity of bushfire hazard).

Table SC 6.5.3.2.4 Hazard score ranges to identify the severity of bushfire hazard

Total hazard score	Severity of bushfire hazard
13 or greater	High
6 to 12.5	Medium
1 to 5.5	Low

Note – Buildings in High severity bushfire hazard areas should be constructed in accordance with the Level 1 requirements of AS 3959:1999 (Construction of Buildings in Bushfire-Prone Areas).

Step 5: Field verification
Preliminary bushfire hazard maps should be prepared based on the results of Step 4 above by aggregating all sub-units with similar levels of bushfire hazard severity into 'high' and 'medium' severity classifications. Field verification or ‘ground truthing’ of these preliminary results should then be undertaken. A number of sample areas should be evaluated to test the accuracy of the preliminary bushfire hazard findings.

Step 6: Qualitative assessment
Known bushfire behaviour complements the quantitative assessment and should be considered as part of the qualitative review.

Known bushfire behaviour is extremely difficult to use as a quantitative planning tool. This is because the absence of bushfire, even for an extended period of time, does not mean that an area will not burn and may lead to massive fuel accumulation with dangerous bushfire behaviour if it does ignite. Known bushfire behaviour may identify sites where combinations of slope and wind have led to severe bushfire behaviour in the past, and where extra precautions to protect assets might be required. The reliability of known bushfire behaviour may be difficult to assess and Queensland Fire and Rescue Service should be consulted if problems are indicated.

Step 7: Safety buffer
The final step in identifying bushfire hazard areas is to add a safety buffer, as land adjacent to a bushfire hazard area is vulnerable to bushfire attack from these areas.

Any land within 100m of an area identified as having a high bushfire severity classification should be included in the High bushfire hazard area and any land within 50m of an area identified as having a Medium bushfire severity classification should be included in the Medium bushfire hazard area. The safety buffers should be integrated into the preparation of maps that identify bushfire hazard areas.

Table SC 6.5.3.2.5 (Total hazard score and severity of bushfire hazard with safety buffers) shows the width of the safety buffers that apply to the various bushfire hazard severity classifications.

Table SC 6.5.3.2.5 Total hazard score and severity of bushfire hazard with safety buffers

Total hazard score	Severity of bushfire hazard	Extent of safety buffer
13 or greater	High	100m
6 to 12.5	Medium	50m
1 to 5.5	Low	Not applicable

SC6.5.4 Bushfire hazard management plan

SC6.5.4.1 Purpose of a Bushfire management plan

(1) A Bushfire management plan is required to:

(a) identify the strategies a development is to implement for mitigating the impacts of bushfire on life, property and the environment, where a site has been identified as having a medium or high bushfire; and

(b) provide information and guidance to support the outcomes required by the Bushfire hazard overlay code.

SC6.5.4.2 Preparing a Bushfire hazard management plan

(1) A Bushfire management plan identifies specific risk factors associated with the development, planning for the separation of at-risk elements and potential hazards, and providing access and treatments to facilitate an effective response to bushfire.

(2) A Bushfire management plan is to be prepared having regard to the principles outlined in SC6.5.4.3 (Managing bushfire hazard risks) and is to include the following information:

(a) a site specific Bushfire hazard assessment report using the methodology set out in SC6.5.3 (Bushfire hazard assessment report) of this planning scheme policy;

(b) an assessment of other site-specific factors that are important in devising suitable bushfire mitigation strategies, such as likely direction of bushfire attack, environmental values that may limit mitigation options, location of evacuation routes and safety zones and identification of the risks on site and from nearby sites;

(c) an assessment of the specific risk factors associated with the development including:
   (i) the intended future population size and characteristics;
   (ii) the likely usage patterns on the site;
   (iii) the estimated traffic generation;
   (iv) the nature of activities to be conducted on the site;
   (v) the storage or handling of hazardous chemicals;
   (vi) the use of the site for emergency services or disaster response purposes;
   (vii) particular warning or evacuation requirements; and
   (viii) the total extent of clearing, revegetation and landscaping proposed for the site which is to be indicated on a site plan;

(d) mitigation measures identified for the development that address major factors in bushfire attack, including embers and burning debris, radiant heat, direct flame contact and wind. Smoke should also be addressed where it is relevant to mitigation measures for vulnerable uses, such as hospitals, aged-care facilities and facilities in which aged or disabled persons reside, or where resident populations are susceptible to respiratory disorders;

(e) a plan for mitigating the bushfire risk identified in the Bushfire hazard assessment report. The plan is to recommend specific mitigation actions for the development including:
   (i) appropriate land uses;

(ii) access, including road layout, accessways, driveways, evacuation routes, including an easement on site and on adjoining lands, access routes for two-wheel drive vehicles and fire-fighting appliances and evacuation requirements;
(iii) lot layout and orientation;
(iv) site layout including identification of proposed locations of buildings or building protection zones;
(v) the need and construction standards for fire maintenance trails;
(vi) access requirements and access routes for two-wheel drive vehicles and fire- fighting appliances;
(vii) warning and evacuation procedures, plans and routes including capacity of public roads especially perimeter roads and traffic management treatments, and responsibility for their maintenance;
(viii) fire-fighting requirements including infrastructure and water supply;
(ix) landscaping, including details of new vegetation or landscape treatments to be used on site, particularly in the building protection zone;
(x) operational, design, construction or management measures for responding to particular requirements of some land uses, such as air quality management and design standards of tanks and fittings;
(xi) any other specific measures such as external sprinkler systems which are only as an adjunct to other passive controls, and alarms;
(xii) ongoing purchaser or resident education and awareness programs; and
(xiii) ongoing maintenance, management and response awareness programs, including tenure and community title arrangements. This should also include identification of specific responsibilities for actions required in the bushfire management plan for owners or occupiers of the development, the developer and Council.

SC6.5.4.3 Principles for managing bushfire hazard risks

Separation distances from sources of bushfire hazard

(1) Topographical features of the site and design elements are used to maximise separation between sources of bushfire hazard and dwellings or buildings, and manage risk. These features include the following:

(a) roads, particularly perimeter roads and roads separating building locations on lots from vegetation with a hazard score higher than 4;

(b) fire maintenance trails where used;

(c) parkland and other areas maintained with reduced fuel loads such as mown grass, sports ovals, golf courses and car parks;

(d) water bodies and waterways;

(e) landscaped areas; and

(f) easements and other reserves such as future road reserves and maintained overland flow paths.

Design and construction of building protection zones

(2) Building protection zones are to be established for the protection of buildings from bushfire:

(a) the inner 10m of the building protection zone is to be maintained in a very low fuel state. This area is designed to prevent continuity of fuel, such as shrubs or build-up of leaf litter extending to the building through:
   (i) paving, lawn or non-combustible mulch such as gravel;
   (ii) tree retention only if there is a vertical and horizontal separation of 2m between plants to ensure the canopy is not continued.

(3) The outer 10m of the building protection zone is to be maintained in a reduced fuel state. This area is designed to reduce bushfire intensity and shield buildings from radiant heat, and prevent flames transferring from ground fuels to the canopy. In the outer zone, trees may be retained or planted in small clumps, retaining vertical and horizontal separation between any other plants to ensure that canopy is not continuous.

(4) In all areas of the building protection zone, trees should be a distance 1.5 times the mature canopy height away from buildings, and should not overhang buildings.

Design of roads and public access

(5) When reconfiguring a lot involves the opening of a new road, a perimeter road is the preferred option to separate bushland from urban areas. The public road system in a bushfire-prone area is to provide alternative access or egress for firefighters and residents during a bushfire emergency if part of the road system is cut by fire. Roads should provide sufficient width to allow fire-fighting vehicle crews to work with fire-fighting equipment about the vehicle.

(6) New lots do not back directly onto hazardous vegetation. The perimeter road allows for fire-fighting access. If a perimeter road is not used to isolate a cul-de-sac from the hazardous vegetation, alternative formal access and egress are provided (E.g. a fire maintenance trail). Using public roads is preferable to using easements.

Fire maintenance trails

(7) Fire maintenance trails are only effective in the context of a strategic advantage and access for hazard-reduction operations. Fire maintenance trails present difficulties and costs associated with maintaining fire maintenance trails on private land. Proposals for fire maintenance trails will need to demonstrate clear benefits over the use of a perimeter road. A perimeter fire trail cannot be imposed on the adjoining lands.

(8) Fire maintenance trails are primarily used as access for firefighters. They are also used for fire control lines and maintenance of buffers protecting development. In non-urban areas, they may surround isolated dwellings or groups of dwellings. In suburban subdivisions, they may function as a strategic control line around the hazard side of the development, if they are connected to the public road system at frequent intervals.

(9) Fire maintenance trails are to be designed and located in accordance with a Bushfire hazard management plan prepared in accordance with this planning scheme policy. The bushfire management plan is to demonstrate that the fire maintenance trails:
   (a) are located, designed and constructed to buffer development from bushfire hazard and allow access for fire-fighting vehicles to strategic areas of the site for firefighting;

   (b) adjacent to Council parkland are to be on private land where no public road interface can be achieved;

   (c) are unfenced and accessible at all times by fire-fighting vehicles;

(d) connect through to a road network or network of other fire maintenance trails;

(e) respond to site topography and bushfire characteristics of the site and surrounding area;

(f) are located, designed and constructed to protect firefighter safety and provide for movement, manoeuvring and access to water supplies for firefighting.

(g) are designed so that dead ends are avoided; however if a dead end exists, a turnaround of sufficient radius for a full lock by a Category 1 fire tanker should be constructed (radius[3] 12m) and if there is insufficient space for such a turnaround due to the topography, provision should be made to allow a maximum three-point turn (radius[3] 10m);

(h) are designed and constructed to avoid adverse environmental impacts, including soil erosion, impacts on natural hydrological flows, or other land degradation;

(i) link to existing fire maintenance trails or roads at each end and at maximum intervals of 200m, having regard to site topography, firefighter safety and the need to regularly access water supplies;

(j) do not alter natural hydrological flows or expose acid sulfate soils; and

(k) primary trails are maintained to provide safe four-wheel drive access by fire-fighting vehicles.

Landscaping

(10) The preparation of a landscaping plan is to be guided by best practice ensuring the design and species selection in the landscape plan:

(a) prevents flame impingement on the dwelling;

(b) provides space and access for property protection;

(c) reduce fire spread;

(d) deflects and filter embers;

(e) provides shelter from radiant heat;

(f) reduces wind speed;

(g) meets the spacing requirements in the bushfire protection zone;

(h) uses site features including topography and driveways to manage hazards;

(i) maximises separation distances between structures and sources of bushfire hazard; and

(j) identifies the use of appropriate materials and species in landscaping to manage fuel loads.

(11) All vegetative material can burn under the influence of bushfire. Careful attention must be paid to species selection, their location relative to their flammability, avoidance of continuity of vegetation horizontally and vertically, and ongoing maintenance to readily remove flammable fuels such as leaf litter, twigs and debris.

Selection of plant species is not to be relied upon as a primary measure to reduce bushfire risk.

SC6.5.5 Coastal hazard assessment report

SC6.5.5.1 Purpose of a Coastal hazard assessment report

(1) A Coastal hazard assessment report is required to:

(a) demonstrate that a development will not increase risk to people and property from coastal hazards impact or create an adverse coastal hazard impact including an impact on the ongoing operation of development in coastal hazard areas; and

(b) provide information and guidance to support the outcomes required by the Coastal environment overlay code.

SC6.5.5.2 Desired outcomes for a Coastal hazard assessment report

(1) The following minimum outcomes have been identified to guide the consideration of risk to development from a costal hazard. These outcomes in Table SC 6.5.5.2.1 (Outcomes for a coastal hazard assessment report) are not necessarily exhaustive having regard to a site or development.

Table SC 6.5.5.2.1 Outcomes for a coastal hazard assessment report

Outcome 1	Development in an area subject to a coastal hazard protects safety and amenity.
Outcome 2	Buildings and structures are designed to withstand coastal hazards and minimise cost and disruption to the community associated with responding to coastal hazard impacts.
Outcome 3	An acceptable standard of amenity for future users of the premises is achieved.
Outcome 4	Difficult to evacuate uses and vulnerable uses are to be located outside of Medium storm-tide sub-category areas and the High storm-tide sub-category coastal hazard areas.
Outcome 5	Development relying on an evacuation route or supporting infrastructure located elsewhere demonstrates that those elements in themselves are not susceptible to a coastal hazard.
Outcome 6	Any action taken to mitigate the impacts of coastal hazards does not impact adversely on an adjacent premise or the ability of others to implement their future adapt, defend or retreat actions.
Outcome 7	Development in an area subject to coastal hazards protects biodiversity, the integrity of environmental networks and coastal resources.

SC6.5.5.3 Undertaking a Coastal hazard assessment report

(1) The nature and severity of flood actions is to be established for the site and is to inform the appropriate site and use mitigation measures that are development specific.

(2) The coastal hazard assessment is to address the sources of coastal hazards, specifically including both the impacts of storm tide and longer term salt-water inundation due to tidal flooding.

(3) The flood actions to be considered in the coastal hazard assessment include the following:

(a) the extent of inundation;

(b) flow velocities and depths of inundation through the assessment area;

(c) hydrostatic and hydrodynamic forces on a structure and a building;

(d) debris impacts;

(e) proximity to coastal waters and associated wave actions;

(f) erosion and associated scour;

(g) distance to land unaffected by flooding; and

(h) duration of flooding.

SC6.5.5.4 Preparation of a Coastal hazard assessment report

(1) The Coastal hazard assessment report is to:

(a) include a Coastal risk assessment, as detailed in Table SC 6.5.2.1 (Requirements of natural hazard documentation) of this planning scheme policy;

(b) describe the impacts of coastal hazards on the site;

(c) describe all proposed mitigation measures for the site. These mitigation measures are to:
   (i) address the full extent of exposure to flood action;
   (ii) address the location, design, siting, construction, and operational procedures for the development;
   (iii) determine the risk of scour or erosion for the particular coastal hazard area and mitigation methods;
   (iv) be specific to the full extent, nature and characteristics of the intended use, including affected populations;
   (v) be contained wholly on the site; and
   (vi) include existing or committed defence measures in developing a site-specific response.

(d) address the outcomes for a Coastal hazard assessment report as detailed in Table SC 6.5.5.2 (Desired outcomes for a Coastal hazard assessment report) detailed in this planning scheme policy;

(e) describe any residual risks likely to be experienced on site or created by the development external to the site.

SC6.5.6 Flood hazard assessment report

SC6.5.6.1 Purpose of a Flood hazard assessment report

(1) A Flood hazard assessment report is required to:

(a) quantify the flood hazard for a particular site;

(b) ensure appropriate methods are implemented to appropriately mitigate or avoid the risk of flood hazard; and

(c) provide information and guidance to support the outcomes required by the Flood hazard overlay code and the Coastal environment overlay code.

SC6.5.6.2 Preparing a Flood hazard assessment report

(1) The Flood hazard assessment report is to include the following key elements:

(a) assessment of the flood risk and implications up to and in excess of the defined flood event; the flood risk does not stop at the defined flood event so the suitability of a land use must consider the implications of larger floods, particularly in regard to the risk to people. The following should be identified:
   (i) the potential impacts of flood hazard on the development;
   (ii) the potential impacts of the development on flood hazard;
   (iii) the location and height of buildings, particularly habitable floor areas;
   (iv) the location and design of plant and equipment, including electrical fittings; and
   (v) impact of increases in rainfall intensity at 2050 and 2100 in regard to safety and property damage;
   (vi) in the case of overland flow flooding a severe storm impact assessment being provided in accordance with Queensland Urban Drainage Manual;
   (vii) as relevant, include accurate hydrological and hydraulic modelling for the waterway network and assessment of existing flooding and flood levels of major water systems, including modelling of the 50%, 10%, 1%, 0.5% and 0.2% AEP flood events and the Probable Maximum Flood (PMF);

(b) identification of the stakeholders exposed to or affected by the risk of flooding and their compatibility to the risk and how flood risk to people is managed. specifically identifying:
   (i) number of people likely to be at risk and who may need to be evacuated;
   (ii) special care uses (the publication Evacuation Planning by Emergency Management Australia (Commonwealth Government 2005) provides a list of special needs groups);

(c) identification of public and private premises, social systems and environmental elements at risk of flooding, including consideration of extreme flood events;

(d) identification of all critical electrical services, hazardous storages and other high risk elements;

(e) evacuation routes – identify applicable routes, if relied upon, and flood immunity of those routes, and an assessment of the safety of people moving to those routes;

(f) isolation – potential to have evacuation route cut off early in the flood;

(g) burden placed on emergency services – while important to allow safe access for emergency services, they cannot be relied on as a solution to egress difficulties and evacuation;

(h) special care requirements at evacuation destination – uses focused on vulnerable people such as children or elderly and their special requirements for care and the ability of evacuation centres to provide that care;

(i) length of flood recovery and social and economic impacts; that is, the likelihood and consequences of flooding. This evaluation requires a quantitative analysis that uses numerical values, rather than the descriptive scales used in qualitative and semi-quantitative analysis for both consequences and likelihood. The quality of the analysis depends on the accuracy and completeness of the numerical values used

(j) flood-resilient design – this may include both using flood-compatible materials and building design aspects such as locating the least flood-tolerant uses at the highest development levels;

(k) definition of flood hazard management strategies is to include:
   (i) a description and evaluation as to the impact of the proposed mitigation strategies on the existing and likely future use of land and buildings in proximity to the proposed development;
   (ii) the proposed method of perpetuating the restricted use and required mitigation measures through appropriate forms of legal documentation, notation on titles and methods for conveying the risk management data to future owners and leaseholders; and
   (iii) the procedure to conduct emergency flood management, evacuation and rescue operations including flood emergency management plans.

(2) Development which proposes a lowering of flood immunity standards through a risk assessment (usually an industrial use) is to ensure the building materials are constructed of flood-compatible materials.

SC6.5.7 Landslide hazard (geotechnical) assessment report

SC6.5.7.1 Purpose of a Landslide hazard (geotechnical) assessment report

(1) The Landslide hazard (geotechnical) assessment report is required to:

(a) quantify the landslide hazard for a particular site;

(b) ensure appropriate methods are implemented to appropriately mitigate or avoid the risk of landslide hazard; and

(c) provide information and guidance to support the outcomes required by the Landslide hazard overlay code.

SC6.5.7.2 Risk assessment criteria

(1) For the purposes of completing the risk assessment, tolerable risk criteria apply and are specified by the Australian Geomechanics Society in Table 1 (AGS Suggested Tolerable loss of life individual risk) in the Practice Note Guidelines for Landslide Risk Management 2007, except where societal risk applies as noted below.

(2) ‘Acceptable risk' criteria as described in Australian Geomechanics Society 2007 Practice note guidelines for landslide risk management 2007 are one order of magnitude lower than 'tolerable risk' as specified in Table 1 (AGS Suggested Tolerable loss of life individual risk) and are to apply to:

(a) essential community infrastructure;

(b) sensitive uses;

(c) assembly uses;

(d) difficult to evacuate uses; and

(e) hazardous materials.

SC6.5.7.3 Preparing a Landslide hazard (geotechnical) assessment report

(1) The site-specific Landside hazard (geotechnical) assessment report is to include a landslide risk assessment, as detailed in Table SC 6.5.2.1 (Requirements of Natural hazard documentation) of this planning scheme policy and demonstrate that development on land susceptible to landslide has had appropriate regard to the geological elements including landslide risk on the site.

(2) The site specific Landslide hazard (geotechnical) assessment report is to:

(a) include recommendations and a conclusion that are supported by the data and all stated assumptions contained in the assessment;

(b) be capable of being verified by a peer review;

(c) state whether the site is suitable for the development in compliance with the risk assessment criteria in SC6.5.7.2 (Risk assessment criteria) for the loss of life and for property loss; and

(d) identify the risk mitigation measures for the site.

(3) As a guide the following report format and contents description indicates the depth of detail required:

(a) an introduction including details of the development, such as site location and description including the real property description and the proposed development, reconfiguring a lot or construction details;

(b) a description of existing conditions, including existing research material:
- (i) aerial photographs;
- (ii) geological maps;
- (iii) geological reports;
- (iv) site classification;
- (v) geology (local and regional), including:
  - (A) surface and sub-surface materials; and
  - (B) geomorphology (slopes, ground contours, natural features, terrain analysis, landslide features);
- (vi) site history, including the location size and type of previous landslips on or affecting the site and hazards outside the site but likely to affect it, such as landslides or rockfalls upslope of the site;
- (vii) groundwater, including:
  - (A) watertable; and
  - (B) springs and seepage areas in the local area of interest;
- (viii) surface drainage patterns;
- (ix) vegetation cover on and around the site; and
- (x) buildings, other structures, earthworks;

(c) an assessment of land stability/suitability, including:
- (i) proposed development components;
- (ii) a landslide risk assessment for the site indicating the likelihood and consequences of landslides on or near the site affecting the development and the calculated risk to life and property having regard to SC6.5.7.2 (Risk assessment criteria); and
- (iii) potential geotechnical effects of the development on land stability;

(d) an assessment of development impacts, including:
- (i) site layout;
- (ii) roadworks, driveways and other pavements;
- (iii) earthworks (excavation, materials usage);
- (iv) foundations;
- (v) surface drainage;
- (vi) wastewater (treatment and disposal);
- (vii) detailed existing stability of the site and of geotechnical constraints on buildings or other development work on the site as well as on land above and below the site;
- (viii) overall effect of development on the stability of the site as well as on land above and below the site; and
- (ix) overall effect of any site sewage disposal system or rainwater run-off system on slope stability;

(e) recommendations on appropriate measures required to avoid or minimise risks of instability or other adverse environmental effects, on the site as well as land above or below the site, including:
- (i) preferred locations for buildings, other structures and driveways;
- (ii) foundation requirements;
- (iii) pavement types and design;
- (iv) construction methods to avoid problem areas;
- (v) preferred excavation, retention and stabilisation techniques and the suitability of excavated materials for use in on-site earthworks;
- (vi) surface and sub-surface drainage requirements;
- (vii) preferred methods of wastewater disposal;
- (viii) vegetation protection and revegetation requirements; and
- (ix) design life adopted;

(f) a summary and conclusions on the overall suitability of the land for the proposed development; and

(g) appendices for field and laboratory test results, including the location and level of field investigations such as boreholes and trench pits.

SC6.6 Third party advice or comment planning scheme policy

SC6.6.1 Introduction

SC6.6.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy applies to any development application which has been 'properly made' with Council for assessment against the Planning Scheme. Council may require further expert advice or want to seek comments from a special interest person or group on the development application.

SC6.6.1.2 Purpose

(1) This planning scheme policy:

(a) allows Local government to seek advice or comment, where appropriate, about an application in any circumstances the Local government determines, including, in the Local government's opinion if:

(i) the development may conflict with an overlay;

(ii) specialised technical advice is required to assess the development; or

(iii) the development may affect premises being of special interest to a person.

(b) describes the methods which may be used by Council to obtain third party advice or comment on a particular development application prior to the commencement of the Decision Stage.

SC6.6.2 Third party consultation

(1) The purpose of Consultation is to seek third party advice or comment on any development application prior to the commencement of the Decision Stage. The advice may be sought from any individual, stakeholder or interest group.

(2) The advice or comment may be sought in any appropriate way, including:

(a) public notification in the newspaper; or

(b) placing a notice on the premises; or

(c) placing a notice on public land; or

(d) personal notification or contact; or

(e) public meetings; or

(f) meeting with a person having a special interest.

(3) When seeking third party advice or comment, Council will provide appropriate information on the proposal including:

(a) a description of the proposal;

(b) details of where the development application can be inspected;

(c) provide a copy of relevant information;

(d) details of where comments may be lodged; and

(e) the last day upon which Council will accept advice or comment.

(4) The providing of third party advice or comment for a development application under this planning scheme policy does not provide the consulted party with any Appeal Rights as described by The Act.

SC6.7 Growth management planning scheme policy

SC6.7.1 Introduction

SC6.7.1.1 Relationship to the Planning Scheme

(1) This planning scheme policy provides:

(a) information the Council may request for a development application; and

(b) guidance or advice about satisfying an assessment benchmarks which identifies this planning scheme policy as providing that guidance or advice.

SC6.7.1.2 Purpose

(1) The purpose of this planning scheme policy is to provide information, guidance and advice for satisfying the assessment benchmarks for the preparation of a site specific:

(a) Development needs assessment report;

(b) Economic impact assessment report;

(c) Structure plan; and

(d) Traffic impact assessment report.

SC6.7.2 Requirements of growth management documentation

(1) Growth management documentation is to be prepared in a clear and concise manner, consistent with the elements identified in Table SC 6.7.2.1 (Requirements of growth management documentation) below, as well as any specific requirements identified in the relevant sub-sections of this report.

Table SC 6.7.2.1 Requirements of growth management documentation

Documentation	Preparation	Report requirements
Development needs assessment report	• Prepared by a suitably qualified professional with appropriate technical expertise in economics and economic assessments. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. business owners).	• A Development needs assessment report may be requested to provide additional information to Council. • A Development needs assessment report is to be prepared in accordance with SC6.7.3 (Development needs assessment report)
Economic impact assessment report	• Prepared by a suitably qualified professional with appropriate technical expertise in economics and economic assessments. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals (e.g. business owners).	• An Economic impact assessment report may be requested to provide additional information to Council. • An Economic impact assessment report is to be prepared in accordance with SC6.7.4 (Economic impact assessment report)
Structure plan	• Prepared by a suitably qualified professional with appropriate technical expertise in planning and design and the preparation of Structure plans. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A Structure plan may be requested to provide additional information to Council. • A Structure plan is to be prepared in accordance with SC6.7.5 (Structure plan)
Traffic impact assessment report	• Prepared by a traffic engineer who is a Registered professional Engineer Queensland. • Consultation with other entities may also be necessary including Council, State government and other relevant agencies or individuals.	• A Traffic impact assessment report may be requested to provide additional information to Council. • A Traffic impact assessment report is to be prepared in accordance with: a) SC6.7.6 (Traffic impact assessment report); b) Guidelines for Assessment of Road Impacts of Development, Queensland Government, Department of Main Roads; and c) SC6.8 (WRC development manual). • All investigations, testing and design should be undertaken in

		accordance with industry practice and the provisions of relevant Australian Standards.

SC6.7.3 Development needs assessment report

SC6.7.3.1 Purpose of a Development needs assessment report

(1) A Development needs assessment report is required to:

(a) justify the need for the development given the current demand and supply of existing land and uses; and

(b) ensure the development is economically feasible, with appropriate methods implemented to mitigate or avoid any negative impacts that may result from the development.

SC6.7.3.2 Preparation of a Development needs assessment report

(1) A Development needs assessment report is to include at a minimum:

(a) a supply analysis of land zoned for the same or similar purpose as that proposed by the development within the broader locality, having regard for:
- (i) existing supply of developed and undeveloped land zoned for the same or similar purpose as that proposed;
- (ii) current competition for undeveloped land zoned for the same or similar purpose as that proposed;
- (iii) the consistency of the location with regard to the function and accessibility of the development, including infrastructure provision; and
- (iv) whether, if not satisfactorily located, it would jeopardise the provision of facilities in a location better placed to provide a higher level of choice or degree of convenience and accessibility;

(b) a demand analysis of land zoned for the same or similar purpose as that proposed by the development within the broader locality, having regard for:
- (v) the existing population currently serviced by existing development and the socio-economic characteristic of this population;
- (vi) the population anticipated to be serviced by the proposal over a short, medium and long term planning horizon and the socio-economic characteristic of this population;
- (vii) the existing and anticipated demand for floor space/dwellings over a short, medium and long term planning horizon; and
- (viii) establishment as to whether the proposed development would result in an excess of developed land (for that purpose) locally and within the broader context of the area; and whether the proposed development may be premature or inappropriate in this regard;

(c) the economic feasibility of the proposed development, having regard for:
- (ix) the identified existing supply and demand (and future anticipated demand);
- (x) the capacity/capability/maturity of the market to achieve what is required at a feasible rate and scale;
- (xi) the development size;
- (xii) nature of the services proposed to be included within it;
- (xiii) configuration of the general road network which is likely to provide access to the development;
- (xiv) location of any physical or psychological barriers to movement;
- (xv) location of complimentary, competing/similar development;
- (xvi) expected direct and indirect development employment during construction and operations;
- (xvii) changing trends in lifestyle choices and social behaviour relating to community needs which may affect the proposal; and

(xviii) any other benefits or detriments to the local area or the community in general; and

(d) outline and detail the measures that will be implemented to avoid or mitigate significant impacts identified in the assessment.

SC6.7.4 Economic impact assessment report

SC6.7.4.1 Purpose of an Economic impact assessment report

(1) An Economic impact assessment report is required to:

(a) quantify the economic effects a development may have on surrounding uses; and

(b) ensure appropriate methods are implemented to appropriately mitigate or avoid any negative impacts that may be result from the development.

SC6.7.4.2 Preparation of an Economic impact assessment report

(1) An Economic impact assessment report is to include at a minimum:

(a) the extent of existing floor space and approved new floor space in the area likely to be serviced by the proposed facility and in surrounding areas which could be affected by it;

(b) the likely trade area of the proposed facility having regard to the developments:
- (i) size;
- (ii) nature of the services proposed to be included within it;
- (iii) configuration of the general road network which is likely to provide access to the facility;
- (iv) location of any physical or psychological barriers to movement; and
- (v) location of competing facilities;

(c) the nature and adequacy of existing facilities and approved new facilities in the trade area referred to above and the level of convenience provided by such facilities;

(d) the population, existing and projected, for the likely future trade area and the socio-economic characteristics of that population;

(e) the demand, or likely future demand, for commercial floor space in the area referred to above;

(f) whether the establishment of the proposed facilities would result in:
- (i) an excess of commercial floor space of the type proposed in the area; or
- (ii) would result in an excess of commercial floor space generally; and
- (iii) whether the proposal may be premature or inappropriate in this regard;

(g) the likely impact of the proposed development together with the additional cumulative effect of any approved new commercial developments within the same area on existing businesses, with such impacts clearly articulated together with the means by which they can be ameliorated;

(h) whether the proposed location:
- (i) is consistent with the function of the facility;
- (ii) maximises accessibility within its potential trade area; and
- (iii) maximises the use of public transport and pedestrian and cycle accessibility;

(i) whether, if not satisfactorily located, it would jeopardise the provision of facilities in a location better placed to provide a higher level of choice or degree of convenience and accessibility;

(j) the expected direct and indirect development employment during construction and operations;

(k) changing trends in shopping and other behaviour relating to community needs which may affect the proposal;

(l) the environment effects and urban design implications of the proposal;

(m) any other benefits or detriments to the local area or the community in general, including the expected direct and indirect development employment during construction and operations; and

(n) outline and detail the measures that will be implemented to avoid or mitigate significant impacts identified in the assessment.

SC6.7.5 Structure plan

SC6.7.5.1 Purpose of a Structure plan

(1) A Structure plan is required to:

(a) identify the major elements of the locality surrounding a development that may impact on the planning and design of the site, ensuring the integration of the development and the continuation of corridors, networks and linkages with and beyond the development site;

(b) identify how constraints (within the various overlays) or completing interests have been addressed and reconciled; and

(c) reconcile how the site will fit into the future development of the surrounding area without compromising the effective and efficient development of those lands.

SC6.7.5.2 Preparation of a Structure plan

(1) The extent of the information contained in a Structure plan will depend upon the issues and their resolution, the context of the development in the surrounding area and the number of overlays that impact on the area and the site. The more constrained the site, the greater the level of detail required to justify the development.

(2) The major components of the development are to be designed with consideration of this broader context. The Structure plan is to be clear about how the proposed development will integrate with the surrounding community and with the existing parks, service and infrastructure networks and the movement system (road network, public transport facilities and pedestrian and cyclist paths) in the area, including as required by the Transport and parking code.

(3) The scope of a Structure plan is tailored to match the scale and likely impact of the proposed development and depends on the nature and extent of the:

(a) issues associated with the site and the immediate locality surrounding the site, such as land uses, availability of infrastructure, topographical features, significant vegetation, movement systems, natural features, historical features and existing character; and

(b) proposal, its uses, the sequence of development and external impacts such as stormwater quality and quantity management, traffic generation, public transport availability, infrastructure capacity, wildlife corridor linkages and social impacts.

(4) In addition to the general requirements of a Structure plan, an industrial structure plan is to also identify:

(a) the most appropriate location for different types of industries to minimise land use incompatibilities and conflicts;

(b) the integration of the site with surrounding development including any necessary buffering; and

(c) that any reconfiguring a lot is appropriate for the intended industry for the locality.

(5) The steps to be followed and information provided when preparing a Structure plan are outlined below.

Step 1: Site and context assessment
Prior to preparing a Structure plan, an assessment of the site and its context is undertaken and a site description of land prepared, supported by a map containing the following features as a minimum the:

a) development layout;

b) topography – contours and levels;

c) existing street network and intersections and future connections (identifying minor road connections required to facilitate efficient movement and connectivity of the local road network), and their treatments and public transport routes and their stops;

d) existing residences and structures (such as pool, tennis court or shed), land uses and approvals on surrounding sites;

e) location of nearby schools, shopping centres, employment generators and other community facilities;

f) location of surrounding existing and proposed park network and pedestrian and cyclist paths; and

g) existing infrastructure.

Step 2: Identification of constraints
Land in the Emerging community zone or Industry investigation zone is generally suitable for development. However some land has values or constraints that will influence the location, form and density of development. As a minimum, values and constraints as identified in any overlays are mapped and considered in the design of the overall development.

Step 3: Analysis of the site characteristics and constraints and allocation of land uses
Once the site characteristics and constraints have been identified, they are addressed by the Structure plan as recommended by the relevant codes and local plans where applicable. In some cases it may be possible to develop all or part of constrained sites carefully and sensitively. Alternative approaches may be required to accommodate development, for example lower development yields or sensitive residential design to ensure the retention of land with environmental or scenic constraint or other values. For other sites, development will not be possible. In many cases, a local plan or provisions within codes will articulate whether development is possible, and if so, how it should occur.

The application must demonstrate integration, namely:

a) compatibility of surrounding uses (existing and proposed) with the proposed use/s;

b) that consideration has been given to the potential for the development and coordinated and integrated development of adjoining Emerging community zone or Industry investigation zone; and

c) that the development does not prejudice the development of an adjoining premises by shifting unreasonable costs of infrastructure onto adjoining premises, such as parks, stormwater management facilities, roads and bridges.

On a smaller site, where it is not possible to include the full range of land uses that support a sustainable community, it is particularly important to demonstrate that the parks are well planned (either on the site, or already approved on adjoining land) and an integrated road network can be achieved.

If a site is in the Emerging community zone, a Structure plan is to demonstrate that the allocation of land uses ensures the following:

a) land is used primarily for residential purposes;

b) residential communities are well serviced and enjoy high amenity by providing for a range of complementary business and employment opportunities and community uses and facilities as early as possible. These may include centres, education facilities, parks, health care facilities, youth clubs and emergency services;

c) residential development has good access to public transport, local parks, education facilities, shops and community facilities. As such, these uses must be accommodated in locations that maximise the service they provide to the community and minimise any associated impacts. These uses must be centrally located or highly accessible to their respective catchments and wherever possible to be co-located in or near centres. Uses that are likely to draw significant levels of non-local traffic into residential streets will not be approved unless there is a significant offsetting of community benefit and traffic impacts can be minimised;

d) residential development provides appropriate housing choices for all people and allows residents the opportunity to remain within their neighbourhoods during all stages of their life, with a range of housing choices provided throughout the area. However, houses at low density should predominate; and

e) development does not impinge on the legitimate operation of existing uses and is suitably buffered from incompatible existing uses on the site or on adjacent land.

Industrial development may occur in the Industry investigation zone subject to the identification of environmental performance of the development and the mechanism for the provision of infrastructure in the development.

When allocating industry investigation zoned land for future industrial development, the nature of the industry and the intended industry zone is to align with the separation distances to sensitive zones as detailed in the Reconfiguring a lot code and the assessment benchmarks of the applicable codes.

If a site in the Centre zone or Mixed use zone, a Structure plan is to detail the following:

a) the mixture and proportion of uses and how these will contribute to economic vitality and the physical environment;

b) key site planning and design elements of the development and how these contribute to the overall centre or corridor structure, movement and circulation network and built form character;

c) building, open space and landscape siting and how these promote and support:
   i) economic activity and community service delivery;
   ii) public transport interchange;
   iii) accessibility and connectivity;
   iv) safety and security;
   v) community use and meeting;
   vi) higher density residential living;
   vii) the character and identity of the centre or mixed use area; and
   viii) design for climatic comfort, energy efficiency and subtropical outdoor living;

d) the streetscape and public space interface including public and publicly accessible spaces and linkages, active frontages or significant corner treatments;

e) development interfaces to the surrounding neighbourhood, adjoining sites and to other buildings or uses within the site to mitigate and manage amenity impacts;

f) air or noise impacts on the site and how these will be addressed through use, site planning or building design; and

g) the existing reduced levels and proposed finished levels for all elements.

Step 4: Document the Structure plan
The structure plan design, including land use allocation, movement network design, and open space and park network provision, is to actively promote achievement of the applicable zone and the intent of any relevant local plan.

The structure plan design is to also enable the development to comply with the requirements of all other relevant codes unless specified otherwise by a local plan.

The structure plan is to contain the degree of detail appropriate to the particular development and its circumstance and at a minimum map and report on the following:

a) the approximate lot or dwelling yield for each part of the site (density);

b) the location of each proposed land use, including where applicable, the extent of facilities proposed such as community facilities, centres, employment and education facilities;

c) how and where broad physical infrastructure is to be provided such as water, sewerage and stormwater;

d) the general location and size of parks including corridor linkages and networks and identify the park zone precinct and type that aligns with the intended future function of the site;

e) the existing and proposed pedestrian and cyclist paths;

f) the existing and proposed road network, including level in the hierarchy;

g) the existing and proposed public transport routes and stops; and

h) the proposed staging of development.

When in map form, the information is to be provided at a maximum scale of 1:2,000 and includes a bar scale and north point.

Step 5: Level of consultation required for a structure plan
The preparation of a structure plan will entail the level of consultation required by the *Planning Act 2016* for impact assessable development. On smaller sites, the consultation required by the *Planning Act 2016* would generally suffice.

However, where the site or the proposal entails complex issues, or involves a large site with multiple precincts and land uses, and/or the structure plan is inadequately detailed to facilitate informed public submissions, Council may require additional material and community consultation as part of a formal Information Request.

SC6.7.6 Traffic impact assessment report

SC6.7.6.1 Purpose of a Traffic impact assessment report

(1) A Traffic impact assessment report is required to:

(a) quantify the effects a development may have on traffic movement and safety on the site and adjacent transport network (streets and intersections) within the sphere of impact of the development; and

(b) ensure appropriate methods are implemented to appropriately mitigate or avoid any negative impacts that may be result from the development.

SC6.7.6.2 Preparation of a Traffic impact assessment report

(1) A Traffic impact assessment report includes at a minimum the following information for the site and the adjacent transport network (streets and intersections) within the sphere of impact of the development:

(a) an assessment of present traffic operations and safety without the development;

(b) an assessment of traffic operations and safety for the following scenarios:
- (i) 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;
- (ii) without the development on a 10 year planning horizon from completion of the development; and
- (iii) with the proposed and any additional upgrading works proposed in conjunction with the development on a 10 year planning horizon from completion of the project;

  Note—Council should be consulted regarding the expected traffic growth rates for assessing the future scenarios.

(c) a statement describing how the development will provide for safe and convenient movement to, from and within the site;

(d) a statement describing how the development will facilitate walking, cycling and greater use of public transport in preference to using private motor vehicles for trips to and from the development;

(e) a statement describing how public transport services and infrastructure will be improved as a result of the development, particularly where relating to indented bus bays and bus shelters;

(f) a statement describing the measures used to ensure maximum accessibility from the site to public transport, including where future public transport services are envisaged;

(g) a statement describing the measures used to ensure that through traffic is not introduced into local street systems;

(h) an assessment of existing parking supply and demand in the vicinity of the development for both on- and off-street parking, and an assessment of the impact of the development on this parking supply and demand;

(i) a statement describing the appropriate provision for parking in the development based on land use and the potential for trip-making by public transport, or by walking and cycling;

(j) a statement describing the appropriate provision for on-site bicycle parking facilities;

(k) a statement describing whether the proposed means of ingress to or egress from the development are adequate and located appropriately according to the road hierarchy;

(l) an assessment of the provisions made for the loading, unloading, manoeuvring and parking of service vehicles within the development and on the subject site;

(m) an assessment of refuse storage area/s and demonstration of safe vehicle access for the removal of refuse;

(n) an assessment of the proposed routes within the development used by service vehicles associated with the development, and the impacts of heavy vehicle movements on these routes;

(o) an assessment of the potential for integration of access with adjacent development through sharing of common ingress and egress arrangements;

(p) an assessment of the impacts on public transport, traffic operations and parking as a result of any temporary works required during construction;

(q) a record of any comments made by the Department of Transport and Main Roads or any other State planning authority that comply with the rights and powers of these agencies;

(r) an assessment of the existing and likely future amenity of the surrounding area, and of the potential impacts of the development on that amenity;

(s) a statement describing all of the assumptions made in the preparation of the report and the design parameters adopted in the technical analysis;

(t) a statement describing how traffic generation and parking proposed rates (based on gross floor area) are supported by reference to publicly available documents or attaching actual traffic survey data for a similar activity;

(u) a statement describing how the layout of the development provides for the safe movement of pedestrians and cyclists within the development and to/from the core of the development and the frontage streets, taking into account the location of public transport and pedestrian facilities;

(v) an assessment of the operation of any security boom gate or card reader and its impact on vehicle queuing on the frontage roads; and

(w) an assessment of traffic signals operation based on existing signal phasing, including impact on adjacent intersections.

SC6.8 Whitsunday Regional Council development manual planning scheme policy

SC6.8.1 Introduction

SC6.8.1.1 Relationship to the Planning Scheme

(1) The planning scheme policy applies to development requiring submission of approval applications, including design details and construction procedures.

(2) It is the intention of the WRC Development manual to set out procedures and requirements that are consistent with the *Planning Act* 2016 and its supporting legislation, and represent 'best practice' in accordance with accepted current state and national standards for design and construction.

(3) The WRC Development manual sets out procedures involved in applying for an Operational Works Permit for Works that will ultimately be in the ownership and maintenance responsibility of Council or other services authorities or works which are subject to approval by Council.

SC6.8.1.2 Purpose

(1) This planning scheme policy provides:

(a) a comprehensive, practical and authoritative guide through the development approval process from inception to completion for Developer's, Consultants, Contractors and Council Officers; and

(b) a consistent set of Engineering standards for implementation across the Whitsunday Region.

SC6.8.2 Whitsunday Regional Council (WRC) development manual

(1) For further detail regarding procedure or specifications, refer to the WRC development manual document.

Whitsunday Regional Council Development Manual

Version No. 3.7

Issued 21/12/2018

This document is the property of Whitsunday Regional Council and is issued to developers, consultants, contractors and Council officers responsible for the development process from inception to completion.

No unauthorised changes are to be made to this manual. Suggested changes are to be forwarded to the Manager Strategic Planning for consideration.

Table of Contents

Definitions and Acronyms

AASHTO	American Association of State Highway & Transportation Officials
AC	Asphaltic Concrete
ADWF	Average Dry Weather Flows
AHD	Australian Height Datum
AMCORD	Australian Model Code for Residential Development
ARI	Average Recurrence Interval
AEP	Annual Exceedance probability
ASD	Approach Sight Distances
ASS	Acid Sulphate Soils
AV	As Values
BBQ	Barbecue
CBR	California Bearing Ratio
Consulting Engineer	An RPEQ certified engineer
CPESC	Certified Professional in Erosion and Sediment Control
CPTED	Crime Prevention through Environmental Design
Days	Business days
Defects Liability	Means the obligation upon the developer/applicant to repair any defects (latent or patent) in the development.
Defects Liability Period	Means the period commencing on the date stated in Council's Defects Liability Letter and ending on the date stated in that letter. For the avoidance of doubt, Council may impose a different period for defects liability and 'on maintenance' periods.
DICL	Ductile Iron Cement Lined
DTMR	Department of Transport and Main Roads
EP	Equivalent Persons
ESA	Equivalent Standard Axles
ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
ESCS	Erosion and Sediment Control Strategy

ESD	Entering Site Distance
FRC	Fibre Reinforced Pipe
HDPE	High Density Polyethylene
IDF	Intensity Frequency Duration
IEAust	Institute of Engineering Australia
IPWEA	Institute of Public Works Engineering Australia
ITP	Inspection and Test Plan
K	Potassium
LATM	Local Area Traffic Management
MUTCD	Manual of Uniform Traffic Control Devices
N	Nitrogen
NATA	National Association of Testing Authorities
Off Maintenance	Means that the ownership and the maintenance obligations have transferred to Council upon completion of the “Off Maintenance” inspection occurring at the end of the “On Maintenance” period.
On Maintenance	Means that ownership of the asset has passed to Council but the maintenance responsibility and obligation remains with the developer/applicant for the On Maintenance Period. Maintenance includes but is not limited to mowing, whippersnipping, watering, cleaning and general upkeep, as well as the rectification of any defects and shall be at the sole cost of the developer (unless caused by Council activities).
On Maintenance Period	Means the period of time commencing on the date of issue of the “On Maintenance “letter from Council and ending on the date stated in that letter.
P	Phosphorus
PASS	Possible Acid Sulphate Soils
PE	Polyethylene
PVC-M	PVC modified
QLD	Queensland
QUDM	Queensland Urban Drainage Manual
RM	Rising Main
RPEQ	Registered Professional Engineer Queensland

RPZD	Reduced Pressure Zone Device
SCADA	Supervisory Control and Data Acquisition
SISD	Safe Intersection Site Distance
SQID	Stormwater Quality Improvement Devices
Surveyor	Registered Surveyor with the Surveyor's Board of Queensland
SV	Scour Valves
U PVC	Unplasticised PVC
Vpd	Vehicles per day
Wet Sediment Basin	A wet sediment basin has the capacity to contain all run-off expected from the y percentile, X – day rainfall depth where, depending on the sensitivity of the receiving waters and/or the duration that the structure is in use: x varies between 2 and 20 days and y varies between 75th and 90th percentile. Refer to IECA best practice erosion and sediment control.

A1 – APPLICATION PROCEDURES

General

AP 1.01 Introduction

1.01.1 This manual sets out procedures involved in applying for an Operational Works permit for works that will ultimately be in the ownership and maintenance responsibility of Council or other service authorities or works which are subject to approval by Council;

1.01.2 It should be read in conjunction with the relevant approvals and/or what development permit conditions;

1.01.3 Conditions of a development permit (including reconfiguration) may require the Applicant to construct, bond and/or submit, various works or documentation before survey plans can be approved and sealed by Local Authority or before a development may be occupied or a land-use commenced;

1.01.4 Preliminary approvals/development permits requiring the construction of operational works generally involve the applicant and/or a designer applying for an operational works permit and request in Council approval of designs and specifications;

1.01.5 Plans for roadworks, drainage works, water supply, sewerage works, bridges, retaining walls, miscellaneous structures, buildings, pumping stations and flood control structures are to be prepared under the direction of and certified by an RPEQ;

1.01.6 plans for landscape works by a person of professional standing and competence in the field of landscape architecture or landscape design, and a standard acceptable to the Council. Where irrigation plans are required for public parks, traffic islands or roundabouts, they are to be prepared by an irrigation designer with a proven track record of successful irrigation design;

1.01.7 designs, calculations, drawings and specifications are to be submitted as supporting information to an application for a Development Permit for Operational Works;

1.01.8 Operational Works permits will not be issued until evidence of payment of the Portable Long Service Leave and Occupational Health & Safety fees is provided.

Design Approval

AP 1.02 Pre-lodgement discussions

1.02.1 Prior to lodgement of an Operational Works application for approval of detailed designs, the designer is encouraged to meet with Council officers to discuss the

following matters in the event that the following issues have not been addressed at reconfiguration of a lot approval:

1.02.1.1 Legal points of stormwater discharge;
1.02.1.2 Identify environmentally significant areas and heritage features;
1.02.1.3 Internal and external stormwater catchment boundaries;
1.02.1.4 Tail water conditions including water quality requirements and determination of tail water level;
1.02.1.5 Connection points for water supply and available pressure and discharge capacities;
1.02.1.6 Discharge points for sewerage;
1.02.1.7 setback distances from watercourses for on-site wastewater treatment and disposal;
1.02.1.8 future planning for the provision of services, e.g., water supply, sewerage, drainage and road networks, stream management and stormwater quality management, structures, power, communications and gas. In special circumstances, the Council may require the installation of large water mains to serve areas beyond the development;
1.02.1.9 Site Conditions;
1.02.1.10 Development Permit Conditions for the for the particular development;
1.02.1.11 layout design, speed restriction; and
1.02.1.12 landscaping works for on street works and public open space.

1.02.2 Approval of designs can be expedited where the above issues have been resolved in advance;

1.02.3 The designer may obtain as constructed information in relation to existing roads, stormwater drainage, water and sewer reticulation if available from Council, on application and payment of a prescribed fee (where applicable);

1.02.4 in addition to the above, it is advisable that the designer discuss and obtain Council's agreement to the following issues (where required) prior to submission of designs:

1.02.4.1 Possible variation to Council's manual and standards;
1.02.4.2 Variations to design due to inability to obtain drainage discharge approvals; and
1.02.4.3 Request for Council to contribute towards some aspects of the work.

1.02.5 Resolution of these issues, particularly those requiring a decision of Council (i.e. amendments to conditions of approval, or request for Council contributions) is essential to avoid protracted approval periods and wasted design effort.

AP 1.03 Design Requirements

1.03.1 The design of operational works must comply with the relevant development permit conditions, Council's local laws, policies, planning scheme and the provisions of

this manual. The developer shall meet all costs associated with the compliance with these minimum requirements.

1.03.2 Design is to demonstrate a non-worsening affect to surrounding infrastructure, where upgrades are required the developer must bear the all costs associated with the required upgrade.

1.03.3 It is Council's requirement that the design of all operational works must be prepared under the direction of, and certified by, an RPEQ. The RPEQ must bear full responsibility for all aspects of the design of the operational works, which they certify.

1.03.4 Road safety audit to be undertaken by a suitably experienced RPEQ as per the requirements and Austroad's Guide to Road Safety to verify designs and signage prior to submission to Council.

AP 1.04 Consent of Adjoining Landowners

1.04.1 Written approval is required from adjoining property owners authorising any operational works on their property (if under an easement authorisation must come from the easement owners).

1.04.2 Approvals to discharge and/or easements over downstream drainage paths from the respective property owners are required from the development site to the approved point of discharge.

AP1.05 Documentation

1.05.1 Associated with the lodgement of the "Application for Operational Works Development Permit", engineering plans and specifications for the works are to be submitted to Council for approval (the specific requirements for the submission).

1.05.2 Submissions with a full complement of supporting documentation will ensure minimal delays in Council's approval timeframes.

1.05.3 Following the issue of an operational works permit, any plans that are required to be amended must be resubmitted with an accompanying letter outlining the amendments and including any necessary calculations or documentation as supporting information.

1.05.4 One complete description must be issued to Council incorporating any required amendments following the issue of an operational works permit.

AP 1.06 Local Authority Approval

1.06.1 The "Statement of Compliance – Operational Works Design" (refer Form 1) has been introduced to expedite the approval process.

1.06.2 Any non-compliant aspects are to be re-designed by the certifying RPEQ and relodged to Council for approval.

1.06.3 If the Council review reveals the Statement of Compliance to be inaccurate or incomplete, the submission may be returned to the applicant for resubmission.

1.06.4 It is the RPEQ's responsibility to ensure the design as submitted considers all site conditions and complies with Council's approval conditions, local laws, policies, the provisions of this Development Manual and other relevant authorities.

1.06.5 Council's review and stamp approval process does not warrant that an approved design complies with the above in every respect, and Council reserves its right to order the rectification of non-complying or unsafe works at the cost of the developer, despite its prior approval.

1.06.6 Within five (5) days of Council's approval, the designer shall submit an electronic copy of the requirements of 1.08 below.

1.06.7 Three (3) street names for each new street (in line with any Council naming policy) must be lodged for consideration and approved by Council before construction is complete.

AP 1.07 Approval of Other Authorities and Referral Agencies

1.07.1 The applicant is responsible for gaining the approvals of any other authorities having jurisdiction over any part of the works.

1.07.2 All works on state-controlled roads will be subject to DTMR approval and is to be carried out in accordance with the Department's policies, standards and guides.

1.07.3 All referral agency conditions are to be included in design documents and must be approved by each agency (if required), prior to submission to Council.

AP 1.08 Supporting Information

General

1.08.1 Supporting information for operational works shall include the following:

- 1.08.1.1 Design Plans (in DWG and PDF Format)
- 1.08.1.2 Job specification (one copy)
- 1.08.1.3 Design report (one copy)
- 1.08.1.4 Design checklist
- 1.08.1.5 DA form 1 and/or relevant application forms from the *Planning Act 2016*
- 1.08.1.6 Evidence that the prescribed application fee as stated in Council's fees and charges schedule, has been paid.
- 1.08.1.7 Evidence of payment of the Portable Long Service Leave Levy and Occupational Health & Safety fee.
- 1.08.1.8 'Permit to Enter & Construct' letters and easement documents relevant to the application.

Design Plans

1.08.2 Design plans shall be definitive and clearly set out to present the design concepts in such a way that the project can be understood, specified for construction and satisfactorily built, generally in accordance with AS1100.101.

1.08.3 All design plans should be clearly numbered with separate sheets numbered as part of a set.

1.08.4 Sheets of drawings should not be overcrowded with information and should not rely on colour printing or colour wash to impart information. Drawing should be true to scale A1 size sheets and be suitable for black and white copying and photo reduction.

1.08.5 Design plans must be certified by an RPEQ (refer 1.03.2).

Job Specification

1.08.6 A job specification must be prepared by the designer specifying site-specific requirements not covered in standard specifications.

1.08.7 All work shall be in accordance with Council standard specifications where available. Where Council standard specifications exist for a particular type of work, the designer may use the Department of Transport and Main Road specification or their own standard specification. Both options will be subject to approval by Council.

Design Report

1.08.8 The engineering design and materials used must be selected to minimise the whole of life Cost to Council. The designer must demonstrate how the design complies with this requirement.

1.08.9 The design report is to contain the following:

- 1.08.9.1 a completed 'Statement of Compliance – Operational Works Design' endorsed by the designers.
- 1.08.9.2 A copy of the development approval conditions on which the design is based including a summary of the design submission referencing each of the development approval conditions.
- 1.08.9.3 Records of pre-submission discussions with Council including confirming correspondence.
- 1.08.9.4 Copies of letters of approval from adjoining property owners for any works or discharge on the properties.
- 1.08.9.5 Evidence that negotiations have been entered into regarding provision of supply with service authorities (including approved reticulation/service plans, if available).
- 1.08.9.6 Stormwater drainage calculations in spreadsheet format in accordance with QUDM requirements including detail of pit types and capture charts used and tell water levels adopted.
- 1.08.9.7 Design details of alternatives proposed which depart from the development manual/development conditions with supporting arguments for how the alternative meets Council's objectives.
- 1.08.9.8 Design calculations for detention basins, dissipated as, open channel, catch strain, adopted tail water levels etc.

1.08.9.9 design criteria and parameters operating regimes and calculations for permanent water quality works such as stormwater quality improvement devices (SQIDs), sediment basins, trash racks, etc and demonstrated consistency with catchment Stormwater Quality Management Plan and water quality report which accompanies the development application.

1.08.9.10 An Erosion and Sediment Control Strategy (ESCS) addressing erosion and sediment management during construction.

1.08.9.11 Traffic Management Plan in accordance with the MUTCD.

1.08.9.12 Water and sewerage reticulation networks in a format compatible with Council's network system.

1.08.9.13 If the water supply is from a newly developed source, provide information on quality, quantity, disinfection and infrastructure proposed.

1.08.9.14 Pavement design including records of geotechnical tests indicating subgrade CBR's, adopted traffic load, requirements for subsoil drainage and subsoil drainage design by geotechnical engineer.

1.08.9.15 Geotechnical reports, where relevant, relating to slope and batter stability, in situ materials etc.

1.08.9.16 Structural and geotechnical certification of design of miscellaneous structures including retaining walls, non-standard headwalls, drainage structures, reservoirs etc.

1.08.9.17 design parameters and operating regimes for water supply and sewerage pump stations.

1.08.9.18 Full design drawings and pre-commissioning plan for water and sewerage pump stations.

1.08.9.19 Landscaping design drawings for subdivision works showing details of Park/reserve planting, Street treeplanting, buffer zone planting, and any hill slope development works if applicable.

1.08.9.20 Four stage development, master plans showing the overall design concept for:

1.08.9.20.1 Water including pump stations.

1.08.9.20.2 Sewer including pump stations.

1.08.9.20.3 Stormwater.

1.08.9.20.4 Road works.

1.08.9.20.5 Earthworks.

1.08.9.20.6 Road hierarchy.

1.08.9.20.7 Pathways.

1.08.9.20.8 Public transport.

1.08.9.20.9 Lighting and other services.

1.08.9.20.10 Easements, freehold lots and land to be deeded to Council for accommodating the works.

1.08.9.20.11 Open space areas.

1.08.9.20.12 Erosion and sediment control strategy and location of permanent survey marks.

1.08.9.21 With stage I development and with updated copies to be provided with each subsequent stage. Subsequent development plans will show the "as constructed" information of all the earlier stages.

1.08.9.22 Selection of materials and components to be transferred to Council ownership must comply with service standards specified by Council (e.g. minimised whole of life Costa, reliability etc).

1.08.9.23 A fully priced estimate of construction costs in the form of a priced schedule of quantities.

AP 1.09 General Requirements

Plan Presentation

1.09.1 These presentation minimum standards will apply to engineering and landscape plans submitted for approval for operational works associated with approved developments.

1.09.2 Standardisation of the presentation of operational Works plans submitted for approval is necessary for consistency in Council's records and desirable for expedient review and approval.

1.09.3 Scaled engineering drawings in accordance with this manual are required for plan review.

AP 1.10 Title Block

1.10.1 Each sheet of the design drawings shall have a title block containing the following information:

1.10.1.1 Development/estate name (if any)

1.10.1.2 Locality/approved street name.

1.10.1.3 Developers name.

1.10.1.4 Bar scales as a minimum (alternatively numerical scale with original sheets I stated).

1.10.1.5 Plan number and sheet number.

1.10.1.6 Schedule and date of amendments.

1.10.1.7 Certification by RPEQ (for engineering drawings).

AP 1.11 Sheet Sizes

1.11.1 Preferred sheet sizes (overall dimensions) are A1 (841mm x 593mm) and A3 (420mm x 297mm).

AP 1.12 Scales

1.12.1 scales used for plan should preferably be those recommended by the standards Association. Generally, the following scale should be used 1:1, 1:2, 1:5 in multiples of 10 of these. All scales should be bar scales.

1.12.2 The following scales are also acceptable:

Description	Urban	Rural
Plans	1:500*	1:1000
Longitudinal Section:		
Horizontal	1:500	1:1000
Vertical	1:50	1:100
Intersection Details	1:100, 1:200	1:500
Cross Sections	1:100	1:100
Engineering Details	1:1, 1:2, 1:5 and multiples of 10 of these scales.	

*Sewerage Reticulation should be 1:500.

AP 1.13 Dimensions

Dimensioning on Plans

1.12.1 Linear dimensions on all roadworks plans will be in metres, with the exception of some detailed plans of small structures (e.g. manholes) and some standard plans (e.g. kerb and channel) which may be in millimetres.

1.12.2 Details of methods of dimensioning shall be in accordance with AS1155 – Metric Units in Construction.

Standard Cross-Section Intervals

1.12.3 Urban and rural cross sections should be provided to roads at 20 m intervals and tangent points, with further reduction to 10 m or 5 m intervals when necessary due to horizontal or vertical curvature.

Chainage and Offset Dimensions

1.12.4 Chainage and offset dimensions on plans shall be expressed to 0.01 m (0.005 may be used as the order of accuracy requires).

AP 1.14 Levels

1.14.1 All levels must be reduced to Australian Height Datum, unless otherwise approved by Council.

1.14.2 Reduced levels of benchmarks and reference pegs including Permanent Survey Marks shall be expressed to 3 decimal places i.e. 0.001m. the location of the origin of the survey must be on the plan.

1.14.3 Reduced levels of roadworks and stormwater drainage must be expressed to 3 decimal places i.e. 0.001m.

1.14.4 Reduced levels of sewerage reticulation shall be expressed to 3 decimal places i.e. 0.001m.

AP 1.15 Grades

1.15.1 Road grade must be shown as a percentage to 2 decimal places.
1.15.2 Pipe grade must be shown either as a percentage to 2 decimal places or as a gradient to one decimal place

AP 1.16 Drawings Required

Design Drawings

1.16.1 Operational Works drawings will generally consist of the following:
- 1.16.1.1 locality plan.
- 1.16.1.2 Subdivision layout/staging plan (if applicable).
- 1.16.1.3 Earthworks plan.
- 1.16.1.4 Roadworks and drainage plan.
- 1.16.1.5 Longitudinal section of each road.
- 1.16.1.6 Type cross sections for each Road.
- 1.16.1.7 Cross sections of each Road.
- 1.16.1.8 Detailed plan of each intersection and cul-de-sac.
- 1.16.1.9 Longitudinal section of each stormwater drainage line.
- 1.16.1.10 Sewerage reticulation plan, long section and pump station details.
- 1.16.1.11 Water reticulation plan and pump station plans and details.
- 1.16.1.12 Landscape plan.
- 1.16.1.13 Erosion and sediment control strategy.
- 1.16.1.14 Service provider's conduit plan, including street lighting.
- 1.16.1.15 Stormwater catchment plans/drainage calculation table.
- 1.16.1.16 Miscellaneous details.

1.16.2 The minimum requirements for each drawing a detailed in the following sections.

AP 1.17 Locality Plan

1.17.1 Locate the subdivision/development in relation to adjacent towns, major roads, major streets, etc.
1.17.2 Northpoint.
1.17.3 May be included on layout/staging plan for large jobs or roadworks and drainage plan for smaller jobs.

AP 1.18 Subdivision Layout/Staging Plan

1.18.1 For stage subdivisions, the layout plan should show the relationship of all new roads and infrastructure to each other, and to existing roads and infrastructure

adjoining the subdivision. All adjacent structures and services are to be shown also.

1.18.2 Where development is to be carried out by stages, the boundaries of proposed stages should be shown on this plan, and the stages identified by numbering.

AP 1.19 Earthworks Plan

1.19.1 The earthworks plan may be included with the roadworks and drainage plan for smaller subdivisions and shall include:

- 1.19.1.1 Legend.
- 1.19.1.2 Existing site contours and finished surface contours (spot levels should be used to complement contours)
- 1.19.1.3 limits and levels of all major allotment cut and fill – distinguished by hatching.
- 1.19.1.4 Locations of cut and fill batter relative to allotment boundaries.
- 1.19.1.5 Location and levels of retaining walls (if required).
- 1.19.1.6 Batter slopes and treatment.
- 1.19.1.7 Appropriate flood levels in accordance with Council's policies.
- 1.19.1.8 Northpoint.
- 1.19.1.9 Locations and levels of permanent survey Marks, reference stations etc used as datum for the works.
- 1.19.1.10 Vegetation including trees proposed to be removed in days to be retained.
- 1.19.1.11 The smaller subdivisions, the earthworks details may be included on the roadworks and drainage plan.

AP 1.20 Roadworks and Drainage Plan

1.20.1 The plan of each Road shall include:

- 1.20.1.1 Legend.
- 1.20.1.2 Road reserve boundaries.
- 1.20.1.3 Allotment numbers and boundaries, both existing and proposed (including existing and proposed easements).
- 1.20.1.4 Chainages, on centreline or construction line.
- 1.20.1.5 Bearings of the centreline or construction line.
- 1.20.1.6 Tangent point chainages of each curve.
- 1.20.1.7 Radius and arc, tangent length of each curve.
- 1.20.1.8 Chainage and the intersection point of Road centrelines or construction lines.
- 1.20.1.9 Kerb lines, kerb radii, and chainage of all tangent points of the kerb line.
- 1.20.1.10 Footpaths/bikeways and pram ramp locations.
- 1.20.1.11 Fencing.
- 1.20.1.12 Access where required to be constructed.
- 1.20.1.13 Edge of pavement, we know curb is to be constructed.

1.20.1.14 Dimensioned road reserve, footpath and pavement widths, where these differ from the standard cross-section.
1.20.1.15 Existing and finished surface contours, highlighting cut and fill areas.
1.20.1.16 Drain line locations, diameters (including extent of easements where required).
1.20.1.17 Drainage structures and structure number.
1.20.1.18 Subsoil drain locations.
1.20.1.19 Location of existing utilities and other existing works within the site.
1.20.1.20 Location of all service clashes including levels of services and clearance distance.
1.20.1.21 Location and levels of benchmarks and reference pegs.
1.20.1.22 Northpoint.
1.20.1.23 Line marking and signing*.
1.20.1.24 Guideposts, guardrails and other traffic control devices*.
1.20.1.25 Creek protection works and the like.
1.20.1.26 Street name signs*.
1.20.1.27 Overland drainage paths.

*may be shown on separate plan(s).

AP 1.21 Longitudinal Sections of Roads.

1.21.1 The longitudinal section of each road shall include:
1.21.1.1 Chainages.
1.21.1.2 Existing surface levels – design Road centreline levels.
1.21.1.3 Cut and fill depths.
1.21.1.4 Design grades.
1.21.1.5 Chainages and levels of grade intersection points.
1.21.1.6 Chainages and levels of tangent points of vertical curves.
1.21.1.7 Chainages and levels of crest and sag locations.
1.21.1.8 Lengths and radii of vertical curves.
1.21.1.9 Sections on control lines on superelevated curves (i.e. pavement edges, kerb or lane edges), curve widening and superelevation details.
1.21.1.10 Location of services where they cross the centre of the road.

AP 1.22 Type Cross-Sections

1.22.1 A type cross-section shall be shown for each Road, including:
1.22.1.1 Road reserve with.
1.22.1.2 Pavement widths including medians (as applicable).
1.22.1.3 Footpath widths.
1.22.1.4 Cross falls of pavement and footpath.
1.22.1.5 Pavement depth – nominal or design.

1.22.1.6 Type of kerb and channel.
1.22.1.7 Type of pavement surfacing.
1.22.1.8 Sub – soil drainage.
1.22.1.9 Table drain details for rural roads.
1.22.1.10 Batter slopes.

1.22.2 The standard cross-section may be included in the detailed cross-section is provided for each Road.

AP 1.23 Cross-Sections of Roads

1.23.1 A cross-section shall be shown at the intervals defined in this manual for each Road and shall show:

1.23.1.1 Road reserve boundaries.
1.23.1.2 Pavement centreline and/or other construction line.
1.23.1.3 Natural surface profile.
1.23.1.4 Design cross-section.
1.23.1.5 Cross full of pavement and footpath, pavement and footpath widths and pavement depths wherever these differ from the standard cross-section.
1.23.1.6 Chainage of cross-section.
1.23.1.7 Datum reduced level.

AP 1.24 Detail Plans of Intersections and Cul-De-Sacs

1.24.1 Intersection detailed plans shall include all the relevant information required for roadworks and drainage plans, as listed above together with additional details such as kerb levels on kerb returns, pavement contours, channelisation works, line marking, signing and pram ramps.

AP 1.25 Longitudinal Sections of Stormwater Drainage Lines

1.25.1 A longitudinal section of each drain line shall be shown, including:

1.25.1.1 Chainages.
1.25.1.2 Existing surface levels.
1.25.1.3 Design finished surface and invert levels.
1.25.1.4 Drainage structure chainage is and offsets and inlet and outlet invert levels.
1.25.1.5 Distances between drainage structures.
1.25.1.6 Grade of each pipe.
1.25.1.7 Material and diameter of each pipe length.
1.25.1.8 Hydraulic grade line.

1.25.1.9 Drainage structure type and sizes and/or reference to separate detailed drawing.

1.25.1.10 Crossings with any other services (location and invert level of pipe crossing).

AP 1.26 Sewer Concept Plan

1.26.1 Where development incorporates multiple stages, sewer concept plan must be prepared by the consultant.

1.26.2 This concept plan must be submitted prior to proceeding with detailed design and should include the following:

1.26.2.1 location, size, approximate depth, and alignment of gravity sewers.

1.26.2.2 Location, size and alignment of rising mains.

1.26.2.3 Location of pump stations and lift stations including justification for the use.

1.26.2.4 Contour information at 1 m intervals maximum or to suit the topography of the land for both natural surface and finished surface contours.

1.26.2.5 Contributing catchments (internal and external) showing the equivalent persons (EP).

1.26.2.6 Justification for redirecting flows between sewerage districts were proposed.

1.26.2.7 Details of the influence on downstream catchments and systems.

1.26.2.8 The flow contributing to each section of main including the estimated design capacity, e.g.:

EP300

PWWF	14.3 L/s
Pipe Size	225 diameter
Max Pipe Cap	26.2L/s

1.26.3 Access for maintenance of the system should be considered when locating manholes etc (refer section D7.07).

1.26.4 During the preparation of the concept plan consideration must be given to the integration of other infrastructure design, overall site earthworks and the impacts on existing upstream and downstream developments and potential developments.

1.26.5 As part of the preparation of the concept plan, the requirements of section 2 – concept designs in WSA 04 – 2005 Sewerage Pumping Code of Australia should also be included.

AP 1.27 Sewerage Reticulation Plan Longitudinal Section

1.27.1 The sewerage reticulation plan shall include:

- 1.27.1.1 Legend.
- 1.27.1.2 All allotments and allotment numbers.
- 1.27.1.3 Boundary of the subdivision.
- 1.27.1.4 North Point.
- 1.27.1.5 Location and size of existing sewers.
- 1.27.1.6 Invert levels of existing lines.
- 1.27.1.7 Location of other services which cross sewer lines.
- 1.27.1.8 Location of manholes with manhole numbers (including dimensions where not shown on alignment).
- 1.27.1.9 Identification of allotments, which are currently sewered.
- 1.27.1.10 Finished surface contours sufficient to enable verification of property connection design.
- 1.27.1.11 Details of permanent survey marks including AHD from which levels are to be transferred.
- 1.27.1.12 Grading information for new sewer lines including distance between manholes, pipe grades, pipe diameter, pipe material and class of each pipe length.
- 1.27.1.13 Manhole cover type and class.
- 1.27.1.14 Manhole inlet types.
- 1.27.1.15 Locations and level of sewer property connections and type.
- 1.27.1.16 Details of pumping stations including location, inlet/outlet levels, overflow, cut-off levels, electrical switchboard layout and water supply, size of pumping plant.
- 1.27.1.17 Diameter, material class and route of pressure main(s); indicating air valve and scour valve locations.
- 1.27.1.18 Clear identification of any alterations/connections to existing sewers to be completed by Council at developer's cost.
- 1.27.1.19 Finished surface contours with spot levels to compliment contours.
- 1.27.1.20 Ultimate sewer design flows including catchment plan for staged development if applicable.
- 1.27.1.21 Gravity sewer pipe capacities.
- 1.27.1.22 Structural design of pipes for pipes with more than 3m of cover.
- 1.27.1.23 Thrust block calculation where required.
- 1.27.1.24 Diagram showing all allotment controls.
- 1.27.1.25 Flow velocities under different flow conditions.
- 1.27.1.26 Rising main hydraulic grade line.
- 1.27.1.27 System resistance and pump curves showing static and friction head and duty points.
- 1.27.1.28 Demonstration of pipeline capacity to resist cyclical pressure effects over a 100-year lifespan of the systems.
- 1.27.1.29 Estimation of pump start, stop, alarm, overflow and other control levels.
- 1.27.1.30 Calculations supporting the provision of wet well storage.

1.27.1.31 Calculations showing that floatation forces are counteracted for all buried or all partially buried structures.
1.27.1.32 Estimation of electrical loads – Mains Supply proposed; and Radio Frequency interference screening measures.
1.27.1.33 Structural calculations where necessary for the pump well and associated works.
1.27.1.34 Calculations supporting the hydraulic design of emergency relief structures.

1.27.2 The longitudinal section of each sewerage line should include:
1.27.2.1 Existing surface levels.
1.27.2.2 Design finished surface.
1.27.2.3 Manhole number.
1.27.2.4 Distance between manholes.
1.27.2.5 Grade of each pipe length.
1.27.2.6 Diameter, material and class of each pipe length.
1.27.2.7 Manhole diameter and cover type.
1.27.2.8 Manhole inlet types review.
1.27.2.9 Invert levels of existing lines.
1.27.2.10 Crossings with any other services (including location, size, invert levels and clearance of pipe crossing).

AP 1.28 Water Reticulation Concept Plan

1.28.1 Where development incorporates a large number of lots with multiple stages, the consultant shall submit a water reticulation concept plan of the water reticulation showing proposed mains sizes, connections to existing mains and valve positions. The concept plan is to be supported by computer network analysis.

1.28.2 This concept plan shall be submitted prior to detailed design and should include the following:
1.28.2.1 layout of mains, together with the development layout.
1.28.2.2 Key to network analysis i.e. node points, elevation, demand.
1.28.2.3 Size and type of mains, indicated graphically and distinguished by colour and/or line type.
1.28.2.4 Design parameters – number of lots, number of EP's design flows.
1.28.2.5 Legend of land uses (i.e. residential, industrial precincts etc).
1.28.2.6 Supply points and pressure or hydraulic grade lines (HGL) as supplied by Council.
1.28.2.7 Location of pumps, pressure reducing valves and reservoir top water level (TWL) and volume where applicable.
1.28.2.8 Limit of water district serviced by the reticulation mains.
1.28.2.9 Contours for the entire development, at minimum 1 m intervals.
1.28.2.10 Consideration for connection to adjoining and/or future developments as directed.

AP 1.29 Water Reticulation Plan

1.29.1 The water reticulation plan shall include:

- 1.29.1.1 Legend.
- 1.29.1.2 The services for the development.
- 1.29.1.3 All allotments and allotment numbers.
- 1.29.1.4 Boundary of subdivision.
- 1.29.1.5 North point.
- 1.29.1.6 Location and size of existing mains.
- 1.29.1.7 Location, size, material and class of new mains.
- 1.29.1.8 Location of other services which cross the mains.
- 1.29.1.9 Details of connection to existing mains.
- 1.29.1.10 Location of each bend.
- 1.29.1.11 Location of valves, hydrants, scours and caps, T's, reducers etc.
- 1.29.1.12 Road crossing conduit locations, size and class.
- 1.29.1.13 Water service connection details.
- 1.29.1.14 Pump stations and reservoirs (if required).
- 1.29.1.15 Network analysis (if required).
- 1.29.1.16 Type and class of pipes for the pressure and cyclical loading regime.
- 1.29.1.17 Thrust block calculation where required.
- 1.29.1.18 Operating conditions for pressure reducing valves.
- 1.29.1.19 Structural calculations were necessary for valve pits and associated work.

AP 1.30 Landscape Plan

1.30.1 The landscape plan shall contain the following details:

Site and Layout

- 1.30.1.1 Proposed and existing contours at 5 m intervals.
- 1.30.1.2 Extent of existing vegetation including type and location.
- 1.30.1.3 Significant tree showing level at base and proposed levels, indicating which trees/vegetation is to be removed.
- 1.30.1.4 Proposed layout of roadways including:
  - 1.30.1.4.1 kerb and channel.
  - 1.30.1.4.2 Stormwater drainage pits and manholes.
  - 1.30.1.4.3 Street lighting.
  - 1.30.1.4.4 Property boundaries.
  - 1.30.1.4.5 Traffic islands, roundabouts, traffic calming devices etc.
  - 1.30.1.4.6 Existing and proposed water supply, sewerage services and easements.
  - 1.30.1.4.7 Proposed freehold lots covering water supply and sewerage infrastructure.
- 1.30.1.5 Layout and numbering of individual lots, including street names.

1.30.1.6 Existing parks, reserves etc.
1.30.1.7 adjoining land uses, access corridors.
1.30.1.8 Existing watercourses, watersheds, gullies, with a buffer zone to either side of creeks, where required.
1.30.1.9 Revegetation areas including extent, type, technique and erosion prevention proposals.

On-Street Works

1.30.1.10 Alignment and location of proposed concrete foot paths and bike paths.
1.30.1.11 Grass establishment areas.

Traffic Islands and Roundabouts

1.30.1.12 Alignment of kerb and channel and concrete backing to roadside kerb.
1.30.1.13 Soil mixed type and depth.
1.30.1.14 Proposed planting layout and plant schedule, including species, number, size, set out and staking.
1.30.1.15 Mulch types and depth.
1.30.1.16 Irrigation proposals.

Public Open Space

1.30.1.17 Dimensions and landscape treatment to buffer zones.
1.30.1.18 Location and dimension of all off-road bikeways and pedestrian pathways, with trees at 15 m intervals, showing size and species.
1.30.1.19 Location of boundaries to parkland, reserves and easements, including fencing proposals and details of removable vehicle barriers.
1.30.1.20 Location and type of play equipment, if applicable, including type, extent and edge treatment to satisfy surfacing.
1.30.1.21 Proposed lighting.
1.30.1.22 Mounding, showing base, Crown, levels and gradients.
1.30.1.23 Proposed furniture including benches, bins, BBQ's, shade structures, signage.
1.30.1.24 Tabs, drinking fountains, irrigation couplings.
1.30.1.25 Proposed planting and mulched garden beds.
1.30.1.26 Irrigation plan at 1:200 scale.

1.30.2 Detailed specifications will be required to cover all proposed works including the following:
1.30.2.1 play equipment and safety surfacing.
1.30.2.2 The plant schedule.
1.30.2.3 Revegetation requirements.
1.30.2.4 Grass establishment.
1.30.2.5 Mulch.
1.30.2.6 Hard landscaping.
1.30.2.7 Furniture and lighting.
1.30.2.8 Irrigation, if applicable.

AP 1.31 Erosion and Sediment Control Strategy

1.31.1 The Erosion and Sediment Control Strategy shall include:

- 1.31.1.1 A plan of development showing the road and allotment boundaries.
- 1.31.1.2 Existing surface and finished surface contours at an interval close enough to define terrain.
- 1.31.1.3 Contours shall extend beyond the limits of the development site to fully define the limits of external catchments.
- 1.31.1.4 Existing drainage paths and drainage infrastructure.
- 1.31.1.5 Extent of clearing and trees to be removed.
- 1.31.1.6 Line diagram of drain lines and drainage structures.
- 1.31.1.7 The identification and location of all Erosion and Sediment control measures (i.e. catch drains, diversion drains, sediment traps, sediment basins etc.) that are proposed for the period when the site is disturbed.
- 1.31.1.8 Location of sensitive and restricted access areas.
- 1.31.1.9 Existing significant vegetation to be retained.
- 1.31.1.10 Revegetation works.
- 1.31.1.11 Calculations are to be submitted in accordance with QUDM and based on soil type(s) of the site.
- 1.31.1.12 Measures to be employed for each facet of the construction process. As a minimum this is to include stripping/earthworks, trenching/services installation and when stormwater and roadways are completed.
- 1.31.1.13 Consideration for construction during the wet season (typically Nov – Mar) with regard given to increased storm intensity and minimising disturbed areas and for construction during the dry season with regard given to dust suppression.

AP 1.32 Service Providers/Conduit Plan including Street Lighting.

1.32.1 This plan shall include:

- 1.32.1.1 Legend.
- 1.32.1.2 Road Reserve Boundaries.
- 1.32.1.3 Allotment Numbers and Boundaries.
- 1.32.1.4 North Point.
- 1.32.1.5 Kerb and channel or edge of pavement where no kerb is to be constructed;
- 1.32.1.6 Road Crossings Conduits Type and size.
- 1.32.1.7 Location of Pad Mount Transformers.
- 1.32.1.8 Location of Telecommunications Authority's Roadside Cabinets & Shelters and Cables;
- 1.32.1.9 Location of Street Lighting including designation of hierarchy of all roads.
- 1.32.1.10 Location of Electricity Authority's Cables and Facilities paying particular attention to connection to existing power supply.
- 1.32.1.11 Electrical reticulation plans.
- 1.32.1.12 Gas pipes, valve, syphon points and storage facilities.

AP 1.33 Stormwater Catchment Plan/Drainage Calculations Tabulation.

1.33.1 A catchment plan shall be submitted, for Council submission purposes only and shall not form part of construction documentation. The catchment plan shall include the following:

- 1.33.1.1 North point.
- 1.33.1.2 A plan of the development showing the road and allotment boundaries.
- 1.33.1.3 Existing and finished surface contours (in different line types) and an interval close enough to define the terrain And Allow Definition of the Sub- Catchment.
- 1.33.1.4 Contours Shall Extend beyond the Limits of the Development Site to fully define the limits of external catchments.
- 1.33.1.5 Sub- catchment boundaries, labels and areas.
- 1.33.1.6 Line diagram of drain line, manhole, gully and outlet locations.
- 1.33.1.7 Labelling of stormwater structures.
- 1.33.1.8 Adjacent to each stormwater pit tabulation is to be provided illustrating the roadway approach flow, the width of approach flow, and the bypass flow.
- 1.33.1.9 Overland flow paths.
- 1.33.1.10 Proposed easements.
- 1.33.1.11 Stormwater calculation shall be in a spreadsheet format in accordance with the QUDM. This tabulation should include a bypass flow width valve at all kerb return pits.

AP 1.34 Pest Plant Management

1.34.1 In accordance with the *Land Protection (Pest and Stock Route Management) Act* 2002 the applicant must not remove soil or any matter containing reproductive pest plant material and transport such matter to another location. Appropriate measures must be put in place to ensure that soil and other organic materials are not inadvertently (or otherwise) transported to other locations.

1.34.2 Prior to the issue of a development permit for operational works, the applicant must:

- 1.34.2.1 Clearly state if there is an excess amount of soil on the development site.
- 1.34.2.2 Provide appropriate documentation to show where any excess soil is to be used or placed on the site.
- 1.34.2.3 Provide a plan which indicates where a shakedown or wash down area will be placed to ensure that all vehicles entering and exiting the development site are subject to a cleansing procedure to remove soil and any other organic materials.

1.34.2.4 Construct a shakedown or wash down area during the first stage of development. This is not to be in the vicinity of a creek, or a waterway or drain which leads to a creek or other water body.

1.34.2.5 Permanently contain material within the site inclusive of shakedown area.

1.34.2.6 Maintain the site to a point of sale so that declared weeds are eradicated or controlled.

1.34.3 Soil or other matter contaminated with weed seed or organic material should not be used in landscaping e.g. buffer mounds.

1.34.4 Reference should be made to Council pest management unit to obtain advice.

1.34.5 These conditions relate to all class 1, 2 and 3 plants identified in the *Land Protection (Pest and Stock Route Management) Act* 2002.

AP 1.35 Miscellaneous Details

1.35.1 Detailed are required for the following either on separate drawings or appropriate service plan:

1.35.1.1 stormwater inlet and outlet structures, other than standard headwinds.

1.35.1.2 Manhole details where pipe alignments are critical for clearances or flow considerations.

1.35.1.3 Water quality permanent works structures (SQIDs, sediment basins, trash racks etc).

1.35.1.4 Details of erosion control and stormwater management structures.

1.35.1.5 Surcharge structures.

1.35.1.6 Overland drainage paths

1.35.1.7 sewer and water pump stations showing all relevant levels and dimensions for pumps etc (where not provided elsewhere).

1.35.1.8 Footbridges.

1.35.1.9 Reservoirs.

1.35.1.10 Water source treatment/disinfection works.

1.35.1.11 Entry structures.

1.35.1.12 Retaining walls.

1.35.1.13 Buildings.

1.35.1.14 And any details or variations from standard drawings.

AP 1.36 Design Records

1.36.1 The designer shall provide Council with appropriate design records in a format such that design staff with no prior knowledge of the particular design can understand them readily.

1.36.2 A design file shall be maintained by the developer or the developers designer containing records of calculations, approvals and decisions, geotechnical data and

other design data which could be relevant in reviewing aspects of the design or planning future maintenance responsibilities.

1.36.3 The developer is to provide a detailed submission for all structures being built as part of the development, for separate building approval and inspection. Submission is to include detailed design plans and a structural certificate from RPEQ.

CP1 – Construction Procedures

General

CP 1.01 Introduction

1.01.1 This section of this Development Manual details the minimum requirements acceptable to the Council associated with developments involving operational works defined as any works to be constructed that are subject to Council approval. Typically, this involves the construction of water supply, sewerage, stormwater, roadworks and public open space associated with development, reconfiguration or other approvals.

1.01.2 This manual does not apply to works of services under the control of other authorities (i.e. works within state-controlled road corridors). Separate approvals may be required from the other relevant authorities.

1.01.3 This section has been divided into four subsections as follows:

1.01.3.1 Requirements prior to construction.
1.01.3.2 Requirements during construction.
1.01.3.3 Acceptance of works.
1.01.3.4 Final acceptance of works.

Requirements Prior to Construction

CP 1.02 General Requirements

1.02.1 Prior to the construction of any works associated with the development approval which requires operational works approval by Council, the designer responsible for the design of the works must first obtain an approval of the design, construction drawings and specifications from Council. The procedures to be undertaken in order to achieve approvals are outlined in detail in section AP1 of this manual.

CP 1.03 Construction Inspections

1.03.1 Prior to construction of the works the consulting engineer who is an RPEQ is to be engaged to be responsible for the provision of inspection services in accordance with a Council approved Inspection and Test Plan (ITP) and to exercise reasonable skill and diligence in order to ensure that the operational works requiring approval are executed in accordance with:

1.03.1.1 Council's development permit conditions;
1.03.1.2 Council's relevant policies and local laws;
1.03.1.3 This manual, Council approved drawings, specifications and relevant Australian Standards;
1.03.1.4 Good engineering practice; and
1.03.1.5 Records compatible with Council's asset management information recording system are provided.

1.03.2 Inspections may be carried out by the consulting engineer or a delegate who shall be suitably qualified/experienced person approved by the consulting engineer.

1.03.3 The consulting engineers required to certify that all works have been carried out in accordance with the development approval and to WRC minimum standards prior to works acceptance.

CP 1.04 Inspection and Test Plan

1.04.1 The Contractor is to prepare an ITP (endorsed by the RPEQ) identifying the following items:

1.04.1.1 Element of work;
1.04.1.2 tests and checks required;
1.04.1.3 standard required to meet;
1.04.1.4 frequency of testing;
1.04.1.5 contractor's responsibility;
1.04.1.6 consulting engineer's responsibility;
1.04.1.7 Council's responsibility; and
1.04.1.8 asset data recording requirements.

Refer to CP 1.16 and Form 2 – Security Lodgement Form

This sheet must be completed prior to the acceptance of any bond by Council.

Development Name:	
Stage:	
File No.:	
Applicant:	

Consultant:	
Purpose of Bond:	

Uncompleted Works Bond Assessment:

Estimated time to complete bond works (not greater than 90 days)	days
Current contract completion date	
Anticipated completion date	
Consulting engineers estimated value of uncompleted works	
Bond value (apply factor 1.50)	

Construction/defects liability bond assessment :

Consulting engineer's estimated value of completed works	
Construction/maintenance bond value (apply factor 0.05) (min $500)	

Council shall retain any interest accrued on cash monies paid to Council and held in trust by Council.

Consulting Engineer:

Signature:

RPEQ No.

Date:

Form 3 – Inspection Certificate for Witness/Hold Point

This certificate registers evidence that the works as noted herein have been inspected by the Council officer noted below and were found to be satisfactory.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	

Works being inspected/Tested/Witnessed:

Defaults/Corrective Action Required:

Defaults Corrected? Y N N/A

Council Inspector Signature:

Name of Inspector:

Date of Inspection:

Form 4 – Works Acceptance Inspection Checklist

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	

Item	Verification (Yes/No/N/A)	Comment
ALLOTMENT DRAINAGE The works have been finally inspected and:		
1. Concrete catch drains constructed in approved location and to a satisfactory standard;		
2. Field inlets constructed in approved location and to a satisfactory standard;		
3. Overland flow path constructed to correct profile;		
4. Pipework has been visually inspected and is satisfactory in terms of: a. alignment and grade; b. free of debris and siltation; c. no visual sign of trench subsidence; and d. outlets are satisfactory.		
5. Lots not provided with allotment drainage can be drained to the kerb and channel.		
STORMWATER DRAINAGE SYSTEM The works have been finally inspected and:		
6. Pipe layout is as per plan or approved amendments with respect to pipe size, levels and location.		

7. Pipework has been visually inspected and is satisfactory in terms of: a. alignment and grade; b. free of debris and siltation; c. lifting plug holes sealed; d. no visible sign of trench subsidence; and e. no damaged pipes.		
8. Gully pits and manholes have been constructed to the correct standards i.e.: a. Correct type of grate or cover; b. Lintels; c. side entry slots; d. benching (no water ponding) e. grates are satisfactorily sealed in frames; f. we poles provided to bedding material; g. no damaged structures; h. converter slabs/sections mortar bedded; i. correct drops through gullies/manholes; and j. all lids/grates finished to match surface level.		
9. All density tests to backfill are available and satisfactory.		
10. Material gradings are available for bedding material and are satisfactory;		
11. Outlets/inlet structures are satisfactorily constructed and are free from scour or siltation.		
12. All manhole and gully pit pipe connections are mortared flush with the walls and no pipe reinforcement is exposed.		
13. Open cut channels have been finally inspected and a satisfactory i.e.: a. Cut to design profiles; and b. lining of channel is to the required thickness and		

reinforcement, with appropriate weep holes.		
14. Overland flow, the works have been finally inspected an appropriate flow paths are provided and clear of obstruction.		
15. Outlets and outfalls have been constructed to control discharge flow in accordance with the plans.		
16. Subsoil drainage discharges to gullies or other approved point of discharge.		
17. All grousing requirements to channels, swales, outlets, inlets etc have been completed.		
18. CCTV inspection of stormwater pipes completed.		
WATER QUALITY The Works have been finally inspected and:		
19. Water quality structures have been constructed in accordance with approved engineering drawings;		
20. Structures are free of debris and sediment.		
EROSION AND SEDIMENT CONTROL The works have been finally inspected and:		
21. Control structures required until the site is stabilised in accordance with the contractor's ESCP are in place.		
22. Structures are free of debris and sediment.		
EARTHWORKS The Works have been finally inspected and:		

23. Toe of batters not on Council Road reserve except as approved.		
24. Retaining walls clear of Road reserve except as approved.		
25. Retaining walls constructed in accordance with drawings.		
26. Batter slopes constructed in accordance with drawings.		
27. Batter slopes stabilised against erosion.		
28. Interim drainage constructed in accordance with drawings.		
29. All areas disturbed by the works have been rehabilitated.		
30. Allotment levels are as per the design plans.		
31. Verge levels are as per the design plans.		
SEWER RETICULATION The Works have been finally inspected and:		
32. Pipe layout is as per the plan or approved amendments with respect to pipe size, levels, and location.		
33. Pipework has been visually inspected and is considered satisfactory, i.e.: a. Pipework flush with internal walls of manhole; b. alignment and grade; c. flexible joints; d. line flushed and cleaned; e. no visible sign of trench subsidence; f. a density test of backfill is available and satisfactory; g. CCTV survey results submitted and satisfactory.		
34. Manholes and maintenance shafts have been constructed to the correct standards, i.e.:		

a. Cast in situ; b. Benching; c. curvature satisfactory; d. no ponding; e. profile satisfactory; f. no weeps (free of infiltration); g. concrete work; h. no honey combing; i. covers; j. covers checked to be gas tight; k. correct type; l. imprint in accordance with standards; m. depth of cover surround; n. depth of top slab; o. location; p. relative to allotment boundaries; and q. 50 to 75 mm proud of finished surface level.		
35. Material gradings for bedding material are available and satisfactory.		
36. Pressure test results are available and satisfactory.		
37. Manhole hydrostatic test all satisfactory.		
38. Sewerage connection Private Works fees paid.		
39. On-site sewer report provided (if applicable).		
40. PUMP STATION - refer separate PS checklist.		
WATER RETICULATION The works have been finally inspected and:		
41. Pipe layout and services fixtures (valves and hydrants) are as per the plan or approved amendments with respect to pipe size and location.		
42. Pipework has been pressure tested in accordance with Council's		

requirements and test results are available and satisfactory.		
43. Pipework has been chlorinated in accordance with Council's requirements.		
44. There are no visible signs of trench subsidence for leaks.		
45. Valves and hydrants have been inspected and a satisfactory, i.e.; a. Location; b. setts and surrounds correctly installed to prevent ingress of soil, etc; c. mortar packing to boxes correctly completed; d. depth to top of hydrant or valve stem within limits; e. dust caps to hydrants; f. colour of marker plate correct; g. direction of flow indicated; h. marking plates correctly installed; and i. size of plate correct.		
46. Material gradings for bedding material are available and satisfactory.		
47. Water supply connection Private Works fees paid.		
48. PUMP STATION - refer separate checklist.		
ROAD PAVEMENTS The works have been finally inspected and:		
49. Plan layout and geometry of Road system is in accordance with the drawings.		
50. Finish levels at Crown and channel are at design levels.		
51. Cross falls are to the approved plan.		
52. AC is satisfactory with regards to finish and thickness.		

53. Joints in the seal (especially where various development stages apply) are flush.		
54. The sealed surface is free of blemishes.		
55. All compaction test, material quality (CBR), material grading, AC core tests are satisfactory and available.		
56. Ponding of stormwater does not occur.		
SEGMENTAL PAVERS (Where Constructed) The Works have been finally inspected and:		
57. All pavers have been correctly laid to pattern, within allowable tolerance, compacted, and the joints filled;		
58. Bedding sand for pavers drains to subsoil drainage.		
59. Pavers adjacent to concrete kerb and channel, edge restraints etc have been cut and laid in accordance with all relevant requirements.		

Form 5 – Registered Engineer's Certification of "As Constructed" Works

This certificate registers evidence that the locations, surface and invert levels of all works and infrastructure presented on the drawings noted below and in the digital ADAC data have been surveyed and meet the accuracy standards as defined within the WRC Development Manual.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	
Surveyor Name:	
Surveyor Firm:	

Drawings & Documents pertaining to the above:

Signed:

Date:

Form 6 – Registered Surveyor's Certification of "As Constructed" Works

This certificate registers evidence that the "As Constructed" drawings submitted herewith have been prepare, checked and amended in accordance with the requirements of the WRC Development Manual and that the completed works comply with the requirements therein.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Consulting Firm:	
Surveyor Name:	
Surveyor Firm:	

Certification by Registered Surveyor (Consulting) attached: Yes / No

(Note: Certification is to be in accordance with the Development Manual).

Compliance with the manual Design Intent and Function not compromised by the "As Constructed" Works	**Compliance Yes/No**	**Non-Compliance refer to attached redesign of works to ensure satisfactory performance**
Earthworks		
Roadworks		
Stormwater Drainage		
• Flow System and Structures		
• Major Flow System and Structures		
Water Reticulation		
Sewerage Reticulation		
"As Constructed" Documentation		

Signed:

RPEQ No.

1.04.2 Date: The consulting engineer in undertaking construction inspections shall:

1.04.2.1 allocate competent and experienced after site inspection and testing;

1.04.2.2 provide sufficient site presence, dependent on the contractor's progress and workmanship, and in accordance with the ITP, to be reasonably satisfied that the works meet the design, specification and performance requirements; and inspect and confirm acceptability of works is complying with the design intent and in accordance with the Council's requirements trying to request a Council inspection.

CP 1.05 Contractor's Erosion & Sediment Control Plan

1.05.1 Prior to construction commencing the contractor shall prepare an Erosion and Sediment Control Plan (ESCP) to manage the site during construction and the defects liability period.

1.05.2 The plan shall be consistent with the approved Erosion and Sediment Control Strategy (ESCS) and shall take into consideration the contractor's proposed construction methodology and program.

1.05.3 The contractor may propose an alternative construction methodology that differs from the approved ESCS. In this instance the contractor shall discuss and obtain approval from the consulting engineer for the alternative strategy prior to submitting to Council.

1.05.4 The contractor's ESCP must be prepared by a suitably qualified person meeting the following criteria:

1.05.4.1 Six years or more field experience in civil engineering construction practices;

1.05.4.2 educated in erosion and sediment control practice through regular industry sponsored seminars, publications, etc;

1.05.4.3 an understanding of rainfall hydrology and an ability to calculate rainfall run-off; and

1.05.4.4 an understanding and ability to calculate open channel flows and velocities.

1.05.5 A copy of the contractor's current approved ESCP is to be retained on site by the contractor's representative.

1.05.6 The contractors ESCP shall be submitted to the consulting engineer for review and approval prior to the pre-start meeting.

1.05.7 The consulting engineer is to review the ESCP for compliance with the approved ESC S. Any amendments required to ensure ESCS compliance are to be incorporated by the contractor prior to approval. The consulting engineer will issue a copy of the approved ESCP to the Council prior to the pre-start meeting.

1.05.8 It is the contractor's responsibility to ensure that the ESCP is updated and amended to reflect any changes in the construction methodology and program.

1.05.9 All amendments to the contractors ESCP shall be approved by the consulting engineer and a copy of the revised approved ESC P issued to Council.

1.05.10 The contractors ESC P shall consist of the following:

1.05.10.1 A layout plan detailing the measures to be employed during construction. On larger sites were works are to be progressively constructed a plan shall be provided for each stage of works;

1.05.10.2 A layout plan detailing the measure(s) to remain in place from the commencement of the defects liability period;

1.05.10.3 a written description of the sequencing of works or construction program;

1.05.10.4 an inspection and test plan for monitoring erosion and sediment control measures during the construction and the defects liability period.

1.05.10.5 Details of all erosion and sediment control measures to be used. The contractor may adopt standard details developed by others e.g. the IECA Best Practice Erosion and Sediment Control manual.

1.05.10.6 The name of the person within the contractor's organisation who has the authority and responsibility for implementing, monitoring, updating or amending the plan.

1.05.11 The contractors ESCP shall address the following issues:

1.05.11.1 Minimising Disturbance:

1.05.11.1.1 limiting the exposure time and size of disturbed areas to a minimum;

1.05.11.1.2 allow for the use of existing vegetation has buffer zones.

1.05.11.2 Control of Runoff:

1.05.11.2.1 sizing of structures, channels, catch strain and diversion drains for appropriate storm events in accordance with the following table:

	Design Life	ARI
Non-erosive design capacity	0-6 months	1 year
	6-12 months	2 year
Structural stability	0-6 months	5 years
	6-12 months	10 years

1.05.11.2.2 Diverting clean water run-off around disturbed areas;

1.05.11.2.3 dividing the site into smaller more manageable drainage areas;

1.05.11.2.4 early installation of temporary drainage works;

1.05.11.2.5 early installation of permanent drainage system and protection works.

1.05.11.3 Erosion Control:

1.05.11.3.1 protecting service changes and hard engineering structures (eg. driveways, curbs, etc) from erosion caused by run-off;

1.05.11.3.2 prompt revegetation of disturbed areas;

1.05.11.3.3 installing structures and drainage channels to flow velocity and encourage settlement of soil particles;

1.05.11.3.4 protection of disturbed areas from wind erosion (dust suppression).

1.05.11.4 Sediment Control:

1.05.11.4.1 locating stockpiles clear of drainage paths and protecting stockpiles from traffic, run-off and wind erosion;

1.05.11.4.2 minimising number of site access points;

1.05.11.4.3 stabilising site access points to prevent vehicles transporting materials off-site;

1.05.11.4.4 intercepting drainage from disturbed areas and installing sediment barriers to slow the velocity of flow and allow fine particles to settle;

1.05.11.4.5 diverting larger contaminated flows to sediment traps to allow soil particles to settle or to be treated prior to release into receiving waters; and

1.05.11.4.6 protecting partially constructed drainage structures from sediment infiltration.

1.05.11.5 Revegetation:

1.05.11.5.1 Progressive stabilisation and rehabilitation of completed works; and

1.05.11.5.2 providing protection to revegetation works on steep batters during establishment period.

1.05.11.6 Inspection, cleanout and maintenance:

1.05.11.6.1 the inspection, cleanout and maintenance regime are to take into account the duration that the site will be disturbed and the timing of construction. If the site is disturbed (i.e. rehabilitation works are not complete) during the period December to May (wet season) a more rigorous inspection, cleanout and maintenance regime will be required then for a site which is disturbed during the period June to November.

1.05.11.6.2 The following references/guidance it may assist in preparing the ESCP:

- Best Practice Erosion and Sediment Control, International Erosion Control Association (Australiasia) 2008;
- Queensland Urban Drainage Manual;
- Guidelines for the Preparation of Erosion and Sediment Control Plans for Building Sites, Cairns City Council, July 2003;
- Erosion and Sediment Control Standard Version 9, Brisbane City Council, 2000

CP 1.06 Construction Security Bond.

1.06.1 Prior to construction of the works commencing the developer is required to lodge a security bond in cash or unconditional bank guarantee to the value of 5% of the

estimated cost of the construction of the works prepared and certified by the consulting engineer.

1.06.2 A bank guarantee should:

- 1.06.2.1 Be a binding contractual relationship between Council and the guaranteeing bank;
- 1.06.2.2 Include specific requirements for renunciation of the guarantee;
- 1.06.2.3 require adequate notice of renunciation;
- 1.06.2.4 not have an expiry date.

1.06.3 The bond is to be accompanied by Council's Security Lodgement Form (Form 2) clearly identifying the purpose of the bond together with the consulting engineer's certification of the value of the works.

1.06.4 The bond is required to provide security to Council in the event that costs are incurred as a result the following:

- 1.06.4.1 protection of on street works from damage by contractors, subcontractors and suppliers;
- 1.06.4.2 repairs to on street works resulting from damage caused by contractors, subcontractors and suppliers;
- 1.06.4.3 protection and repair of existing Council services (i.e. sewerage connections, water connections et cetera);
- 1.06.4.4 non-compliance with the approved Erosion and Sediment Control Plan during construction;
- 1.06.4.5 failure to provide adequately for traffic; and
- 1.06.4.6 urgent action required by Council to resolve unsafe construction or emergency repairs required to protect persons and/or property from consequential damages.

1.06.5 Any costs incurred by Council in responding to the above circumstances will be recovered from the security bond.

1.06.6 At the completion of the works and the commencement of the defects liability period, the construction security bond shall be returned to the developer or may be substituted for the defects liability bond.

CP 1.07 Notice of Commencement of Work

1.07.1 A notice of intention to commence works is to be issued to Council in writing seven days prior to the intended date for commencement of the works. No works will be permitted to commence until the following information is provided:

- 1.07.1.1 name, address and telephone number (including after-hours contact) of the consulting engineer for the works;
- 1.07.1.2 name, address and telephone number (including after-hours contact) of the contractor and major subcontractors for the work;
- 1.07.1.3 name and telephone number of the person to be contacted in regard to any matter arising from the construction of the works;
- 1.07.1.4 intended date of commencement of works, and contract period;
- 1.07.1.5 an invitation to the relevant Council representative to attend the pre-start meeting and confirmed by phone or email and minimum of 24 hours prior;

1.07.1.6 a request to Council to confirm that environmentally significant areas and/or trees which are to be preserved in accordance with any tree preservation declaration, have been identified and adequately protected;
1.07.1.7 location of project sign (if required);
1.07.1.8 and inspection and test plan (refer CP 1.16).

1.07.2 This submission will form notification of the date of the "pre-start" meeting.

CP 1.08 Documentation to Be Provided Prior to Pre-Start Meeting.

1.08.1 The following documents (to a standard acceptable to Council) are required to be submitted and accepted by Council prior to the pre-start meetings:
1.08.1.1 evidence of public liability insurance.
1.08.1.2 Proof of payment of Portable Long Service Leave Levy (PLSL);
1.08.1.3 contractor's erosion and sediment control plan;
1.08.1.4 traffic management plan;
1.08.1.5 construction security bond;
1.08.1.6 safety plan;
1.08.1.7 evidence that all fees and charges have been paid; and
1.08.1.8 cultural heritage management plan (if applicable).

1.08.2 The site safety induction is to be undertaken for each Council representative at initial attendance on site (prior to initial inspection);

1.08.3 evidence of Concurrence Agency, Service Authority or adjoining land owner consents/approvals is to be provided to Council prior to commencing any elements of work affecting/involving those parties;

1.08.4 the project specific Inspection and Test plan endorsed by the RPEQ.

CP 1.09 Pre-Start Meeting

1.09.1 A pre-start meeting is to be held prior to the commencement of works. The meeting is to be attended by consulting engineer, the contractor's representative, any relevant specialist consultants and Council's representative.

1.09.2 Items to be considered at this meeting will include but not be limited to the following:
1.09.2.1 review of relevant conditions of development approval and discussion of any issues including conditions of the development permit and operational works approvals that are considered important and relevant to the attending parties;
1.09.2.2 review of Council's construction requirements;
1.09.2.3 discuss the Contractor's ESCP approved by the consulting engineer;
1.09.2.4 a review of the processes for monitoring, compliance assessment and auditing of the ESCP;
1.09.2.5 inspection and identification of parks and environmentally significant areas and/or trees for preservation;
1.09.2.6 site access conditions;

1.09.2.7 identification of areas to be left undisturbed;
1.09.2.8 evidence of compliance with the Workplace Health and Safety Act, including site safety inductions, site safety plans, notifications;
1.09.2.9 review of ITP including a notice of nominated hold/witness point;
1.09.2.10 relevant provisions of any other Acts;
1.09.2.11 Traffic Management Plan;
1.09.2.12 location of project sign (if required);
1.09.2.13 sewerage and water pump station commissioning plan (if applicable to the project); and issue plans for construction are the latest approved plans.

1.09.3 The pre-start meeting is a Hold Point and works may not proceed until the meeting is held and any further requirements identified during the conduct of the meeting are satisfied.

1.09.4 Council may require that subdivisions in difficult terrain or environmentally sensitive areas to have all road centre lines pegged prior to the pre-start meeting. This is to occur at least two weeks prior to any construction activity taking place so Council can visit the site with Engineers and Contractors representatives to view first had ramifications of such construction activities as stormwater drainage points, proposed earthworks areas, clearing etc. Council reserves the right to amend the design in consultation with engineers should any problems arise as a result of the inspection. This preliminary site visit should be arranged prior to or in conjunction with the pre-start meeting.

Requirements During Construction

CP 1.10 General Requirements

1.10.1 The general requirements during construction of the project are as follows:

1.10.1.1 work may only proceed subsequent Council being issued with all the relevant documentation set out in CP 1.09;
1.10.1.2 no work shall commence on any existing open Road to the public unless specifically approved by Council;
1.10.1.3 no work may be carried out nor machinery driven above or near existing water and sewerage pipes without a work method statement being submitted by the contractor and approved by Council;
1.10.1.4 any damage to existing services under the control of Council or another authority must be notified immediately and made good by the relevant authority at the contractor/developer's expense prior to acceptance of the works;
1.10.1.5 use of Council services (e.g. water from existing mains) is subject to approval by Council and payment of appropriate fees;
1.10.1.6 work involving the use of machinery of any description shall only be carried out on the site 6:30 AM to 6:30 PM Monday to Saturday, with no work to be carried out on Sundays or public holidays. (In certain

circumstances Council may approve works outside these hours. All applications for changes to working hours must be in writing). For emergent or complaint response issues, dust suppression and sedimentation control may occur outside these hours. Council is to be notified as soon as possible in this instance; and

1.10.1.7 pumping stations, electrical switchboards, access covers, compounds and associated equipment installed during construction shall be padlocked when left unattended.

1.10.2 The developer, contractor and consulting engineer shall take all necessary steps, in accordance with the provisions of the workplace health and safety act, to ensure safety of the public in regard to construction activities. In particular, work on roadways shall be signed in accordance with the MUTCD. Council will require submission of plans indicating traffic control proposals and a program of work for sites involving the travelling public.

1.10.3 No public road may be closed, traffic diverted from public roads, or traffic diverted elsewhere without the prior approval of Council, Police and public advertising of the proposed diversion must be carried out. Proposals to divert traffic shall include full details of the alternative route and proposed signage.

1.10.4 Works shall not be undertaken on any adjoining private properties without the prior written consent of the relevant registered proprietor. A written acceptance (by the registered proprietor) of the completed work shall be submitted to Council upon finalisation of the work.

1.10.5 If connections or alterations to Council mains are required, the Council engineer shall be given a minimum of 10 working days' notice of the contractor's requirements (Council's notification requirements are to be noted on the project drawings/specifications).

CP 1.11 Public Notices/Project Signage

1.11.1 Where is a condition of approval, Council requires a project sign(s) to be erected on the sites frontages to constructed roads and any other location as required, the sign shall contain the following information:

1.11.1.1 An overall concept plan of the development showing the stage or works about to commence construction;

1.11.1.2 name of the developer;

1.11.1.3 name of the project;

1.11.1.4 Street address of the site;

1.11.1.5 project manager's name and contact number;

1.11.1.6 consulting engineer's name and contact number;

1.11.1.7 contractor's name and contractors number; and

1.11.1.8 other specialist consultants (geotechnical, landscaping, architects, hydraulics et cetera) names and contact numbers.

1.11.2 Material and size of the sign shall be as follows:

1.11.2.1 Made of weatherproof material; and

1.11.2.2 Not less than 1200mm x 900mm.

1.11.3 Position of the sign on the land:
- 1.11.3.1 the sign must be placed on, or within 1.5 m of, the road frontage of the land;
- 1.11.3.2 the sign must be mounted to at least 300 mm above ground level; and
- 1.11.3.3 the sign must be positioned so that it is visible from the road.

1.11.4 The lettering on the sign:
- 1.11.4.1 each item listed above must start on a new line; and
- 1.11.4.2 the minimum lettering height shall be 50 mm in height.

CP 1.12 Document Control

1.12.1 A copy of the approved project drawings, specification and operational works approval shall be kept on the job site at all times during construction.

1.12.2 Should amendments be required to engineering plans and/or specifications during construction, the consulting engineer shall ensure that Council and any other person or organisation who has previously been issued a set of plans that may be affected by this amendment (e.g. registered surveyor, public service authority) is in receipt of a copy of all amended drawings and/or specifications. When approved, Council shall stamp these plans for approval as Operational Works plans. Any amended drawings and/or specifications shall be submitted with an accompanying letter outlining the amendments together with any supporting information.

1.12.3 Submissions with a full complement of supporting documentation will expedite Council's approval timeframes.

1.12.4 All amendments shall be issued to Council for approval prior to the works being undertaken.

CP 1.13 Erosion & Sediment Control

1.13.1 The consulting engineer shall ensure that the construction contract contains provisions requiring the contractor to implement the approved ESCS and to prepare and implement an ESCP complying with the approved strategy.

1.13.2 The contractor shall ensure that all reasonable measures are taken to protect nearby properties from dust pollution, erosion, siltation or sediment transport.

1.13.3 Council reserves the right to order whatever action deem necessary and appropriate at the time to prevent environmental harm, including ordering temporary cessation of work in extreme cases.

1.13.4 As erosion and sediment control is also an issue of public amenity and safety, the developer shall be responsible for any costs arising from dust or water pollution generated by its development.

CP 1.14 Noise

1.14.1 The requirements of the *Environmental Protection Act* 1994 regarding nuisance noise (if applicable) shall apply to the development works.

CP 1.15 Parks & Environmentally Significant Areas

1.15.1 In cases where the subject land or the adjacent land is an existing or proposed park, bushland reserve or area otherwise declared by Council as environmentally significant, the following general precautions shall be mandatory:

1.15.1.1 the areas should be clearly pegged, flagged, (and fenced if ordered by Council) inspected and approved by Council officers;

1.15.1.2 the approved design, or certificate of approval for tree clearing issued pursuant to tree preservation bylaws (if applicable) shall have identified any unavoidable intrusion into such areas and nominated work practices such as maximum widths of disturbances, nominated access routes, methods and timing of rehabilitation, which shall be strictly adhered to.

1.15.2 Council should be notified immediately when the consulting engineer is aware of any damage or disturbance beyond the approved limits. Rehabilitation of this damage or disturbance shall be to the satisfaction of Council.

CP 1.16 Inspection & Testing

1.16.1 During the construction phase, the consulting engineer shall be responsible for undertaking the minimum number of required inspections and tests in accordance with the approved Inspection and Test Plan (ITP).

1.16.2 There are a number of major inspections that are mandatory hold points (H) for the consulting engineer and Hold Points or Witness Points for Council. These will be included in the ITP and can be found in Appendix A which contains inspection and test plan templates. The contractor's ITP is to be based on these templates and updated with project specific testing requirements.

1.16.3 Any proposed changes to the ITP must be notified to and accepted by Council prior to the affected works commencing.

1.16.4 The submitted ITP is to be implemented by the consulting engineer. The test results and effort certification that the plan has followed are to be submitted with the "as constructed" documentation.

1.16.5 Council will, on a random basis, call upon the consulting engineer to provide evidence of conformance with the approved ITP in the form of diary records, site visit reports etc.

1.16.6 During construction, Council reserves the right to conduct audit inspections of any or all of the works without prior notification. These inspections do not release the consulting engineer from his responsibility to check the contractor's work.

1.16.7 For the RPEQ's test inspections and Hold/Witness Points, a "Certificate of Inspection" will record the inspections. If requested, copy is to be provided to Council for each Hold Point/Witness Point inspection.

1.16.8 For Council Hold/Witness points, the RPEQ's information will include as a minimum the details contained within Form 3.

CP 1.17 Application for Council to Complete Private Works

1.17.1 unless otherwise approved, Council requires any connections and alterations to Council's live sewer and water mains associated with developments to be completed by the developer at the developer's expense subject to Council's approval and supervision.

1.17.2 Sewer and water mains are considered to be live once the defects liability period has commenced. All work on live sewers and water mains must be carried out by the contractor with Council approval and subsequent supervision.

1.17.3 Alterations and connections to existing Council sewer and water mains, resulting from the development (including cutting in of new sewer property connections) are to be completed prior to commencement of the defects liability period. In these cases, separate applications should be made for the alterations and the connections.

1.17.4 Contractors are not permitted to operate Council's infrastructure unless written approval has been obtained from Council. The placement and removal of plugs within live sewers must be done under direct supervision of Council's inspector.

1.17.5 Council reserves the right, on the advice of its inspector, to stop, or take over a connection being undertaken by a contractor, if in the inspector's opinion the contractor is incapable of completing the connection work in a reasonable time without causing damage to Council's infrastructure or undue inconvenience to the public. Any work carried out by Council will be at the contractor's cost.

CP 1.18 Application for Approval to draw water from Council Mains

1.18.1 The drawing of construction water from Council's mains must be approved and the relevant fees paid in advance.

1.18.2 Permission to draw water shall be subject to the following conditions:

- 1.18.2.1 backflow prevention;
- 1.18.2.2 water mainly be taken between the hours of 8 AM and 4:30 PM;
- 1.18.2.3 the approval shall be limited to the days and dates nominated in Council's notice of approval;
- 1.18.2.4 water money be taken from the approved hydrant point;
- 1.18.2.5 a copy of this approval is to be held by the driver of any vehicle taking water covered by this approval;
- 1.18.2.6 Council may withdraw this approval at any time, such notice shall be in writing and will become effective immediately; and
- 1.18.2.7 the applicant is responsible for the cost of reinstatement of damage to Council's property caused by the taking of water covered by this permit.

Acceptance of Works

CP 1.19 Introduction

1.19.1 Full works requiring Council approval a “Defects Liability” period is a period of 12 months minimum (or other period as Council so shall require in its absolute discretion) after the works have been accepted as complete by Council. During the defects liability period, it is the responsibility of the developer to rectify any works found to be defective due to design faults or found to exhibit faults attributed to the performance of the construction activities in terms of quality and conformance with the design and specifications.

1.19.2 The following are required to be completed prior to Council acceptance of works:

- 1.19.2.1 completed “as constructed” submission lodged with Council a minimum five days prior to the “Works Acceptance” inspection or early plan sealing inspection for bonding or uncompleted works and being to Council satisfaction;
- 1.19.2.2 satisfactory “Works Acceptance” inspection;
- 1.19.2.3 all documentation outlined in CP 1.25(2) submitted to and accepted by Council;
- 1.19.2.4 all appropriate documentation to be completed by the consulting engineer and retained for records purposes. This consists of the “Works Acceptance Inspection Checklist” (Form 4), the certified ITP and all test results and records for the works.
- 1.19.2.5 Approval has been given by Council or private certifier for construction of any buildings forming part of the operational works approval; and
- 1.19.2.6 satisfactory commissioning and acceptance of any water pump station, reservoir or sewerage pump station.

1.19.3 Following the satisfactory completion of all of the above matters, the consulting engineer shall make a written request for acceptance of the works and commencement of the “Defects Liability” period and lodgement of any uncompleted Works Bonds.

1.19.4 The date of the works acceptance shall be the date of issue of the Works Acceptance certificate an shall be taken as the date all documentation outlined in CP 1.25 has been approved and conditions of the operational works and development approval have been met. Works acceptance will not be backdated to the date of the works acceptance inspection. The assets will become Council’s at the date on the work acceptance certificate.

1.19.5 Prior to making application for works acceptance the consulting engineer must confirm that all non-compliant work is rectified by the contractor. Any non-compliance is found by Council must be rectified prior to Council’s issue of a Works Acceptance certificate. It is the responsibility of the consultant to monitor the contractor’s work to the extent necessary such that any deviations from the design are approved prior to making application for works acceptance, alternatively the consultant must instruct the contractor to rectify the work.

CP 1.20 Defects Liability Bond

1.20.1 Council requires a bond equivalent to a minimum of 5% of the value of the works (or such other amount as Council deems appropriate in its sole discretion), which is kept for the Defects Liability period, or until the works are finally accepted.

1.20.2 The bond is to be submitted with Council's Security lodgement form (Form 2) clearly identifying the purpose of the bond together with the consulting engineers certification of the value of the works.

1.20.3 The construction security bond lodged prior to construction may be used for the purposes of the defects liability bond subject to Council's approval.

CP 1.21 "As Constructed" Submission

1.21.1 "As Constructed" documentation serves two distinct functions:

- 1.21.1.1 Evidence that "As Constructed" works have been checked against the approved design, to support certification by the consulting engineer responsible for the design that design philosophies and criteria have been achieved; and
- 1.21.1.2 to provide an accurate record of the "As Constructed" services.

1.21.2 Information required for the checking function must be presented in ADAC format in accordance with Council's "Guidelines for Creation and Submission of ADAC XML Files".

1.21.3 The submission of digital "As Constructed" files in accordance with Council's ADAC guideline is mandatory in order to achieve acceptance of development works and commencement of the "Defects Liability" period and is required to be forwarded to Council a minimum of five working days prior to the "Works Acceptance" inspection or early plan sealing inspection for bonding of uncompleted works.

1.21.4 The following items must be submitted as part of the "As Constructed" submission:

- 1.21.4.1 electronic copies of the updated management plans, operational and maintenance manuals, and environmental management plans where these have been amended or not previously provided to Council (where applicable);
- 1.21.4.2 asset valuation report (detailed bill of quantities) in a format acceptable to Council and certified by an RPEQ;
- 1.21.4.3 an electronic copy of the Council approved final engineering drawings in both DWG and ADAC format together with electronic PDF copies;
- 1.21.4.4 where applicable, pump station RTU number and pump station identifier to be obtained from Council;
- 1.21.4.5 electronic copy of the Council approved landscaping and parks embellishment drawings;
- 1.21.4.6 electronic copy of Park/landscaping irrigation system drawings;
- 1.21.4.7 electronic copy of design plans for building/structure and copy of structural certificate;

1.21.4.8 "As Constructed" digital data and drawings of services and infrastructure including works completed by Council for the contractor under a Private Works agreement;

1.21.4.9 digital ground model data to the requirements of Council in an approved format (e.g. DWG or as nominated by Council).

1.21.4.10 Any necessary information required for Council's asset management records;

1.21.4.11 certificate of installed playground equipment to relevant Australian standards; and

1.21.4.12 details of works carried out on mains, whether or not they are part of the original project design or for a future stage.

CP 1.22 Compliance Certifications

1.22.1 All "As Constructed" works including the sewerage property connection branches, must be surveyed by a registered surveyor in order to obtain the detail required by Council's ADAC guideline. The registered surveyor's certification must accompany the "As Constructed" submission to Council. See Form 5 for an example of an acceptable Registered Surveyor's (Consulting) Certification.

1.22.2 All "As Constructed" works must also be certified by the consulting engineer responsible for the works. The certification must note that the design intent and function of the proposed works have not been compromised by the constructed works. To this extent, the consulting engineer will be responsible for determining whether the "As Constructed" details that exceed the tolerances for construction do not compromise the design intent and/or operational effectiveness of the infrastructure.

1.22.3 It is recognised that in some circumstances, the tolerances for construction are exceeded. In these instances, the consulting engineer will be responsible for performing confirmation design calculations to ensure that the original design intent and function are not compromised.

1.22.4 Further, should the "as constructed" details indicate a change to the design intent or function of the works, revised design calculations shall be provided by the consulting engineer to indicate the acceptability of the proposed change relative to Council's requirements. Council's approval of the change is required prior to the formal acceptance of the works.

1.22.5 The consulting engineer shall be responsible for the completion of Form 6 "Statement of Compliance - As Constructed Works".

CP 1.23 Management Plans, Operation and Maintenance Manuals

1.23.1 Where works comprise pump stations, reservoirs, treatment plants etc, operation and maintenance manuals for all components shall be provided. Operating and maintenance manuals shall include spare parts lists, electrical documentation and any other relevant information. Maintenance manuals and procedures are also required for drainage structures which incorporate Gross pollutant traps, interceptor devices etc. The maintenance procedures should indicate recommended frequencies for maintenance/planning functions in wet and dry seasons.

1.23.2 Management plans are necessary for where there is any future maintenance required to ensure sustainability of that feature, i.e. waterways, bio retention basins etc.

CP 1.24 Project Documentation

1.24.1 Development works will not be accepted until construction records have been certified as being completed by the consulting engineer and accepted by Council.

1.24.2 A complete copy of the following documents shall be provided to Council for acceptance prior to the "Works Acceptance" inspection:

- 1.24.2.1 ITP certified by the consulting engineer;
- 1.24.2.2 "Works Acceptance" inspection checklist;
- 1.24.2.3 "As Constructed" submission (including ADAC files) in accordance with CP1.21;
- 1.24.2.4 management plans, operation and maintenance manuals in accordance with CP 1.23;
- 1.24.2.5 water and sewerage inspection certificates including pump station and reservoir commissioning certificate; and
- 1.24.2.6 digital copy of CCTV survey for sewer and stormwater with engineering report and certification.

1.24.3 Copies of all test results required to confirm compliance with Council standard specifications shall be assembled and retained as part of the project documentation within the consulting engineers record storage facilities. Whilst not a complete listing, the following details some major records to be included:

- 1.24.3.1 fill compaction test results;
- 1.24.3.2 subgrade CBR's;
- 1.24.3.3 subgrade replacement material quality, thickness and locations;
- 1.24.3.4 subgrade replacement material compaction test results;
- 1.24.3.5 subsoil drain filter media quality statements (or grading is where required);
- 1.24.3.6 subbase course and base course material quality statements and thicknesses;
- 1.24.3.7 subbase course and base course compaction test results;
- 1.24.3.8 prime or primer spray seal and application rates;

1.24.3.9 AC core test results;
1.24.3.10 sewer pressure test records;
1.24.3.11 grading to sewer bedding quality statements;
1.24.3.12 grading to water main bedding quality statements;
1.24.3.13 water main pressure test records;
1.24.3.14 pump station commissioning and test certification by Council (sewer and water) including wet–well, pumps and switchboard;
1.24.3.15 any concrete testing required by the technical specifications;
1.24.3.16 pipework material quality statements for all pipework material (water, sewer, stormwater et cetera);
1.24.3.17 Geo fabric material quality statements;
1.24.3.18 digital copy of CCTV survey for sewer and stormwater with engineering report and certification;
1.24.3.19 any other testing results or statements required to conform with this manual;
1.24.3.20 any other job specific testing carried out ordered by the consulting engineer, if used.

1.24.4 The consultant should prepare a letter to Council requesting acceptance of a pump station for the purpose of achieving "Works Acceptance" for the subdivision. The letter should include/enclose:

1.24.4.1 the pump station allotment number, as it appears on the survey plan;
1.24.4.2 the name of the pump station and RTU number;
1.24.4.3 copy of approved design drawings;
1.24.4.4 copy of as – constructed drawings (can be preliminary);
1.24.4.5 copy of completed pre-commissioning checklist;
1.24.4.6 details of any nonconformances and uncompleted works;
1.24.4.7 rectification plan if required;
1.24.4.8 copy of ITP;
1.24.4.9 certification by the consultant for structural design, buoyancy and compliance with design drawings and this manual;
1.24.4.10 request that Council make application to Ergon for connection of power accompanied with a locality plan with street names showing the pump station location to attach to the application; and
1.24.4.11 evidence that an application for commissioning a sewerage pump station has been lodged.

1.24.5 The information to be provided to Council shall include as a minimum the requirements of the pump station commissioning checklist (Appendix H). The following pump station information shall also be provided to Council:

1.24.5.1 pump manufacturer, model, type, and impeller diameter (as a cut sheet);
1.24.5.2 rating of the motor;
1.24.5.3 weight of the pump and motor;
1.24.5.4 Manufacturers performance curve (as a cut sheet);
1.24.5.5 curves with at least four points plotted of the actual performance established in the field, or similar supervised work certificate plotted with the manufacturers pump curve;
1.24.5.6 KWH/1000 L pumped;
1.24.5.7 complete wiring diagrams and details (if not Council standard);

1.24.5.8 mechanical details and parts list of pump and motor;
1.24.5.9 maintenance catalogue showing also daily, weekly, monthly and annual maintenance requirements; and
1.24.5.10 a complete set of the manufacturers recommended spares delivered to Council.

1.24.6 Should any of the above test results fail to meet specification the consulting engineer shall include in the record, details of retesting/rectification carried out.

1.24.7 The construction record should be retained analogically assembled and bound document including a table of contents confirming completeness and presented to Council on completion of the works.

1.24.8 Site-specific as constructed drawings for pump stations and reservoirs. The drawings must be prepared in accordance with the requirements set out in Council's ADAC and Survey guidelines.

CP 1.25 "Works Acceptance" Inspection

1.25.1 The "Works Acceptance" inspection requires attendance by:
1.25.1.1 The consulting engineer for the project;
1.25.1.2 The contractor; and
1.25.1.3 Council's nominees.

1.25.2 It is the responsibility of the contractor and the consulting engineer to ensure any necessary requirements of the works are to an acceptable standard (as defined in approved design and construction documentation) prior to the conduct of a "Works Acceptance" inspection.

1.25.3 The general requirements to be met prior to Council's "Works Acceptance" inspection of the works are as follows:
1.25.3.1 the site is clean, tidy, free of rubbish, rocks, sticks, unauthorised stockpiles, etc.
1.25.3.2 allotment earthworks and site grading to be free draining and in accordance with the approved design;
1.25.3.3 integrity of environmentally significant areas is maintained;
1.25.3.4 all sewers flushed and gravity sewers inspected by CCTV; and
1.25.3.5 valve boxes and manhole tops visually located and not covered.

1.25.4 Prior to requesting a "Works Acceptance" inspection, the consulting engineer is responsible for confirming:
1.25.4.1 that the approved works have been completed;
1.25.4.2 any non-compliant issues or defects noted during the construction process, have been rectified to Council satisfaction;
1.25.4.3 the above listed items are in accordance with the approved drawings, Council's technical specifications and accepted engineering and landscaping practice; and
1.25.4.4 project documentation listed in CP 1.25 have been submitted. Failure to do so may result in cancellation of the inspection and/or the incurring of a reinspection fee.

1.25.5 Further to the above, and prior to the "Works Acceptance" inspection, the consulting engineer shall be responsible for the completion of the "Works acceptance" Inspection Checklist (Form 4) as appropriate to the works being constructed.

1.25.6 The completed checklist shall be presented to the relevant Council officer prior to the "Works Acceptance" inspection. Council officers will not undertake a detailed check of all items raised in the checklist but will examine some aspects of the works on an audit basis. The original of the completed checklist shall be retained with the records for the project upon completion of the works.

CP 1.26 Bonding of Uncompleted Works

1.26.1 For subdivision works council may, at its discretion, approve the bonding of uncompleted works to enable early sealing of survey plans. If Council does consent to the early sealing of survey plans, the developer must disclose to prospective purchasers that all services may not be available until the outstanding works are completed. Council will only consider early plan sealing for the full stage of the development is defined in the Operational Works approval. Parts of a stage will not be considered for early plan sealing.

1.26.2 Prior to the submission of any bond or plans for sealing, the following matters must be completed to the satisfaction of Council:

- 1.26.2.1 engineering plans have been approved; and
- 1.26.2.2 all survey pegs placed;
- 1.26.2.3 all allotment preparation work and earthworks on allotments have been completed in accordance with the requirements of this manual, with finished surface levels, the degree of compaction achieved and geotechnical assessments required on any of the allotment submitted and approved by Council.
- 1.26.2.4 Roads have been constructed to subbase level;
- 1.26.2.5 all stormwater systems including kerb and channel constructed;
- 1.26.2.6 sewer systems to be installed, tested, operational and "as constructed" plans lodged and accepted;
- 1.26.2.7 water supply system to be installed, tested, commissioned and "as constructed" plans lodged an accepted;
- 1.26.2.8 satisfactory evidence is to be provided to Council of a negotiated agreement with service providers for telecommunications, cabling, reticulation of electricity and the provision of street lighting and gas service providers for provision of gas (if applicable);
- 1.26.2.9 all outstanding rates are paid;
- 1.26.2.10 all works within allotments are fully completed and no further disturbance required on the allotments;
- 1.26.2.11 appropriate erosion and sediment control measures are in place for all disturbed areas;
- 1.26.2.12 all other bonded works (or works under agreement) are included in a bona fide contract between the developer and the contractor to be completed within 90 days;

1.26.2.13 all contributions required by the conditions of approval shall be paid prior to sealing of survey plans (infrastructure charges, contributions to service providers, Department of Main roads contributions, etc).

1.26.2.14 "As constructed" information provided for all completed works and accepted by Council;

1.26.2.15 submission of CCTV survey of completed sewers and stormwater drainage systems; and

1.26.2.16 building approval for all buildings/structures.

1.26.3 When the above matters have been completed, the applicant or consulting engineer shall submit the following to Council:

1.26.3.1 Security lodgement Form (Form 2) to be completed clearly indicating that the purpose of the bond is for uncompleted works;

1.26.3.2 fully priced schedule of outstanding works including the cost of preparation of the "as constructed" submission;

1.26.3.3 cash bond or unconditional bank guarantee to the value of 1.5 times the estimated value of the uncompleted works as certified by the consulting engineer. A bank guarantee should include:

1.26.3.3.1 a binding contractual relationship between counsel and the guaranteeing bank;

1.26.3.3.2 specific requirements for renunciation of the guarantee; and

1.26.3.3.3 require adequate notice of renunciation and must not have an expiry date.

1.26.3.4 certification from the consulting engineer that the works on each allotment have reached a stage acceptable to Council and that the outstanding works are programmed for completion within 90 days. The outstanding construction works program must be Council approved;

1.26.3.5 all bonds submitted shall be clearly identified as to the particulars of the site and the purpose of the bond.

1.26.3.6 Council may, at its discretion, require an Uncompleted Works inspection to ensure that the on allotment works and all associated documentation has been completed to Council's satisfaction. Should an inspection be deemed necessary, Council will require five (5) days' notice and payment of the required inspection fee in advance of any inspection.

CP 1.27 Sealing of Plan of Survey

1.27.1 Where operational works are associated with the reconfiguration of land or creation of new titles the Applicant is required to submit plan of survey which accords with the proposal plan approved by Council, suitable for deposit in the office of the Registrar of Titles and duly certified by a Registered Surveyor (Consulting Cadastral), together with 4 copies of the plan, and a completed application form for sealing of survey plans, building units, or group titles plan within 2 years from the date of approval of engineering drawings and specifications for subdivisions involving works.

1.27.2 Where the survey plans differ from the approved proposed plan, details of any changes are to be provided with the application.

1.27.3 The application form and plans, certificate(s) of compliance for any water, sewer reticulation and stormwater drainage system (including CCTV survey), together with the relevant fee are to be lodged with Council.

1.27.4 Upon being satisfied that the Plan of Survey conforms with the approval granted, and all required works have been carried out, or adequate security in accordance with Council's policy for bonding of uncompleted works is provided and all outstanding rates, contributions and charges have been paid, Council will note its approval under seal on the plan of survey and return the plan of survey to the Applicant for lodgement in the Titles Office.

1.27.5 The Applicant is required to submit the plan of survey to the Titles Office within 6 months of Council sealing the plan. Failure to do so will require the plan of survey to be resubmitted to Council for resealing.

Final Acceptance of Works

CP 1.28 “Final Acceptance” Inspection General Requirements

1.28.1 The “Final Acceptance” inspection will generally confirm the matters raised in the “Final Acceptance” inspection checklist (Form 4) and any other matters outstanding relevant to the works. The checklist is to be completed by the consulting engineer prior to the conduct of the “Final Acceptance” inspection. Failure to do so may result in cancellation of the inspection and/or the incurring of a reinspection fee.

1.28.2 During the defects liability period, it is the responsibility of the developer to rectify any works found to be defective or found to exhibit faults attributed to the design of the works and/or the performance of the construction activities in terms of quality and conformance with the design and specifications.

1.28.3 Once a period of 12 months minimum (or other such period as determined by Council) has elapsed from Council’s acceptance of the works “Works Acceptance”, a “Final Acceptance” inspection is to be arranged with Council. Payment of an appropriate inspection fee may be required.

1.28.4 The “Final Acceptance” inspection is to be attended by:

- 1.28.4.1 Council’s nominees;
- 1.28.4.2 the consulting engineer for the project; and
- 1.28.4.3 the contractor.

1.28.5 The consulting engineer for the work shall be responsible for ensuring that Council’s requirements for acceptance of the works are satisfied prior to requesting a final acceptance inspection.

1.28.6 Council’s requirements for final acceptance of the works are:

- 1.28.6.1 No outstanding payments are due to Council or other Authorities from the development;
- 1.28.6.2 completion of the “Final Acceptance” inspection checklist;
- 1.28.6.3 satisfactory “Final Acceptance” inspection;

1.28.6.4 All conditions of the approvals for as constructed drawings, works acceptance and plan sealing have been completed to the satisfaction of Council.

1.28.7 Following a satisfactory Final Acceptance inspection, the consulting engineer shall submit a written request to Council for Final Acceptance of the works and release of the defects liability bond. Council will, upon confirmation that no outstanding payments arising from the development are due to Council, confirm acceptance of the works, and arrange for the release of the defects liability bond.

DP 1 – DEVELOPMENT PRINCIPLES

General

DP 1.01 Introduction

1.01.1 This section of the Development Manual has been prepared to provide guidance on the design principles and issues to be considered by the designer in the preparation of layout plans for new urban developments. It is to be read in conjunction with the relevant planning scheme, and any local laws and policies.

DP 1.02 Urban Development Objectives

1.02.1 In addition to the requirements of the relevant planning scheme, local laws and policies, urban development layouts should:

- 1.02.1.1 Protect and enhance environmentally significant areas;
- 1.02.1.2 Be sympathetic to the existing topography and landform;
- 1.02.1.3 Minimise the impacts on the surrounding environment;
- 1.02.1.4 Facilitate the provision of urban services; and
- 1.02.1.5 Provide a safe urban living environment.

DP 1.03 Identification of Site Constraints and Values

1.03.1 In preparing an urban development layout, it is important to identify the natural constraints and values of the site and any engineering constraints on the provision of urban services and amenities.

1.03.2 Factors that may impose constraints on the development layout include but are not limited to:

- 1.03.2.1 Existing significant vegetation;
- 1.03.2.2 road and service connections to adjoining properties;
- 1.03.2.3 public transport networks;
- 1.03.2.4 railway and cane tram way lines;
- 1.03.2.5 external stormwater drainage catchments;
- 1.03.2.6 downstream stormwater drainage and receiving waters;
- 1.03.2.7 low-lying areas subject to flooding and ponding;
- 1.03.2.8 constraints and impact on adjoining properties;
- 1.03.2.9 constraints and limitation of existing utility services and planned augmentation works;
- 1.03.2.10 Main roads resumption requirements;

1.03.2.11 existing topographical features;
1.03.2.12 water quality issues; and
1.03.2.13 geotechnical considerations.

1.03.3 Designers are encouraged to consult with Council and other relevant authorities prior to or during the preparation of the site layout and design concept. Designers should in addition to the requirements of this manual ascertain any specific requirements of these authorities as they relate to the designs in hand.

DP 1.04 Vegetation Protection and Environmentally Significant Areas

1.04.1 Prior to preparing a development layout, all areas that have significant environmental value should be identified and incorporated into the layout design to enable them to be preserved and protected. Any disturbances within these areas shall be minimised to the satisfaction of Council and other relevant authorities, as may be appropriate.

1.04.2 All existing natural streams, watercourse and riparian vegetation shall be preserved. To minimise the impacts on stream bank vegetation, all streams and watercourses shall be protected by a drainage reserve. The extent of the drainage reserve shall be determined by the following criteria:

1.04.2.1 Not less than 3m clear of tree trunks of adjacent trees;
1.04.2.2 Not less that 10m clear of the high bank of the adjacent drainage path;
1.04.2.3 Not less than 20m clear of the high bank of a perennial stream;
1.04.2.4 Clear of the ARI 100 year storm event influence from the adjacent drainage path; and
1.04.2.5 Clear of the vertical projection of the tree canopy of the adjacent trees.

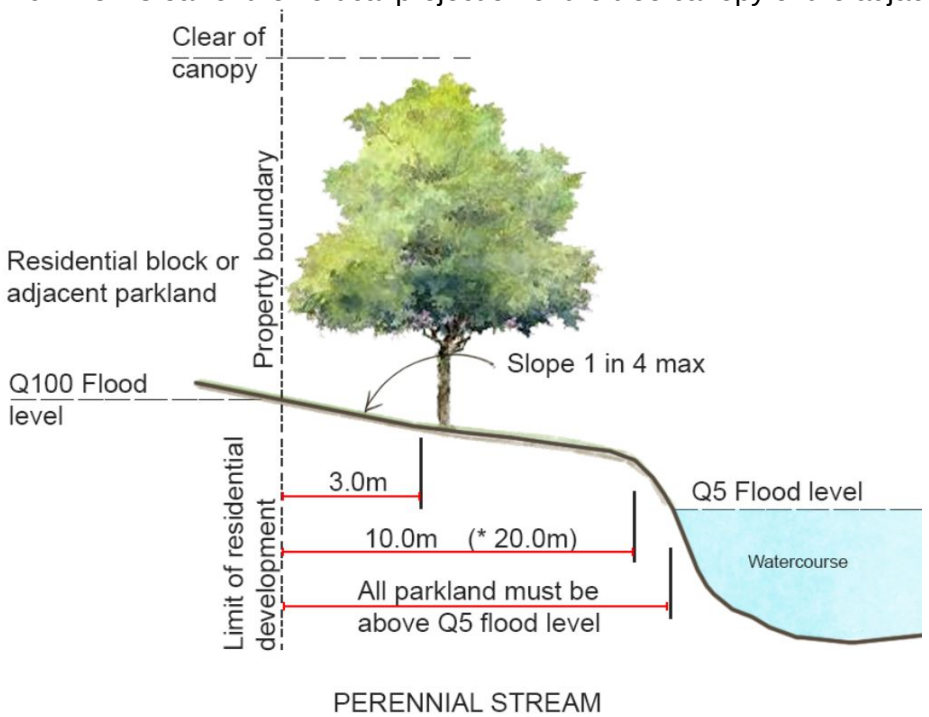


Figure DP1.1 Limits of development adjacent to natural stream banks

1.04.3 In order to retain any established landscape character, all trees located within existing road reserves shall be protected and retained unless approved otherwise by Council.

1.04.4 Reference should be made to the Vegetation Management Act and any Local Laws and Policies to ascertain any requirements in relation to tree clearing.

DP 1.05 Crime Prevention Through Environmental Design

1.05.1 It is important when designing development layouts that the principles of crime prevention through environmental design are considered, in particular:

1.05.1.1 Natural surveillance of public open spaces is optimised; and

1.05.1.2 Long pathway or obscured park areas that remain unlit should be avoided.

Engineering Issues

DP 1.06 General

1.06.1 The optimum site and road layout needs to be developed through consideration of social, environmental, town planning, traffic and engineering issues.

1.06.2 Although the engineering design of roads is the province of the engineer, it is essential that the surveyor and planner preparing the site layout the fully aware of the engineering issues to ensure that the road layouts proposed are satisfactory in this regard. Major alterations to the development layout may otherwise be necessary to accommodate engineering requirements.

1.06.3 The factors to be taken into consideration when designing new development layouts include the following:

1.06.3.1 Proposed land use;

1.06.3.2 Road hierarchy, interim and ultimate;

1.06.3.3 Public transport network;

1.06.3.4 Local planning policies, bikeways/paths and open space;

1.06.3.5 Council's drainage management plans;

1.06.3.6 Council's traffic management plans;

1.06.3.7 Railway and cane tram way lines;

1.06.3.8 access requirements for service vehicles and emergency vehicles;

1.06.3.9 topography of the area;

1.06.3.10 adequate road frontage to parks and drainage reserves;

1.06.3.11 existing utility services constraints and proposed augmentation works;

1.06.3.12 crime prevention through environmental design;

1.06.3.13 impacts on adjoining properties;

1.06.3.14 existing stormwater drainage;

1.06.3.15 flooding and ponding;

1.06.3.16 preservation of natural watercourses;

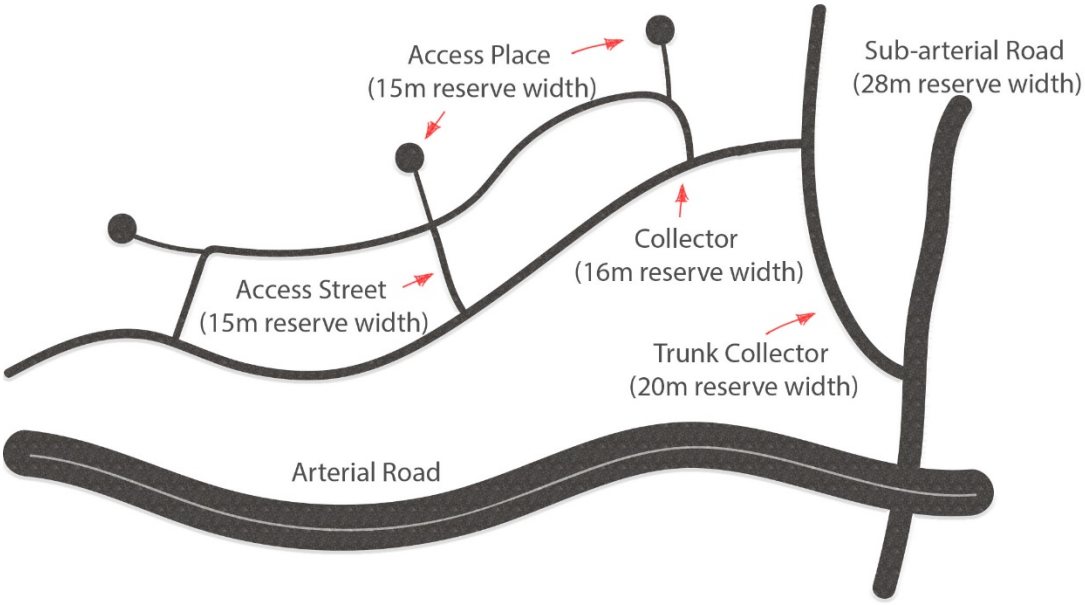
1.06.3.17 significant existing vegetation;
1.06.3.18 bushfire protection measures;
1.06.3.19 impact of earthworks;
1.06.3.20 water quality improvement structures and features;
1.06.3.21 existing soil conditions; and
1.06.3.22 geotechnical considerations.

DP 1.07 Road Network

1.07.1 The provision of a Road network within a subdivision development is to be designed to achieve the following aims:

1.07.1.1 convenient and safe access to all allotments for pedestrians, vehicles and cyclists;
1.07.1.2 safe, logical and hierarchical transport linkages with existing Street system;
1.07.1.3 appropriate access for buses, emergency and service vehicles;
1.07.1.4 convenient service corridors for public utilities;
1.07.1.5 opportunity for street landscaping; and
1.07.1.6 convenient parking for visitors.

1.07.2 A hierarchical Road network is essential to maximise Road safety, residential amenity and legibility. Each class of Road in the network serves a distinct set of functions and is designed accordingly. Atypical hierarchy is shown below.



1.07.3 The maximum number of turning movements at intersections or junctions that a visitor should be required to undertake to reach a particular address within the development should be minimised.

1.07.4 The road network should be designed to ensure that roads connect to next order of road in the hierarchy. Under no circumstances should a road connect to another road, which is more than two, levels higher or lower in the hierarchy.

1.07.5 Where an Access Place forms part of a pedestrian or cycle network, suitable connectivity with adjoining Access Places or open space systems should be provided to ensure such pedestrian and cycle network are functionally efficient.

1.07.6 Developments layouts should be designed with a road layout to achieve the desired speed environment. The use of traffic control devices in lieu of a suitable road layout is not preferred.

1.07.7 It is important that the road hierarchy adequately caters for buses. The main criteria in determining the location of bus routes is that no more than 10 per cent of residents should have to walk in excess of 500 metres to catch a bus. Normally roads above the Access Street in the hierarchy are designed as bus routes.

DP 1.08 Site Regrading Concept

1.08.1 Excessive site regrading should be avoided, wherever possible site layouts should be developed to position roads and drainage networks to take advantage of natural surface grades. Site layouts that minimise the disturbance of the land will require less erosion and sediment control measures during construction phase and reduce the risk of environmental harm.

1.08.2 Where earthworks are proposed on any development site identified in the Whitsunday Regional Council Planning Scheme Landslide Overlay as having a gradient of 15% or greater input should be sought from a qualified geotechnical engineer to ascertain slope stability and potential construction issues.

DP 1.09 Stormwater Drainage

1.09.1 The design of the drainage system, and earthworks for the proposed development shall be such that the upstream drainage is not adversely affected and that the downstream drainage system is capable of adequately catering for the discharge of the additional flow produced as a result of the development.

1.09.2 If the downstream system is not capable of carrying the modified discharge, the designer shall indicate the measures proposed to ensure the downstream system is capable of carrying the modified discharge. This will involve negotiation with adjoining landowners for minor creek systems to produce easements over downstream drainage paths. Written approval from the respective property owners is required for the easement and any engineering works on their property from the development site to the legal point of discharge.

1.09.3 The development layout shall be designed to accommodate both existing and future developed flows from upstream catchments based on development in accordance with the relevant Planning Scheme.

1.09.4 In preparing a development layout, consideration should be given of the overall site drainage philosophy, and overland flow paths, to ensure that the road network has sufficient drainage capacity to safely convey stormwater runoff to its receiving waters with minimal nuisance or damage to the community.

1.09.5 Consideration should be given in the preparation of the layout to ensure that in the event of drainage system failure, adequate emergency relief paths are provided. In particular, downhill sloping cul-de-sac heads should be avoided where a sufficient width pathway or open space cannot be provided to convey the overland flow.

DP 1.10 Stormwater Quality Management

1.10.1 In recognition of the impacts that development may have on the quality of water within the waterways, the over-riding objective for water quality management is to minimize the potential for development activity to cause harm to the environment / receiving waters.

1.10.2 All developments are required to include appropriate SQID's that ensure removal of suspended matter (litter) and treatment of contaminated stormwater prior to crossing the boundary of the development or discharge into downstream roadside gutters, stormwater drainage systems or waterways.

1.10.3 The location of the interception devices within the drainage system is to be planned to ensure that the first flush waters from all parts of the site are treated and they can be easily accessed for cleaning and maintenance.

DP 1.11 Sewerage Reticulation

1.11.1 In preparing a development layout, consideration should be given to the provision of sewerage reticulation connections to adjoining properties based on their future development in accordance with Council's Strategic Plan.

1.11.2 Where an existing sewerage reticulation line pass through a development site, the development layout should where possible incorporate the sewer with the development layout. Where this is not practical the layout should be prepared to minimise the extent of the sewerage relocation work necessary.

DP 1.12 Electricity Supply and Telecommunication Services

1.12.1 In preparing a development layout, the relevant Service Authorities should be consulted to confirm that the provision of services to the proposed development would be provided and if the provision of land for the purpose of siting infrastructure would be necessary.

DP 1.13 Tramlines through Urban Areas

1.13.1 Where cane tramlines run through urban areas a tramway reserve shall be created over tramline and transferred to Council.

1.13.2 The width of the tramway reserve for a single line shall be a minimum of twelve (12) metres. The reserve should be centrally located around the tramline except where exceptional circumstances prevent this. (e.g. adjoining tramway easement or reserve is placed off centre).

1.13.3 Under certain embankment / cutting conditions it may be necessary to widen the easement to provide a 3.0m wide access to at least one side of the track.

1.13.4 Where multiple tracks exist, the tramway reserve shall include all tracks plus a distance of six (6) metres from the centreline of the outermost tracks on each side.

1.13.5 This widened section shall be continued past the point of convergence of the tracks (i.e. the point of the switch of the first turnout of single line) a minimum of twenty (20) metres before becoming a standard twelve (12) metre easement again.

1.13.6 Residential areas should be sited away from siding locations if at all possible because of major dust and noise pollution problems. For cases where development will adjoin siding locations (closer than one hundred (100) metres from any part of the planned subdivision to the cane unloading point) then each such location would need to be the subject of a special study between the developer, the appointed consultants, representatives of the Mill and Council, in order to identify the unique problems of the location.

1.13.7 The number of road crossings should be kept to a minimum. Factors affecting the positioning of road crossings include: sight distances, track grades, proximity of the nearest crossing and the noise problem associated with the use of the train whistle at close successive crossings. Of particular importance is the adjacent grading of the track. The locating of road crossings on or near the base of falling grades should be avoided. Any road crossing proposal must be submitted to the Mill for the assessment of its likely implications on its own operations and on road users and residents.

DG1 - DESIGN GUIDELINES – ROAD GEOMETRY

Scope & Aims

DG 1.01 Road Geometry

1.01.1 This section sets out the minimum standards developed specifically for the design of roadworks using principles of Street design to enable safety and improved amenity and to reduce pedestrian/vehicular conflicts.

1.01.2 The geometry of a road is to be designed to achieve the following aims:

1.01.2.1 provide convenient and safe access to all allotments for pedestrians, vehicles and cyclists;
1.01.2.2 provide appropriate access for buses, emergency and service vehicles;
1.01.2.3 provide a convenient verge for public utilities;
1.01.2.4 provide an opportunity for street landscaping; and
1.01.2.5 provide convenient parking for visitors.

DG 1.02 Reference Documents

1.02.1 Australian Standards:
- 1.02.1.1 AS1158 Lighting for Roads and Public Spaces;
- 1.02.1.2 AS1348.1 Road and Traffic Engineering – Glossary of Terms, Road Design and Construction;
- 1.02.1.3 AS1428 Design for Access & Mobility;
- 1.02.1.4 AS2890.1 Parking Facilities: Off-street parking;
- 1.02.1.5 AS2890.2 Parking Facilities: Off-street Commercial Vehicle Facilities;
- 1.02.1.6 AS2890.5 Parking Facilities: On-street Car Parking;
- 1.02.1.7 AS/NZS 3845 Road Safety Barrier Systems;
- 1.02.1.8 AS 4678 Earth retaining structures
- 1.02.1.9 AS4282 Obtrusive Effects of Outdoor Lighting.
- 1.02.1.10 Disability Standards for Accessible Public Transport – IPWEAQ

1.02.2 Department of Transport & Main Roads:
- 1.02.2.1 Road Planning & Design Manual;
- 1.02.2.2 MUTCD;
- 1.02.2.3 Transport Operations (Road Use Management) Act.

1.02.3 Austroads:
- 1.02.3.1 Guide to Road Design;
- 1.02.3.2 Guide to Traffic Management
- 1.02.3.3 Guide to Road Safety;
- 1.02.3.4 Cycling Guidelines;

1.02.4 Other:
- 1.02.4.1 IPWEAQ Complete Streets;
- 1.02.4.2 Australian Model Code for Residential Development.

DG 1.03 Consultation

1.03.1 Designers are encouraged to consult with the Council and other relevant authorities prior to or during the preparation of the design. Designers should in addition to requirements of this manual ascertained specific requirements of these authorities as they relate to the designs in hand.

Road Design Criteria

DG 1.04 Design Speed

1.04.1 For geometric design of roads, design speeds shall be as nominated in Table D1.1 unless specified otherwise by Council. Developments should be designed with a road layout to achieve the desired speed environment. The use of Traffic Control Devices in lieu of a suitable road layout is not preferred.

1.04.2 Adoption of a low design speed discourages speeding, attention should be given to ensuring that potentially hazardous features are visible to the driver and adopting traffic engineering measures which will help a driver avoid errors of judgement.

1.04.3 Design speeds shall be calculated on largest radius track between kerb and centreline unless a physical constraint is incorporated in the design to maintain vehicle tracking in traffic lane.

DG 1.05 Longitudinal Gradient

1.05.1 A general minimum gradient of 0.5% should be adopted for all roads, which will ultimately include kerb and channel. In very flat conditions where approved by Council it may be reduced to 0.3%.

1.05.2 A desirable minimum gradient of 1.0% should be adopted for all roads, which will have earth table drains, except where approved otherwise by Council, in exceptional cases.

1.05.3 Roads constructed, without kerb and channel, completely in embankment may have zero grade.

1.05.4 Maximum grades shall be as nominated in Table D1.1.

1.05.5 Longitudinal grade 3 intersections should not exceed 4%, the actual gradients being dependent on the type of terrain. Design of the road alignment and the grades used are interrelated. A steep grade on a side street is undesirable if vehicles must stand waiting for traffic on the priority road.

1.05.6 Turning circles and cul-de-sacs on steep grades should have grades less than 5%.

1.05.7 Where minimum radius crest vertical curves are used local widening is to be provided to facilitate safe ingress/egress from properties.

DG 1.06 Horizontal Alignment

1.06.1 Horizontal alignment shall generally comply with the requirements of Austroads, Complete Streets, or Department of Transport and Main Roads manuals, as applicable.

1.06.2 Designers should ensure that, for a given design speed, the minimum radius of curvature utilised is such that drivers can safely negotiate the curve. Curves that progressively tighten produce an uncomfortable sense of disorientation and alarm. Sudden reverse curves that drivers cannot anticipate also have a potential to cause similar conditions.

1.06.3 The horizontal alignment shall ensure adequate sight distances taking into account construction of solid fencing on property boundaries.

DG 1.07 Vertical Curves

1.07.1 Vertical curves should be used on all changes of grade where the algebraic change of grade exceeds:

- 1.07.1.1 Access Place, Access Street, Collector Street – 1%
- 1.07.1.2 Trunk Collector Streets – 0.6%

1.07.2 The length of the crest vertical curve for stopping site distance should conform to Austroads;

1.07.3 for adequate riding comfort, lengths of stag vertical curves should conform to Austroads;

1.07.4 Every effort should be made to provide vertical curves as long as possible, for improved appearance.

1.07.5 Drainage poses a practical limit to the length of stag curves and a maximum length (in metres) 15 times the algebraic some of the intersection vertical grades should be adopted. This is to avoid water ponding in excessively flat sections of curb and channel. A minimum grade of 0.5% should be maintained in the curb and channel.

1.07.6 In general, a minimum 10 m length vertical curve shall be provided with a side road joins the through road at three-way intersections.

1.07.7 A tangent point of a vertical curve in the side road shall be located at, or outside of, the kerb line of the through road. Council may approve the use of concrete invert in lieu of a vertical curve with a side road is at Access Place and the algebraic change of grade is less than 6%.

1.07.8 The three-dimensional coordination of the horizontal and vertical alignment of a road should be aimed at improving traffic safety and aesthetics. The following principles should be applied:

- 1.07.8.1 The design speed of the road in both horizontal and vertical planes should be of the same order;
- 1.07.8.2 Combined horizontal and vertical stopping sight distance and minimum sight distance should be considered three dimensionally;
- 1.07.8.3 Sharp horizontal curves shall not be introduced at or near the crest of a vertical curve;
- 1.07.8.4 Horizontal curves should leave the vertical curve and be longer than the vertical curve; and
- 1.07.8.5 A short vertical curve on a long horizontal curve or a short tangent in the grade line between sag curves may adversely affect the road's symmetry and appearance.

DG 1.08 Crossfalls

1.08.1 Carriageway crossfalls for streets shall conform to the requirements of Austroads and/or Complete Streets.

1.08.2 Generally, pavement crossfalls on straight roads shall be:

- 1.08.2.1 Bituminous seal coat - 3%
- 1.08.2.2 Asphaltic concrete pavement – 3%
- 1.08.2.3 Cement concrete pavement – 3%
- 1.08.2.4 Paved Surfaces – 3%
- 1.08.2.5 Gravel – 5%.

1.08.3 Median crossfalls - the maximum crossfall on grassed medians on divided roads shall be desirably 1 in 6 with an absolute maximum of 1 in 4. Refer also Department of Transport and Main Roads Design Manuals. However, at median openings, the pavement crossfall should not exceed 5 per cent.

1.08.4 For roundabouts detailed consideration of the crossfall is required taking into account diameter, heavy vehicle turning, etc.

Table D1.1 WRC Street and Road Hierarchy – Deemed to Comply Requirements

Roadway Classification	No. of Dwellings	Traffic Generation (vehicles per day)	Reserve Width[1] (Minimum)	Carriageway Width [3,6] (Minimum)	Shoulder Width (Minimum)	Verge Width (each side) (Minimum)	Max Grade (Desirable) %	Design speed (km/h)
Access Place	0-10	0-99	14	6.0m		4.0m	(12) 16 [4]	40
Access Street	10-25	100-499	15	6.0m		4.5m	(12) 16 [4]	50
Collector Street	25-299	500-2,999	20	7.5m		5.0m	(8) 10	60
Trunk Collector Street	300-599	3,000-5,999	24	10.0m	1.5m (min)	5.0m	(8) 10	60
Sub Arterial Road	600-2,000	6,000-20,000	26	2 x 5.5m carriageway 5.0m median		5.0m	(6) 8	60
Rural	Refer table D1.4 for details of Rural Road Elements							
Arterial and Major Arterial	The requirements for these categories shall be provided by the Council or relevant authority (DTMR). Traffic volumes shall be identified in a traffic management report.							
Industrial Access	-	-	20	12m		4m	(6) 10	60
Industrial Collector	<30ha	-	22	14m		4m	(6) 8	50

1. Carriageway (and reserve) widening shall be provided on bends in accordance with Austroads.
2. Widening of carriageway to 10m shall be required on all bus routes, and a minimum road reserve of 18m provided.
3. Carriageway widths are measured from the invert of the kerb and channel on one side of the carriageway to the invert of the kerb and channel on the opposite site of the carriageway.
4. The absolute maximum grade shall be 20% for a maximum length of 60m. The maximum length of grades less than 20%, but not less than 16%, shall be 60m plus 25m for each 1% the grade is less than 20%. The maximum length of any grade greater than 16% shall be 160m.
5. Road reserve widths may require widening to accommodate table drains, provision for services, on-street car parking provision and bus bays.
6. Minimum reserve must be provided, irrespective of minimum verge and carriageway widths specified.
7. Where the road is nominated as part of the bikeway network, allowance for bike lanes shall be added to this width (minimum bikeway width is 1.5m or 2.0m where the design speed is >60km/h).
8. Refer to Council's standard drawings.

DG 1.09 Carriageway Width

1.09.1 Minimum carriageway widths for all streets shall be as nominated in Table D1 .1.

1.09.2 The carriageway widths must allow vehicles to proceed safely at the operating speed intended for that level of road in the network and with only minor delays in the peak period. This must take into consideration the restrictions caused by parked vehicles where it is intended or likely that this will occur on the carriageway. Vehicles include tracks, emergency vehicles and, on some roads, buses.

1.09.3 The safety of pedestrians and cyclists where it is intended that they use the carriageway must also be assured by providing sufficient width and visibility.

1.09.4 The carriageway which should also provide for unobstructed access to individual allotments. Motorists should be able to comfortably enter or reverse from an allotment in a single movement, taking into consideration the possibility of a vehicle being parked in the carriageway opposite the driveway.

1.09.5 The design of the carriageway should discourage motorists from travelling above the intended speed by reflecting the functions of the road in the network. In particular, the width and horizontal and vertical alignment should not be conducive to excessive speeds.

1.09.6 Appropriate road reserve width should be provided to enable the safe location, construction and maintenance of required paths and public utility services (above or below ground) and to accommodate the desired level of streetscape.

1.09.7 Where a “split-level” road is proposed, a stable form of retaining structures such as reinforced concrete, crib block, gabion or masonry walling (or other approved alternative) is required between upper and lower road levels.

1.09.8 Traffic islands shall be designed in accordance with the current DTMR or AUSTROADS design manuals.

1.09.9 Where upgrades are required the applicant may undertake a traffic count to confirm the number of vehicle movement per day on the subject road.

DG 1.10 Verges

1.10.1 Minimum verge width for all streets shall be as nominated in Table D1 .1.

1.10.2 A suitable design of the verge will depend on utility services, access to allotments, pedestrian usage, tree preservation and storm water drainage.

1.10.3 All verges shall fall from the frontage property boundary to the adjacent kerb and channel with acceptable Cross falls of between 3% to 5%. In the case where the allotment falls away from the road reserve (i.e. the allotment is lower than the level of the road), the verge shall have a minimum fall from the frontage property boundary to the adjacent kerb of 3%.

1.10.4 The maximum slope permissible within a road verge is 1 in 4.

1.10.5 The verge when considered in conjunction with the horizontal alignment and permitted fence and property frontage treatments should provide appropriate

sight distances, taking into account expected speeds and pedestrian and cyclist movements.

1.10.6 Utility service locations shall be in accordance with the relevant authorities' requirements.

1.10.7 Verges shall be covered full width with topsoil to a depth of not less than 40 mm and shall be lightly compacted and grassed in accordance with Council's minimum standards and specifications.

DG 1.11 Intersections

1.11.1 All new intersections of Access Places, Access Streets and Collector Streets, shall be three-way intersections designed and located in accordance with Austroads.

1.11.2 A roundabout shall be used in the design of four way intersections.

1.11.3 Intersections of Trunk Collector, Industrial, and Sub Arterial roads shall be designed in accordance with AUSTROADS design manual and shall allow for potential improvement to incorporate other traffic control methods e.g. traffic signals.

1.11.4 Intersections with state-controlled roads shall be designed and constructed in accordance with the requirements of DTMR.

1.11.5 The design of intersections or junctions should allow all movements to occur safely without undue delay. Projected traffic volumes shall be used in designing all intersections or junctions on trunk collector streets or higher order roads.

1.11.6 Truncations shall be provided to real property boundaries in order to maintain minimum verge widths and adequate sight distances taking into account potential for construction of solid fencing on the property boundaries.

1.11.7 The turning radii at intersections measured at the kerb invert shall be 9.0m minimum and accommodate the intended movements without allowing desired speeds to be exceeded.

1.11.8 All vehicle turning movements are accommodated using AUSTROADS design vehicle and turning templates, as follows:

1.11.8.1 For turning movements involving trunk collector streets or collector streets, the "design semitrailer" with turning path radius of 15 m.

1.11.8.2 For turning movements involving access streets but not involving collector streets, the "design single unit track/bus" with turning path radius of 13 m.

1.11.8.3 For turning movements and access places but not involving collector streets or access streets the garbage collection vehicle with turning path radius of 12 m.

1.11.8.4 For turning movements at the head of cul-de-sacs for all streets, except access place, have sufficient area provided for the "design single unit track"; and

1.11.8.5 Road furniture shall be located to allow for clear manoeuvring of the design semitrailer.

1.11.9 Intersection channelisation is to be provided and designed in accordance with the current DTMR or AUSTROADS design manuals.

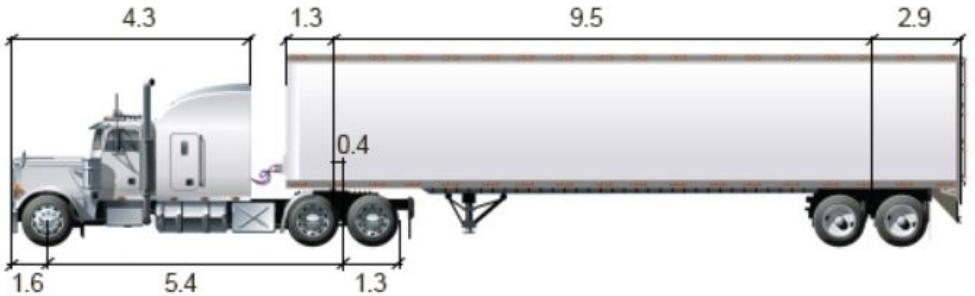
1.11.10 All channelisation shall be designed to accommodate a design vehicle providing a clearance of not less than 0.6 m between the wheel track and the kerbs at all points, unless specified otherwise by Council.

1.11.11 Traffic islands or medians of less than 2m width to be hard surfaced in concrete with a patterned broomed finish incorporating a coloured pigment in accordance with Council's requirements. This colour should generally be terracotta unless otherwise approved by Council.

1.11.12 Traffic islands, which are to be grassed or landscaped, shall be provided with a water service conduit and a perimeter subsoil drainage line connected to the underground drainage system or an open drainage channel.

1.11.13 On Trunk Collectors, Sub-Arterial and Arterial roads, median breaks will only be permitted at approved intersections.

1.11.14 Pavement markings associated with channelisation and signs shall be provided in accordance with the MUTCD.

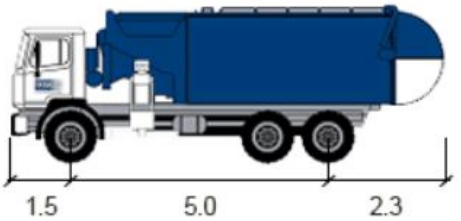


Semi-trailer

Tractor width	:	2.50	Trailer width	:	2.50
Tractor track	:	2.50	Trailer track	:	2.50
Turning radius (outside):		15.00			

Single unit truck/bus

Width	:	2.50
Track	:	2.50
Turning radius (outside):		13.00



Garbage truck

Width	:	2.50
Track	:	2.50
Turning radius (outside):		12.00

Figure 1.3 Standard Vehicles

DG 1.12 Roundabouts

1.12.1 Design of roundabouts will generally be in accordance with current Department of Transport and Main Roads Design Manuals and AUSTROADS Guide to Road Design.

1.12.2 Roundabout shall only be used at intersection of Collector Streets and Access Streets or higher order roads only. All roundabouts shall have a minimum inscribed circle diameter of 30.0m.

1.12.3 Centre islands which are to be grassed or landscaped shall be provided with a water service conduit and a perimeter subsoil drainage line connected to the underground drainage system or an open drainage channel.

1.12.4 Landscaping to centre islands to be in accordance with Council minimum standards and Specifications.

1.12.5 Roundabouts shall include provision for on road cycle lanes unless alternate cycle paths are provided.

DG 1.13 Cul-De-Sac Turning Areas

1.13.1 The turning areas at the ends of the cul-de-sac in streets is to be designed in accordance with Austroads and/or Complete Streets, excepting as follows:

1.13.1.1 Three-point turns (T-Heads) will not be permitted without the prior consent of Council. Council may review site specific alternatives where topography and site constraints exist.

1.13.1.2 Where a full turning circle is not provided to the minimum radius below, provision for turning within kerbs for Council's design garbage truck must be demonstrated.

1.13.2 Where a full turning circle is provided the minimum kerb radii shall be:

1.13.2.1 Approach and departure curves – 15m

1.13.2.2 The turning circle – 10m.

1.13.3 Turning areas at the ends of cul-de-sac in industrial developments shall be full turning circles based on criteria for the specific application, with the following minimum kerb radii:

1.13.3.1 Approach and departure curves – 30m

1.13.3.2 The turning circle – 15m.

1.13.4 All turning heads shall have adequate provision for on-street parking at cul-de-sacs in accordance with Austroads and/or Complete Streets. Provision of parking areas within the verge must not compromise the future connection of services to the allotments.

1.13.5 Reference should be made to table D3.2 for rural cul-de-sac requirements.

DG 1.14 Local Area Traffic Management

1.15.1 The road network should be designed to manage the movement and speed of traffic in local areas. In this regard, any traffic management devices such as thresholds, slow points, speed humps, chicanes and splitter islands should be designed in accordance with the requirements of AUSTROADS and are to be approved by Council.

1.15.2 Devices other than at intersections should be located to be generally consistent with streetscape requirements, existing street lighting, drainage pits, driveways, and services may decide the exact location of devices.

1.15.3 Emergency vehicles must be able to reach all residences and properties.

1.15.4 Where bus routes are involved, buses should be able to pass without mounting kerbs and with minimised discomfort to passengers.

1.15.5 Traffic management devices and associated road furniture must not prevent the passage of larger vehicles (i.e. semi-trailers) however their principle function is not to be compromised.

1.15.6 In newly developing areas where street systems are being developed in line with LATM principles, building construction traffic must be catered for.

1.15.7 Maximum vehicle speeds can only be reduced by deviation of the travelled path. Pavement narrowings have only minor effects on average speeds, and usually little or no effect on maximum speeds.

1.15.8 Speed reduction can be achieved using devices, which shift vehicle paths laterally (slow points, roundabouts, corners). The use of vertical devices (i.e. humps, platform intersections, platform pedestrian/school/bicycle crossings) is not desirable and shall only be used where specifically approved by Council.

1.15.9 Speed reduction can be helped by creating a visual environment conducive to lower speeds. This can be achieved by 'segmenting' streets into relatively short lengths (less than 200-300m), using appropriate devices, streetscapes, or street alignment to create short sight lines.

1.15.10 Adequate critical sight distances should be provided such that either party in a potential conflict situation may take evasive action. Sight distances should relate to likely operating speeds.

1.15.11 Sight distances to be considered include those of and for pedestrians, cyclists and property accesses, as well as for drivers.

1.15.12 Night time visibility of street features and LATM devices must be adequate and in accordance with the MUTCD.

1.15.13 Many devices will be designed for their normal use by cars, but with provision (such as mountable kerbs) for larger vehicles. Some typical dimensions include:

1.15.13.1 Pavement narrowing:

1.15.13.1.1 Single lane 3.5m between kerbs;

1.15.13.1.2 Between obstructions - 3.75m; and

1.15.13.1.3 Two lane 6.0m minimum between kerbs.

1.15.13.2 Bicycle lanes (including adjacent to pavement narrowings) – 1.5m minimum;

1.15.13.3 Plateau or platform areas;

1.15.13.4 75mm to 150mm height maximum, with 1 in 15 ramp slope;

1.15.13.5 Dimensions of mountable areas required for the passage of large vehicles to be determined by appropriate turning templates.

DG 1.16 Bus Stops

1.16.1 Bus stops should be provided on all bus routes so no more than 10 per cent of residents should have to walk in excess of 500 metres to catch a bus. Normally roads above the access street in the hierarchy are designed as bus routes. Table D1.2 details minimum criteria for bus stops.

1.16.2 Unless otherwise approved, bus stops shall be constructed in accordance with AUSTROADS Guide to Road Design, MUTCD and Disability Standards for Accessible Public Transport.

1.16.3 Tactile Ground Surface Indicators (TGSI) are to be installed at all bus stops and shelters in accordance with AS/NZS 1428.4:2009.

Table D1.2 Bus Stop Criteria

Road	Stops (Spacing)	Description
Collector Streets	400 metres [1]	Single Bay and shelter [2]
Trunk Collector or higher order road	400 metres	Single Bay and shelter [2]

Notes:

1. Loop roads with single entry/exits only require stops and bays on one side of the road.
2. Shelters are subject to Council's requirements.

DG 1.17 Access to Allotments

1.17.1 Criteria for acceptable access to allotments are to be in accordance with Council's Standard Drawings.

1.17.2 Criteria for acceptable access to steep allotments are to be in accordance with Section DG 2.12.

1.17.3 Criteria for acceptable access to lots in the Rural, Rural residential & Emerging communities zones are to be in accordance with Section DG 1.30.

1.17.4 All rear allotment access (hatchet or battleaxe lots), shall be provided with a reinforced concrete driveway (unless in a Rural, Rural residential or Emerging communities zone, where Council may approve another surface), have a minimum width of 3.0m and extend the full length of the access handle.

1.17.5 All rear allotment access driveways shall commence at the adjacent kerb and channel with a standard kerb crossover or at the existing edge of pavement. Conduits for internal allotment services are to be provided adjacent to the concrete driveway for the full length of the access unless otherwise approved.

1.17.6 All rear allotment access via an easement to more than one lot, shall be provided with a reinforced concrete driveway (unless in a Rural, Rural residential or Emerging communities zone, where Council may approve another surface) and have a minimum width of 5.5m to allow two-way access.

1.17.7 Where lots are accessed via an access easement, a 10.0m transition to singular (3.0m wide) access may be provided from the second last lot's crossover extending the full length of the access handle to the last lot.

1.17.8 All lots associated with an access easement must only gain access through the access easement.

DG 1.18 Parking Provisions

1.18.1 Parking provisions in accordance with the relevant sections of Austroads and/or Complete Streets shall be accorded with on all roads, except that for Major Collector Street with a traffic generation of 3000 vpd - 5999 vpd.

1.18.2 Streets which cannot comply with the on-street parking provisions of Austroads and/or Complete Streets, due to reduced allotment frontage widths or carriageway widths, shall make provision for indented or verge parking bays at a minimum frequency of 1 parking bay per 2 allotments. Particular attention should be made to providing adequate provision for on-street parking at cul-de-sacs, turning heads and elbow bends.

1.18.3 Verge widths are to be maintained alongside indented or verge parking areas. Where necessary, property boundaries shall be adjusted to meet this requirement.

DG 1.19 Pathways

1.19.1 Unless otherwise approved, pathways will be constructed taking into consideration the Disability Discrimination Act and Disability Standards for Accessible Public Transport.

1.19.2 Where a pathways link is located between allotments, the minimum width of land dedicated to Council shall be 5.0m. Concrete paving is to be for the full width of the pathway link and at least 2.5m wide and extend to the adjacent kerb and channel together with a kerb ramp. Vehicular access is to be restricted at the ends of pathways through the installation of bollards at the property line in accordance with the Councils requirements.

1.19.3 Maximum cross fall on all access pathways 2.5%.

1.19.4 Pathways constructed using alternate material (e.g. Asphalt, Paving blocks) are to be approved by Council.

1.19.5 The pathway shall extend to the property boundary remote from the roadway where the path is not connecting two street frontages.

1.19.6 Bends shall be provided with a minimum internal radius of 6m.

1.19.7 All pathways shall have a non-slip surface, generally, this can be achieved by applying a stiff broom to the wet surface. (Alternate methods shall require Council approval).

1.19.8 Where a pathway link is used for stormwater drainage overland flow relief it shall have a one way crossfall and be constructed in full width concrete with a

layback kerb and channel or approved equivalent along one edge to contain the required flow within the concrete.

1.19.9 Pathways are not to be aligned with stormwater pits where a stormwater pit is required to be located at the end of a pathway for overland flow, the pedestrian path is to be offset and appropriate measures provided to guide pedestrians away from the pit and remove any potential hazards.

1.19.10 The requirements for pathways to be constructed longitudinally along roads shall be in accordance with Table D1.3.

Table D1.3 Pathways along roads

Road Classification	Pathway Requirements [2]
Access Place	Nil (Kerb ramps to intersections only)[1]
Access Street	1.5m wide Pathway on one side of the reserve[3]
Collector Street	2.0m wide Pathway on one side of the reserve[3]
Sub Arterial/Arterial	2.5m wide Pathway on both sides of the reserve
Industrial	1.5m wide Pathway on each side of the reserve.

Notes:

1. **Unless required as part of a pedestrian/cycle network;**
2. **Minimum widths in the above table may be varied with the approval of Council;**
3. **Increase to 2.5m for cycleways.**

1.19.11 All pathways shall have appropriate immunity against cross drainage.

1.19.12 The maximum gradient shall be 16 per cent with a maximum crossfall of 2.5 per cent. Where the pathway is parallel with a road with a grade greater than 16 per cent footpath gradient shall match that of the road.

1.19.13 The finished surface level of concrete work shall be not more than 20mm above the finished surface level of adjoining ground and shall finish flush with adjoining hard surfaces.

DG 1.20 Bikeways

1.20.1 The minimum width of land dedicated to Council for a bikeway shall be 5.0 metres with a minimum 2.5 metre wide concrete paving in accordance with Cycling Aspects of AUSTROADS Guides and MUTCD - Part 9, Bicycle Facilities.

1.20.2 Bikeways constructed using alternate material (e.g. Asphalt, Paving blocks) are to be approved by Council.

1.20.3 Bikeways located in parks shall be constructed above the flow of a storm of 5 year ARI, unless approved otherwise by Council.

1.20.4 Where bikeways connect to or crosses over an Access Street or higher order road, a slow point shall be installed as approved by Council.

1.20.5 All bikeways shall have a non-slip surface. Generally, this can be achieved by applying a stiff broom to the wet surface. (Alternate methods require Council approval).

DG 1.21 Kerb and Channel

1.21.1 Concrete kerb and channel, and layback kerb and tray shall be provided on both sides of all roads except as otherwise provided for in Austroads and/or Complete Streets.

1.21.2 Standard kerbs in accordance with Council's Standard Drawing shall be used in the following cases:

- 1.21.2.1 Residential Streets – Layback Kerb and Layback Kerb and Channel;
- 1.21.2.2 Medians – Maintenance Strip Kerb;
- 1.21.2.3 Grassed and Landscaped Traffic Islands – Maintenance Strip Kerb;
- 1.21.2.4 Concrete Traffic Islands - Semi-mountable Kerb; and
- 1.21.2.5 Roundabouts (centre island only), - Maintenance Strip Kerb.

1.21.3 Where proposed construction adjoins existing kerb and channel the Designer shall confirm with Council whether the existing profile shall be extended or whether the new construction will be tapered smoothly to the existing kerb and channel. The grading of kerb and channel will normally conform to the road centreline grading. However, at locations where the kerb and channel grading diverts from the centreline grade, such as at intersections or on superelevated curves the following shall apply.

1.21.4 Minimum channel grade should be 0.5 percent unless approved other approved by Council.

1.21.5 Every effort should be made to provide vertical curves as long as possible, for improved appearance.

1.21.6 At all changes in horizontal alignment, kerbs and kerb and channel shall be constructed with horizontal curves.

1.21.7 To improve appearance where small deflections occur (e.g. on tapers), horizontal curves shall be as long as possible. Refer also to current Department of Main Roads or AUSTROADS.

1.21.8 Kerb ramps shall be provided at all tangent points of intersection kerb returns, at park entrances and at any other locations where required by Council.

1.21.9 Access crossovers for Industrial, Commercial and Multi Residential site shall be installed in accordance with Council's Standard Drawings.

DG 1.22 Signs and Road Markings

1.22.1 Permanent signing and road marking shall be in accordance with the current edition of the MUTCD. Where there is a choice of line marking colour, then only white or yellow paint is to be used.

1.22.2 Temporary or construction signing and road marking shall be in accordance with current edition of the MUTCD.

1.22.3 The relevant sign reference number from the MUTCD shall be included on the construction drawings.

1.22.4 All signs and pavement markings shall be adequately dimensioned to ensure accurate setting out.

1.22.5 Signs located in grassed areas shall have a surrounding 500mm dia x 100mm thick concrete mowing strip.

1.22.6 Signs located in concrete islands or medians shall be installed with the "V Loc" socket system and fitted with anti-theft bolts.

1.22.7 The bottom of all un-sleeved posts shall be flattened prior to placing in concrete footing.

1.22.8 Vandal proof bolts and fittings shall be used on all permanent signing.

1.22.9 Street Name signs shall be installed in accordance with Council's Standard Drawing.

DG 1.23 Road Edge Guide Posts & Guardrails

1.23.1 Road edge guide posts shall be provided at all locations where concrete kerb and channel is not constructed e.g. half road construction, tapers, ends of roads etc.

1.23.2 Guide posts shall conform to and be installed in accordance with Department of Main Roads 'Manual of Uniform Traffic Control Devices'.

1.23.3 Guardrails shall be installed in accordance with the Department of Main Roads Road Planning and Design Manual.

DG 1.24 Pedestrian Foot Bridges

1.24.1 Pedestrian foot bridges are to be provided where necessary and are to be constructed from concrete, steel or timber (all steelwork is to be hot dipped galvanised) and shall be provided with handrails / fences for pedestrian safety.

1.24.2 The clear width of all pedestrian bridges shall match the width of the approaching pathway / bikeway unless otherwise approved by Council and shall have squeeze points to control access.

1.24.3 Designers shall consult with Council at concept stage to confirm location, widths, flood immunity etc.

DG 1.25 Tram Line Crossings

1.25.1 Road crossings are to be constructed in accordance with Department of Transport and Main Roads Standard Drawings.

1.25.2 Flashing lights and crossing warning signs to the Department of Transport and Main Roads standards are to be erected on all new road crossings or crossings where the traffic density will increase because of the development.

1.25.3 Prior to commissioning of flashing lights and warning lights appropriate temporary controls including warning signage shall be installed and maintained at all road crossings.

DG 1.26 Fencing

1.26.1 All fencing located inside the road reserve shall have a minimum height of 1.2m, and shall be of a type that discourages climbing and constructed in accordance with Council's Standard Drawing.

1.26.2 A continuous chain wire mesh fence shall be constructed along all interfaces between the development and the tramway reserve and shall be constructed in accordance with Council's Standard Drawing.

Rural Design Criteria

DG 1.27 General

1.27.1 In addition to the foregoing sections this section specifically applies to all those sites identified as being suited to rural and rural residential subdivisions inclusive of rural home sites and hobby farms types of developments. For roads within the Rural Living Areas reference should be made to Table D1.1. Table D1.4 details specific road demands for rural roads.

	Rural Access Place	Rural Access St	Rural Collector	Rural Sub Arterial	Rural Arterial
Traffic Volumes or Road Class (vpd)	<100	100-199	200-999	1000-7999	>8000
Road Reserve (flat terrain ≤ 5%)	20m	20m	20m	25m	25m
Road Reserve[2] (undulating/Hilly >5%)	25m	25m	25m	30m	30m
Formation	8m	8m	10m	10m	12m
Pavement Width	6m	6m	6.5m	8m	10m
Seal Width	Optional[1]	6m (min)	6.5m	8m	10m
Shoulders[3]	1.0m	1.0m gravel	1.75m gravel	As collector Incl. 0.5m sealed on each side	As collector Incl. 1.5m sealed on each side
Desirable Speed Environment	80km/h	80km/h	100km/h	100km/h	100km/h
Design Speed for Individual Elements (Minimum)	80km/h	80km/h	80km/h	80km/h	80km/h

Notes:

1. **Sealing 4.0m wide shall be required for longitudinal grades in excess of 10% and may be required at sites where existing adjacent roads are sealed.**
2. **In undulating terrain, this width shall be increased to enable services to be constructed on accessible flatter land on top and below batters.**
3. **Where the road is a designed on-road bicycle route (signposted and pavement marked) the shoulder provision needs to confirm to AUSTROADS Part 14 – Bicycles.**

1.27.2 Design speed is to be generally used as the basic parameter of design standards and the determination of the minimum design value for other elements in rural subdivisions is to be based on the concept of a "speed environment" as outlined in AUSTROADS Guide to Road Design.

1.27.3 Where appropriate superelevation, widening and centreline shift and their associated transitions are to comply with AUSTROADS Guidelines.

1.27.4 Where the table drain will have a flow velocity greater than 2.5m/s or is likely to scour, a stone pitched, or suitably lined dish drain is to be constructed along the invert. (Generally, table drains steeper than 6 % will require scour protection).

DG 1.28 Horizontal and Vertical Alignment

1.28.1 Horizontal and vertical curves are to be designed generally to the requirements of AUSTROADS Guide to Road Design. These requirements are essential to satisfy the safety and performance of proper road design. Roads having both horizontal and vertical curvature should be designed to conform to the terrain to achieve desirable aesthetic quality and being in harmony with the landform.

DG 1.29 Intersections

1.29.1 Intersections should generally be in accordance with AUSTROADS.

1.29.2 Adequate sight distance should be provided at intersections both horizontally and vertically. Each intersection location shall be examined for conformance with the criteria for Approach Sight Distance (ASD), Entering Sight Distance (ESD) and Safe Intersection Sight Distance (SISD).

DG 1.30 Access to Allotments

1.30.1 All accesses onto sealed roads are to be sealed. Accesses off gravel roads do not have to be sealed.

1.30.2 Drainage under accesses shall be designed and constructed to a size and length as determined by RPEQ. Minimum pipe size – 375mm diameter, Minimum length – 4.8m long.

1.30.3 All pipe and box culverts under accesses shall have headwalls to protect and retain gravel fill.

1.30.4 Precast vertical headwalls with wings are preferred, but insitu cast concrete or grouted stone may be used subject to Council Approval.

1.30.5 Precast sloping headwalls to be used on all access where the road design speed is 100km/h or where the culvert is within 4.5m of the traffic lane and the road speed is 80 km/h.

1.30.6 Accesses are to be designed to ensure that stormwater runoff from the road and the access discharge to the table drain.

1.30.7 Accesses shall be constructed in accordance with Council's Standard Drawing unless otherwise approved by Council.

DG 2 – DESIGN GUIDELINES - Site Regrading

General

DG 2.1 Scope

2.1.1 This section sets out the minimum standard specifically designed for site regrading involved land development and subdivision.

2.1.2 The designer needs to make reference to the associated design manual related to DG 1 – Road Geometry, DG 4 – Stormwater Drainage and DG 5 – Stormwater Quality Management.

DG 2.2 Objectives

2.2.1 This Manual aims to assist the Designer in achieving:

- 2.2.1.1 Efficient and economical design;
- 2.2.1.2 Enhancement of the environmental character and maintenance of natural features of the site; and
- 2.2.1.3 Minimal impact on adjoining properties and developments.

DG 2.3 Reference Documents

2.3.1 AS3798 Guidelines on Earthworks for Commercial and Residential Development

2.3.2 AS4373 Pruning of Amenity Trees

2.3.3 AS4970 Protection of Trees on Development Sites

2.3.4 State Planning Policy

DG 2.4 Site Regrading Concept

2.4.1 Areas of a site proposed for building or recreational purposes may not be suitable in their natural state for their intended function without improvement works, the designer shall review the natural surface contours and where necessary shall design finished surface levels that ensure the land is suitably prepared.

2.4.2 Excessive site regrading should be avoided, wherever possible site layouts should be developed to position roads and drainage networks to take advantage of natural surface grades. Site layouts that minimise the disturbance of the land will require less erosion and sediment control measures during construction phase and reduce the risk of environmental harm.

2.4.3 The designer shall consider the implications of site regrading in relation to the existing natural environment. Generally, site regrading shall be minimised in heavily treed areas.

2.4.4 The design of site regrading areas preferably should aim to achieve a balanced cut to fill to minimising haulage of imported fill or spoil to and from the development site.

2.4.5 Where practical, areas should be regraded to minimise the necessity for underground drainage systems with surface inlet pits, and allow surface water to flow naturally to roads or drainage reserves without excessive concentration.

DG 2.5 Clearing

2.5.1 Unless otherwise approved by Council any pruning and/or protection of trees shall be carried out in accordance with AS 4970 and AS 4373.

2.5.2 Clearing must be kept to a minimum. Trees and vegetation of significance shall be identified prior to design in order that the amount of disturbance may be minimised through appropriate design.

2.5.3 Reference should be made to the Vegetation Management Act and any relevant Local Laws and Policies prior to any tree clearing.

2.5.4 Generally, in areas with significant trees and vegetation:

2.5.4.1 Roadways clearing shall be limited to the limits of approved earthworks plus a sufficient lateral clearance to ensure that the works are not interfered by the trees or vegetation; and

2.5.4.2 Allotment clearing shall be limited to the minimum areas required to safely construct services such as sewers and catchment drains, and the limits of approved earthworks to allotments plus a sufficient lateral clearance to ensure the works are not interfered by the trees or vegetation.

2.5.5 No trees shall be damaged or removed from areas to be dedicated under the control of Council without prior written approval of Council.

2.5.6 Trees on existing roads shall not be damaged or removed without the approval of Council. All trees on existing roads affected by the works shall be shown and details given of proposed protection or relocation methods.

2.5.7 Prior to any clearing, all existing and future parkland shall be delineated to ensure its protection from unauthorised clearing.

DG 2.6 General Standard of Lot Preparation

2.6.1 Special requirements will apply where necessary but generally lots are to be cleared of low scrub, fallen timber, debris, stumps, large rocks and any trees which in the opinion of Council are approaching the end of their functional life or are dangerous or will be hazardous to normal use of the development. Prior consultation with Council is necessary. Such requirements shall be shown on the design plan.

2.6.2 Class 1, 2 and 3 Pest Plants are to be removed and disposed of in accordance with Land, pest and Stock Route Management Act and Regulation.

2.6.3 All timber and other materials cleared from lots shall be removed from the site. All roots, loose timber, etc which may contribute to drain blockage shall be removed.

2.6.4 All trees nominated by Council in its conditions of approval shall be preserved by approved means to prevent destruction normally caused by placement of conventional filling or other action within the tree drip zone. Details of the proposed protection measures shall be detailed on the design plans.

DG 2.7 Filling

2.7.1 If any land is to be filled all practices must ensure compliance with AS 3798 ”Guidelines on Earthworks for Commercial and Residential Developments” and State Planning Policy 2/02.

2.7.2 Fill comprising industrial wastes or by-products is not permitted.

2.7.3 No person shall be permitted to fill any land where, in the opinion of Council, such filling will detrimentally affect the area available in any natural or artificial watercourse for either present or estimated future flood flows, or will detrimentally reduce the volume within a flood plain available for the storage of flood waters.

2.7.4 No person shall be permitted to fill any land if such filling may detrimentally affect natural drainage of any of the surrounding land.

2.7.5 All new allotments are to be flood free. Immunity levels shall be in accordance with relevant Council Policies and Planning Scheme requirements.

2.7.6 Every allotment shall be filled and drained to achieve Council's performance criteria, such that an area is available above the adopted flood line, or stipulated flood level, in accordance with the following documents:

- 2.7.6.1 Queensland Urban Drainage Manual (QUDM);
- 2.7.6.2 Council's Local Laws & Policies; and
- 2.7.6.3 Council's Flooding and Drainage Policies

DG 2.8 Compaction

2.8.1 Compaction of earthworks shall be in accordance with AS 3798 “Guidelines on Earthworks for Commercial and Residential Developments”.

DG 2.9 Cartage of Soil

2.9.1 The designer shall nominate in their design submission whether excess spoil is generated by the proposed earthworks and in these cases shall nominate the proposed spoil dump site and external haul route which shall be subject to the written approval of the Council.

2.9.2 In cases where the spoil is generated from works within existing declared roads, Council may nominate that the spoil be placed on Council controlled land within 5 km of the project site.

2.9.3 Where rock is disposed of on site, the position of the rock is to be approved by Council and shown on the ‘as constructed’ drawings.

2.9.4 Unless otherwise approved by Council all topsoil shall be retained on the development site and utilised effectively to encourage appropriate revegetation.

DG 2.10 Allotment Earthworks

2.10.1 Allotments shall be provided with a minimum finished surface gradient of 0.5%, including catch drains, to facilitate drainage.

DG 2.11 Batter Treatments

2.11.1 Cut and fill batters shall not straddle allotment boundaries unless otherwise approved by the Council.

2.11.2 Cut batters shall not extend into existing or proposed parks or bushland reserves unless specifically approved by Council. Fill batters may extend into proposed parks or bushland reserves with a maximum slope of 1 in 10 unless otherwise approved by Council.

2.11.3 In general, cut and fill batters shall be limited to a maximum slope of 1 in 4 (1 in 10 in parks), such that stabilisation is achieved by topsoiling and grassing which can be maintained by conventional tractor slasher.

2.11.4 All embankments and cuttings must be outside the road reserve. The toe of any cut batter is to be 300mm inside the property boundary; the top of any fill batter is to be 300mm inside the property boundary.

2.11.5 In environmentally sensitive areas or steep terrain, consideration may be given to relaxation of clause 4 subject to council approval.

2.11.6 Where subdivision roads are constructed in fill and the batter slope exceeds 1 in 2, Council may require an easement over the batter and to a nominated distance past the toe of the batter.

2.11.7 Batters in road reserves but outside the verge steeper than 1 in 4 may be retained by a retaining structure subject to approval by the Council.

2.11.8 On private land, batters should preferably be 1 in 4 or flatter for batters fronting the road reserve and 1 in 2 elsewhere. Batters steeper than 1 in 2 may be approved subject to the submission of an acceptable landscape treatment.

2.11.9 All batters steeper than 1 in 2 and higher than 1.5m shall require certification as to stability by a Registered Professional Geotechnical Engineer (RPEQ).

DG 2.12 Allotment Accesses

2.12.1 The slope of the natural surface can result in difficulty in providing vehicular access to allotments fronting the road. Driveway grades within the property should be limited for safety and amenity. Refer Table 2.1 for Maximum Driveway Grades

Table D2.1 Maximum Driveway Grades

Location	Desirable	Maximum
Residential	16.6% (1 in 6)	20% (1 in 5) for 6m in every 12m
Industrial	10% (1 in 10)	16.6% (1 in 6)
Maximum change in driveway grades – all areas[1]	8%	10%

Notes:

1. Change of grade is expressed algebraically as the change in gradient between the two roadway grades.

2.12.2 Steep allotment access (10% or greater) and drainage shall be designed and constructed to include the following (unless otherwise approved by Council):

2.12.2.1 The driveway must be a minimum of three (3) metre wide concrete slab, with barrier kerb and channel provided on one side for vehicular safety and drainage purposes;

2.12.2.2 The driveway shall be constructed in such a manner as to ensure that the crossfall of the driveway be one-way and directed into the hill, for vehicle safety and drainage purposes;

2.12.2.3 A turn around shall be provided adjacent to each of the proposed dwellings sufficient to allow turning movements for an emergency services vehicle;

2.12.2.4 The driveway shall be located to minimise the visual impact, and minimise the amount of earthworks required; and

2.12.2.5 Both sides of the areas adjacent to the driveway shall be re-vegetated to minimise visual impact. This information is to be included in the application for engineering approval.

DG 2.13 Retaining Walls

2.13.1 All retaining walls are to be 150mm from the property boundary or back for the footing to be wholly contained within the allotments that the retaining wall sits.

2.13.2 Council will allow retaining walls to be constructed up to a maximum height of 1.0m without structural certification provided they are constructed fully in accordance with the technical literature provided by the manufacturer (i.e. Koppers logs, Keystone or similar).

2.13.3 All retaining walls greater than 1.0m high must be designed, detailed and certified by a structural RPEQ. Structural certification and geotechnical assessment if required shall be submitted to Council with design submission.

2.13.4 Retaining walls shall be designed to consider the location of any adjacent services (e.g. sewer). The minimum horizontal clearance between any adjacent services and the outermost edge of the retaining wall structure shall 800mm and outside the zone of influence whichever is the greater. Retaining walls must be designed to ensure that no imposed loads are applied directly to service infrastructure. Retaining walls adjacent to services shall be subject to Council approval.

2.13.5 Retaining walls associated with residential allotments or stormwater drainage must have a design life of 60 years.

2.13.6 All retaining walls must comply with the requirements of AS 4678 – Earth retaining structures.

DG 2.14 Earthworks on Hillslopes

2.14.1 Where earthworks are proposed in any development where the slope of the land exceeds 15% (unless otherwise agreed), Council requires a report from a qualified Geotechnical RPEQ addressing slope stability and construction issues.

2.14.2 The designer shall incorporate the specific measures and recommendation contained within the geotechnical report to control soil and rock movements into the design of roads and house bench pads.

2.14.3 Where batters are 2.0 meters or higher a risk assessment is to be undertaken by the Engineer to determine if fencing is required to be undertaken in accordance with the relevant Australian Standard.

DG 2.15 Earthworks to Parks

2.15.1 All earthworks within proposed or existing parkland shall:

2.15.1.1 Be adequately drained;

2.15.1.2 Have no batters exceeding 1 in 10; and

2.15.1.3 Have acceptable landscaping in accordance with Council's minimum standards.

DG 2.16 Footpaths/Verge Crossfall

2.16.1 All footpaths / verges shall fall from the frontage property boundary to the adjacent kerb and Whitsunday Regional Council Planning Scheme 2017– Schedule 6 –June 2017 (V3.5) 77 channel with acceptable crossfalls of between 2.5% - 5%. In the case where the allotment falls away from the road reserve (i.e. the allotment is lower than the level of the road), the footpath / verge shall have a minimum fall from the frontage property boundary to the adjacent kerb of 3%.

DG 2.17 Topsoiling and Grassing

2.17.1 Topsoil is defined as surface soils high in organic matter and contaminated by residual grass seeds and grass roots.

2.17.2 The area under paved areas, footpaths, batters and areas of fill shall be stripped of topsoil and any other organic matter.

2.17.3 On the completion of the works, topsoil shall be re-spread to allotments, batters and footpaths and fill areas to a depth of 75mm with an absolute minimum of 40mm.

2.17.4 The footpath areas, batters and all disturbed areas including allotments are to be trimmed and drill seeded with an approved grass species.

2.17.5 All cut and fill batters shall be hydro-mulched or approved equivalent.

DG 2.18 Inspection Requirements

2.18.1 Inspections and testing requirements for all allotments and roads shall be to Level 1 in accordance with AS 3798 “Guidelines on Earthworks for Commercial and Residential Developments”.

2.18.2 A higher level of inspection and testing may be required for more significant works as determined by Council.

2.18.3 Council may approve a lower level of inspection and testing for minor works and drainage works.

DG 3 - DESIGN GUIDELINES – Road Pavements

General

DG 3.1 Scope

3.1.1 This section sets out the minimum standards for the design of the road pavement to meet the required design life, based on the subgrade strength, traffic loading and environmental factors, and including the selection of appropriate materials for select subgrade, subbase, base and wearing surface.

3.1.2 The Manual contains procedures for the design of the following forms of road pavement construction:

- 3.1.2.1 Flexible pavements; and
- 3.1.2.2 Rigid pavements (i.e. concrete pavements).

3.1.3 Generally flexible pavements designed in accordance with this manual are preferred for road pavement construction in North Queensland. Council may examine pavement designs for rigid pavements subject to detailed engineering submissions of any such proposals. Council reserves the right to refuse any alternate proposal for pavement design.

DG 3.2 Objectives

3.2.1 The objective in the design of the road pavement is to select appropriate pavement and surfacing materials, types, layer thicknesses and configurations to ensure that the pavement performs adequately and requires minimal maintenance under the anticipated traffic loading for the design life adopted.

DG 3.3 Reference Documents

3.3.1 Department of Transport and Main Roads

- 3.3.1.1 Pavement Design Supplement
- 3.3.1.2 MRTS 30Asphalt Pavements
- 3.3.1.3 Road Planning and Design Manual Chapter 3 Appendix A 1st Edition

3.3.2 AUSTROADS / ARRB Publications

- 3.3.2.1 Guide to Pavement Technology
- 3.3.2.2 Guide to Road Design
- 3.3.2.3 Design of Sprayed Seals
- 3.3.2.4 ARRB-SR35 - Special Report No. 35 - Subsurface Drainage of Road Structures
- 3.3.2.5 APRG 21 - Report No. 21 - A guide to the design of new pavements for light traffic

3.3.2.6 Special Report No. 35 Subsurface Drainage of Road Structures
3.3.2.7 Guide to Pavement Structural Design
3.3.2.8 Technical Report – Pavement Design for Light Traffic – A supplement to Austroads Pavement Design Guide AP-T36/06

3.3.3 Cement and Concrete Association of Australia.
3.3.3.1 T51 Concrete Pavement Design for Residential Streets and Paths

3.3.4 Concrete Masonry Association of Australia.
3.3.4.1 T44 Concrete Segmental Pavements - Guide to Specifying
3.3.4.2 T45 Concrete Segmental Pavements - Design Guide for Residential Access Ways and Roads
3.3.4.3 T46 Concrete Segmental Pavements - Detailing Guide

Pavement Design Criteria

DG 3.4 Design Variables

3.4.1 Regardless of the type of road pavement proposed, the design of the pavement shall involve consideration of the following five input variables:
3.4.1.1 Design Traffic;
3.4.1.2 Subgrade Evaluation;
3.4.1.3 Environment Factors;
3.4.1.4 Pavement and Surfacing Materials; and
3.4.1.5 Construction and Maintenance Considerations

DG 3.5 Design Traffic

3.5.1 The design traffic shall be calculated based on the following minimum design lives of pavement:
3.5.1.1 Flexible - 20 years;
3.5.1.2 Rigid (Concrete) - 40 years; and
3.5.1.3 Segmental Block - 25 years.

3.5.2 Unless determined otherwise by the Council, the minimum number of design Equivalent Standard Axles (ESA's ie, 80 kN axle load passes) for the various road categories shall be as calculated in accordance with the requirements of the AUSTRODS publications Guide to Pavement Technology and APRG Report 21 - A guide to the design of new pavements for light traffic. For design traffic volumes approaching or exceeding 5 x 10^5 ESA's (Trunk Collector Street), Department of Transport and Main Roads' Pavement Design Manual shall be used.

3.5.3 Design traffic shall be calculated for the applicable design life of the pavement, taking into account present and predicted commercial traffic volumes, axle loadings and configurations, commercial traffic growth and street capacity. For new subdivisions, the design traffic shall take account of both the construction

traffic associated with the subdivision development, the in-service traffic, proposed and potential public transport routes and connection to adjacent development.

3.5.4 For interlocking concrete segmental pavements, the simplification of replacing ESA's with the number of commercial vehicles exceeding 3 tonne gross contained in CMAA – T45 is acceptable up to a design traffic of 5 x 5^5.

3.5.5 The pavement design shall include all traffic data and/or assumptions made in the calculation of the design traffic.

3.5.6 In the absence of other traffic data, the traffic values provided in Table D3.1 may be taken as a Whitsunday Regional Council Planning Scheme 2017– Schedule 6 –June 2017 (V3.5) 82 guide to the minimum design traffic, but shall be subject to variation depending on the circumstances for the particular development.

Table D3.1 Minimum Traffic Loadings

Street Type	%CV[1]	%ESA/CV	Minimum ESA's
Urban			
Access Place	3.6	1.0	$5x10^4$
Access Street	5	1.0	$1x10^5$
Minor Collector Street	7	1.0	$5x10^5$
Major Collector Street	10	1.0	$1x10^6$
Sub Arterial	10	1.0	$3.25x10^6$
Rural			
<250vpd	5	1.0	$2.5x10^5$
>250vpd	9	1.0	$2.5x10^6$
Industrial	To be determined by specific design data		$5x10^5$
Business/Commercial	To be determined by specific design data		$5x10^5$

Notes:

1. Consider potential for bus routes.

DG 3.6 Subgrade Evaluation

3.6.1 Subgrade evaluation shall be carried out by a NATA registered materials test authority on each different natural sub-grade material evident and shall be by the conduct of soaked 4 day CBR laboratory testing.

3.6.2 Design CBR for each subgrade area shall be determined in accordance with the method outlined in AUSTROADS publications Guide to Pavement Technology and ARRG Report 21 - A guide to the design of new pavements for light traffic.

3.6.3 The following factors must be considered in determining the design strength/stiffness of the subgrade:

3.6.3.1 Sequence of earthworks construction;

3.6.3.2 The compaction moisture content and field density specified for construction;
3.6.3.3 Moisture changes during service life;
3.6.3.4 Subgrade variability; and
3.6.3.5 The presence or otherwise of weak layers below the design subgrade level.

3.6.4 The subgrade Design CBR adopted for the pavement design must consider the effect of moisture changes in the pavement and subgrade during the service life, and hence consideration must be given to the provision of subsurface drainage in the estimation of equilibrium in-situ CBRs, and hence in the design of the pavement structure.

3.6.5 If the in situ subgrade test results in a CBR of 3 or less, the pavement is to be designed with input from RPEQ engineer experienced in the design of road pavements.

DG 3.7 Environment Factors

3.7.1 The environmental factors, which significantly affect pavement performance, are moisture and temperature. Both of these factors must be considered at the design stage of the pavement. Reference should be made to AUSTROADS publications Guide to road Design and Special Report No. 35 Subsurface Drainage of Road Structures.

3.7.2 The following factors relating to moisture environment must be considered in determining the design subgrade strength/stiffness and in the choice of pavement and surfacing materials:
3.7.2.1 Rainfall/evaporation pattern;
3.7.2.2 Permeability of wearing surface;
3.7.2.3 Depth of water table;
3.7.2.4 Relative permeability of pavement layers;
3.7.2.5 Whether shoulders are sealed or not;
3.7.2.6 Pavement type (boxed or full width); and
3.7.2.7 Subject to flooding (e.g. Causeways and Floodways).

3.7.3 The effect of changes in moisture content on the strength/stiffness of the subgrade shall be taken into account by evaluating the design subgrade strength parameters (i.e. CBR or modulus) at the highest moisture content likely to occur during the design life, i.e. the Design Moisture Content. The provision of subsurface drainage may, under certain circumstances, allow a lower Design Moisture Content, and hence generally higher Design CBR.

3.7.4 The pavement design shall include all considerations for environmental factors, and any assumptions made that would reduce or increase design subgrade strength or affect the choice of pavement and surfacing materials.

DG 3.8 Materials Testing

3.8.1 All materials testing shall be carried out by a NATA registered materials testing authority using the procedures described in the manuals or codes of practice as appropriate to Department of Transport and Main Roads and Standards Association of Australia.

Pavement Thickness Design

DG 3.9 Pavement Structure – General

3.9.1 The minimum pavement provided shall be as detailed in Table D3.2

Table D3.2 Minimum Pavement Design Criteria

Street Type	Minimum Pavement (mm)[1]	Surface Treatment	Minimum Base Course CBR	Minimum Subbase Course CBR
Access Place / Access Street / Residential Street	200	Minimum 30mm AC	80	45
Collector Streets - **Minor** - **Major**	 250 250	 Minimum 30mm AC Minimum 30mm AC	 80 80	 45 60
Sub Arterial	300	50mm AC	80	60
Rural & Rural Residential **<100vpd** **100-999vpd** **>1000vpd**	 150 200 200	Gravel Two Coat Seal Two Coat Seal	 60 80 80	 45 45 60
Industrial	250	50mm AC	80	60

Notes:

1. **Minimum pavement thickness does not include the depth of surfacing.**
2. **All cul-de-sac heads and intersection turnouts in Rural and Rural Residential developments are required to have a 30mm asphalt surface treatment or concrete as a minimum.**

3.9.2 Notwithstanding subgrade testing and subsequent pavement thickness design, the thickness of subbase and base layers shall not be less than the following:

3.9.2.1 Flexible payment: Subbase 100mm, Base 100mm

3.9.2.2 Rigid pavement: Subbase 100mm, Base 150mm

3.9.3 The subbase layer shall extend a minimum of 150mm behind the rear face of any kerbing.

3.9.4 The base and surfacing shall extend to the face of any kerbing. Where the top surface of the subbase layer is below the level of the underside of the kerbing and/or guttering, the base layer shall also extend a minimum of 150mm behind the rear face of the kerbing. Regardless of pavement design, all kerbing to be constructed on a minimum of 100mm pavement material.

3.9.5 For un-kerbed roads, the subbase and base layers shall extend at least to the nominated width of shoulder.

3.9.6 A change of pavement types may be considered for intersection thresholds and traffic control features.

DG 3.10 Flexible Pavements

3.10.1 Flexible pavements with a design traffic up to 5 x 10^5 ESA's shall be designed in accordance with AUSTROADS publications Guide to Pavement Technology and ARRG Report 21 - A guide to the design of new pavements for light traffic.

3.10.2 Flexible pavement with a design traffic above 5 x 10^5 ESA's shall be designed in accordance with Department of Transport and Main Roads' Pavement Design Manual.

3.10.3 In areas of high water table (within 300mm of subgrade level). Base course should be cement modified (1% by weight)

3.10.4 Concrete segmental pavements with design traffic up to 5 x 10^5 and estimated commercial vehicles exceeding 3T gross shall be designed in accordance with CMAA-T45.

3.10.5 For design traffic above 5 x 10^5 estimated commercial vehicles exceeding 3T gross the design shall be in accordance with AUSTROADS Guide to Pavement Technology with the calculation of design traffic in terms of ESA's.

DG 3.11 Rigid Pavements

3.11.1 Rigid (concrete) pavements, with design traffic up to 5 x 10^5 ESA's shall be designed in accordance with either CCAA -T51 or AUSTROADS Guide to Pavement Technology.

3.11.2 Rigid (concrete) pavements for design traffic above 5 x 10^5 ESA's, the design shall be in accordance with AUSTROADS Guide to Pavement Technology.

Surfacing Design

DG 3.12 Bitumen Wearing Surface

3.12.1 Except where the pavement is designed for asphaltic concrete or segmental paver surfacing or where a gravel pavement is permitted, the wearing surface shall be a bituminous as follows:

- 3.12.1.1 Urban Residential, Low Density Residential – Primer or primer seal, plus 2 seal coats of sprayed bitumen) Seal (14mm / 7mm Aggregate) (only permitted where widening existing bituminous seals)
- 3.12.1.2 Rural & Rural Residential - Primer or primer seal, plus 2 seal coats of sprayed bitumen Seal (16mm / 10mm Aggregate).

DG 3.13 Segmental Pavers

3.13.1 Segmental pavers shall be concrete segmental pavers 80mm thick, shape Type A, and designed to be paved in a herringbone pattern unless otherwise approved by Council. Concrete segmental pavements are only to be used for pathways and local pavement 'highlight' features (e.g. 'threshold' treatments). The use of clay pavers on road wearing surfaces is not permitted.

3.13.2 The edges of all paving shall be constrained by either kerbing and/or guttering, or by concrete edge strips.

3.13.3 Sand bedding layers are to be provided with adequate drainage.

DG 3.14 Asphaltic Concrete

3.14.1 All roadworks shall be surfaced with an appropriate thickness of Asphaltic Concrete in accordance with Table D3.2.

3.14.2 Council requires the use of dense graded asphalt on all roads.

3.14.3 All roads greater than 10% in grade shall have a 10mm primer seal or other Council approved measure applied to the base course prior to the placement of the AC.

3.14.4 Asphalt Surfacing:

- 3.14.4.1 Where asphalt surfacing is required to be between 30mm and 50mm, it is considered to function as a wearing surface only;
- 3.14.4.2 Asphalt 40mm or thicker is required to be a dense graded asphalt (DG14) in accordance with Department of Transport and Main Roads' MRTS 30;
- 3.14.4.3 Asphalt of 30 – 40 mm thickness must be a dense graded asphalt (AC10) in accordance with Austroads; and
- 3.14.4.4 A light prime is to be applied over the pavement material prior to the asphalt being laid.

DG 3.15 Subsoil Drains

3.15.1 Subsoil or sub-pavement drains shall be provided on both sides of the formation in the following Whitsunday Regional Council Planning Scheme 2017– Schedule 6 –June 2017 (V3.5) 89 locations, unless the geotechnical report indicates the absence of subsurface moisture at the time of investigation and the likelihood that changes in the subsurface moisture environment will not occur within the design life of the pavement and/or the pavement has been specifically designed to allow for likely variations in subgrade and pavement moisture contents:

- 3.15.1.1 Cut formations where the depth to finished subgrade level is equal to or greater than 400mm below the natural surface level;
- 3.15.1.2 Locations of known hillside seepage, high water table or isolated springs;
- 3.15.1.3 Irrigated, flood-prone or other poorly drained areas;
- 3.15.1.4 Subgrades, which are highly susceptible to moisture, (i.e. commonly displaying high plasticity or low soaked CBRs);
- 3.15.1.5 Pavement materials, which are susceptible to moisture;
- 3.15.1.6 Existing pavements displaying signs of distress due to excess subsurface moisture; and
- 3.15.1.7 At cut to fill transitions.

3.15.2 Subsoil drains shall always be installed to all grassed/landscaped central medians and islands, unless otherwise approved by Council.

3.15.3 Where only one side of the formation is in cut, and the other side in fill, it may be sufficient to provide subsoil or sub-pavement drains only along the edge of the formation in cut.

3.15.4 In some circumstances it may be necessary to note on the engineering design the need for additional subsoil and sub-pavement drains that may become apparent during the construction process, due to changes in site moisture conditions or to areas of poorer subgrade being uncovered that were not identified in the geotechnical investigation.

3.15.5 The requirements for subsoil drains should be assessed and designed by a registered geotechnical engineer or specialist pavement engineer.

3.15.6 Subsoil drains shall be constructed in accordance with Council's Standard Drawing.

3.15.7 In kerbed roads, the preferred location for the line of the trench is directly behind the kerb.

3.15.8 In un-kerbed roads, subsoil and sub-pavement drains shall be located within the shoulder, preferably at the edge of the pavement layers.

3.15.9 At the time of sub-soil drainage installation tree root barriers are to be installed in the appropriate locations and the kerb suitably marked (temporarily) to indicate where the tree is to be planted.

3.15.10 The minimum desirable longitudinal design grade shall be 1.0 - 1.5%. (Absolute minimum grade of 0.5%).

3.15.11 Trench widths shall be a minimum of 300mm, with a minimum depth below finished subgrade level of 300mm in earth and 200mm in rock. All subsoil drain trenches shall be wrapped in an appropriate geotextile fabric.

3.15.12 Outlets shall be spaced at maximum intervals of 150 metres. Where possible, subsoil and subpavement drainage pipes shall discharge into gully pits or other stormwater drainage structures. Where not possible, outlets shall be provided through fill batters.

3.15.13 Flushing Points are to be provided at the commencement of each run of drain, and at intervals not exceeding 50 metres. Flushing points shall generally be located directly at the rear of kerb or at the edge of shoulder, as applicable.

3.15.14 Flushing Points and Outlets shall be constructed in accordance with Council's Standard Drawing.

DG 3.16 Drainage Mat (Blankets)

3.16.1 Drainage mats are designed where there is a need to ensure continuity of a sheet flow of water under fills, to intercept and control seepage water and springs in the floors of cuttings, to intercept water which would otherwise enter pavements by capillary action or for protection of vegetation or habitat downstream of the road reserve where a fill would otherwise cut the flow of water.

3.16.2 In embankments drainage mats are constructed after the site has been cleared and grubbed and before commencement of embankment construction.

3.16.3 In excavations drainage mats are constructed after completion of the subgrade construction and before construction of the pavement.

3.16.4 The minimum thickness of compacted filter material shall be 300mm plus an allowance for the expected consolidation or 500mm if the amount of consolidation of embankment foundation is not known.

3.16.5 The requirements for and design of drainage mats shall be undertaken by a geotechnical engineer experienced in the design of road pavements.

3.16.6 All drainage mats shall be wrapped in appropriate geotextile.

DG 4 – DESIGN GUIDELINES – Stormwater Drainage

General

DG 4.1 Scope

4.1.1 This section sets out the minimum standards for the design of stormwater drainage systems for urban and rural areas.

4.1.2 The designer needs to make reference to the associated design manuals related to D1 Road Geometry and D5 Stormwater Quality Management.

4.1.3 The Queensland Urban Drainage Manual (QUDM) shall be the basis for the design of stormwater drainage, except as amended by these manuals.

DG 4.2 Objectives

4.2.1 The objectives of stormwater drainage design are as follows:

4.2.1.1 To collect and convey stormwater from a catchment to its receiving waters with minimal nuisance, danger or damage and at a development and environmental cost which is acceptable to the community as a whole;

4.2.1.2 Limit flooding of public and private property, both within the catchment and downstream, to acceptable levels; and

4.2.1.3 To provide convenience and safety for pedestrians and traffic in frequent stormwater flows by controlling those flows within prescribed velocity/depth limits.

4.2.2 For new developments a stormwater drainage system in accordance with the "major/minor" system concept in accordance with QUDM; that is, the "major" system shall provide safe, well-defined overland flow paths for rare and extreme storm runoff events while the "minor" system shall be capable of carrying and controlling flows from frequent runoff events.

4.2.3 For redevelopment areas where the proposed development replaces an existing development, the on-site drainage system is to be designed in such a way that the estimated peak flow rate from the site for the design average recurrence interval (ARI) of the receiving minor system is no greater than that which would be expected from the existing development and is not concentrated in such a way as to cause nuisance to downstream properties.

DG 4.3 Reference Documents

4.3.1 Department of Energy and Water Supply - Queensland Urban Drainage Manual Institute of Engineers Australia.

4.3.2 Australian Rainfall and Runoff - A Guide to Flood Estimation Australian Standards

4.3.3 AS 3600-2009 Concrete Structures.

DG 4.4 General

4.4.1 The QUDM shall be the basis for design of stormwater drainage except where amended by these manuals.

4.4.2 Minor system flows (as defined by QUDM) are to be conveyed underground to a legal point of discharge unless otherwise approved by Council.

4.4.3 Councils have or are in the process of producing drainage management plans for particular catchments within their boundaries.

4.4.4 The design of the stormwater drainage system, for the development shall be such that the upstream drainage is not adversely affected and that the downstream drainage system is capable of adequately catering for the discharge of the modified flow produced as a result of the development.

4.4.5 If the downstream system is not capable of carrying the modified discharge, the designer shall indicate the measures proposed to ensure the downstream system is capable of carrying the modified discharge. This will involve negotiation with adjoining landowners for minor creek systems to produce easements over downstream drainage paths. Written approval from the respective property owners is required for the easement and any engineering works on their property from the development site to the legal point of discharge.

4.4.6 Alternatively, where a development will result in increased runoff the stormwater drainage system may include on-site measures to such as detention basins, to ensure that the peak discharge from the development area is restricted to a level no greater than that discharging prior to the development.

4.4.7 All works proposed within creeks and natural watercourse, or lands under the control of other Authorities must have the approval of all relevant authority prior to commencing the work and evidence of such approvals shall be provided with the design submission.

4.4.8 The design of the stormwater drainage system shall accommodate the future developed peak flows from upstream catchments on the basis of development in accordance with the Planning Scheme.

4.4.9 The designer shall be responsible for assessing the existing and future developed flow regime entering the development site from upstream catchments and shall provide detailed calculations with the design submission.

4.4.10 Unless approved otherwise by the Council, piped drainage systems shall extend to the boundaries of the subject land, with inlet and discharge works within the subject property.

4.4.11 All Material and components of the Stormwater Drainage system shall be durable and fit for purpose, with a minimum lifespan 60 years.

DG 4.5 Design Average Recurrence Interval

4.5.1 Design Average Recurrence Interval (ARI) shall be in accordance with Table D4.1 (modified from QUDM Table 7.3.1).

4.5.2 For the purpose of drainage, a major road shall be defined as a major collector or higher order road.

Table D4.1 Recommended Design Average Recurrence Intervals

Design Type	ARI Interval (years)	
Major System Design	100	
Minor System Design		
Central Business & Commercial	10	
Industrial	5	
Urban Residential High Density (greater than 20 dwelling units/ha)	10	
Urban Residential Low Density (greater than 5 and up to 20 dwelling units/ha)	5	
Rural Residential (2 to 5 dwelling units/ha)	5	
Open Space (Parks etc)	1	
Major Road	Kerb & Channel Flow	10[1]
	Cross Drainage (Culverts)	50[2]
Minor Road	Kerb & Channel Flow	Refer to relevant category in QUDM
	Cross Drainage (Culverts)	10[2]

1. The design ARI for the minor drainage system in a major road shall be that indicated for the major road, not that for the Development Category of the adjacent area; and

2. Culverts under roads should be designed to accept the full flow for the minor system ARI shown, in addition, the designer must ensure adequate public safety controls (e.g. D*V product) exist and that nominated Major Storm flow does not cause unacceptable damage to adjacent properties, or adversely affect the use of the land. If upstream properties are at a relatively low elevation, it may be necessary to install culverts of capacity greater than that for the minor system ARI design storm to ensure unacceptable flooding of upstream properties does not occur. In addition, the downstream face of causeway embankments may need protection where overtopping is likely to occur.

DG 4.6 Design Rainfall Data

4.6.1 Design Intensity Frequency Duration (IFD) Rainfall Charts can be obtained from http://www.bom.gov.au/water/designRainfalls/revised-ifd/?year=2016. The IFD Chart for the nearest suburb should be used for stormwater drainage design.

DG 4.7 Catchment Area

4.7.1 The catchment area of any point is defined by the limits from where surface runoff will make its way, either by natural or man-made paths, to this point. Consideration shall be given to likely changes to individual catchment areas due to the full development of the catchment.

4.7.2 The catchment boundary shall be determined by using the most accurate information available and details of catchments shall be provided to Council with the design submission.

DG 4.8 Kerb Inlets and Manholes

4.8.1 Kerb Inlet pits shall be in accordance with Council's Standard Drawings. All pits are to be recessed sufficiently to maintain a continuous lip line in accordance with these drawings. Alternate proprietary kerb inlets systems may be used only where approved by Council.

4.8.2 Where alternate proprietary kerb inlets systems have been approved for use by a Council, a copy of certified inlet capacity design charts for the alternate inlets shall be provided to Council with the design submission.

4.8.3 Blockage factors shall be used for the design of the drainage system as shown in Table D4.3.

Table D4.3 Kerb Inlet Blockage Factors

Inlet Type	Blockage Factor
On Grade – Side Entry (no grate)	20%
On Grade – Side Entry (with grate)	10%
On Grade – Grate Only	50%
Sag - Side Entry (no grate)	20%
Sag – Side Entry (with grate)	Nil
Sag – Grate Only	50%

4.8.4 The kerb inlet capacity design charts shall be used in accordance with the following:

4.8.4.1 Curves indicated on the charts that are shown in full are considered "Reliable" curves;

4.8.4.2 Curves indicated on the charts that are shown dashed up to an Approach Flow of 250 l/sec are considered "Satisfactory" for use;

4.8.4.3 Curves indicated on the charts that are shown dashed with an Approach Flow in the range 250 l/sec to 500 l/sec are "Estimates Only" and are to be used with caution in critical locations; and

4.8.4.4 No extrapolation beyond the limits of these charts shall be permitted.

4.8.5 Side entry pits with grates are preferred. Grated inlet pits with no side entry shall only be used in areas with a low risk of consequential damage from blockage and shall be subject to Council approval.

4.8.6 Manholes shall be provided on stormwater drainage lines in accordance with the requirements of QUDM. Manholes for pipes up to 1200mm dia shall be constructed in accordance with the Council's Standard Drawings. Council may examine proposals for the use of proprietary manufactured directional changes for stormwater systems and the acceptance of these will be subject to the satisfaction of the Council.

4.8.7 Other factors to be considered in the design are as follows:

- 4.8.7.1 Pits to be free draining;
- 4.8.7.2 Kerb inlet pits at intersections generally are to be located at the tangent point taking into account the position of pedestrian paths and kerb ramps. Inlets shall not be placed on kerb return unless specifically approved by Council;
- 4.8.7.3 Reductions in pipe sizes shall not be permitted; and
- 4.8.7.4 Pipework openings are to be located within a single wall. i.e. pipes shall not be permitted to enter through the corner of the pit structure.

4.8.8 The desirable maximum inlet pit depth should be limited to 1.5m to enable maintenance.

4.8.9 The desirable minimum and maximum stormwater manhole depth is to be limited to 1.2m and 3.0m respectively.

4.8.10 Inlet pits should be located at the mid-point of allotment frontages to reduce the likelihood of conflict with service conduits and future driveways.

DG 4.9 Pipes/Box Culverts

4.9.1 Stormwater drainage pipes and boxes shall be generally of reinforced concrete (including FRC) construction and in accordance with the following:

- 4.9.1.1 Minimum pipe size 375mm dia, minimum box culvert size 450mm x 300mm;
- 4.9.1.2 Minimum clear cover shall be 600mm in general or in accordance with manufacturers specification, otherwise approved by the Council;
- 4.9.1.3 The minimum vertical and horizontal clearances between a stormwater pipe and any other pipe or service conduit shall be 150mm;
- 4.9.1.4 In areas of high water table, the designer must consider buoyancy uplift in relation to pipe/culvert joints; and
- 4.9.1.5 In aggressive environments or where any part of the pipe / box culvert is below the Highest Astronomical Tide (refer to Queensland Tide Table for local conditions), pipes / box culverts will have cover to reinforcement in accordance with the exposure classification requirements of AS 3600.

DG 4.10 Overland Flow

4.10.1 Overland flow paths or emergency relief paths shall be formed and located in accordance with the requirements of QUDM. The following additional requirements shall also be required.

4.10.1.1 Where a pathway link is used for overland flow the pathway shall be concrete for its full width, shall have a maximum crossfall of 2.5 % and be constructed with a layback kerb and channel or approved equivalent along one edge. The ARI 100 year flow shall be contained completely within the pathway;

4.10.1.2 The footpath profile at the overland flow tip out point shall be designed to provide a fall from the kerb at the road edge towards the pathway / park;

4.10.1.3 Flows through parks shall have non-erosive velocity or adequate protection against scouring to the satisfaction of Council;

4.10.1.4 Where a stormwater pit is required to be aligned with a pathway for overland flow, the pedestrian path is to be offset and appropriate measures provided to guide pedestrians away from the pit and remove any potential hazards; and

4.10.1.5 Where flows discharge into receiving waters or drainage reserves, adequate protection against scouring of the batter slope shall be provided to the satisfaction of Council.

DG 4.11 Drainage Calculations

4.11.1 If a legal point of discharge and tailwater conditions have not been provided by Council as development conditions, they shall be confirmed with Council prior to proceeding with detailed design.

4.11.2 Hydraulic calculations shall generally be carried out in accordance with QUDM. The calculations shall substantiate the hydraulic grade line adopted for design of the system. A sample of a summary sheet for hydraulic calculations is given in QUDM.

4.11.3 Catchment plans and hydraulic calculations including any additional calculations in support of overland flow path capacities, weir flows over kerbs, culvert designs etc. shall be provided to Council with the design submission. Where a hydraulic modelling programme is used, calculations to be provided with the design including listings of all programme input parameters.

DG 4.12 Open Channels

4.12.1 Generally, open channels will only be permitted where they form part of the trunk drainage system and shall be designed to have smooth transitions with adequate access provisions for maintenance and cleaning. Where Council

permits the use of an open channel to convey flows from a development site to the receiving water, such a channel shall be designed in accordance with QUDM.

4.12.2 Maximum side slopes on grass lined open channels shall be 1 in 4, with a preference given to 1 in 6 side slopes, channel inverts shall generally have minimum cross slopes of 1 in 10.

4.12.3 Low flow provisions in open channels to prevent scouring from trickle flows shall be provided to all grass lined channels. Trickle flow protection shall be contained within a pipe or hard lined channel and shall be designed to cater for the 3 month ARI storm event (60 per cent of the 1 Year ARI storm event flow).

4.12.4 Subsurface drainage shall be provided in grass-lined channels to prevent waterlogging of the channel bed.

4.12.5 Profiles of all grass lined channels shall such that mowing may be undertaken by a tractor and slasher to the satisfaction of Council.

4.12.6 Where the flow velocity and / or depth within an open channel pose a safety hazard, barrier fencing and / or appropriate hazard warning signs shall be provided to discourage access to the channel. The extent of precautions should be determined following consultation with Council.

4.12.7 The depth velocity product and the gutter flow widths are to be included in the submitted drainage calculations.

DG 4.13 Allotment Drainage

4.13.1 Interallotment drainage systems must be designed in accordance with *Q.U.D.M section 7.13*. The minimum standard shall be Level 3 as defined in *Q.U.D.M table 7.13.4*, however the Engineer may direct a higher level for specific developments or parts thereof.

4.13.2 Interallotment drainage system must be provided to all allotments where:

- 4.13.2.1 Any part of the allotment falls away from the frontage roadway; or the mid-block finished surface level is less than 600 mm above the lowest invert level along the frontage kerb and channel.

4.13.3 Interallotment pipes shall generally be:

- 4.13.3.1 R.C. Pipe (minimum class 2) rubber ring jointed;
- 4.13.3.2 F.R.C pipe rubber ring jointed; and
- 4.13.3.3 uPVC pipes to be rubber ring jointed. Standard manufactures fittings shall be used in all cases: site fitted saddles are not permitted.

4.13.4 Interallotment drainage system shall be discharged into an underground drainage system or approved open channel. Discharge of interallotment systems to kerbs and channel shall not be permitted.

4.13.5 The depth of the house connection shall be determined as follows (subject to the above minimum);

- 4.13.5.1 Determine the longest run of house drain to the connection point possible within the allotment;
- 4.13.5.2 Allow 0.3 meters cover to the house drain at the head of the line; and
- 4.13.5.3 Allow minimum grade of 1 in 100 for the house drain.

4.13.6 Inspection manholes may be precast or cast insitu concrete boxes or precast FRC or RC pipe systems to the dimensions shown in table D4.4.

Table D4.4 Inspection Manholes

Maximum Depth to invert (mm)	Boxes – internal dimensions (mm)	FRC or RCP Systems
900	600 x 600	600mm diameter
>900	600 x 900	750mm diameter
Minimum wall thickness	100[1]	N/A
Notes: **1. Precast boxes shall be approved prior to installation, wall thickness may vary according to manufacturer.**		

4.13.7 Manholes shall be provided in the following locations:

4.13.7.1 One per lot;
4.13.7.2 Changes in grade;
4.13.7.3 Changes in direction;
4.13.7.4 Changes in pipe diameter; and
4.13.7.5 End of lines.

DG 4.14 Telemetry Systems

4.14.1 Where required by the Local Authority pump station control panel shall incorporate SCADA equipment for transmission of monitoring data and control to Council's existing master system. Council should be contacted to obtain a copy of their Technical Specification for Telemetry Systems.

4.14.2 It should be noted that where amalgamated Councils have varying telemetry systems, left over from pre-amalgamation Councils, pump station telemetry systems and requirements may vary within that Council and requirements must therefore be reconfirmed as a part of the design.

DG 4.15 Retaining Walls

4.15.1 Where retaining walls are incorporated in the retention of earth batters, adequate drainage shall be incorporated behind the top of the wall to ensure surface stormwater flows do not flow over the top of the wall but are contained in a designed system to pass the wall.

4.15.2 Appropriate scour protection is to be provided to the base of the wall.

4.15.3 Retaining walls within drainage lines must be block and concrete core filled, with weepholes, Design drawings to be provided to Council.

DG 4.16 Detention Basins

4.16.1 Detention basins may be considered as drainage solutions but shall be subject to approval of Council. Where approved detention basins shall be designed in accordance with QUDM.

DG 4.17 Headwalls

4.17.1 Pipe / Box culvert headwalls shall be in accordance with the Department of Transport and Main Roads Standard Drawings 1303 – 1306 and 1318 Proprietary precast headwall may also be used as an alternative to cast insitu structures.

4.17.2 The designer shall ensure that in addition to standard aprons and cut-off walls adequate protection works commensurate with design velocities and flows shall be provided to prevent downstream scouring and erosion.

4.17.3 Where floodgates are to be used, headwalls and aprons shall be specifically designed to accommodate the floodgate and minimise the potential for debris and siltation to impede the operation of the floodgate. Most precast headwalls are not suitable for use with floodgates.

DG 4.18 Table Drains

4.18.1 Table drains shall generally be constructed with a minimum depth of 600mm or to a depth of 300mm below the pavement subgrade, whichever is greater.

4.18.2 Table drain profiles may be either v-shaped or trapezoidal. Reference should be made to the Local Authority Specific Requirements for each Councils preferred profile.

DG 4.19 Easements

4.19.1 Where stormwater drainage pipes pass through property other than a road reserve an easement shall be provided over the line in favour of the Council. The width of this easement is determined by the depth at which the stormwater pipe is laid and based on twice the depth to the pipe obvert plus the pipe diameter (with a minimum width of three (3) metres) and located centrally over the pipe.

4.19.2 If a stormwater pipe passes adjacent to a property and based on the above formula the area of influence passes within the property, an easement over that portion shall be required.

4.19.3 The width of easement shall contain the ARI 100 year storm flow from the upstream catchment or be three (3) metres wide, whichever is greater. 4. Allotment drainage or catch drains which have a change in horizontal alignment greater than 45 degrees shall be provided with concrete or wire-reinforced rock mattresses at such change points which shall be designed to cater for flows in accordance with QUDM.

4.19.4 Easement required over interallotment drainage systems must be built to a level 3 as defined in Q.U.D.M.

4.19.5 The property owner will be responsible for all routine above ground maintenance within interallotment drainage easements. Council shall be responsible for repairs of a capital nature. For example, the property owner must ensure that drainage paths are clear and kept unblocked at all times, such as removing leaves and debris.

DG 4.20 Outlet & Outlet Protection

4.20.1 Outlet into natural watercourse, open channels and tidal areas shall be designed in accordance with the requirements of QUDM.

4.20.2 Protection works to outlet shall be designed to meet the following criteria:

- 4.20.2.1 Dissipate the outflow velocity to minimise scouring;
- 4.20.2.2 Provide protection from stream flows in receiving waters;
- 4.20.2.3 Provide protection from overland (Major Storm) flows into receiving waters; and
- 4.20.2.4 Provide protection from local scouring or undermining of the outlet structure.

4.20.3 Where a headwall is located within the tidal splash zone, it will be designed to comply with the exposure classification requirements of AS 3600.

4.20.4 An energy dissipating outfall shall be provided where the velocity of the outflow or nature of the discharge from the pipe system into the receiving water could cause scouring in the receiving channel.

4.20.5 All tidal outlets shall be fitted with floodgates to prevent the intrusion of salt water into the system.

4.20.6 Outlets with floodgates shall be designed to ensure that they can operate freely at all times, and are protected from siltation, excessive vegetation growth, debris and the impacts of stream flows in the receiving waters.

4.20.7 The designer shall provide calculations to show that they have accounted for losses due to floodgates or other water control devices in the hydraulic design.

4.20.8 All outlets shall be located to facilitate inspection and maintenance access.

DG 5 – DESIGN GUIDELINES – Water Reticulation

General

DG 5.1 Scope

5.1.1 This document sets out the acceptable solutions for the planning, design and construction of water reticulation systems that are to be constructed by a Developer and handed to Council to operate. This section also covers certain service connection issues relating to development approvals and private infrastructure that needs to be to Council standards.

5.1.2 The water reticulation system shall be defined as mains less than 300mm diameter. Design of mains 300mm diameter and greater shall be subject to the specific criteria nominated by Council. All mains less than 300mm diameter shall be designed in accordance with this manual.

5.1.3 No connections will be permitted to bulk water supply mains that are used for the sole purpose of bulk water transfer of water to water reservoirs.

5.1.4 The planning, design, construction and certification of water reticulation infrastructure is to be carried out in accordance with the following provisions:

- 5.1.4.1 Council's general criteria as set out in these manuals and Council's Standard Specifications and Drawings that are based on the Desired Standards of Service;
- 5.1.4.2 The criteria contained within the Water Services Association of Australia WSA 03 – 2011 – Water Supply Code of Australia;
- 5.1.4.3 The designer shall note the Queensland Workplace Health and Safety – Guide to the Workplace Health and Safety Obligations of Designers of Structures and the design shall include the required Safety Design Report; and
- 5.1.4.4 For general guidance on infrastructure elements not contained within council's documents, the criteria contained within the Department of Energy and Water Supply Planning Guidelines for Water Supply and Sewerage may be used for guidance.

5.1.5 Aspects of modification or clarification of the Water Supply Code of Australia WSA 03 – 2011 are detailed in Appendix B of this document.

5.1.6 Council's Land Development Guidelines and Standard Specification and Drawings shall take precedence over the Water Services Association of Australia Codes and the Department of Energy and Water Supply Planning Guidelines for Water Supply and Sewerage.

DG 5.2 General

5.2.1 It is the Consulting Engineer's responsibility to ensure that the current version of this section is used and that all infrastructure is constructed in accordance with this section.

5.2.2 It is the Consulting Engineer's responsibility to ensure that all work is undertaken to council's requirements. Responsibility for supervision, testing, inspection, commissioning and remedial work rests with the Consulting Engineer.

5.2.3 Where a water supply source is being developed to service the development, the source shall either meet or exceed the Australian Drinking Water Guidelines 2011 (ADWG), or the developer shall provide the necessary infrastructure to treat the source to the ADWG, including disinfection before storage and/or distribution.

DG 5.3 Objective

5.3.1 The objective of a water supply system is to provide to the consumer a reticulated portable water supply to meet the demands imposed upon it by both the consumers and fire-fighting requirements.

DG 5.4 Reference Documents

5.4.1 Australian Standards:
- 5.4.1.1 AS/NZS 2566 Buried Flexible Pipelines
- 5.4.1.2 AS 2368 Test Pumping of Water Wells
- 5.4.1.3 AS 3952 Water Supply – Spring Hydrant Valve for Waterworks Purposes

5.4.2 National Health and Medical Research Council

5.4.3 Australian Drinking Water Guidelines

5.4.4 QLD Government Legislation
- 5.4.4.1 Water Act
- 5.4.4.2 Water Supply (Safety and Reliability) Act Water Services Association of Australia
- 5.4.4.3 WSA 03 – 2011 – Water Supply Code of Australia
- 5.4.4.4 WSA 01 –2004- Polyethylene Pipeline Code Information and Guidance Note
- 5.4.4.5 WSA-TN4 Guidelines for design of pressure pipeline systems for water supply using PVC-M and PVC-O pipes

5.4.5 Department of Energy and Water Supply
- 5.4.5.1 Planning Guidelines for Water Supply and Sewerage National Uniform Drillers Licensing Committee 2012
- 5.4.5.2 Minimum Construction Requirements for Water Bores in Australia

DG 5.5 General

5.5.1 All connections or alterations to Council water reticulation mains shall be made by the Developer at the Developers cost and subject to appropriate conditions agreed with Council.

5.5.2 The design of the water reticulation will take into consideration all external demands that are presently acting on the system or are likely to do so in the future. Council shall be consulted to ascertain these external demands, points of connection to existing reticulation and operating parameters.

5.5.3 Council approval of water reticulation does not relieve the Consulting Engineer of responsibility for the design.

5.5.4 In staged developments, to ensure an efficient distribution system is established, the designers are required to submit to the Council an overall layout of the proposed subdivision, including all stages demonstrating that each stage of the development achieves minimum pressures and showing the sizing of mains to be incorporated. This proposal shall be submitted to the Council for approval in principle before the submission of any construction plans and specifications will be accepted for review.

5.5.5 Prior to proceeding with detailed design, the Consultant shall liaise with Council to ascertain whether a network analysis (to determine the optimum size of the internal mains) is required by Council as part of the design submission for the development. For the design of water reticulation schemes and where Council requires a network analysis, it shall be completed by the Consultant at the Developers cost following discussions with Council and be based on the design criteria detailed in Section DG5.7 below.

5.5.6 If a network analysis is required, the designer will be required to provide digital data compatible with Councils software, with the design submission, to enable the reticulation network to be input into Council's network model for checking. The network analysis shall be undertaken for the total development using Bentley WaterCAD compatible software and available for handover to Council for incorporation into the Council network program.

5.5.7 The network analysis shall be based on the design drawings and be spatially accurate.

5.5.8 In sloping development sites, the water reticulation network is to be designed in pressure zones to allow Council to control maximum and minimum pressures within the development.

5.5.9 The network design shall be planned to satisfy the requirements of this manual and to meet Council Customer Service Standards, which are published pursuant to the requirements of the Water Supply (Safety and Reliability) Act 2008, at a minimum whole-of-life cost (capital cost, operational and maintenance cost) for an environmentally acceptable solution and not simply a least capital cost solution. 8. Refer to Appendix D Whitsunday Regional Council Standard Conditions for Water Supply Above RL50.

DG 5.6 Existing Mains

5.6.1 Council should be contacted to obtain copies of any "As Constructed" plans and details of any planned augmentation works.

5.6.2 Where, as a result of the development, existing mains are located on non-standard alignments or have less than minimum cover, the developer shall bear the cost of relocation, replacement or lowering, subject to the approval of the Council.

5.6.3 Pavement widening associated with some developments can place existing mains under the new pavement. In such cases, where the existing main has inadequate cover, the developer shall bear the cost of its replacement in a material approved by the Council, or reconstruction at an adequate cover depth or reconstruction on a standard alignment in the new verge.

DG 5.7 Design Criteria

5.7.1 Flow Parameters - unless advised otherwise by Council, the Average Daily consumption and peaking factors for the design of Water Supply Schemes shall be as follows:

5.7.1.1 Average Daily Consumption (AD) 500 litre/person/day

5.7.1.2 Mean Day max Month (MDMM) 1.50 x AD Peak Day (PD) 2.25 x AD

5.7.1.3 Peak Hour (PH) 1/12 x PD

5.7.2 In the absence of specific flow consumption data, the Average Daily Consumption shall be calculated using the equivalent demands shown in Table 6.1.

Table 6.1 Equivalent Demands

Description	Equivalent Persons/Connection
Single Family Dwelling	
Lots > 1500m^2	3.7
Lots 1101 – 1499m^2	3.4
Lots 901 – 1100m^2	3.1
Lots 401 – 900m^2	2.8
Lots <400m^2	2.5
Multi Unit Accommodation	
Units > 3 bedrooms	0.4 + 0.6/bedroom
Units = 3 bedrooms	2.2
Units = 2 bedrooms	1.6
Units < 2 bedrooms	1.0
Caravan Parks	
Van Site / Camping Site	1.2
Shops/Offices	
Per 90m^2	1.0
Notes:	

1. **Based on 2.8 Equivalent Persons/Equivalent Domestic Connection (EP/EDC), with 1 EDC equivalent to a single residential dwelling on a standard size allotment (401m^2 to 900m^2).**
2. **For undeveloped land equivalent populations shall be calculated in accordance with the maximum allowable population density in the Planning Scheme, or estimation of maximum allowable density agreed with Council prior to design.**

5.7.3 Pressure Parameters – minimum and maximum service Pressures (excluding fire-fighting) – see table 6.2.

Table 6.2 – Pressure Parameters

Requirement	Details
Minimum Pressure	22 metres head at peak hourly consumption
Minimum Pressure Location	At the property boundary for all lots
Minimum Pressure Network Condition (for modelling from a reservoir).	Based on the reservoir level for Peak Hour of the third day of three consecutive Peak Day events (for dynamic models). In the absence of dynamic model results the minimum reservoir level shall be assumed at 15% of storage height. Liaise with Council to confirm minimum pressure constraints available at the connection to the existing system.
Maximum Pressure	80 metres head. Where the pressure in a main exceeds 800 kPa, Council may require the installation of Pressure Reducing Valves (PRV) that may (at Council's discretion) include telemetry control. Prior to proceeding with any design, Council shall be provided with details of the area affected and the number of lots involved.
Maximum pressure location	At the lot boundary
Maximum Pressure Network Condition (for modelling from a reservoir).	Based on reservoir level at 95 percent of top water level.

5.7.4 Fire Fighting Parameters

Table 6.3 – Fire Fighting Parameters

Category	Fire Flow Requirement	Number & Duration
Residential (i.e. An area comprising of predominantly residential dwellings of a maximum of 3 storeys)	15 L/s for 2 hours	1 @ 2 hours
Commercial (i.e. An area comprising of shop and office accommodation of a maximum of 3 storeys) and Industrial	30 L/s for 4 hours For schemes serving a population of less than 1000 a fire flow of 15 L/s for 2 hours should be satisfactory except where a special hazard or risk development exists	1 @ 4 hours
High Risk (i.e. A development where there is a probability of a fire occurring or there is a high cost of resultant damage (personal injury or property))	To be determined	Adopt a special hazard or risk fire
Residual pressure plan is to be 12m minimum at hydrant at all times, assuming that the elevation of the supply point is equal to the ground elevation at the hydrant. Positive residual pressures must exist within the reticulation during the fire event.		

5.7.5 Background Demand - the following minimum criteria should be adopted for background demand during a fire event:

5.7.5.1 Predominantly Residential Areas:

5.7.5.1.1 The minimum residual pressure specified should be exceeded with a background demand of 2/3 Peak Hour demand;

5.7.5.1.2 A check should be undertaken at Peak Hour demand to ensure that pressures in the network remain positive; and

5.7.5.1.3 The calculated background demand should not be less than Average Day demand.

5.7.5.2 Predominantly Commercial / Industrial Areas – In this case, the following scenarios should be investigated with the worst case being adopted:

5.7.5.2.1 At Peak Hour demand of the Commercial / Industrial area (e.g. between 10am to 4pm). The intent of this scenario is to assess the local reticulation performance; and

5.7.5.2.2 At 2/3 Peak Hour demand of the water supply zone (e.g. around 6pm). The intent of this scenario is to assess the zone trunk performance.

5.7.5.3 Mixed Residential / Commercial / Industrial Areas – In such cases a combination of background demand conditions similar to the Predominantly Commercial / Industrial Areas above should be examined.

5.7.6 Storage Parameters – refer table 6.4.

Table 6.4 – Storage Parameters

Component	Sizing
Reservoirs (Ground Level)	3 (PD-MDMM) + (greater of Emergency Storage/Firefighting Storage)
Reservoirs (Elevated)	6 (PH – MDMM) + firefighting reserve 12

5.7.7 Pump Parameters – refer table 6.5.

Table 6.5 – Pump Parameters

Design type		Parameters
Treated water pumps feeding a ground level reservoir		MDMM over 20 hours
Treated water pumps feeding an elevated reservoir		Capacity (L/s) = 6PH – reservoir operating volume 6 x 3600 (Volume in litres)
Standby Pumps		Standby pump capacity to match the largest single unit pump capacity
Reticulation booster pump station		PH + fireflow
Pumped System	Peak Instantaneous flow + fireflow	This situation may exist in smaller systems if variable speed pumps would replace any elevated storage. In these instances, it would be necessary to calculate instantaneous flow based on concurrent demand. This would exceed PH by a significant margin

5.7.8 Pipeline Parameters

Table 6.6 Pipeline Parameters

	Parameter
Pipe Capacity – trunk & reticulated mains	Size for PH + Fire Flow
Friction Equation	Hazen-Williams
Maximum Velocity	2.5m/s velocities up to 4.0m/s may be acceptable during fire flows
Minimum Velocity	N/A

5.7.9 Headloss Calculations - For headloss calculations, the Hazen-Williams formula is generally used. Values of the Hazen Williams friction co-efficient (C) to be adopted are as per table 6.7.

Table 6.7 Headloss Calculations

Pipe Diameter (D)	C Value
D ≤ 150mm	100
150mm < D ≤ 300mm	110
300mm < D ≤ 300mm	120
D > 600mm	125
Note: The above values take into account losses for pipe fittings such as bends, valves, tees, crosses etc and the effect of pipeline ageing.	

5.7.10 Road Crossing

5.7.10.1 all road crossings shall be minimum 100mm diameter;

5.7.10.2 all road crossings under Council controlled roads shall be constructed in Ductile Iron; and

5.7.10.3 all Road crossings under Industrial Roads, Major Collectors or higher order roads shall be constructed with an isolation valve each side of the road.

DG 5.8 Dedication of Land Easements & Permits to Enter

5.8.1 General Infrastructure - All pumping stations, booster stations, storage tanks, reservoirs, water towers and the like are to be located on freehold land that is owned by or will be dedicated to Council at the time of plan sealing, except that small pumping stations may, with State Government's approval, be located in land that is or will become road reserve. This land shall be provided to Council at no cost as freehold and zoned for water infrastructure purposes; and

5.8.2 Pumping Stations not sited beside a road reserve are to be provided with a 5-metre wide access transferred to Council as freehold.

5.8.3 When pipelines and appurtenances relating to pipelines are constructed in land other than in what is or will become, a dedicated road reserve or property owned by Council, Council requires easements to be registered in its favour over all such pipelines and appurtenances;

5.8.4 Easements shall be a minimum of 3 metres wide and located centrally over the pipeline. Mains are to be no closer than 1 m from an easement boundary; and

5.8.5 In the event that works are to be constructed through properties not under the control of the Developer, the Developer shall submit with the Operational Works Application:

5.8.5.1 A 'Permit to Enter & Construct' letter, signed by each property owner through whose property the infrastructure is to be constructed, consenting to the construction of the works;

5.8.5.2 Where the property is owned or to be dedicated to Council approval of the relevant section of Council that will manage the property; and

5.8.5.3 Proof of the registration of easements in favour of Council as specified above.

DG 5.10 Reticulation Network

5.10.1 All water mains shall be laid on a standard alignment and unless directed otherwise alignments shall be as follows:

5.10.1.1 Urban – 2.5m

5.10.1.2 Rural – 2.5m

5.10.2 Bending of pipes is not permitted notwithstanding any clause to the contrary in the WSA Code.

DG 5.11 Cover

5.11.1 Unless noted otherwise on the approved Project Drawings the minimum depth of cover to be provided for mains shall be as follows:

5.11.1.1 Verge, Parks etc. 600mm

5.11.1.2 Under Kerbed Roads 800mm

5.11.1.3 Under Un-Kerbed Roads 900mm

5.11.2 The maximum depth of cover to be provided for mains shall be 1500mm.

DG 5.12 Hydrants

5.12.1 Hydrants shall be installed for fire-fighting purposes on all potable water mains unless approved otherwise by Council.

5.12.2 Generally, hydrants shall be at 80m maximum centres for all urban areas and wherever possible located opposite allotment boundaries, and at every second allotment boundary for Rural, Park Residential and Low Density Residential allotments.

5.12.3 Hydrants shall be located at ends of lines in cul-de-sacs opposite the nearest allotment boundary.

5.12.4 Hydrants shall be located near access legs of battle-axe or hatchet shaped allotments.

5.12.5 Staged developments resulting in temporary dead ends shall have a hydrant located within close proximity to the end of line to enable maintenance flushing.

5.12.6 In undulating areas, hydrants should also be positioned at all high and low points of the main.

5.12.7 Hydrants shall be constructed in accordance with Council's Standard Drawings.

DG 5.13 Valves

5.13.1 Valves shall be located opposite the first truncation point at a three-way intersection; or opposite the nearest allotment boundary.

5.13.2 All valves shall be located within the verge. Valves shall only be located within the road carriageway where specifically approved by Council.

5.13.3 Valves shall be installed where necessary to isolate sections of the system for maintenance purposes such that maintenance can be carried out causing minimum inconvenience and disturbance to the consumers. Generally, the design is to ensure that no more than 4 valves are required to be turned off to isolate a section with the maximum number of houses inconvenienced should be no greater than 20.

5.13.4 Cul-de-sacs shall have an isolation valve if more than 4 lots are served.

5.13.5 At tee junctions a valve shall be located on the leg of the tee. Where necessary to achieve maintenance isolation requirements, additional valves shall be installed to one or both sides of the tee junction.

5.13.6 The maximum spacing between isolation valves shall be 300m.

5.13.7 In higher density areas the spacing of isolation valves may be reduced to the requirement of the Council.

5.13.8 Valves shall be constructed in accordance with Council's Standard Drawings.

DG 5.14 Irrigation

5.14.1 All irrigation systems connected to Council's water supply shall be installed to satisfaction of Council. The installation of water meters, RPZ backflow prevention device and isolation valves are mandatory in all irrigation system. Refer Design Manual D9 Landscaping for design of irrigation systems.

5.14.2 A hydraulic design certificate is required for the irrigation system and to ascertain the required service size.

5.14.3 All connections to Council's existing system shall be completed by the Developer at the Developer's cost and subject to appropriate conditions agreed with Council.

Pump Stations

DG 5.15 General

5.15.1 Pump stations shall be subject to specific requirements of the local authority. Council should be consulted prior to design to confirm the specific requirements for pumps, electrical, switchboards, telemetry, etc.

5.15.2 Council acceptance of pump station design does not relieve the Consulting Engineer of responsibility for the correctness of the design.

DG 5.16 Pump Stations

5.16.1 Pump stations are to be contained in an above ground structure. The structure is to be constructed from reinforced masonry block and/or reinforced concrete. The structure is to be sized to allow for adequate internal access to all items for operational control but particularly for maintenance works. Openings will allow the easy reach and replacement of the largest item contained in the pump station. The use of multistage/centrifugal pumps is preferred.

5.16.2 A back-up power supply is to be provided either by a generator or diesel pump unless a five (5) day reservoir capacity is provided. Suitable arrangements for ducting airflow to the generator / diesel pump and the disposal of exhaust gases so as not to create a nuisance is required. Sufficient fuel is to be stored to operate for 12 hours at rated load (at AD demand).

5.16.3 Noise suppression is to be addressed and incorporated into the pumps station design. The pump station design is to comply with the Environmental Protection Act during normal use.

5.16.4 The tenure of property on which pump stations and access roads are situated are to be transferred to Council as freehold title. Pump station sites are not to encroach upon gazetted road areas unless otherwise approved by Council.

5.16.5 Access to the pump station site is to be via an appropriate standard sealed access and the pump station site is to accommodate maintenance vehicles and their manoeuvring.

5.16.6 Internal and external pump station surfaces are to be painted as directed.

DG 5.17 Telemetry Systems

5.17.1 Where required by the Local Authority, pump station control panel shall incorporate SCADA equipment for transmission of monitoring data and control

to Council's existing master system. Council should be contacted to obtain a copy of their Technical Specification for Telemetry Systems.

5.17.2 It should be noted that where amalgamated Councils have varying telemetry systems, left over from pre-amalgamation Councils, pump station telemetry systems and requirements may vary within that Council and requirements must therefore be reconfirmed as a part of the design.

DG 5.18 Alternative Water Pumping Systems

5.18.1 Alternative water pumping systems to provide increased pressures and flows to individual developments in lieu of a water storage reservoir may be considered by Council if sufficient justification can be provided. Such systems should generally include a number of centrifugal pumps installed in parallel and coordinated by a pump controller, which senses, and responds to water demand. The controller shall also regulate the pump speed to give a graduated increase or decrease in the volume of water being supplied and evenly shares the work between pump units.

5.18.2 In general, Council will only permit the use of such booster pump stations where all of the following conditions apply:

- 5.18.2.1 Where Council considers it impractical to build a storage reservoir for topographical, geotechnical, or aesthetic reasons;
- 5.18.2.2 Where a reservoir would service only that particular development;
- 5.18.2.3 Where the number of lots to be serviced by the booster pump station is less the 25; and
- 5.18.2.4 Where the booster pump station building can be blended with the architectural style of residences within the development.

5.18.3 The consultant should submit an initial report and associated recommendations for consideration by Council prior to any detailed design. As a minimum the report should include:

- 5.18.3.1 Reason for and benefits to the community based on the total life cycle costs of an alternative water pumping system;
- 5.18.3.2 Connection points to the existing system;
- 5.18.3.3 Water supply schematic plan;
- 5.18.3.4 Maintenance issues; and
- 5.18.3.5 Environmental reasons.

DG 5.19 Dual Water Supply Systems

5.19.1 The Dual Water Supply System comprises Water Supply Code WSA 03-2011 and the Whitsunday Regional Council Amendments (Appendix B) to the above supplement.

5.19.2 Appendix C describes Whitsunday Regional Council's specific requirements for Dual Water Supply System works up to and including DN 300 that vary from or are additional to those detailed in the Water Supply Code WSA 03-2011.

DG 5.20 Private Boosters

5.20.1 Written approval for the use of private boosters must be obtained from Council.

DG 5.21 Conduits

5.21.1 A conduit shall be provided to all landscaped or grassed Medians, Traffic Islands and Roundabout islands to facilitate a future water service connection for landscaping purposes.

5.21.2 Where the length of a median exceeds 50m, conduits shall be provided at 50m centres. At roundabouts and channelised intersections the conduit layout should enable all landscape islands to be connected to a single water service connection.

5.21.3 Conduits under roadways shall be a minimum 100mm dia. uPVC Class 9 sealed each end with push-on caps.

5.21.4 Cover to conduits under roads shall be 600mm minimum or 100mm below subgrade, whichever is the greater.

5.21.5 The position of all conduits under roadways shall be clearly marked by the casting a nonferrous cuphead bolt into of the top of the kerb.

5.21.6 Where concrete footpaths are constructed on the road verge and the future water service connections are not being provided, a conduit shall be provided under the footpath opposite the allotment boundary to facilitate the future installation of water services by Council. Generally, water services shall be located at an alternate boundary to Ergon Energy's pillar box. Exceptions may be considered in individual circumstances were unusual conditions or lot layouts exist and where approved by Council and Ergon Energy.

5.21.7 Conduits under footpaths shall be a minimum 80mm dia. uPVC Class 6 with 300mm cover and are to extend 300mm past the edge of the footpath. The position of all conduits under footpaths shall be clearly marked by casting a non-ferrous cuphead bolt into the property side of the footpath while the concrete is wet.

DG 6 – DESIGN GUIDELINE – Sewerage System

General

DG 6.1 Scope

6.1.1 This document sets out the minimum standards for the planning and design of sewer reticulation systems that are to be constructed by a Developer and handed to Council to operate. This section also covers certain service connection issues relating to development approvals and private infrastructure that need to be to Council standards.

6.1.2 The sewer reticulation system shall be defined as sewers of 150mm and 225mm diameter, used to collect and convey sewage from properties. Designs for sewers larger than 225mm diameter shall be subject to specific criteria nominated by the Council. All sewers 225mm diameter or less shall be in accordance with this manual. This definition of sewer reticulation systems applies only to these Whitsunday Regional Council Sewerage Design Manual and Specifications and is independent of the definition of trunk infrastructure as relates to trunk infrastructure charges.

6.1.3 Wherever possible, development should avoid the use of sewerage pump stations when a gravity solution is available. If a pump station is the only option, a buffer zone and screening should be given to the nearest private property.

6.1.4 The planning, design, construction and certification of infrastructure is to be carried out in accordance with following provisions:

6.1.4.1 Council's general criteria as set out in this manual and Council's Standard Specifications and Drawings that are based on the Desired Standards of Service;

6.1.4.2 The criteria contain within the Water Services Association of Australia (WSAA) publications identified in D7.4. While vacuum and pressure sewer scheme WSA codes are listed, they are still considered unconventional infrastructure –refer D7.7;

6.1.4.3 The designer shall note the Queensland Workplace Health and Safety – Guide to Workplace Health and Safety Obligations of Designers of Structures and the design shall include the required Safety Design Report; and

6.1.4.4 For general guidance on infrastructure elements not contained within council's documentation, the criteria contained with the Department of Energy and Water Supply Planning Guidelines for Water Supply and Sewerage may be used for guidance.

6.1.5 Aspects of modification or clarification of the Water Services Association of Australia codes are detailed in Appendix E of this manual.

6.1.6 Council's Land Development Guidelines and Standard Specification and Drawings shall take precedence over the Water Services Association of Australia Codes and the Department of Energy and Water Supply Planning Guidelines for Water Supply and Sewerage.

6.1.7 Smart Sewers are considered Unconventional Infrastructure. Smart Sewer planning, design, construction and certification may be carried out in accordance with Queensland Urban Utilities Sewerage Standards – Nu Sewer – Design and Construction Specification Version 6 and aspects of modification or clarification within the manual and approved by Council.

6.1.8 For construction standards for Electrical Switchboards for Sewage Pumping Stations, refer Appendix J – Addendum to Sewer Pumping Code.

DG 6.2 General

6.2.1 It is the Consulting Engineer's responsibility to ensure that the current version of Whitsunday Regional Council Development Manual is used and that all infrastructure is constructed in accordance with this section as a minimum standard.

6.2.2 It is the Consulting Engineer's responsibility to ensure that all work is undertaken to council's requirements. Responsibility for supervision, testing, inspection, commissioning and remedial work rests with the Consulting Engineer.

DG 6.3 Objective

6.3.1 The objective of the sewerage system is to transport sewage from domestic, commercial and industrial properties using gravity flow pipes and, where gravity system is not possible by pumping to the treatment plant.

6.3.2 While various options can be determined that meet the minimum technical requirements, the selected option should meet least community cost for whole lifecycle. To achieve the optimum solution will require sewerage reticulation issues to be considered at the commencement of the planning process and to integrate with other planning issues, and not be considered an end of process infrastructure provision exercise.

DG 6.4 Reference Documents

6.4.1 Australian Standards:

- 6.4.1.1 AS/NZS 1547-2012 On-site domestic wastewater management.
- 6.4.1.2 AS/NZS 3500-2013 Plumbing and drainage set

6.4.2 Council Approved Products Register

6.4.3 QLD Government Legislation:

- 6.4.3.1 Water Act 2000
- 6.4.3.2 Water Supply (Safety and Reliability) Act 2008
- 6.4.3.3 Plumbing and Drainage Act 2002
- 6.4.3.4 Queensland Plumbing and Wastewater Code

6.4.4 Water Services Association of Australia:

- 6.4.4.1 WSA 02-2014 Gravity Sewerage Code of Australia
- 6.4.4.2 WSA 04-2005 Sewerage Pumping Station Code of Australia

6.4.4.3 WSA 05-2013 Conduit inspection Reporting Code of Australia
6.4.4.4 WSA 06-2008 Vacuum Sewerage Code of Australia
6.4.4.5 WSA 07-2007 Pressure Sewerage Code of Australia
6.4.4.6 WSA 01-2004 Polyethylene Pipeline Code

6.4.5 Department of Energy and Water Supply's - Planning Guidelines for Water Supply and Sewerage

Design Criteria

DG 6.5 General

6.5.1 Sewers shall be designed to accommodate flows from upstream catchments, calculated on the basis of their future development in accordance with Council's Strategic Plan, and accordingly, shall be extended to the upstream boundary(ies) of the proposed development (where required) to service upstream properties with the least whole of life cost. Designers should consult with Council to confirm location of any future connections points, details of any planned augmentation works and sewerage catchment areas.

6.5.2 Council approval of sewerage reticulation does not relieve the Consulting Engineer of responsibility for the correctness of the design.

6.5.3 In staged developments, to ensure an efficient distribution system is established, the designers are required to submit to the Council an overall layout of the proposed subdivision, including all stages, showing the sizing of mains to be incorporated. This proposal shall be submitted to the Council for approval in principle before the submission of any construction plans and specifications will be accepted for review. Refer to Application Procedures.

DG 6.6 Existing Sewers

6.6.1 Prior to proceeding with the design, the designer shall obtain from Council "As Constructed" sewer information relevant to the proposed development and confirm point(s) for connection.

6.6.2 Works associated with some developments can impact on existing mains. Where as a result of the development an existing main has inadequate cover, it shall be reconstructed with a material approved by the Council or such other alternate protection measures deemed necessary by Council. Subsequent to construction, CCTV and/or ovality Testing is to be undertaken as determined by Council after the completion of works in accordance with this Manual and supervised by a Council Representative.

6.6.3 Where finished surface levels around existing manhole covers are altered, the manhole shall be reconstructed to conform with the requirements of this manual.

6.6.4 All connections or alterations to Council sewerage network, shall be made by the Developer at the Developers cost and subject to appropriate conditions agreed with Council.

DG 6.7 Unconventional Infrastructure

6.7.1 Conventional infrastructure includes gravity sewers, lift stations, area pumping stations and pressure (rising) mains. Unconventional infrastructure includes smart sewers, small bore systems of any kind, including vacuum systems, hybrid low pressure systems, common effluent drainage systems, grinder pumps serving small clusters of properties and the like, and any other unconventional or unusual systems.

6.7.2 The use of unconventional infrastructure shall require special approval by Council and may require extended maintenance periods and a higher value for performance bonds.

6.7.3 In unconventional systems, Council may not have approved design criteria. Accordingly, proposals will be considered on the basis of best engineering practice and are to be subject to a lifetime benefit cost analysis.

6.7.4 If unconventional infrastructure is proposed the Consultant shall submit an initial report and associated recommendations for consideration by Council prior to any detailed design. The report should include as a minimum:

- 6.7.4.1 Description of proposed infrastructure;
- 6.7.4.2 Reasons for departing from Conventional systems;
- 6.7.4.3 Reasons for and cost benefits to Council;
- 6.7.4.4 Connection points to existing system;
- 6.7.4.5 Schematic layout plan; and
- 6.7.4.6 Maintenance and operational issues.

6.7.5 Subject to Council's assessment of the Consultant's initial report and prior to any detailed design, Council may engage an independent Consultant to act for Council in assessing the initial report and to recommend suitable system parameters.

6.7.6 All costs associated with the engagement of the independent Consultant shall be at the Developers expense.

6.7.7 Any subsequent designs of infrastructure shall be planned to satisfy the requirements to meet Council Customer Service Standards, which are published pursuant to the requirements of the Water Supply (Safety and reliability) Act, at a minimum whole-of-life cost (capital cost, operational and maintenance cost) for an environmentally acceptable solution and not simply a least capital cost solution.

DG 6.8 Design Criteria

6.8.1 Capacity – population estimates shall be based on those equivalent demands detailed in Table 6.1; and

6.8.2 The minimum pipe capacity shall be based on the criteria detailed in Table 6.2.

Table 6.1 Equivalent Demands

Description	Equivalent Persons/Connection
Single Family Dwelling	
Lot > 1500m^2	3.7
Lot 1101m^2 to 1500m^2	3.4
Lot 901m^2 to 1100m^2	3.1
Lot 401m^2 to 900m^2	2.8
Lot <400m^2	2.5
Multi-Unit Accommodation	
Units > 3 bedrooms	0.4 + 0.6/bedroom
Units = 3 bedrooms	2.2
Units = 2 bedrooms	1.6
Units < 2 bedrooms	1.0
Caravan Parks	
Van Site / Camping Site	1.2
Shops/Offices	
Per 90m^2 GFA	1.0

Notes:

1. **Based on 2.8 Equivalent Persons / Equivalent Domestic Connection (EP/EDC) with 1 EDC equivalent to a single residential dwelling on a standard size allotment (401m^2 to 900m^2)**
2. **For undeveloped land equivalent populations shall be calculated in accordance with the maximum allowable population density in the Planning Scheme for that land use, or estimation of maximum allowable density agreed with Council prior to design.**

Table 6.2 Sewerage Loading

Average Dry Weather Flow (AWDF)	**270/EP/d**	**Based upon analysis of pump station flows and STP inflow records during dry weather**
Peak Wet Weather Flow (PWWF)	5 x ADWF or C^1 x ADWF whichever is greater	C^1 Peaking Factor = 15 x (EP)(^-0.1587) Note - Minimum value C^1 to be 5

Peak Dry Weather Flow (PDWF)	C^2 x ADWF	C2 Peaking Factor = 4.7 x (EP)-0.105
Vacuum Sewer Peak Wet Weather Flow (PWWF)	4 x ADWF	Peaking Factor of 4
Smart Sewer Peak Wet Weather Flow (PWWF)	4 x ADWF	Peaking Factor of 4

6.8.3 Pipe velocity shall be based on the details show in Table 6.3

Table 6.3 Pipe Velocities

Design Criteria	Recommended Value
Mannings 'n' (PVC)	0.013
Mannings 'n' (Poly)	0.013
Minimum Velocity @ PWWF	0.6m/s
Minimum Velocity @ PDWF	0.3m/s
Depth of Flow @ PWWF – Proposed Sewers	Max Flow depth shall not exceed ¾ pipe full

6.8.4 Minimum grades for sewer reticulation mains are to be as summarised in Table 6.4

Table 6.4 Minimum Grades for Gravity Sewers

Diameter	Minimum Grade	Minimum Grade Percentage
100mm – Property Connection Branches	1 in 60	1.66%
150mm – Property Connection Branches	1 in 80	1.25%
150mm – First MH Length, head of sewer	1 in 100	1.00%
Second MH Length	1 in 150	0.67%
Remaining MH Lengths	1 in 150	0.67%
225mm	1 in 290	0.34%
300mm	1 in 420	0.24%
375mm	1 in 570	0.18%
450mm	1 in 730	0.14%
525mm	1 in 900	0.11%
600mm	1 in 1000	0.10%
675mm	1 in 1200	0.08%
≥ 750mm	1 in 1500	0.07%

6.8.5 The maximum allowable Equivalent Domestic Connections for various gravity sewer pipeline grades and diameters is listed in Table 6.5 below.

Grade	150 diameter	225 diameter	300 diameter	375 diameter
570				1530
550				1557
500				1633
450				1721
420			983	1782
400			1007	1826
350			1076	1952
300			1163	2108
290		549	1183	2144
250		591	1274	2310
200		661	1424	2582
180	236	697	1501	2722
150	259	763	1644	2982
125	284	836	1801	3266
100	317	935	2014	3652
75	366	1080	2325	4217
50	448	1322	2848	5164

6.8.6 Sewer Depths – sewers shall not be greater than 3m deep unless approved by Council.

6.8.7 Where sewers are greater than 3m deep, the consultant engineer must submit calculations demonstrating sufficiency of the strength of the proposed pipe type and trenching condition.

DG 6.9 Sewer Alignment

6.9.1 The preferred, or standard, alignment of sewer lines in relation to property boundaries is presented in Table 6.6.

Table 6.6 Preferred Alignment of Sewers

Location	Alignment
Carriageway	Not Permitted, crossings only
Verge	Not usually permitted, subject to Council approval
Private Property (other than Commercial property)	
Side Boundary	0.8m inside allotment
Front and Rear Boundary	1.5 inside allotment
Commercial Boundary	
Front Boundary	1.5m inside front of allotment

6.9.2 Where sewer lines are located along the road frontage of allotments, the preferred alignment is 1.5m inside the allotment. However, to reduce the number of manholes on curved roads and where truncations occur, the sewer alignment may be varied slightly subject to Council approval.

6.9.3 Where the allotment is located adjacent to a designated Council Park or Drainage Reserve, and the sewer is proposed to be constructed adjacent to the Park or Drainage Reserve boundary, the sewer shall be constructed on a 0.8m alignment and wholly within the Park or Drainage Reserve. Where the sewer is proposed to be located elsewhere in the park, approval for the location must be obtained from Council.

6.9.4 Where sewers are to be located within existing road reserves, the designer shall check that the sewers do not conflict with other utility services and locate the sewers to the satisfaction of Council and in accordance with the services clearances as set out in WSA 02-2014 5.4.

6.9.5 Where retaining walls are located on or near the boundary of allotments, sewers, property connection points, manholes etc. must not be constructed under or within the zone of influence of the retaining wall foundations. Consideration is to be given to the difficulty of maintenance excavation on the lower side of retaining walls.

6.9.6 Where access for persons is required, adequate clearance must be provided around access structures and property connection points. For access structures, an area within a 1.5 metre radius (on three sides to permit the set up and use of confined space equipment and other maintenance equipment such as jet rodders and remote cameras) must be provided around the central point of the facility.

6.9.7 Stubs must be extended a minimum of 0.5m past the property boundary.

DG 6.10 Manholes

6.10.1 Manholes shall be placed on gravity sewers at the following locations:

- 6.10.1.1 At changes of pipe diameter;
- 6.10.1.2 At ends of lines where ends are more than 30m from previous manhole;
- 6.10.1.3 At ends of lines where the line depth is greater than 1.5m;
- 6.10.1.4 At end of lines servicing greater than one Property Connection Branches; and
- 6.10.1.5 At council approved connections to trunk sewer.

6.10.2 Manhole shall not be constructed across property boundaries. Minimum clearance from the edge of manhole to the property boundary shall be 400mm.

6.10.3 The maximum change of angle through a manhole shall be 90° unless specifically approved otherwise by Council.

6.10.4 Manholes shall be constructed in accordance with the Standard Drawings S-0020 – S-0026.

6.10.5 Rectangular covers shall be provided to manholes less than 1500mm deep measured from the top of the manhole cover to the obvert level of the outlet.

This has been derived so that a minimum 1.0m high clear working space is available within the manhole.

6.10.6 End of line treatments/alternatives may be acceptable as determined by Council.

DG 6.11 Covers and Surrounds

6.11.1 Manhole covers shall be finished flush with the surface in roadways, footpaths and paved surfaces. Elsewhere, unless noted otherwise on the approved Project Drawings, covers shall be finished 50mm above the surface of the ground, in a manner designed to avoid as far as possible, the entry of surface water.

6.11.2 Manhole covers are to be gas tight.

6.11.3 Manhole covers are to be located such that the position of the access opening is directly over the outlet pipe.

6.11.4 The installation of all precast manhole covers shall be in accordance with the manufacturers' recommended procedures and requirements and subject to appropriate conditions agreed with Council.

DG 6.12 Dedication of Land, Easements and Permits to Enter

6.12.1 General Infrastructure –

6.12.1.1 All pumping stations, lift stations, storage tanks and the like are to be located on freehold land that is held by or will be transferred to Council at the time of plan sealing, except that lift stations, and small pumping stations may, with State Government's approval, be located in land that is or will become road reserve. This land shall be provided to Council at no cost as freehold and noted for sewerage purposes;

6.12.1.2 Pumping Stations and lift stations that are not sited beside a road reserve are to be provided with a 5-metre wide access transferred to Council as freehold; and

6.12.1.3 Dedicated or freehold land requirements shall include provision for the pump station offset as indicated in D7.16 Pump Stations.

6.12.2 Pipelines –

6.12.2.1 When pipelines and appurtenances relating to pipelines are constructed in land other than in what is or will become, a dedicated road reserve or property owned by Council, Council requires easements to be registered in its favour for all sewage rising (pressure) mains and all gravity sewers.

6.12.2.2 Easements shall be a minimum of 3m wide and located centrally over the pipeline, where no property boundary is common to any easement boundary. In the case where a pipeline is laid on a standard alignment from a proposed property boundary, the boundary of the lot and one boundary of the easement must be coincident and where the property boundary is to be created in the future, the boundary must be coincident to the easement boundary.

6.12.2.3 Sewers are to be no closer than 1m from an easement boundary except where the sewer is on a preferred alignment; and

6.12.2.4 In the event that works are to be constructed through properties not under the control of the Developer, the Developer shall submit with the Operational Works Application a 'Permit to Enter & Construct' letter, signed by each property owner through whose property the infrastructure is to be constructed, consenting to the construction of the works;

6.12.2.5 Where the property is owned or to be dedicated to Council approval of the relevant section of Council that will manage the property; and

6.12.2.6 Proof of the registration of easements in favour of Council as specified above.

DG 6.13 Property Connections

6.13.1 Property connections shall be installed in accordance with Council's Standard Drawing.

6.13.2 Property connections should generally be located at the lowest corner of the allotment between 0.5 and 1.5m upstream of the allotment boundary or manhole.

6.13.3 Property connections will not be accepted within 0.5m of a lot boundary.

6.13.4 Property connections into manholes will be permitted at ends of line manholes only. Elsewhere, property connections are required "on line" and not into manholes.

6.13.5 Property connections into maintenance shafts require Council approval.

6.13.6 Combined Property Drains are not permitted in any development works.

6.13.7 For commercial / industrial premises, where the PCB is to be built over, a manhole is to be constructed at the point of connection.

6.13.8 Where a sewer main lies within an adjoining allotment, the property connection is to extend a distance of 1.0m into the allotment. For battle-axe allotments with the property connection located within the access, the Property drain shall extend from the property connection along the access to a point 1.0m within the main part of the allotment or, where a sealed driveway is required for the full length of the hatchet 'handle' then 1m past the extents of the driveway to allow a suitable future point of connection. Where a sewer is contained within a stormwater drainage easement, then the property connection should extend a minimum of 1m past the easement boundary and into the lot it is serving. All property connections should be finished a minimum of 1m clear of any infrastructure.

6.13.9 Property connections sizes shall be as follows:

6.13.9.1 Residential (single Dwelling) – 100mm dia; and

6.13.9.2 Others (i.e. Commercial, Industrial, Multi Residential) – 150mm dia.

6.13.10 Property connections to existing sewer mains shall only be permitted when the construction of a new main to service the proposed properties is not possible.

6.13.11 All Property connections shall be deep enough to service the entire lot using the following property drain design criteria:

6.13.11.1 300mm minimum cover at the start of the drain or at any other control point on the allotment, (where property drains are subject to vehicular traffic, cover shall be increased to 600mm);

6.13.11.2 1 in 60 minimum grade from the most distant corner where any Property or structure can be located on the allotment, on an alignment parallel to the property boundary; and

6.13.11.3 Consideration will be given to the finished level of the lot after all earthworks are complete including likely benching for building platforms.

DG 6.14 On-Site Sewerage Facilities – Treatment and Disposal

6.14.1 The Consultant shall submit a report containing a detailed assessment of site and soil factors as per AS1547 2000 Appendix 4.1B. The report shall consider all major constraints and opportunities relating to the management of wastewater in relation to the development. The report must include all site and soil evaluation (SSE) findings and recommendations so that the most appropriate on-site sewerage facility can be chosen for the development and, in particular, be of sufficient quality and size to receive, treat and absorb all wastewater outputs that is likely to be produced on a property. It is not necessary at this stage to indicate a location for the land application area (LAA) but the report must include a site plan for each lot which indicates all unfavourable land due to site restraints, required setbacks and site features thus leaving the final location of the land application area (LAA) flexible until the detailed report is carried out at building stage and final building location is determined.

6.14.2 The minimum requirements for the wastewater disposal report:

6.14.2.1 Site plan showing dams, creeks, bores and water courses over the whole development site;

6.14.2.2 Flood overlay for entire development if applicable (available on Councils website)

6.14.2.3 Contour plan maximum of 1 metre intervals;

6.14.2.4 Areas of each block with proposed Lot No's and property boundaries;

6.14.2.5 Proposed use of the land to be developed;

6.14.2.6 Soil survey, including indicative permeability of soil by either a percolation test or textural classification of soil (minimum of one test site per proposed lot);

6.14.2.7 Depth of ground water, if any encountered during testing;

6.14.2.8 Estimated daily flows of 300 litres per bedroom per day to be utilised in calculations for daily flows;

6.14.2.9 Method of disposal, e.g. Irrigation, ETA, Absorption;

6.14.2.10 Minimum level of treatment of wastewater for each proposed lot;

6.14.2.11 Size of estimated disposal area to suit system;

6.14.2.12 Calculations to justify disposal site; and

6.14.2.13 Assessment of any additional accumulative nutrient loadings of the area caused by onsite waste water disposal from the proposed development.

Pumping Stations and Pressure Mains

DG 6.15 General

6.15.1 Council should be consulted prior to design to determine specific requirements for pumps, electrical, switchboard and telemetry etc. Outlined below are Council's minimum requirements unless specified otherwise.

6.15.2 Council prefers that sewage be conveyed by gravity. Pump station will only be accepted if all other options have been considered and rejected.

6.15.3 Council requires documentary evidence that life cycle costs of all options have been analysed before approving a pumping station.

6.15.4 When the use of a pumping station has been approved it must be designed and constructed in accordance with this Manual and WSA 04-2005 and WRC Standard Drawings.

6.15.5 A submersible sewage pumping station built to Council requirements and incorporating two submersible sewage pumps with motor sizes up to 22 kW each will be regarded as a "standard" installation. Any station with pumps larger than 22kW will be regarded as a "non-standard" installation and will need to be specifically designed to suit the design flows. The design of a "non- standard" station must be carried out in consultation with Council.

6.15.6 Wet well washers are required in all sewage pumping stations unless otherwise approved by council.

DG 6.16 Pump Stations

6.16.1 Pump stations shall be designed as detailed on Standard Drawings S0050 – S-0052 and S-0057 – S-0060. Project specific design drawings are to be provided with the operational works submission which include the following: Relative levels (A through G) as denoted on these drawings as well as all pump start, stop and alarm levels appropriate to operating conditions shall be provided with the pump station design.

6.16.2 Operation levels for pump stations to be controlled by ultra-sonic level controllers or hydrostatic probes and not by float switches. Major pump stations as determined by the Council shall be controlled by ultra-sonic level controllers.

6.16.3 The pump stations overflow pipe shall be designed to cater for the maximum possible flow. Council and the Department of Environment and Heritage Protection should be consulted to determine emergency storage and overflow requirements.

6.16.4 The designer shall be responsible for obtaining all necessary licenses and approvals associated with the provision of pump station emergency overflow.

6.16.5 Pump stations shall be located as far as possible away from existing or proposed habitable dwellings. A 100m setback is desirable with absolute minimum of 30m unless otherwise approved by Council for standard pump stations only. New developments are to comply with the setback conditions from existing pump stations.

6.16.6 The tenure of property on which pump stations and access roads are situated shall be transferred to Council as freehold title. Pump station sites shall not encroach upon gazetted road areas unless otherwise approved by State Government and Council

6.16.7 Access to the pump station site shall be via an appropriate standard sealed 3.5m wide road (within the 5m access reserve) and the pump station site shall accommodate maintenance vehicles and their manoeuvring. An acceptable layout and hard standing area will need to be determined in consultation with council.

6.16.8 The sealed access can be either of the following construction:

6.16.8.1 2 coat seal on 100mm sub-base and 100mm base course, subject to the sub grade strength indicated by the CBR;

6.16.8.2 30mm asphalt on minimum 100mm base course; and

6.16.8.3 125mm thick reinforced concrete.

6.16.9 Pump stations will be located a minimum 300mm above the 1%AEP flood and/or storm event whichever is greater. The finished ground level around the pump station will be shaped to fall away from the pump station. 10. Detailed calculations of the pump station, Sewerage Pump Station Commissioning Plan and pressure main sizing shall be submitted to Council with the design and/or Operational Works submission in the format required by Council.

6.16.10 The Sewerage Pump Station Commissioning Plan shall be completed in accordance with WSA 04- 2005 2.17.

6.16.11 Pump Station switchboards are to be painted with a graffiti resistant paint prior to application.

6.16.12 New or upgraded pump stations which are or will be part of the trunk main reticulation network or have less than 6 hours emergency storage capacity will be required to have a standby generator as part of the sewer scheme. The standby generator will be located a minimum of 300mm's above the 1%AEP flood and/or storm event whichever is greater.

DG 6.17 Sewage Pumping Systems

6.17.1 Sewage Pumping Station Design Criteria - Sewage pumping stations shall be designed in accordance with the minimum specific design criteria shown in Table 7.14 and WSA 04-2005.

Table 7.14 Sewage Pumping Station Design Criteria

Description	Adopted Design Parameter	Comments

Pump Motor Drives	- <15kW – Soft Start - >15 to 22kW – VFD - >22kW – special design – refer to Council	Where VFD's are used, cables are to be shielded. Where VFD's are used, a magnetic flow meter must be provided with the pump station.
Number of Pumps	Two (2)	Pump station controls must allow for automatic alternating duty pumps.
Wet Well Operating Volume (kL) - Fixed Speed Pumps	$\frac{0.9 \times Q}{N}$	Where 'Q' is the flow rate (l/s) if a single pump operating and 'N' is the allowable number of pump starts, the number of pump starts (N) should be not more than 10 for pumps less than 50kW rating. For pumps greater than 50kW rating, according to manufactures recommendations
Wet Well Operating Volume (kL) – Variable Speed Pumps	$\frac{0.9 \times Q}{N}$	Q = Discharge of a single pump (L/s) at 50 Hz. N = Maximum number of starts per hour recommendation by the motor manufacturer.
Bottom Water Level (duty pump cutout)	- For fixed speed pumps: 100mm above minimum submergence level of pumps. - For variable speed pumps: minimum of 100mm above top of motor casing.	In case of variable speed drives a permanent water level must be maintained above the motor casing to ensure continuous cooling of the motor.
Well Diameter	Minimum internal well diameter 2100mm internal well diameter may be increased in increments of 300mm depending upon considerations such as: - Clearance around pumps and pipework; - Depth of pump station; and - Geotechnical conditions.	
Top Water Level (TWL) (standby start)	Must be set no higher than 300mm below invert level of inlet sewer. Must be no lower than 100mm above duty start but confirmed by project specific design.	
Operating Range (TWL – BWL)	This shall be in accordance with WSA 04, Clause 5.4. Generally this	

	range should be between 1000mm and 2800mm.	
Duty Point	With static head corresponding to top water level and pipe friction factors as follows determine Duty Point 1 and 2: - Duty Point 1 – Single Pump operation: - C1 x ADWF (L/s) vs. Static Head = Friction Head (m) - Duty Point 2 – Duty Pump operating in parallel with Standby Pump: - 5 x ADWF (L/s) vs. Static Head + Friction Head (m).	Where: Static Head = Highest Point in Pressure (Rising) Main – Water Level in Wet Well. Friction Head = is a derived from the Hazen Williams formula. C1 = Peaking Factor from Table 7.2 of this Manual.
Pump Selection	Select a pump that is capable of operating at both duty points and which operates within the range of the system resistance curves that are determined by the Conditions detailed below: - Where pressure sewers are allowed to interconnect with existing sewers (refer Table 7.15), pumps are to be designed to operate against the ultimate pressure in the receiving main unless otherwise approved by Council; - Condition 1 – Normal Operating Condition lower limit system resistance curve: - Static Head corresponding to Top Water Level with pressure (rising) main friction factors as follows: C = 120 (dia. 300mm) - Condition 2 – Normal Operating Condition Upper limit system resistance curve: - Static Head corresponding to Bottom Water Level with pressure (rising) main friction factors as follows: C = 100 (dia. <300mm)	The friction factors used in pump selection depend on Top and Bottom Water Level so as to ensure the fullest possible range of heads are taken into account in the selection of the pumps.
Emergency Storage	6 hours ADWF	May vary dependent on location of the overflow. Emergency storage may

		include gravity sewers, manholes and pump station we well volume above TWL.
Duty Pump Capacity	Refer DNRM Guidelines (or subsequent department)	Refer DNRM Guidelines (or subsequent department)
Standby Pump Capacity	Refer DNRM Guidelines (or subsequent department)	Refer DNRM Guidelines (or subsequent department)
Total Pump Station Capacity	Refer DERM Guidelines (or subsequent department)	Refer DERM Guidelines (or subsequent department)

6.17.2 Pump Information - The following information shall be provided when the plans are submitted for approval:

6.17.2.1 Preliminary pump selection;
6.17.2.2 Rating of the motor;
6.17.2.3 Weight of the motor;
6.17.2.4 Duty Point;
6.17.2.5 Estimate of KWh/1000 litres pumped; and
6.17.2.6 Performance, power and efficiency curve.

DG 6.18 Pressure Mains

6.18.1 For detailed design of sewer pressure mains (rising mains) the requirements of Design Manual D6 Water Reticulation should be noted and the mains shall be designed as per the procedures relevant to Water Supply Mains with the exception of the following:

6.18.1.1 Air release valving should be provided to high points as required;
6.18.1.2 Scour valving should be provided to low points as required. Scouring must be to a scour manhole or adjacent gravity sewer system;
6.18.1.3 Thrust Block and Trenching Details shall be as per the Standard Drawings W-0040 and W-0041; and
6.18.1.4 Line valves, scours and air valves are to be provided as required to reduce scour volume.

6.18.2 Consideration needs to be given to the potential for sulphide generation in pressure mains.

6.18.3 Sewer rising mains shall be a minimum 125mm DN HDPE PN16 unless approved otherwise by Council. Sewer rising mains shall be ‘cream’ in colour.

6.18.4 Sewer pressure mains shall be ‘cream’ in colour.

6.18.5 All Discharge manholes shall be fitted with a HDPE or wound PVC manhole liner suitable for exposure to sewerage. Where the discharge manhole is an existing manhole, the manhole internal surfaces shall be adequately dried and then coated with an approved epoxy coating.

6.18.6 Sewer pressure mains shall be designed in accordance with the minimum specific design criteria shown in Table 7.15 and WSA 04- 2005.

Table 7.15 Pressure Main Design

Description	Adopted Design Parameter	Comments
Flow equation	Hazen-Williams	
Minimum Diameter	100mm – unless otherwise approved by Council	
Friction Factors	Refer Item 10 in Table 7.14	
Minimum Velocity (on a daily basis)	0.75m/s	To prevent the deposit of solid materials such as grit
Preferred Minimum Velocity (on a daily basis)	1.5m/s	To provide for slime stripping on a regular basis
Maximum Velocity	2.5m/s	To prevent damage to pipe lining
Configuration	Pressure Mains should be sized to optimise the balance between reduction of detention times and life cycle cost. Factors to be considered include but not be limited to: - Population growth; - Staging; - Operational features to provide for maintenance and replacement activities; - Minimisation of energy costs; and - Detention times (reduction of odours)	
Interconnection of Pressure (rising) Mains from different Pump Stations	Only with the approval of Council. Generally interconnection of pressure (rising) mains from different pump stations will not be approved unless there are substantial economic and operational benefits	Selection of the class of mains shall be for the maximum condition, refer pump selection, Table 7.14

Private Pump Station and Pressure Mains

DG 6.19 General

6.19.1 Sewage pumping stations serving more than one “Titled” property shall meet the requirements of this Manual and WSA 04–2005.

6.19.2 Where a gravity sewer connection is not directly available to a development, Council may approve a private sewage pumping station, which will discharge via a private pressure (rising main) to the property line, after which, it shall be a Council main, and then connected to Council’s reticulation infrastructure. The

Developer shall prepare and provide to Council "As Constructed" drawings. A private pressure main is not acceptable within a Council controlled road reserve.

6.19.3 All costs associated with connection of a private pressure main to an existing gravity sewer system (system analysis, design and upgrades to provide capacity) shall be met by the Developer.

DG 6.20 Connection to Existing Gravity Main

6.20.1 The approved connection point for a private pressure (rising) main shall be a discharge manhole that is connected to an existing gravity sewer manhole. Discharge manholes shall conform to Council's Standard Drawing.

6.20.2 Council may require the provision of a non-corrosive pipe installed for the length of sewer to the next downstream manhole and will require the provision of an inert lining to all internal surfaces of the pressure main discharge manhole.

DG 6.21 Alternative Connection Points

6.21.1 Council may consider an alternative connection point. Where an alternative is proposed, the Consultant shall request written approval from Council. The request shall outline the reasons for the alternative connection point and the connection methodology proposed.

6.21.2 A private pressure main is not permitted to inject into another private pressure main.

6.21.3 If Council approves the alternative connection to be a Council rising main, the conditions outlined in Table 7.15 shall apply.

DG 6.22 Private Pump Station Sizing and Operation

6.22.1 Pumping stations shall be designed with sufficient in-system storage (in the well, upstream sewers or a dedicated self-draining high level storage) so that in the event of pump or power failure, 6 hours' emergency storage is provided with inflow at average dry weather flow, provided the scheme is not a low pressure sewer scheme or vacuum system. In system storage shall be measured from duty start level to the level of the lowest relief point. Low pressure sewer or vacuum schemes shall be looked at separately by Council.

6.22.2 Less than 6 hours of storage may be provided, as long as a standby generator is part of the sewer scheme.

6.22.3 The pumps are to be set up to operate automatically as Duty / Standby and should be of the positive displacement electric type.

6.22.4 An alarm shall be provided in the form of a prominently positioned flashing red light set to activate at the invert level of the incoming Property drain.

DG 6.23 Private Pressure Mains

6.23.1 Medium density polyethylene pressure main class PN16 is approved for use with cream colouring.

6.23.2 If the pressure main is not readily available in cream colour, the pressure main shall be wrapped in cream coloured tape.

DG 6.24 Specific Requirements

6.24.1 As the private sewage pumping station is a component of the internal plumbing and drainage, Council's Plumbing and Drainage Services Section shall check the design drawings for compliance with current legislation and relevant standards.

6.24.2 Owners of private pumping stations are responsible for all costs and charges associated with the installation, operation and maintenance. Council may consider entering into a service agreement with the owner of the pump station for the ongoing operation and maintenance of the pump station.

6.24.3 As constructed details and the location of the pressure main shall be submitted to Council.

6.24.4 Where Council accepts a Maintenance Service Agreement with the owner of a private pump station, the following conditions will apply:

6.24.4.1 The pump station control panel should incorporate SCADA equipment for transmission of monitoring data and control of Council's existing master system;

6.24.4.2 Council requirements for integrating the SCADA equipment will not relieve the owner of the responsibility for the operation and maintenance of the pump station during the agreed defect liability period;

6.24.4.3 Council will not accept responsibility under the Service Agreement until the pump station has been accepted "off maintenance" with all defects rectified and the pump station is operating to the satisfaction of Council;

6.24.4.4 Notwithstanding the above, Council may monitor the operation and performance of the pump station during the defects liability period; and

6.24.4.5 The following information shall be provided when the plans are submitted for approval:

6.24.4.5.1 Place of Manufacture of all components;

6.24.4.5.2 Pump Manufacturer, Model, Type, and Impeller diameter (as a cut sheet)

6.24.4.5.3 Rating of the motor;
6.24.4.5.4 Weight of the pump and motor;
6.24.4.5.5 Duty Points;
6.24.4.5.6 KWh/1000 litres pumped;
6.24.4.5.7 Performance curves; and
6.24.4.5.8 Guarantee.

6.24.5 Upon commissioning, the following information shall be provided to the Council for checking prior to survey plans being endorsed by Council:

6.24.5.1 Curves with at least four points plotted of the actual performance established in the field, or similar supervised works certificate;
6.24.5.2 Actual KWh/1000 litres pumped;
6.24.5.3 Complete wiring diagrams and details;
6.24.5.4 Mechanical details and parts list of pump and motor;
6.24.5.5 Maintenance catalogue showing daily, weekly, monthly and annual requirements;
6.24.5.6 A complete set of the manufacturers recommended spares delivered to Council; and
6.24.5.7 A set of cover lifters delivered to Council.

Telemetry Systems and Management Plan

DG 6.25 Telemetry Systems

6.25.1 All pump stations must be fitted with telemetry system in accordance with Council's Specification for Telemetry Systems. Council should be contacted to obtain a copy of their Technical Specification for Telemetry Systems.

6.25.2 It should be noted that where amalgamated Councils have varying telemetry systems, left over from pre-amalgamation Councils, pump station telemetry systems and requirements may vary within that Council and requirements must therefore be reconfirmed as a part of the design.

DG 6.26 Management Plan

6.26.1 Where required, a facility management plan is to be provided which will detail procedures and arrangements in place for routine operation and management of the facility (eg. Service Agreement) The Facility Management Plan shall include:

6.26.1.1 Details of proposed regular maintenance of private sewer systems; and
6.26.1.2 A bi-annual report of sewerage flows to Council's sewer and details of maintenance activities.

DG 7 – DESIGN GUIDELINES – Maintenance Shafts

DG 7.1 General

7.1.1 The use of maintenance shafts is permitted in reticulation sewers subject to the design parameters detailed in this Manual and WSA 02-2014.

DG 7.2 Design Parameters for MS's and TMS's

7.2.1 The following design parameters apply to maintenance shafts and terminal maintenance shafts in addition to or instead of those detailed in WSA 02-2002:

- 7.2.1.1 Sizing and installation of maintenance shafts to generally comply with the manufacturers recommendations;
- 7.2.1.2 Maintenance shafts shall be graded to the intersection point of the sewer main and maintenance shaft coupling / fitting;
- 7.2.1.3 Maintenance shafts may be used on 100mm, 150mm and 225mm diameter sewer mains and Property connection branches only;
- 7.2.1.4 Maintenance shafts shall be used to a maximum depth of 3.0m;
- 7.2.1.5 Testing of maintenance shafts shall generally be carried out in conjunction with the testing of the sewer main;
- 7.2.1.6 Property connection branch inspection tees shall be 2000mm clear of the centre of the Maintenance Shaft;
- 7.2.1.7 Property connections must not be made into maintenance shafts;
- 7.2.1.8 Maintenance shafts must be provided with a Council approved 600mm dia. Ductile Iron Class B cover located within a precast surround. The trench bedding material shall extend below the shaft inspection opening surround;
- 7.2.1.9 A maximum of five (5) Maintenance Shafts will be permitted between two conventional maintenance holes with a total length of sewer of not more than 300m between maintenance holes;
- 7.2.1.10 Maintenance Shafts are to be located with a maximum spacing of 60 metres to a maintenance hole or shaft;
- 7.2.1.11 The combined flow entering a MS will not exceed 22 L/s;
- 7.2.1.12 The flow to be redirected at an angle greater than 45 degrees will not exceed 12 L/s; and
- 7.2.1.13 The vertical distance a sewer connection entering the riser and the invert of a MS will be a minimum of 1100mm. Where this distance is less then 1100mm the incoming sewer will enter at the invert of the MS.

7.2.2 Maintenance shafts and terminal maintenance shafts are not permitted in the following locations:

- 7.2.2.1 As the receiving manhole at a pumping / lift station;
- 7.2.2.2 As a discharge manhole for a pressure (rising) main;

7.2.2.3 Within roadway central medians, roundabouts or within kerb and channel;
7.2.2.4 As the connection structure for future development stages; and
7.2.2.5 In an area zoned Industrial, Commercial, or Multi-unit.

DG 8 – DESIGN GUIDELINES – Water Seals, Boundary Traps and Water-sealed MH's and Gas Check MH's

DG 8.1 General

8.1.1 Water seals - Water seals are not required.
8.1.2 Gas Check MH's - Gas check MH's are not required.
8.1.3 Vertical and Near Vertical Sewers - Prior approval must be obtained from Council for the use of vertical or near vertical sewers.
8.1.4 Vortex Inlets and Water Cushions - Prior approval must be obtained from Council for the use of water inlets and water cushions.
8.1.5 Inverted Syphons – The use of inverted syphons is not permitted.
8.1.6 Flow measuring devices – flow measuring devices are not required to be installed. Notwithstanding, provision shall be made in the design of the valve chamber to allow the future installation of an electromagnetic flow meter.
8.1.7 Wet weather storage - Prior approval must be obtained from Council for using wet weather storage as a means of reducing downstream infrastructure.

DG 9 – DESIGN GUIDELINES – Utilities

General

DG 9.1 Scope

9.1.1 This section sets out the minimum standards for the provision of utility services within new subdivisions and developments.

9.1.2 The designer needs to coordinate the provision of services within the confines of the road verge in consultation with and to the requirements of the Service Authorities / Providers.

DG 9.2 Objective

9.2.1 The objective of the Manual is to assist the designer in making provision for the following utility services within the design of new subdivisions and developments:

- 9.2.1.1 Telecommunications;
- 9.2.1.2 Electricity Supply;
- 9.2.1.3 Road Lighting; and
- 9.2.1.4 Gas.

DG 9.3 Reference Documents

9.3.1 AS/NZS 1158-2010 Lighting for Roads and Public Spaces

9.3.2 Ergon Energy Standard Drawings

- 9.3.2.1 Standard Drawing 5162/1 - Joint Electricity, Gas and Telecommunications; and
- 9.3.2.2 Standard Drawing 5162/2 - Joint Electricity, Gas and Multiple Telecommunications.

9.3.3 Civil Aviation Safety Authority Australia – Manual of Standards Part 139 Aerodromes;

9.3.4 Ergon Energy Lighting Construction Manual;

9.3.5 Ergon Energy Underground Construction Manual

9.3.6 G645:2011 Fibre Ready Pit and Pipe Specification for Real Estate Development Projects / NBN Co Installing Pit and Conduit Infrastructure – Guidelines for Developers

DG 9.4 Service Authority's General Requirements

9.4.1 Prior to an application to reconfigure a lot, the Service Authorities should be consulted to confirm that the provision of services to the proposed development would be provided. E.g. Telstra, Ergon and NBN Co.

9.4.2 Following receipt of Development Approval from Council the designer shall make application to both Authorities for "Offer of Connection Services" for electricity and telecommunication services.

9.4.3 Approved proposal plans shall be supplied to both Authorities, for staged developments, this shall include an overall concept layout outlining stages and expected timing for each stage.

9.4.4 Should any amendment occur in the design, both Authorities are to be notified immediately together with an amended plan.

9.4.5 Where a development includes lots that may have higher service demands (i.e. Industrial, Commercial, Multi Residential etc.), details of the expected yields and the maximum permissible development yield for each lot in accordance with its current zoning shall also be provided to both Authorities.

9.4.6 Underground telecommunication services shall be provided to all new developments.

9.4.7 Unless otherwise approved by Council, an underground electricity supply is to be provided to all new developments and all new consumer mains connections to developments to be supplied from a pillar.

9.4.8 The designer shall be responsible for coordinating and checking the locations of all telecommunication and electrical services to avoid conflicts with other services (i.e. Stormwater pits etc).

9.4.9 Layout plans for telecommunication and electrical services including the road lighting design shall be submitted to Council with the design submission.

9.4.10 Evidence of the agreement to provide an electricity supply and telecommunication services must be given to Council prior to the sealing of plans of survey.

DG 9.5 Telecommunication Services

9.5.1 Installing of underground telecommunication conduits shall be in accordance with the Service Authority's requirements.

9.5.2 Consideration shall be given to the location of any roadside cabinets, pillars and pits within the subdivision design.

9.5.3 Where an underground telecommunication service is to be provided, telecommunication conduits shall be placed in a shared trenching arrangement, refer Ergon Energy Standard Drawings 5162/1 and 5162/2 for shared trench arrangement that incorporates telecommunication, electrical and gas services.

9.5.4 Unless approved otherwise by Council, all telecommunication services shall be located within the road reserve at a distance of 0.3m – 1.2m from the property boundary.

9.5.5 The developer is responsible for the provision of telecommunication conduits across roads, existing roads are to be bored.

9.5.6 Permanent non-ferrous cable markers are to be installed in the kerb to mark the location of all road crossings.

DG 9.6 Electricity Supply

9.6.1 Unless otherwise approved by Council, electricity reticulation is to be placed underground.

9.6.2 Where an underground electrical service is to be provided it shall be placed in a shared trench arrangement. Refer relevant Ergon Energy Standard Drawings for shared trenching arrangements that incorporates telecommunication, electrical and gas services.

9.6.3 Sharing of trenches with sewerage and water mains shall not be permitted. Where existing or proposed services are likely to impede on standard electricity alignments, Council and the Ergon Energy are to be consulted to confirm service alignments and clearances.

9.6.4 Unless approved otherwise by Council, all electrical services shall be located within the road reserve at a distance of 0.3m – 1.2m from the property boundary.

9.6.5 The developer is to liaise with the Ergon Energy in relation to any requirement for an electrical substation with a view to providing sufficient suitable land on which to site the infrastructure.

9.6.6 Where a pad-mount substation is to be located within the frontage of a proposed or existing parkland, the location shall be subject to Council's approval.

9.6.7 No other services shall pass beneath the Ergon Energy pillars or substations.

9.6.8 The developer is responsible for the provision of electrical conduits across roads, existing roads are to be bored.

9.6.9 Permanent non-ferrous cable markers are to be installed in the kerb to mark the location of all road crossings.

9.6.10 Electrical pillars shall generally be located at an alternate boundary to water meters and gas service crossings. Exceptions may be considered in individual circumstances were unusual conditions or lot layouts exist and where approved by Council and the Ergon Energy.

9.6.11 Pillars shall be located at property boundaries exceptions can occur where there are stormwater easements or other constraints. The Ergon Energy should be consulted to determine alternate locations in these cases.

9.6.12 The Ergon Energy conditions of connection including contributions for initial cable installation works shall be met prior to the acceptance of the works "On Maintenance" by Council.

9.6.13 Where advised by the Ergon Energy an additional communication conduit supplied by the service provider shall be laid to Ergon Energy requirements.

Overhead Supply

DG 9.7 General

9.7.1 The overhead electrical reticulation shall be designed in accordance with the Ergon Energy requirements.

9.7.2 Power poles shall be placed on an appropriate alignment as approved by Council and the Ergon Energy.

DG 9.8 Road Lighting

9.8.1 All road lighting designs shall be prepared by an RPEQ Engineer shall be included in the design submission for acceptance by Council.

9.8.2 Road lighting design must be in accordance with this manual and AS/NZS 1158 and the Ergon Energy Lighting Construction Manual and Underground Construction Manual. Specific consideration must be given to identification and lighting of Local Area Traffic Management devices (LATM's) and intersections.

9.8.3 All light columns, luminaries and lamps are to be specified from the Ergon Energy Lighting Construction Manual and Underground Construction Manual.

9.8.4 All installation works shall be in accordance with the Ergon Energy Lighting Construction Manual.

9.8.5 Lighting on declared roads shall be designed and installed to the requirements of the Department of Transport and Main Roads.

9.8.6 It is a Council requirement that road lighting be installed under Rate 2 conditions of Tariff 71 - Public Lamps at all new subdivisions and developments.

9.8.7 The required lighting category for a particular road hierarchy shall be determined from Table D9.1.

Table 9.1 Lighting Categories

Category	Application[1]	Luminaire Type	Lamp Type	Rate[2]
V3	Sub Arterial Road	Aeroscreen	150 – 400 watt HPS	2
V5	Major Collector Road	Aeroscreen	150 – 400 watt HPS	2
P3	Minor Collector Road	Normal	80 Watt MV[4]	2
P4	Residential Street Access Street	Normal[3]	50 Watt MV[4]	2

	Access Place			
P4	Industrial Collector Street Industrial Access Street	Normal	80 Watt MV[4]	2
P1 – P3	Pathway and Cycleway	Normal[5] OR Council Specific	80 Watt MV Council Specified	2 3
P3	Bus Stop	Aeroscreen OR Normal	Wattage as required HPS – Cat V lighting MV – Cat P Lighting	2

1. **Roadway Classifications are contained in Table D1.1 "Street and Road Hierarchy – Deemed to Comply Requirements" of Design Manual "D1 Road Geometry". Where discrepancies exist between No. of Dwellings, Traffic Generation and Roadway Classification, lighting design shall be based on the Council designated Roadway**
2. **Rate 2 – Lighting owned and maintained by the Ergon Energy. Rate 3 – Lighting owned and maintained by Council.**
3. **Where "Nostalgia" luminaires are used, the lamp type is to be an 80 Watt MV. The "Nostalgia" luminaire must meet the glare control requirement stipulated in AS/NZS 1158.3.1:2005, design is to be based on "I" table 201262.CIE and the luminaire sourced directly from Sylvania.**
4. **Once permitted by the Electricity Authority, T5 fluorescent or compact fluorescent lamps shall be used where they offer a lower energy consumption or lower cost solution than the lamps nominated.**
5. **Where lighting is located next to residences (on a pathway or cycleway) then a Type 4 – Aeroscreen luminaire is required.**
6. **In general, street lighting poles are to be located opposite common allotment boundaries, to minimise potential interference with vehicle access, access to services (i.e. hydrants) and glare complaints from residents. It is desirable that poles not be located opposite boundaries of "battle axe" allotments due to a higher potential for vehicle collision.**
7. **Council may consider a lesser standard for subdivisions with lots greater than 4000m2 and outside the designated urban footprint. e.g. Category P5 or lighting at intersections, cul-de-sac's and other hazardous locations.**

9.8.8 Lighting shall be provided at the following locations in accordance with the development approval conditions and AS/NZS 1158:

9.8.8.1 Straight Sections;

9.8.8.2 Curves;

9.8.8.3 Intersections and Junctions;
9.8.8.4 Pedestrian Refuges;
9.8.8.5 Cul-de-sacs; and
9.8.8.6 Local Area Traffic Management Devices including Roundabouts. (The maintained horizontal illuminance is not to be less than 3.5 lux).

9.8.9 Where a pedestrian crossing has been installed it shall be lit in accordance with AS 1158.4 – 2009, Lighting of Pedestrian Crossings.

9.8.10 Lighting of entry points to pathways and cycleways shall be achieved by the selected placement of a road light nearby.

9.8.11 Additional lighting shall be provided at a designated bus stop facility; the design shall include the entry and exit lengths of the bus stop.

9.8.12 Lighting columns are to be offset a minimum of 820mm (+/- 20mm) from the invert of kerb and channel to centre of the pole. For a road with a flush kerb or a low density residential road that has a table drain instead of layback kerb and channel, the lighting column is to be offset 1300mm (+/- 20mm) from the outer edge of traffic lane to centre of the pole.

9.8.13 Where required to clear conflicts e.g. stormwater, sub-soil drain flushing points, water supply infrastructure, sewerage infrastructure, lighting columns can be located up to 0.5m in either direction from boundary prolongation along the roadway and at an alignment up to 1.1m from the invert of the kerb and channel.

9.8.14 The placement of lighting columns shall not occur within 1m of any water main that crosses the road.

9.8.15 Lighting columns that are to be installed at all new subdivisions and developments are to be a four hole base plate mounted steel pole as specified in the Ergon Energy Lighting Construction Manual.

9.8.16 When joining to an existing installation or extending a subdivision in stages, lighting columns and luminaires shall match as near as possible with the existing infrastructure.

9.8.17 The use of aeroscreen luminaires may be required when road lighting is installed near airports, refer to the Civil Aviation Safety Authority Australia – Manual of Standards Part 139.

9.8.18 Documentation shall be submitted to Council with the design submission demonstrating compliance with the AS/NZS 1158.

9.8.19 Foundation footing for minor road lighting must be cast in situ, a precast concrete foundation is not permitted without prior approval of council.

9.8.20 Existing timber street light poles are to be replaced with a steel lighting column when overhead powerlines are augmented underground.

DG 9.9 Park Lighting

9.9.1 Lighting requirements in parks will be advised by Council in accordance with the classification of the park.

9.9.2 A point of supply is required to all parks location will be advised by Council in consultation with Ergon Energy

9.9.3 Pathways or cycle ways within parks that require lighting shall be lit to the minimum lighting category P3 or above as deemed appropriate from the selection criteria tabled in AS/NZS 1158.

DG 9.10 Gas

9.10.1 Gas reticulation within a new subdivision or development may be installed subject to Council's approval.

9.10.2 Where reticulated gas is approved by Council, the gas service shall be located in the shared trench arrangement. Refer Ergon Energy Standard Drawings 5162/1 and 5162/2 for shared trenching arrangements that incorporates telecommunications, electrical and gas services.

9.10.3 The location of a central storage facility shall be on a separate freehold parcel of land with appropriate security to the satisfaction of the Council.

9.10.4 The Developer shall be responsible for obtaining all relevant approvals and licences necessary for installation.

DG 10 – DESIGN GUIDELINES – Landscaping

General

DG 10.1 Scope

10.1.1 This section sets out the minimum standards for landscaping within new subdivisions and on-street works for private developments.

10.1.2 This manual contains procedures for the design of:

- 10.1.2.1 On-street landscaping works, including buffers mounds, traffic islands and roundabouts; and
- 10.1.2.2 Public Open Spaces including, signage, furniture and playgrounds.

DG 10.2 Objective

10.2.1 The objective of this manual is to define Councils minimum landscaping requirements and to assist the designer in achieving the following:

- 10.2.1.1 Visually enhancement of the streetscapes;
- 10.2.1.2 Enlargement of the habitat and plant diversity in order to provide a food source for indigenous fauna;
- 10.2.1.3 Enhanced living environments by reducing the impacts of noise, fumes and car headlights;

10.2.1.4 Provision of shade trees; and
10.2.1.5 Crime prevention through environmental design (CPTED).

DG 10.3 Reference Documents

10.3.1 Whitsunday Regional Council:
- 10.3.1.1 Planning Scheme – Landscaping Code;
- 10.3.1.2 Local Laws and Policies;
- 10.3.1.3 Levels of Service/Operations Plan – Parks & Gardens

10.3.2 Australian Standards:
- 10.3.2.1 AS/NZS 1158.3-2005 Pedestrian area (Category P) lighting
- 10.3.2.2 AS 3500 National Plumbing and Drainage, Part 1.2 Water Supply – Acceptable Solutions
- 10.3.2.3 AS/NZS 4486 Playgrounds and playground equipment - Development, installation, inspection, maintenance and operation.

10.3.3 Wet Tropics Weed Pocket Guide

DG 10.4 General

10.4.1 At the time of development, the developer shall provide all on-street landscaping, this shall include street tree planting, grass establishment to road verges, and landscaping of traffic islands and buffer mounds.

10.4.2 Council should be consulted prior to commencement of the design to ascertain whether there are any site specific design requirements.

10.4.3 Some Local Authorities have plant selection guidelines and suburban planting themes designers are encouraged to consult with Council in the preparation of the landscaping design.

10.4.4 Landscaping plans shall be prepared by a person of professional standing in the field of Landscape architecture or landscape design, at a standard acceptable to Council.

10.4.5 CCA treated timber is not to be used for the construction of Council assets.

10.4.6 ACQ, Copper Azole, LOSP, or another alternative timber treatment, will be considered for approval by Council, so long as each individual piece of timber is clearly marked to show the treatment type, e.g. 'ACQ, Copper Azole, LOSP' or other similar text as appropriate. In some instances, (e.g. high use public areas), Council will require these markings to be burn branded into exposed timber areas also. In this regard reference should also be made to Council specific standard drawings for additional marking of treated timber elements that are used in the construction of Council assets in high use public areas.

DG 10.5 Existing Vegetation

10.5.1 In order to retain any established landscape character, all trees located within existing road reserves shall be protected and retained unless approved otherwise by Council.

10.5.2 Significant trees located within the verge of new road reserves shall be protected wherever possible and where advised by Council. This may require the adoption of non-standard utility service alignments therefore designers are encouraged to discuss proposed solutions with Council.

DG 10.6 Verges

10.6.1 All verges shall be covered full width with topsoil to a depth of not less than 50mm and shall be lightly compacted and grassed in accordance with Councils minimum standards and Specifications.

10.6.2 In order to guarantee a high standard of maintenance all verges are to be in a mowable condition, free from rocks and loose stones, and graded to even-running contours.

10.6.3 Aside from grass establishment and tree planting, landscaping of the verge between the property boundary and kerb is not a Council requirement. However, additional landscaping within the verge may be considered subject to Council approval. Generally, any additional landscaping shall be clear of underground services or alternatively limited to ground covers or small shrubs less than in 500mm height.

10.6.4 Should any excavation of the underground services in this vicinity of the additional verge landscaping be required, thus destroying the vegetation, Council will not be held responsible for plant replacement. Maintenance of planting in this vicinity will be the sole responsibility of the adjacent property owner/occupier.

DG 10.7 Street Tree Planting

10.7.1 The ultimate aim of street tree planting is to provide:

- 10.7.1.1 An attractive streetscape with character and charm. An individual character may be obtained by using a specific tree species for each street;
- 10.7.1.2 Shade, and the reduction of heat and glare from the road pavement. Parked cars may remain cool during the summer months; and
- 10.7.1.3 Habitat provision and enhancement. Native flowering trees provide a source of food and shelter for insects, birds and animals.

10.7.2 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. In order to promote continuity in new streetscapes, a single species should be nominated for each street.

10.7.3 Where a development is occurring in an established street setting, an assessment of the existing trees should be made, and the most prevalent and healthy species chosen for verge planting.

10.7.4 Tree species shall be selected for their suitability to the site conditions (e.g. small trees under power lines, drought resistance, soil suitability) and shall be in accordance with any relevant Council plant selection guidelines and suburban planting themes.

10.7.5 To ensure consistency in growth rate and form all trees shall be no less than two (2) metres in height and shall be well established in their root and branch formation. A minimum 45 litre container should ensure a good survival factor.

10.7.6 The alignment and placement of street trees measured from the tree at the estimated ultimate size shall be in accordance with the following:

- 10.7.6.1 Greater than 4.0 metres from electricity or telecommunication poles or pillars;
- 10.7.6.2 Greater than 7.5 metres from streetlights to ensure effective street lighting;
- 10.7.6.3 Greater than 4.0 metre radius from high voltage transmission lines;
- 10.7.6.4 Greater than 2.0 metres from stormwater drainage pits;
- 10.7.6.5 Trees are to be planted in the front of properties at the centre of the lot at a rate of one per lot, or at the necessary rate to provide a maximum 20 metre spacing;
- 10.7.6.6 Trees are to be placed a minimum 1000mm from the back of kerb where achievable;
- 10.7.6.7 Trees are to be placed a minimum of three (3) metres from driveway;
- 10.7.6.8 At intersections trees are to be placed a minimum of ten (10) metres back from the face of the kerb of the adjoining street;
- 10.7.6.9 Trees are to be located so as not to obstruct access to any services or signage; and □Trees are to be located so as not to obstruct pedestrian or vehicular traffic, nor create traffic hazard or cause damage to existing trees.

10.7.7 Street trees shall be planted in accordance with Standard Drawings SEQ G-010 – SEQ G-012 and installed in accordance with Council Specifications.

10.7.8 Street trees should not be a plant listed in:

- 10.7.8.1 Land Protection (Pest and Stock Route Management) Regulation;
- 10.7.8.2 Pest Management Plan; or
- 10.7.8.3 Wet Tropics Management Authority Publication Agricultural and Environmental Weeds.

DG 10.8 Buffer Zones

10.8.1 Mounds / Buffers adjacent to major roads controlled by the Department of Main Roads must comply with the requirements as specified by the Department of

Main Roads and as detailed herein. Generally, these buffers are ten (10) metres wide along the full frontage of the major road.

10.8.2 The aim of the Buffer Mound landscaping is to: ☐Reduce the visual impact of adjacent development by screening rooflines; ☐Reduce the visual impact of proposed noise attenuation barriers, which may be constructed at some time in the future on the mound crest; ☐Reduce the visual impact of the mound's severe geometric landform by screening with foliage to ground level; ☐ Introduce a "natural" vegetated landscape appearance by replacing open agricultural land with a facade of dense planting; ☐Reinforce the local character by indigenous tree and shrub species; and ☐Provide additional functions, i.e.. shade over adjacent bikeways.

10.8.3 In order to accomplish the above aims, the species mix of plant selection should incorporate a range of species to provide variation in form, colour and texture, to contribute to a natural appearance. The front line of planting should have foliage down to ground level.

10.8.4 To ensure that buffer mounds are given the best possible chance of successful establishment and prolonged survival, a temporary irrigation system is required to be installed to the mounding. The preferred system is with a drip-style irrigation system or similar below the surface of the mulch, which reduces the chances of vandalism and reduces excess water loss as a result of runoff and evaporation.

10.8.5 Strong recognisable character is further reinforced by repetition of some suitable species as street and park trees in the adjacent subdivision

10.8.6 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.

10.8.7 Advance ordering and growing on contracts are desirable to ensure availability of desired species in the large quantities required.

10.8.8 Local rainforest species, which typify and reinforce the regions image, are preferred. Most are hardy, long-lived and have dense growth, which suppress weeds and reduce long-term maintenance.

10.8.9 The landscaping shall be designed so as not to create a safety risk to people using the mound and adjacent areas (i.e. no thorns, heavy nuts or poisonous fruits or berries).

10.8.10 No tree planting shall be done higher than 1/3 from the base of mound i.e. no trees on top of the mound.

Public Open Space

DG 10.9 General

10.9.1 At the time of development, the developer shall landscape all public open spaces to the satisfaction of Council and in accordance with this manual and Council's Levels of Service/Operations Plan.

10.9.2 Where a development is proposing to undertake any work within existing or proposed park a landscaping plan shall be prepared for consideration by Council.

10.9.3 Developers should have regard to Table 10.1 – Guidelines for Embellishment.

Table 10.1 – Guidelines for Embellishment

		Guidelines for Embellishment													
Classification	**Profile**	**Playground**	**BBQ's**	**Shelters**	**Amenities**	**Structures**	**Irrigation**	**Mulched Beds**	**Manicured Lawns**	**Grassed Areas**	**Dog Park Areas**	**Exercise Equipment**	**Shade Trees**	**Park Furniture**	**Sporting Equipment**
Regional (Recreational)	High	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
District/ Cemetery (Recreational)	High	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Local (Recreational))	Medium							✓		✓			✓	✓	
Local (Recreational)	Low									✓			✓		
District & Regional Sports Park	High	✓		✓	✓	✓	✓			✓			✓	✓	✓

10.9.4 Landscaping plans shall be prepared by a person of professional standing in the field of landscape architecture or landscape design, at a standard acceptable to Council.

10.9.5 CCA treated timber is not to be used for the construction of Council assets.

10.9.6 ACQ, Copper Azole, LOSP, or another alternative timber treatment will be considered for approval by Council, so long as each individual piece of timber is clearly marked to show the treatment type, e.g. 'ACQ, Copper Azole, LOSP' or other similar text as appropriate. In some instances, (e.g. high use public

areas), Council will require these markings to be burn branded into exposed timber areas also. In this regard reference should also be made to Council specific standard drawings for additional marking of treated timber elements that are used in the construction of Council assets in high use public areas.

DG 10.10 Crime Prevention through Environmental Design

10.10.1 It is important when designing parks that the principles of crime prevention through environmental design are considered, in particular:

10.10.1.1 Dense stands of vegetation should be confined to park peripheries, and should not be located alongside paths and play equipment. Vegetation should not block casual surveillance of picnic and play areas from adjacent residences;

10.10.1.2 Landscaping should not restrict sightlines and opportunities for natural surveillance within and of a site therefore all new vegetation around centres of activity should be single clean trunked trees with shrubs which do not grow beyond 500 mm height. This will avoid the problem of concealment and allow a greater area of surveillance from the road;

10.10.1.3 Lighting where required should be sufficient to deter loitering and vandalism; Large shrubs and trees should be planted in such a way as to prevent or reduce illicit access to buildings and neighbouring properties; and

10.10.1.4 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.

DG 10.11 Treatment to Park Boundaries

10.11.1 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 log barriers, bollards or natural features such as existing vegetation or newly planted and staked trees. Access for maintenance vehicles shall be provided through a lockable gate or removable bollard.

10.11.2 Definition of the park side boundaries should be indicated by installing log barrier fencing or bollards at approximately 20 metre centres, down each side. These should be offset from the surveyed boundary by 100 mm in order 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 park by adjacent private properties and to define the park limits.

10.11.3 Log barriers and bollards shall be in accordance with Council’s Standard Drawing, unless otherwise approved by Council.

DG 10.12 Internal Circulation

10.12.1 The park layout should be designed to ensure that internal circulation or movement within the park is:
- 10.12.1.1 Safe;
- 10.12.1.2 Unencumbered;
- 10.12.1.3 Highly visible internally and externally; and
- 10.12.1.4 Linked to external cycle and pedestrian networks.

10.12.2 Design features including access points, street frontages, carparks, pedestrian/bike paths, park equipment and lighting should be considered.

10.12.3 Design of paths, car parking and access points should consider the needs of people with mobility challenges. Pathways shall be in accordance with Design manual D1 and comply with accessibility standards.

DG 10.13 Planting

10.13.1 Council parks seek to provide a range of recreation opportunities and there is scope to utilise planting design to help achieve this objective, options include:
- 10.13.1.1 Shade trees evenly planted throughout the site to maximise protection from the sun;
- 10.13.1.2 Island or corridor planting to concentrate trees for easy maintenance and encourage bird life for pleasure viewing;
- 10.13.1.3 Grouped planting will also provide shade adjacent to open space to allow unencumbered active play areas; and
- 10.13.1.4 Lines of tree planting to define edges of informal kick-about areas.

10.13.2 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.

10.13.3 In order 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.

10.13.4 Some Local Authorities have plant selection guidelines and suburban planting themes and designers are encouraged to consult with Council in the preparation of the landscaping design.

10.13.5 Street trees should not be a plant listed in:
- 10.13.5.1 Land Protection (Pest and Stock Route Management) Regulation;
- 10.13.5.2 Local governments Pest Management Plan; and

10.13.5.3 Publication, Agricultural and Environmental Weeds (Wet Tropics Management Authority).

DG 10.14 Grassing

10.14.1 All parks shall be covered with topsoil to a depth of not less than 50mm and shall be lightly compacted and grassed in accordance with Councils' minimum standards and specifications.

10.14.2 In order to guarantee a high standard of maintenance all parks shall be in a mowable condition, free from rocks and loose stones, and graded to evenrunning contours.

10.14.3 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 Council's Manuals and Specifications.

DG 10.15 Mounding

10.15.1 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 25% (1 in 4) in order to reduce erosion and allow mowing. Planting of trees and shrubs over the mound will further emphasise height and shape.

10.15.2 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.

DG 10.16 Furniture

10.16.1 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:

10.16.1.1 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. colourbond to provide shelter during rain;

10.16.1.2 Well drained ground and hard surfacing below any structure. Surface material could be pavers, coloured or exposed aggregate concrete etc;

10.16.1.3 Shade structures should maximise protection from the sun during the hours of 11 am - 3 pm; and

10.16.1.4 Refuse bins should be located for ease of use and pickup by refuse trucks e.g. adjacent to playgrounds or picnic areas, at park exits.

10.16.2 Designs of furniture should reflect a strong aesthetic and vandal resistant appearance.

10.16.3 Where possible, natural features may be used e.g. mounding for seating, trees or natural rock for bollards to simulate park furniture; and

10.16.4 Some Local Authorities have park furniture themes and master plans designers are encouraged to consult with Council in the preparation of the landscaping design.

DG 10.17 Signage and Interpretation

10.17.1 A park name sign is to be provided. The park name is to be submitted to Council for approval with the landscaping drawings. The proposed name is to preferably have the same theme as the subdivision's street names. The name is to be creative and imaginative in order to appeal to children for local parks and to adults for district and regional parks.

10.17.2 If the park has any historic, cultural or natural value the provision of interpretive signage will provide further interest to local users. Council can provide assistance in developing interpretive concepts

DG 10.18 Lighting

10.18.1 Lighting requirements within parks will be advised by Council in accordance with the classification of the park.

10.18.2 As a guide 2 park lights on poles shall be provided for every park of 4,000 square metres. However, this may vary depending upon the shape and alignment of the park, and the presence of existing vegetation. Generally, parks should be well lit providing a safe nocturnal environment for local users. Council will consider the relaxation of one or both lights where existing street lights are adjacent to the park area. Underground power should be provided to each pole. Light fittings should be vandal resistant.

10.18.3 Pathways within parks that require lighting shall be lit to the lighting category determined from the road Lighting Standards AS/NZS 1158.3 Pedestrian area (Category P) lighting.

DG 10.19 Provision of Water

10.19.1 Facilities for drinking, such as drinking tap / bubbler, shall be provided for each park area, and should be located near active recreational areas, adjacent to a well-used access route, and within an area serviceable from the road frontage.

A soak-away trench shall be provided to the base of each tap to prevent ponding and waterlogging.

10.19.2 In order to irrigate the park 1 water service connection in a cast iron valve box should be provided for each 2,000 square metre of park and should be a minimum 40 mm diameter with hose connection.

10.19.3 As an alternative, irrigation may be provided, on condition that the proposed system complies with the Council Standard Specification for Irrigation.

DG 10.20 Water Features

10.20.1 Water features should not be included in infrastructure to be handed to Council.

DG 10.21 Playgrounds

10.21.1 To ensure play equipment is as safe as possible and appropriate for the intended users, it should conform to the current and relevant Australian Standards for playgrounds and play areas and additional standards as may be established by Council.

10.21.2 Where playground equipment is required by Council as a condition of the development permit of the subdivision, or proposed to be installed by the developer, the following requirements should be considered and incorporated into the design:

10.21.2.1 Type of play equipment proposed should be selected in consultation with Council;

10.21.2.2 The age range of the users should influence the type of equipment provided; and

10.21.2.3 The siting of the playground should not infringe upon adjacent residential properties; a minimum distance of 10 metres between equipment and park boundaries should be provided and suitably landscaped with a minimum of 3 metre of screen planting to reduce noise and visual impact. Such landscaping is to be consistent with CPTED Principles.

10.21.3 To conform to safety requirements impact absorbing surfacing should be installed to the play area, e.g. sand, continuous rubberised matting, shredded car tyres.

10.21.4 Shade cover over playgrounds is to be provided, in order to encourage day long use. Preferably this should be a permanent shade structure approved by Council, however shade trees planted at maximum 6 metre centres around the safety area are acceptable.

10.21.5 The provision of seating overlooking the playground will be required.

10.21.6 Bench seating should be of the recycled plastic or aluminium type.

DG 10.22 Maintenance

10.22.1 The design of a park should carefully consider long-term maintenance requirements. Mulched garden beds containing trees and shrubs are easier to mow around than numerous small trees and shrubs planted individually throughout the grassed areas.

10.22.2 Where single shade trees occur they should be mulched to 200 mm depth in a minimum 1.2 metre diameter circle, thus avoiding damage to trunks by mowers or whipper snippers.

10.22.3 Access to the parks, drainage reserves and public open spaces for maintenance vehicles should be via a lockable gate or removable bollards.

10.22.4 A maintenance programme is required to be submitted to Council with the submission of the landscape designs. The programme should be prepared by the Landscape Architect / Designer and should detail all proposed maintenance works.

Irrigation

DG 10.23 General

10.23.1 All irrigation systems connected to Council's water supply shall be installed to satisfaction of Council. The installation of water meters, backflow prevention device and isolation valves are mandatory in all irrigation system. Refer AS 3500.

10.23.2 The installation of an irrigation system to all landscaped traffic islands and roundabouts is mandatory.

10.23.3 An irrigation plan prepared by an irrigation consultant, shall be submitted to Council for approval together with the landscaping plans, and the proposed planting plans for the traffic islands / roundabouts.

10.23.4 The design of all watering systems must ensure an efficient and economical application of water. Such systems are to be designed to use low water application, and shall run only during Council's nominated times.

10.23.5 The irrigation system shall use the following components and shall be installed in accordance with Council Specifications:

10.23.5.1 A backflow prevention unit, installed to the requirements of AS 3500;

10.23.5.2 20mm, 25mm or 32mm or 40mm diameter blue line poly pipework (as required) to garden bed areas; laid in a ring around the periphery of each garden bed;

10.23.5.3 Pop-up sprinklers to periphery of garden beds. Fixed shrub heads to centre of islands only; and

10.23.5.4 Automatically operated controller in PVC box laid flush with finished ground level.

10.23.6 All irrigation pipework installed under roadways shall be laid in minimum 100mm dia. uPVC Class 9 conduit.

10.23.7 The water connection and installation of the irrigation system shall be carried out by Council personnel or an approved contractor at the developers / applicants cost. The maintenance period for irrigation works shall be 12 months and shall run concurrently with the "On Maintenance" / establishment period for landscaping works. Thereafter all maintenance and watering will be the responsibility of the Council.

10.23.8 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:

10.23.8.1 The system is separate from the development and all pipework is located adjacent to the kerb and channel; and

10.23.8.2 Or the verge is irrigated from sprinklers that fall within the development property boundaries.

10.23.9 These requirements have come about in order to prohibit the installation of water lines across the underground services located within the verge. These water lines would not appear in Council records and are therefore at risk of breakage during service repair work/trench excavation.

10.23.10 If a separate irrigation system within the verge is desired, the developer will be required to pay all installation costs, which include:

10.23.10.1 Tapping into main;

10.23.10.2 Installation of 25mm diameter (typical) backflow prevention device;

10.23.10.3 Installation of pipework and pop-up sprinklers; and

10.23.10.4 Installation of solenoid valves and automatic controller.

SG – Specification Guidelines

SG 1 – Earthworks

General

SG 1.1 Scope

1.1.1 This specification details all requirements pertaining to earthworks operations associated with construction sites. This specification excludes earthworks associated with roadworks construction.

1.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

1.1.3 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 1.2 Reference Documents

1.2.1 Australian Standards:

1.2.1.1 AS 3798 Guideline on Earthworks for Commercial and Residential Developments

Materials

SG 1.3 Topsoil

1.3.1 Topsoil is defined as surface soils normally high in organic matter and contaminated by residual grass seed and grass roots. Topsoil shall be free from large roots, stones, rocks and unsuitable material as defined below.

SG 1.4 Unsuitable Material

1.4.1 Reference is made to AS 3798 Section 4.2 "Unsuitable Materials" for definitions and guidelines regarding unsuitable materials with regard to earthworks operations.

SG 1.5 Suitable Material

1.5.1 Reference is made to AS 3798 Section 4.3 "Suitable Materials" for the definition and guidelines regarding acceptable materials for earthworks operations.

Construction

SG 1.6 General

1.6.1 Specific reference is made to AS 3798 in relation all activities pertaining to earthworks operations. Specific construction details are noted in Section 6 of AS 3798 and all appropriate methods of testing, frequency of testing and reporting procedures are to be in accordance with this Australian Standard.

SG 1.7 Protection of Earthworks

1.7.1 The Contractor's responsibility for care of the works shall include the protection of earthworks in accordance with the approved Erosion and Sediment Control Strategy.

1.7.2 The Contractor shall install effective erosion and sedimentation control measures, prior to commencing earthworks, and shall maintain these control measures as required.

1.7.3 Adequate drainage of all working areas shall be maintained throughout the period of construction to ensure run-off of water without ponding, except where ponding forms part of a planned erosion and sedimentation control system.

1.7.4 When rain is likely or when work is not proposed to continue in a working area on the following day, precautions shall be taken to minimise ingress of any excess water into earthworks material. Ripped material remaining in cuttings and material placed on embankments shall be sealed off by adequate compaction to provide a smooth tight surface.

1.7.5 Should insitu or stockpiled material become over wet as a result of the Contractor not providing adequate protection of earthworks, the Contractor shall be responsible for replacing and/or drying out the material and for any consequent delays to the operations.

SG 1.8 Clearing and Grubbing

1.8.1 Clearing and grubbing operations shall be in accordance with AS 3798 Section 6.1.4.

1.8.2 The extent of clearing and grubbing shall be taken to mean the removal and disposal of:

- 1.8.2.1 Trees, Shrubs and overhanging branches, both living and dead;
- 1.8.2.2 Tree stumps and roots to a depth not less than 300mm below ground surface;
- 1.8.2.3 Rocks, rubbish and other artificial obstructions from the ground surface;
- 1.8.2.4 Abandoned services to a depth not less than 300mm below ground surface;
- 1.8.2.5 Old foundations, buildings and structures;
- 1.8.2.6 Minor made structures (such as fences);
- 1.8.2.7 Other materials, which are unsuitable for use in the works.

1.8.3 Un-grubbed rocks under embankments may be left undisturbed providing there is a depth of at least 600mm of earth covering over them when the filling operations are completed.

1.8.4 Unless otherwise specified or directed, the area to be cleared is the minimum width required to construct the works plus a margin of 2m beyond tops of cuts and toes of embankments. The area to be cleared and grubbed should be shown on a plan, preferably the Erosion and Sediment Control Plan.

1.8.5 Any trees, shrubs and overhanging branches identified on the Project Drawings to be retained or protected shall be clearly marked by the contractor prior to commencing clearing operations.

1.8.6 Beyond the areas to be cleared only those trees, shrubs and over hanging branches which directly interfere with the construction of the works shall be removed or pruned as necessary.

SG 1.9 Topsoil Operations

1.9.1 Stripping of topsoil shall be in accordance with AS 3798 Section 6.1.5.

1.9.2 Removal of topsoil shall only commence after erosion and sedimentation controls have been implemented and when clearing, grubbing and disposal of materials have been completed on that section of the Works.

1.9.3 Topsoil throughout the extent of the work shall be removed and stockpiled separately clear of the work with care taken to avoid contamination by other materials.

1.9.4 Topsoil material stripped from the site shall be stockpiled for later use in spreading on footpaths, allotments and parkland areas.

1.9.5 Topsoil stockpiles shall not contain any timber or other rubbish and shall be trimmed to a regular shape.

1.9.6 To minimise erosion, stockpiles are to be protected by effective usage of erosion and sediment control devises, which are to be defined within the Erosion and Sediment Control Management Plan.

1.9.7 Where seeding of stockpiles to encourage vegetation cover is specified, such work shall be carried out in accordance with the Specification S8 LANDSCAPING.

1.9.8 Nominally 75mm depth of topsoil is to be re-spread over such areas with an absolute minimum of 40mm material to be provided in any one location.

SG 1.10 General Earthworks

1.10.1 Placement and Compaction of earthworks shall be in accordance with AS 3798 Sections 5 and 6.

1.10.2 The methods of testing and frequency of testing shall be in accordance with AS 3798 Sections 7 and 8.

1.10.3 Unless a higher level of testing is specified or directed the minimum level of geotechnical testing services to be accorded earthworks activities shall be as determined by Level 2 in Appendix B of AS 3798.

1.10.4 All testing is to be carried out by a NATA registered laboratory with appropriate accreditation and suitably qualified personnel.

SG 1.11 Excavations

1.11.1 Materials encountered in excavation shall be loosened and broken down as required so that they are acceptable for incorporation in the works.

1.11.2 All excavations shall be constructed to the shape and slopes shown on the approved Project Documents.

1.11.3 Batter shall be trimmed neatly to the shapes specified and shall be free of loose or unstable material.

1.11.4 Horizontal tolerances for the excavation of batters, measured at right angles to the batter line, shall be – 50mm +250mm (where the + tolerance is in the direction which increases the width of excavation).

1.11.5 Vertical tolerances for all excavation shall be ± 50mm.6. When completed all culvert excavations, benches, berms and drains shall be free draining.

1.11.6 At all times the requirements of the Workplace Health and Safety Act shall be complied with and all works shall be made safe during the performance of such activities.

SG 1.12 Embankments/Fill Areas

1.12.1 All embankments and fill areas shall be constructed to the shape and slopes shown on the approved Project Documents.

1.12.2 When completed, the average planes of the batters of embankments shall conform to those shown on the approved Project Documents.

1.12.3 Horizontal tolerances for the embankment batters, measured at right angles to the batter line, shall be – 0mm +250mm (where the + tolerance is in the direction which increases the width of embankment).

1.12.4 Vertical tolerances for all embankments / fill areas, shall be ± 50mm except where such fill defines the subgrade level for a structure, then the vertical tolerances are to be +15mm – 30mm.

1.12.5 When completed all embankments / fill areas shall be free draining.

1.12.6 At all times the requirements of the Workplace Health and Safety Act shall be complied with and all works shall be made safe during the performance of such activities.

1.12.7 Stabilise final embankment and fill areas with suitable revegetation, landscaping, turf or grass seeding. These areas and works should be shown in the landscape plans.

SG 1.13 Trenching Operations

1.13.1 The excavation for trenches shall be taken out to the exact alignment, width and level as shown on the Project Drawings and associated specifications.

1.13.2 Trenches shall not be excavated wider than the dimensions shown on these relevant drawings and the Contractor shall take all precautions as necessary to ensure that the excavation is made in a careful manner and that it is rendered secure and safe by all appropriate means.

1.13.3 At all times the requirements of the Workplace Health and Safety Act shall be complied with and all works shall be made safe during the performance of such activities.

1.13.4 Suitable drainage shall be accorded to all trenching activities and de-watering of trenches shall be undertaken should infiltration of water occur. All materials excavated from trenches shall be separated by material type for latter inclusion into the works or disposal from the site should these materials be deemed unsuitable in accordance with the requirements of AS 3798.

1.13.5 Excavation and trenching operations shall proceed with sufficient resources to ensure uninterrupted progress and continuance of the works with subsequent services. Completion and backfilling are to be undertaken as soon as possible to minimise the extent of site open to the effects of the environment.

SG 2 – Road Pavements

General

SG 2.1 Scope

1.1.1 This specification details all requirements pertaining to the construction of flexible road pavements, including kerbing, subsoil drainage and trimming of verges.

1.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 2.2 Reference Documents

2.2.1 Australian Standards:

- 2.2.1.1 AS1289 Methods of Testing Soils for Engineering Purposes
- 2.2.1.2 AS2439.1 Perforated Drainage Pipe and Associated Fittings
- 2.2.1.3 AS3706.7 Determination of Pore-sized Distribution – Dry Sieving Methods

2.2.2 All Australian Standards referenced in this specification shall be the current edition.

2.2.3 Department of Main Roads Standard Specifications

- 2.2.3.1 MRS 11.03 Drainage, Retaining Structures and Protective Treatments
- 2.2.3.2 MRS 11.04 General Earthwork
- 2.2.3.3 MRS 11.05 Unbound Pavements
- 2.2.3.4 MRS 11.11 Sprayed Bitumen Surfacing (Excluding Emulsions)
- 2.2.3.5 MRS 11.14 Road Furniture
- 2.2.3.6 MRS 11.17 Bitumen
- 2.2.3.7 MRS 11.19 Bitumen Cutter and Flux Oils
- 2.2.3.8 MRS 11.20 Cutback Bitumen
- 2.2.3.9 MRS 11.22 Supply of Cover Aggregate
- 2.2.3.10 MRS 11.30 Dense Graded Asphalt Pavements
- 2.2.3.11 MRS 11.45 Pavement Marking Department of Main Roads Publications
- 2.2.3.12 Manual of Uniform Traffic Control Devices)

SG 2.3 Pavement Material

2.3.1 Pavement materials used for pavement construction shall comply with Table S2.1 unless otherwise approved by the relevant authority.

Table S2.1 Pavement Materials

Pavement Material	Type of Material Permissable	Grading	CBR (Minimum)
Subgrade Replacement	Type 2.5	B, C or D	15
Sub-base (for Access Places and Access Streets)	Type 2.3	B, C or D	45
Sub-base (for all roads of Major Collector or higher in the hierarchy)	Type 2.2	B, C or D	60
Base (for Access Places and Access Streets)	Type 2.2	B, C or D	60
Base (for all roads of Major Collector or higher in the hierarchy)	Type 2.1	B or C	80

2.3.2 All references to material type in the above table refer to the Main Roads Standard Specification MRS11.05 "Unbound Pavements".

2.3.3 All materials shall be sourced from a Quality Assured material supplier and the results of the manufacturer's testing to assure the quality of the product shall be incorporated with the Contractor's Quality records.

SG 2.4 Asphaltic Concrete Surfacing

2.3.4 For surfacing on pavements with nominal depth 30mm, the material quality requirements, material quality compliance testing requirements and all other matters pertaining to Asphaltic Concrete road pavement surfacing shall conform to the requirements as specified in Austroads.

2.3.5 For surfacing on pavements with nominal depths greater than 30mm, the material quality requirements, material quality compliance testing requirements and all other matters pertaining to Asphaltic Concrete road pavement surfacing shall conform to the appropriate Main Roads Standard Specification (Main Roads Specification MRS 11.30 "Dense Graded Asphalt Pavements").

SG 2.5 Sprayed Bitumen Surfacing

2.5.1 For surfacing of pavements with sprayed bitumen. the material quality requirements, material quality compliance testing requirements and all other

matters pertaining to hot bitumen road pavement surfacing shall conform to the appropriate Queensland Department of Main Roads Specification:

2.5.1.1 Main Roads Specification MRS 11.11 "Sprayed Bitumen Surfacing (Excluding Emulsions)"
2.5.1.2 Main Roads Specification MRS 11.17 " Bitumen"
2.5.1.3 Main Roads Specification MRS 11.19 " Bitumen Cutter and Flux Oils"
2.5.1.4 Main Roads Specification MRS 11.20 " Cutback Bitumen"
2.5.1.5 Main Roads Specification MRS 11.22 "Supply of Cover Aggregate"

SG 2.6 Concrete Interlocking Pavers

2.6.1 Concrete interlocking pavers shall be manufactured and supplied in accordance with the requirements of Specification S3 SEGMENTAL PAVING.

SG 2.7 Road Furniture

2.7.1 The manufacture, supply and material requirements appropriate to the specification for Road Signs and guidepost shall be as per the Main Roads Standard Specification "MRS11.14 Road Furniture".
2.7.2 All signs to be Class 1 reflectivity.
2.7.3 Signs located in concrete islands or medians shall be supplied with the "V Loc" socket system and fitted with anti-theft bolts.

SG 2.8 Pavement Marking

2.8.1 The manufacture, supply and material requirements appropriate to the specification for Pavement Marking shall be as per the Main Roads Standard Specification "MRS11.45 Pavement Marking".

Construction

SG 2.9 Inspection, Sampling & Testing

2.9.1 Inspection, sampling and testing of the pavement shall be in accordance with the requirements of this specification before, during and after the construction of the pavement.
2.9.2 All testing shall be carried out by a NATA registered laboratory with appropriate accreditation and suitably qualified personnel.

SG 2.10 Setout

2.10.1 The construction set-out for roadworks construction shall be by reference to a datum line established by a Registered Surveyor. The datum line may be either the road centreline, a pegged chainage offset line or any alternative datum suitable for the purposes of accurately setting out the roadworks in accordance with the drawings for the works.

SG 2.11 Clearing & Grubbing

2.11.1 All clearing and grubbing works shall be in accordance with the Specification for SG 1 EARTHWORKS.

SG 2.12 Topsoil Operations

2.12.1 All topsoil operations associated with roadworks construction (topsoil stripping, stockpiling and re-spreading), shall be in accordance with the Specification for SG 1 EARTHWORKS.

SG 2.13 Earthworks

2.13.1 All earthworks operations up to subgrade level shall comply with the requirements detailed in Main Roads Standard Specification MRS11.04 "General Earthworks".

SG 2.14 Trim and Compact Subgrade

2.14.1 The subgrade material is defined as the top 300mm of earthworks profiled and compacted upon which pavement materials are to be placed. The subgrade material shall be compacted in accordance with the requirements detailed in Main Roads Standard Specification MRS11.04 "General Earthworks", with the testing frequency and requirements are detailed herein.

2.14.2 The subgrade material shall be compacted to provide a relative compaction determined by AS1289 for a standard compactive effort as follows:

2.14.2.1 Minimum Dry Density Ratio (Cohesive soils) - 98%

2.14.2.2 Minimum Density Index (Cohesion less soils) - 80%

2.14.3 Testing frequency not less than one (1) test per 1000m^2 with a minimum number of three (3) tests per sample area being tested.

2.14.4 At least one (1) sample area shall be tested for type of subgrade material evident on site.

2.14.5 The subgrade material shall not include any "Unsuitable Material" as defined in Main Roads Standard Specification MRS 11.04 "General Earthworks" and shall be trimmed to the profile required to conform with the Project Drawings and the tolerances specified herein.

2.14.6 Where unsuitable material is encountered in the subgrade, a suitable "Subgrade Replacement Material" in accordance with the requirements of this specification shall be incorporated in the works.

2.14.7 In this instance, the unsuitable material shall be excavated to a level sufficient to obtain a sound foundation for the pavement. The compaction requirements and testing frequency noted previously shall apply to all operations involving any subgrade replacement material required for the works.

2.14.8 The tolerances appropriate to the construction of subgrade and to subgrade replacement material shall comply with the following:

2.14.8.1 Design Level Tolerance +15mm, - 30mm

2.14.8.2 Shape Tolerance of 25mm maximum deviation from a 3m straight edge laid in any direction.

2.14.9 Following completion of subgrade compaction, trimming, and satisfactory density testing, the whole of the subgrade area shall be inspected by proof rolling with a fully loaded single rear axle truck with a minimum axle loading of 8 tonne (or acceptable equivalent). Acceptable proof rolling shall be taken to be no visible signs of deformation or instability in the subgrade.

SG 2.15 Pavement Courses

2.15.1 The pavement course materials (Base Course and Sub-base Course) shall be transported from the material supplier to the spreading area without segregation and shall be placed at the correct moisture content.

2.15.2 The pavement course materials shall be spread in uniform loose layers on the prepared subgrade, subgrade replacement, or sub-base course and compacted to conform with the grades, profiles and cross sections as indicated on the Project Drawings and to the tolerances and compaction standards specified herein.

2.15.3 The thickness of any loose layers shall be such that after compaction it shall not be less than 100mm nor more than 200mm thick. Appropriate compaction equipment shall immediately follow the spreading and shaping of the loose materials and under no circumstances shall the materials be allowed to dry out before compaction.

2.15.4 After compaction of each pavement course, the whole of the surface shall be watered and rolled with a steel drum roller to give a hard, dense, tightly packed surface free of lenses, compaction planes and caking, in accordance with the tolerances specified herein.

2.15.5 No placement of base course material on the sub-base shall commence until the compaction standards and tolerances for construction of the lower layer have been inspected and confirmed satisfactory. [Hold Point].

2.15.6 The pavement course material shall be compacted to provide a relative compaction determined by AS1289 for a standard compactive effort as follows:
2.15.6.1 Base Course - 100%
2.15.6.2 Sub-base Courses - 100%

2.15.7 Testing frequency not less than one test per 500m^2 with a minimum of four (4) tests per sample area being tested for sand replacement method and two tests per 500 m^2 with a minimum" of eight (8) tests per sample for nuclear test.

2.15.8 The tolerances for the construction of the pavement courses shall comply with Table S2.2.

Table S2.2 Construction Tolerances

Course	Design Level Tolerance	Layer Thickness Tolerance	Shape Tolerance
Sub-base	+20mm -20mm	+40mm -20mm	25mm in 3m maximum
Base	+10mm -10mm	+15mm -15mm	15mm in 3m maximum
Overall	+20mm -10mm	+20mm -10mm	

SG 2.17 Asphaltic Concrete Surfacing

2.17.1 For Asphaltic Concrete surfacing with a nominal depth 30mm, the construction requirements, method of construction works, and compliance testing requirements for Asphaltic Concrete surfacing, shall be in accordance with Austroads

2.17.2 For Asphaltic Concrete surfacing with a nominal depth greater than 30mm, the construction requirements, method of construction works, and compliance testing requirements for Asphaltic Concrete surfacing, shall be in accordance with Main Roads Specification MRS 11.30 "Dense Graded Asphalt Pavements".

2.17.3 All roads greater than 10% gradient shall have a 10mm primer seal or applied to the base course prior to the placement of the Asphaltic Concrete. Alternate methods where approved by Council shall be as noted on the approved Project Drawings.

2.17.4 The tolerances appropriate to Asphaltic Concrete surfacing shall comply with the following:
2.17.4.1 Design Level Tolerance - +10mm, - 10mm
2.17.4.2 Layer Thickness Tolerance - +15mm, - 0mm
2.17.4.3 Shape Tolerance - 7mm in 3m Maximum (Any direction).

SG 2.18 Sprayed Bitumen Surfacing

2.18.1 The construction requirements, method of construction works, and compliance testing requirements for Hot Sprayed Bitumen surfacing, shall be in accordance with the following Queensland Department of Main Roads Specifications:

- 2.18.1.1 Main Roads Specification MRS 11.11 "Sprayed Bitumen Surfacing (Excluding Emulsions)"
- 2.18.1.2 Main Roads Specification MRS 11.17 " Bitumen"
- 2.18.1.3 Main Roads Specification MRS 11.19 " Bitumen Cutter and Flux Oils"
- 2.18.1.4 Main Roads Specification MRS 11.20 " Cutback Bitumen"
- 2.18.1.5 Main Roads Specification MRS 11.22 "Supply of Cover Aggregate"

SG 2.19 Concrete Segmental Pavers

2.19.1 Concrete interlocking pavers shall be constructed in accordance with the requirements of Specification S3 SEGMENTAL PAVING.

SG 2.20 Kerbing and Channelling

2.20.1 Concrete kerb, kerb and channel shall be constructed by a continuous slip form extrusion machine true to line and grade and to the profile for each kerb type in accordance with the Council's Standard Drawing.

2.20.2 Kerbing shall be constructed on sub base material compacted to 100% standard compaction as determined in accordance with the relevant Test Methods contained in AS 1289.

2.20.3 The finished kerbing shall be well compacted and shall have exposed surfaces free from voids and honeycombing.

2.20.4 Contraction joints shall be made at regular intervals not exceeding 3m. The joints shall be made by forming grooves 40mm deep and not more than 6mm wide in all exposed surfaces of the kerb and kerb and channel. All grooves shall be normal to the top surfaces and square to the alignments of the kerb and kerb and channel.

2.20.5 The horizontal and vertical alignments of the kerb and kerb and channel shall not vary from the design level by more than + 10mm, provided that:

- 2.20.5.1 The difference between the deviations from correct levels at any two points 30m apart shall not exceed 30mm
- 2.20.5.2 The deviation from a straight edge laid parallel to the centreline shall not exceed 10mm in 3m.

2.20.6 The invert of all channels shall be finished true to grade and alignment and no channelling in which water is found to pond will be accepted.

2.20.7 Any kerb or kerb and channel not true to line or with noticeable kinks, bends or other faults, or not of the required dimensions (considering the tolerances

specified herein), may be condemned and shall be broken out and removed from site.

SG 2.21 Subsoil Drainage

2.21.1 Unless otherwise detailed on the Project Drawings subsoil drainage shall be constructed beneath the kerbing on an alignment as shown on Council's Standard Drawing.

2.21.2 Subsoil drainage trenches, drainage pipe, backfill material, geotextile shall be constructed in accordance with the requirements of Main Roads Standard Specification MRS 11.03 "Drainage, Retaining Structures and Protective Treatments".

2.21.3 Subsoil Drainage cleanouts shall be constructed in accordance with the requirements of Council's Standard Drawing and shall preferably, be located with the upstream flushing point internally within a stormwater gully pit or manhole.

SG 2.22 Trim Verges and Batters

2.22.1 Following completion of all earthworks operations associated with roadworks construction, all verges and fill batters shall be graded and trimmed to the line and level indicated on the Project Drawings. Allowance shall be made in the final trimming operations for topsoiling and grassing activities.

2.22.2 Cut batters shall be lightly tined to a depth of 25 - 50mm prior to respreading of topsoil material.

SG2.23 Road Furniture and Pavement Marking

2.23.1 The construction of all Road Signs and associated Road Furniture shall comply with the requirements of the following:

- 2.23.1.1 Main Roads Standard Specification MRS 11.14 "Road Furniture"
- 2.23.1.2 Main Roads "Manual of Uniform Traffic Control Devices"
- 2.23.1.3 Council's Standard Drawing for Street Name Signs.
- 2.23.1.4 Council's Standard Drawing for Traffic Control Devices.

2.23.2 All Pavement Marking shall comply with the requirements of Main Roads Standard Specification MRS 11.45 "Pavement Marking".

SG 3 – Segmental Paving

General

SG 3.1 Scope

3.1.1 This specification details all matters pertaining to the construction of both clay and concrete segmental paving for road pavements, medians, traffic islands, driveways, cycle ways, footpaths and other pedestrian areas.

3.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 3.2 Reference Documents

3.2.1 Australian Standards

- 3.2.1.1 AS1012 Method of Testing Concrete
- 3.2.1.2 AS1141.1 Particle Size Distribution of Dry Sieving
- 3.2.1.3 AS/NZS4455 Masonry Units and Segmental Pavers
- 3.2.1.4 AS/NZS4456 Masonry Units and Segmental Pavers – Methods of Test – General Introduction and list of Methods

3.2.2 Concrete Masonry Association of Australia Specifications

- 3.2.2.1 T44 Concrete Segmental Pavements - Guide to Specifying
- 3.2.2.2 T45 Concrete Segmental Pavements – Design Guide for Residential Access Ways and Roads
- 3.2.2.3 T46 Concrete Segmental Pavements – Detailing Guide

Materials

SG 3.3 Concrete Segmental Pavers

3.3.1 Concrete segmental pavers are units of not more than 0.10 square metres in gross plan area, manufactured from concrete, with plain or dentated sides, with top and bottom faces parallel and with or without chamfered edges.

3.3.2 Concrete pavers are identified by shape as being one of the following types:

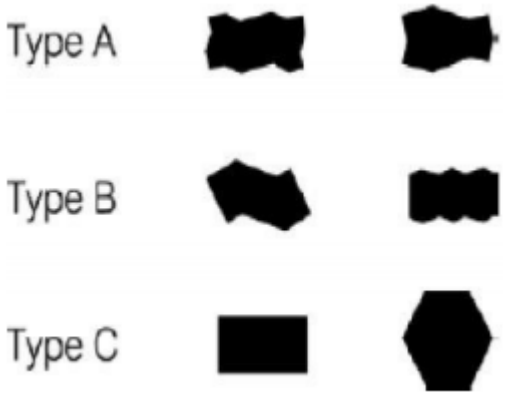
- 3.3.2.1 Shape Type A: Dentated chamfered units which key into each other on four sides, are capable of being laid in herringbone bond, and by their plan geometry, when interlocked, resist the spread of joints parallel to both the longitudinal and transverse axes of the units.
- 3.3.2.2 Shape Type B Dentated units which key into each other on two sides, are not (usually) laid in herringbone bond, and by their plan geometry,

when keyed together, resist the spread of joints parallel to the longitudinal axes of the units and rely on their dimensional accuracy and accuracy of laying to interlock on the other faces.

3.3.2.3 Shape Type C Units which do not key together and which rely on their dimensional accuracy and accuracy of laying to develop interlock.

3.3.3 Figure S3.1 shows examples of some of the more common shapes.

Figure S3.1 Paver Shapes



3.3.4 Concrete segmental pavers shall comply with the requirements of T44, T45, T46, and AS/NZS 4455 for each area of application.

3.3.5 The material requirements for concrete pavers for each application, derived from T44, are shown in Table S3.1.

3.3.6 The pavers shall meet the requirements for the relevant application given in Table S3.1 when tested in accordance with the test methods outlined in AS/NZS 4456.

Table S3.1 Material Requirement for Concrete Segmental Pavers

Application	Characteristic breaking load[2] (kN)	Characteristic flexural strength[2] (MPa)	Minimum Thickness (mm)	Shape[3]	Dimensional deviations (Cat AS455)	Abrasion Resistance (mean abrasion]
Residential Driveways Light Traffic Medium Traffic[1]	3 5	2 3	No Limit No Limit	Any Any	DPA1 or DPB1 DPA1 or DPB1	7 7
Public Footpaths Low Volume High Volume and	5 5	3 3	No Limit No Limit	Any Any	DPB2 DPB2	5 3.5

Pedestrian Malls[1]						
Roads[3] All Roads	5	3	80	A	DPB2	5

Notes:
1. **Capable of taking occasional 8.2-t axle loads**
2. **At 28 days**
3. **Interlocking shapes offer superior performance in road applications**

SG 3.5 Bedding Sand

3.5.1 The bedding sand shall be well graded sand, consisting of clean, hard, uncoated grains uniform in quality, generally passing a 4.75mm sieve and shall conform with the grading limits specified in Table S3.2.

Table S3.2 Bedding Sand Grading Limits

AS Metric Sieve (mm)	% Passing
9.52	100
4.75	95-100
2.36	80-100
1.18	50-85
0.600	25-60
0.300	10-30
0.150	5-15
0.075	0-10

3.5.2 The sand shall be of uniform moisture content when spread. It shall be covered when stored on site to protect it from rain penetration.

3.5.3 The bedding sand shall be free of deleterious soluble salts or other contaminants, which may cause, or contribute to, efflorescence.

SG 3.6 Joint Filling Sand

3.6.1 The joint filling sand shall be well graded passing a 2.36mm sieve, and shall conform with the grading limits specified in Table S3.3.

Table S3.3 Joint Filling Sand Grading Limits

AS Metric Sieve (mm)	% Passing
2.36	100
1.18	90-100
0.600	60-90
0.300	30-60

0.150	15-30
0.075	5-10

3.6.2 The sand shall be dry when spread. It shall be covered when stored on site to protect it from rain penetration.

3.6.3 The sand shall be free of deleterious soluble salts or other contaminants, which may cause, or contribute to, efflorescence.

3.6.4 Sand used for bedding is not suitable for joint filling

SG 3.7 Concrete for Edge Restraints

3.7.1 Concrete supplied and placed for the construction of edge strips shall comply with the Specification for SG 7 CONCRETE WORKS.

3.7.2 Unless otherwise indicated on the Project Drawings, or where the edge restraint is provided by kerb and / or channel, the concrete used for edge restraints shall have a minimum 28-day characteristic compressive strength of 25MPa for edge restraints to pavers on road pavements and 20MPa for edge restraints to pavers on footpaths, bikeways, and medians.

Construction

SG 3.8 Paver Type, Shape, Class and Laying Pattern

3.8.1 The choice of concrete pavers shape type, shape name, colour, thickness and laying pattern shall be as shown on the Project Drawings for each area of application.

3.8.2 Council will require a minimum stock quantity for future replacements.

SG 3.9 Subgrade Preparation

3.9.1 For road pavements and areas subject to vehicle loads, the subgrade shall be trimmed and compacted to the required depth below finished surface level as shown on the approved Project Drawings and in accordance with Specification SG 2 ROAD PAVEMENTS.

3.9.2 Following completion of subgrade compaction and trimming, the whole of the subgrade area shall be inspected by proof rolling with a fully loaded single rear axle truck with a minimum axle load of 8 tonnes (or acceptable equivalent). Acceptable proof rolling shall be taken to be no visible signs of deformation or instability in the subgrade. [Hold Point]

3.9.3 For pedestrian and light traffic areas (i.e. footpaths, bikeways and medians) all soft, yielding or other unsuitable material shall be replaced with sound material and the subgrade shall be compacted to provide a minimum of 95 per cent standard compaction as determined by AS 1289.5.4.1 for standard compactive effort. The subgrade shall be trimmed to be ± 30mm of the design subgrade level.

SG 3.10 Subbase/Base

3.10.1 Base course for pedestrian and light traffic areas (i.e. footpaths, bikeways, medians) shall be as shown on the Project Drawings, where not otherwise specified the base course shall be a 125mm thick compacted to 95 per cent standard compaction as determined by AS 1289.5.4.1 for standard compactive effort. Base course material shall be minimum of Type 2.3 Pavement Material in accordance with the Specification for SG 2 ROAD PAVEMENTS.

3.10.2 For road pavements and areas subject to vehicle loads the subbase and base shall be constructed to the specified thickness and depth below finished surface level, and to the design grade and crossfalls of the finished surface, as shown on the approved Project Drawings in accordance with Specification SG 2 ROAD PAVEMENTS.

3.10.3 The base course shall extend in width to at least the rear face of all new edge restraints.

3.10.4 Notwithstanding the finished level tolerances contained within Specification SG 2 ROAD PAVEMENTS for base of ± 10mm of design levels, the level on the finished surface of the base course for road pavements to be overlain with segmental paving shall be trimmed to within + 10mm or - 0mm of design levels. The deviation from a 3m long straight edge placed anywhere and laid in any direction on the top surface of the base course for all segmental paving shall not exceed 10mm. Sand bedding material shall not be used as a levelling material to compensate for base finishing outside the above tolerances.

3.10.5 The finished surface of the base shall drain freely without ponding.

SG 3.11 Edge Restraints

3.11.1 Edge restraints in the form of kerb and / or channel or edge strips shall be constructed along the perimeter of all segmental paving as shown on the approved Project Drawings. Concrete kerb and / or channel and edge strips shall be constructed in accordance with specifications SG 2- ROAD PAVEMENTS and SG 7 CONCRETE WORKS

3.11.2 Faces of edge restraints abutting pavers shall be vertical.

3.11.3 Edge restraints shall be supported on compacted base and / or subbase of the thickness as shown on the approved Project Drawings. Where not otherwise specified or indicated, the minimum thickness of compacted base beneath the

edge restraints shall be 100mm adjacent to road pavements and medians, and 50mm adjacent to footpaths, bikeways and driveways.

3.11.4 Unless otherwise shown on the Project Drawings, expansion and contraction joints shall be provided in accordance with Specification SG 7 CONCRETE WORKS.

3.11.5 After the concrete has hardened and not earlier than three days after placing, the spaces at the back of the edge restraint shall be backfilled with earth, compacted in layers not greater than 150mm thick, then topsoiled to meet surrounding of design levels.

3.11.6 Hidden edge restraints may be used as an alternative for pedestrian and light traffic areas and shall be as detailed on the approved Project Drawings.

SG 3.12 Sand Bedding Course

3.12.1 The sand bedding course shall be spread in a single uniform layer and screeded in a loose condition to the nominated design profile and levels plus that necessary to achieve a uniformly thick nominal 25-35mm layer following final compaction of the segmental paving.

3.12.2 Any depressions in the screeding sand exceeding 5mm shall be loosened, raked and rescreeded before laying pavers.

3.12.3 Screeded sand left overnight if subject to rain shall be checked for level and rescreeded where necessary before pavers are placed. The sand shall not be screeded more than two metres in advance of the laying face at the completion of work on any day.

3.12.4 Drainage of the bedding course shall be as detailed on the approved Project Drawings.

SG 3.13 LAYING PAVERS

3.13.1 Unless otherwise specified, concrete pavers for road pavements shall be placed in herringbone laying pattern.

3.13.2 Pavers shall be uniformly placed on the screeded sand bedding to the nominated laying pattern. Pavers shall be placed so that they are not in direct contact with each other and shall have uniform 3mm nominal joint widths.

3.13.3 The first row shall be located next to an edge restraint or an established straight line, and laid at a suitable angle to achieve the required orientation of pavers in the completed pavement.

3.13.4 In each row, full units shall be laid first. Edge or closer units shall be neatly cut using a paver scour, or mechanical or hydraulic guillotine, and fitted subsequently. Cut pieces of pavers which are smaller in size than one quarter of a full block shall not be used.

3.13.5 Manholes, drainage gullies and similar penetrations through the pavement shall be finished against the paving with a concrete surround or apron designed to suit and fit the laying pattern, otherwise complying with the requirements for edge restraints.

3.13.6 Any foot or barrow traffic shall use boards overlaying paving to prevent disturbance of units prior to compaction. No other construction traffic shall be allowed on the pavement prior to compaction and provision of joint filling sand.

3.13.7 On completion of subsequent bedding compaction and joint filling operations, no more than 10 per cent of joints along any 10 metre line along a major axis of the laying pattern shall have widths outside the range of 2 - 4mm.

SG 3.14 Bedding Compaction

3.14.1 After laying the pavers, the sand bedding shall be fully compacted and the surface brought to design levels and surface profiles by not less than two passes of a high frequency low amplitude plate compactor, which covers at least 12 units. Compaction shall continue until lipping between adjoining units has been eliminated.

3.14.2 Any units which are structurally damaged during bedding compaction shall be removed and replaced. The pavement shall then be recompacted for at least one metre surrounding each replacement unit.

3.14.3 The paving operations shall be arranged so that the use of the plate compactor proceeds progressively behind the laying face without undue delay, and such that compaction is completed prior to cessation of construction activity on any day. Compaction shall not be attempted within one metre of the laying face except on completion of the pavement against an edge restraint.

3.14.4 The finished surface level shall not vary from the design level at any point laid in any direction, by more than 6mm for all road pavements and 8mm for all other areas of segmental paving. Notwithstanding this, the finished surface of the segmental paving, including where the paving abuts an edge restraint other than a drainage inlet, shall not deviate from the bottom of a 3m straight edge laid in any direction, except at grade changes, by more than 6mm for road pavements and 8mm for all other areas of segmental paving.

3.14.5 The abutting edges of two adjacent pavers should match, but in no circumstances should they differ by more than 2mm.

3.14.6 The surface level of pavers immediately adjacent to surface drainage channels shall finish not less than 5mm nor more than 10mm above the channel edge.

3.14.7 All compaction shall be complete and the pavement shall be brought to design profiles before spreading or placing sand filling in the joints.

SG 3.15 Filling Joints

3.15.1 As soon as practicable after bedding compaction, and in any case prior to termination of work on any day, dry sand for joint filling shall be spread over the pavement and the joints filled by brooming.

3.15.2 To ensure complete filling of the joints, both the filling sand and pavers shall be as dry as practicable when sand is spread and broomed into the joints.

3.15.3 The pavement shall then receive one or more passes of a plate compactor and the joints then refilled with sand, with the process then repeated sufficiently to ensure that the joints are completely filled.

SG 3.16 Protection of Work

3.16.1 Other than wheeled trolleys, forklifts and cluster-clamp vehicles, construction and other traffic shall not use the pavement until bedding compaction and joint filling operations have been completed.

SG 3.17 Opening to Traffic

3.17.1 As soon as practicable after the filling of joints, construction vehicles may use the pavement, and should be encouraged to traverse the greatest possible area of pavement to assist in the development of 'lock-up'.

3.17.2 Excess joint filling sand shall be removed prior to opening to traffic.

3.17.3 The pavement shall then be inspected by the Contractor at regular intervals up until the expiration of the Defects Liability Period to ensure that all joints remain completely filled.

SG 3.18 Tolerances

3.18.1 Where tolerances for individual components and associated dimensions are not specified on the Project Drawings, deviations from established lines, grades and dimensions in the completed work shall not exceed the values stated herein.

3.18.2 The dimensional tolerances as shown in Table S3.4

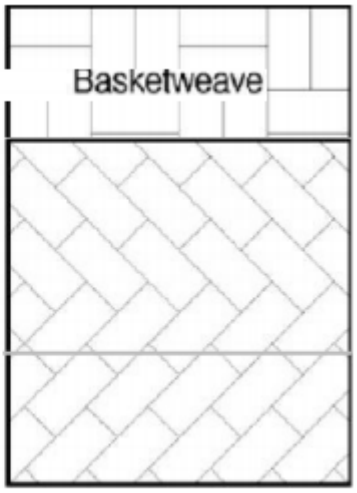
Table S3.4 Summary of Limits and Tolerances

Description	Limits/Tolerances
Base	Finished level of base for pavements to be within +10mm or -0mm of design levels.
	Finished level of base other than for road pavements, to be within +/10mm of design levels.
	Finished level of base other than for road pavements, to be within +/10mm of design levels
Segmental Paving Units (Joint Widths)	No more than 10% of joints along any 10 metre line of joints along a

	major axis of the laying pattern shall have widths outside the range 2 – 4mm.
Segmental Paving Units (Surface Level)	Finished surface level of pavers shall not vary from design levels by more than +/- 6mm for road pavements and +/- 8mm for other than road pavements.
	Finished surface of pavers shall not deviate from a 3m straight edge, laid in any direction, by more than 6mm for road pavements and 8mm for other road pavements.
	The abutting edges of two adjacent pavers shall not differ by more than 2mm.
	Finished surface level of pavers adjacent to surface drainage channels shall be no less than 5mm and no more than 10mm above the level of adjacent channel edge.

SG 3.19 Paver Laying Patterns

Stretcher



Zig Zag Running Bond

SG 4 Stormwater Drainage

General

SG 4.1 Scope

4.1.1 The specification details are all the requirements pertaining to the construction of stormwater drainage works.

4.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 4.2 Reference Documents

4.2.1 Australian Standards

- 4.2.1.1 AS1597 Precast Reinforced Concrete Box Culverts
- 4.2.1.2 AS1650 Hot-Dipped Galvanised Coatings on Ferrous Articles
- 4.2.1.3 AS1761 Helical Lock-Seam Corrugated Steel Pipes
- 4.2.1.4 AS2338 Preferred Dimensions of Wrought Metal Products
- 4.2.1.5 AS2423 Galvanised Wire Fencing Products
- 4.2.1.6 AS3725 Loads on Buried Concrete Pipes
- 4.2.1.7 AS4058 Precast Concrete Pipes (pressure and non-pressure)
- 4.2.1.8 AS4159 Fibre-Reinforced Concrete Pipes and Fittings
- 4.2.1.9 AS5065 Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications

4.2.2 All Australian Standards referenced in this specification shall be the current edition.

4.2.3 Department of Main Roads

- 4.2.3.1 MRS 11.03 Drainage, Retaining Structures and Protective Treatments

Materials

SG 4.3 Steel Reinforced Concrete Pipes (RCP)

4.3.1 Pipes shall conform in all respect to AS 4058.

4.3.2 Pipes up to and including 600mm diameter can be rubber ring jointed or flush with manufacturer’s external bands; pipes larger than 600mm diameter shall be flush jointed with manufacturer’s external bands.

4.3.3 In locations where the pipes are to be laid in a subgrade of sand or influenced by saltwater, rubber ringed joints shall be used.

4.3.4 Pipes laid in areas influenced by saltwater intrusion or acid sulphate soils, or where any part of the pipe is below the Highest Astronomical Tide the pipe will have cover to reinforcement in accordance with the exposure classification requirements of AS 3600.

4.3.5 The class of pipe shall be as specified or shown on the drawings. Minimum of Class "2".

SG 4.4 Fibre Reinforced Concrete Pipes (FRC)

4.4.1 Pipes shall conform to the AS 4139. Pipes of the same diameter and class can be used in lieu of Steel Reinforced Concrete Pipes.

4.4.2 In locations where the pipes are to be laid in a subgrade of sand or influenced by saltwater, rubber ringed joints shall be used.

4.4.3 Where rubber ring joints are specified the "V" section rubber ring shall be used and are to be jointed using the manufacturer's lubricant.

SG 4.5 Reinforced Concrete Box Culverts (RCBC)

4.5.1 Box culverts shall be of the "Inverted U" type unless specified otherwise and shall conform in all respects to the current edition of AS 1597.

4.5.2 Box culverts laid in areas influenced by saltwater intrusion or acid sulphate soils, or where any part of the pipe is below the Highest Astronomical Tide the box culvert will have cover to reinforcement in accordance with the exposure classification requirements of AS 3600.

SG 4.7 Polypropylene Pipes

4.7.1 Pipes shall conform to the AS 5065. Pipes shall only be used within allotments with the prior approval of Council. “As Constructed” drawings shall clearly indicate location of polypropylene pipes. Polypropylene pipes shall not be used within road reserves.

SG 4.8 Bedding Materials

4.8.1 Concrete and Fibre Reinforced Concrete Pipes:

4.8.1.1 Bedding shall consist of clean coarse sand with 100% passing the 19mm AS Sieve and not more than 15% passing the 0.075mm AS Sieve.

4.8.2 Reinforced Concrete Box Culverts:

4.8.2.1 The bedding material to be used in conjunction with box culverts should conform to the grading specified in the Main Roads Standard Specification MRS11.03.

SG 4.9 Steel Wire Gabion and Mattress Protection Works

4.9.1 Steel wire gabions and mattresses shall be proprietary products manufactured from heavily galvanised hexagonally woven steel-wire mesh and filled with rock conforming to the material requirement specified in Main Roads Specification MRS 11.03.

SG 4.10 Concrete

4.10.1 The concrete and reinforcement used in the construction of gully pits, manholes, headwalls and aprons etc shall comply with Specification SG 7 CONCRETE WORKS.

SG 4.11 Manhole Covers and Frames

4.11.1 Cast iron covers and frames are to be supplied for all stormwater manholes and shall be manufactured and tested in accordance with AS 3996.

4.11.2 All openings shall conform to the details on Council's Standard Drawing

4.11.3 All covers shall have a raised stud pattern with the letters SW (65mm high) cast into the centre of the lid and "gatic" type lifting holes.

4.11.4 Minimum classes of manhole covers shall be as follows:

4.11.4.1 Within Residential Properties and Parks - Class B

4.11.4.2 Residential Road Reserves:

4.11.4.2.1 Up to collector street status - Class C

4.11.4.2.2 Trunk Collector or higher - Class D

4.11.4.3 Industrial, Commercial Road Reserves - Class D

SG 4.12 Grates and Frames

4.12.1 Grates and frames of gully pits are to be fabricated from grade 250 steel and shall comply with the requirements of AS 3996 They shall be constructed to the dimensions and details supplied on the Council's Standard Drawing and shall be Hot Dipped Galvanised to the requirements of AS 1650.

4.12.2 Grates for structures other than gully pits shall be bicycle safe, and of a classification applicable to its location in accordance with AS 3996.

SG 4.13 Floodgates

4.13.1 Floodgates shall be a proprietary product manufactured from non-corrosive material of a type specified on the approved Project Drawings.

SG 4.14 Backfill Material

4.14.1 Backfill material shall generally be selected fill material, not markedly different in character from the surrounding soil, free from large stones, lumps of clay, topsoil, tree roots and other rubbish. It shall have an even grading free of lumps retained on a 75mm sieve and free of stones retained on a 25mm sieve.

4.14.2 Stabilised Backfill material may need to be required when utilising Corrugated Aluminium Alloy Pipes. Where such materials are required, only approved mixes in accordance with the manufacturers recommendations shall be accepted.

Construction

SG 4.15 Setout

4.15.1 The alignment of the stormwater pipes and position of the gully pits, manholes and headwalls shall be as stated in the approved Project Drawings and set out from a datum line established by a Registered Surveyor. The datum line may be either the road centreline, property boundary, a pegged chainage offset line, or any alternative datum suitable for the purposes of accurately setting out the works.

4.15.2 The invert levels of the pipes shall be maintained in strict accordance with site bench marks and only approved and tested equipment shall be used to establish and maintain these levels.

SG 4.16 Clearing & Grubbing

4.16.1 All clearing and grubbing works shall be in accordance with Specification SG 1 EARTHWORKS.

4.16.2 Where stormwater lines pass through allotments any trees or obstructions not on the line of the pipes shall be preserved.

SG 4.17 Trenching

4.17.1 All trenching and foundation works necessary for the installation of stormwater drainage works, shall be in accordance with Specification SG 1 EARTHWORKS.

4.17.2 Trench or foundation excavation for stormwater drainage works shall be undertaken to the planned level for the bottom of the specified bedding or foundation level. All loose material shall be removed from the bottom of the trench.

4.17.3 The width of trenching excavation shall be in accordance with the Council Standard Drawings, the trench base and comply with all regulations of Workplace Health and Safety Act.

4.17.4 In undertaking trench excavation, the Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.

4.17.5 Where public utilities exist in the vicinity of stormwater drainage works the Contractor shall obtain the approval of the relevant authority / corporation to the method of excavation before commencing excavation.

SG 4.18 Diverting Water and Dewatering

4.18.1 During construction all care should be taken to ensure any water, which may interfere with the progress of the works, be diverted to keep the trenches and excavations free from water so as to prevent any damage to the works due to flooding or other causes.

4.18.2 The necessary pumping items shall be kept on hand to ensure the excavation is constantly dewatered during the progress of the works.

4.18.3 Discharge for dewatering pumps shall be directed to location approved by and to the satisfaction of Council.

4.18.4 Care shall be taken to ensure that discharge flows do not cause any flooding, erosion or environmental harm, where necessary appropriate measure shall be put in place to trap and dispose of entrained sediments.

4.18.5 In areas where acid sulphate soils are present, discharge flows shall be disposed of and/or treated in accordance with an approved acid sulphates soils management plan.

SG 4.19 Bedding

General

4.19.1 Pipe support and bedding shall be in accordance with AS 3725 for pipe support types shown on the approved Project Drawings. Where the pipe support type is not shown on the Drawings, the minimum pipe support type shall be HS2 within road reserves and H1 elsewhere.

4.19.2 The bedding and haunch zone material shall be placed and compacted in accordance with AS 3725, with care be taken around the Haunch zone area to avoid disturbing the position of the pipe. The surface of every pipe should have full and even contact with the bedding material.

4.19.3 In trenches with bad ground water conditions and/or unsuitable material the trench should be over excavated to allow a foundation layer of crushed rock material (min. depth 250mm) to be placed to provide an adequate foundation. A geofabric to engineering design should be placed for the full width of the trench and overlapped 450mm prior to placing the bedding material and laying the pipes in this instance.

Box Culverts

4.19.4 Bedding for precast and cast insitu base slabs shall be selected backfill to a compacted depth of 150mm laid to the line and level of the underside of the base slab. The bedding shall be finished to a smooth surface with a tolerance of ± 10mm in level and ± 50mm in line.

SG 4.20 Lay and Joint Pipes

Concrete and Fibre Reinforced Concrete Pipes

4.20.1 Pipe laying shall begin at the downstream end of the line with the socket or grooved end of the pipe facing upstream. When the pipes are laid, the barrel of each pipe shall be in contact with the bedding material throughout its full length.

4.20.2 When elliptical pipes with circular reinforcement or circular pipes with elliptical reinforcement are used, the pipes shall be laid in such a position that the manufacturer's marks, designating the "Top" or "Bottom" of the pipe shall not be more than 5 degrees from a vertical plane through the longitudinal axis of the pipe.

4.20.3 External joints shall be taped with the manufacturers supplied tape or rubber external sand bands upon final bedding and alignment.

4.20.4 Lifting holes in pipes shall be plugged with mortar, precast tapered concrete / plastic plugs, or other approved means prior to backfill material being placed.

4.20.5 Joints shall not be made under water. The trench must be de-watered to facilitate joint making and inspection. Precautions must be taken to prevent erosion of joint material by moving currents of water.

4.20.6 Drainage lines shall be constructed with a tolerance of ± 15mm in line or level over any section 30m in length (providing each pipe unit has a fall in the direction of flow) from the alignment and levels shown on the approved Project Drawings.

Reinforced Concrete Box Culverts

4.20.7 The base of the box culvert shall be laid true to line and grade before the crown units of the box culvert segments are laid.

4.20.8 All construction methods, tolerances and requirements for box culverts shall conform to the requirements detailed in Main Roads Standard Specification MRS 11.03.

SG 4.21 Backfill

Concrete & Reinforced Pipes

4.21.1 Compaction standards for backfill material shall conform to Table S4.1.

Table S4.1 Backfill Compaction

Location	Minimum Dry Density (Cohesive soils)	Minimum Density Index (Cohensionless soils)
Under Road embankments: **>0.3m below pavement subgrade** **<0.3m below pavement subgrade**	 95% Standard 98% Standard	 65% 80%
Elsewhere	95% Standard	65%

Note: Compaction requirements are with reference to the relevant Test Methods Contained in AS 1289.

4.21.2 For trench installations, mechanical compacters shall be used. Where impact tampers are used caution must be exercised not to allow a direct blow on the pipe. The material should be compacted at near optimum moisture content and should be brought up evenly in layers not exceeding 150mm on both sides of

the pipe up to 150mm over the pipe. It should not be bulldozed into the trench nor dropped directly on the pipe.

4.21.3 Heavy mechanical equipment must not be used for tamping of backfill or be permitted to run over pipelines at shallow depths except at prepared crossing places and where approved.

4.21.4 For trenches not contained within the road reserve the trench shall be refilled to natural surface level with fill material placed evenly in 150mm to 300mm layers, tamped thoroughly.

4.21.5 The backfilling should be completed as soon as possible after pipe laying, and before the pipeline is charged with water. This will avoid the risk of pipes floating if the trench becomes flooded.

SG 4.22 Drainage Structures

4.22.1 Gullies, manholes and field inlets shall be constructed to the form and dimensions shown on the plans and in accordance with Council's Standard Drawings. Where the ground is solid, back forms need not be used in the construction of drainage structures, the concrete being poured against the earth. Where this is done, the thickness of the wall of such gully or manhole shall be increased to a minimum of 50mm greater than the dimension shown on the plan.

4.22.2 The joints between drainage structures and pipes shall be made watertight using cement mortar. The mortar shall be used within one hour of mixing and shall not be retempered. The joints shall be finished to provide smooth surfaces, uniform with the inner surfaces of the structure.

4.22.3 Concrete benching shall be shaped as specified and shall have smooth, even surfaces and neat edges. Step irons shall be installed horizontal, vertically in line, and shall project uniformly from the walls, where the depth of the structure is greater than 1.5m.

4.22.4 Where step irons are not cast-in-place, they shall be epoxy mortared into drilled holes. The joints between the step irons and the walls shall be completely filled so that the step irons are held rigid and the joints are watertight.

4.22.5 Concrete top slabs in Manholes shall be joined to the walls using cement mortar or epoxy mortar. The opening in the top slab shall be closed with temporary covers, after which excavations shall be backfilled. Cast in situ concrete surrounds shall be constructed on the top slabs to encase the frames. Alternatively, precast concrete surrounds may be employed, using epoxy mortared joints. Only approved covers in accordance with this Specification shall be installed in the frames.

4.22.6 Temporary covers to Gullies and Manholes may remain in position and installation of the frames and surrounds deferred until pavement construction has reached a stage where the frames and surrounds can be positioned accurately. Where construction is in a staged format, the joint between each pour shall be suitably roughened to ensure an adequate bind and seal is achieved between the successive concrete pours.

4.22.7 Compaction of material surrounding drainage structures shall be in accordance with Table S4.1.

SG 4.23 Steel Wire Gabions and Mattress Protection

4.23.1 These proprietary products shall be assembled and installed in accordance with the Main Roads Standard Specification MRS 11.03.

SG 4.24 Headwalls, Wingwalls and Aprons

Cast Insitu

4.24.1 Where necessary, localised excavations shall be carried out to allow construction of cast insitu end structures.

4.24.2 Cast insitu endwalls, wingwalls and aprons, shall be constructed to the dimensions and other requirements shown on the approved Project Drawings and in accordance with Council's Standard Drawings.

4.24.3 Concrete work shall comply with Specification SG 7 CONCRETE WORKS. Construction of endwalls and wingwalls shall include the construction of integral cut-off walls, where required.

Precast

4.24.4 Where necessary, localised excavations shall be carried out to allow installation of precast concrete end structures.

4.24.5 End structures shall be laid on foundation bedding, which provides continuous even support to the structures. Foundation bedding material shall be compacted to the relevant standard specified below:

4.24.5.1 Cohesive material - to not less than 95% Standard Compaction. ☐ Non-cohesive material - to a density index of not less than 65.

4.24.5.2 The joints between end structures and culverts shall be filled with cement mortar. The joint areas shall be thoroughly cleaned and wetted just prior to filling. All points shall be finished smooth and uniform with the surfaces of the end structures.

4.24.6 Any holes and recesses provided in end structures to assist installation shall be neatly plugged or filled with cement mortar.

4.24.7 Mortared joints and filled holes and recesses shall be cured for a period of not less than 48 hours. Backfill operations against end structures shall not be carried out during this curing period.

SG 4.25 Floodgates

4.25.1 Floodgates can be sleeved over the end of the pipe, secured with stainless steel bands or fixed to with a flange to headwalls. Installation shall be in accordance with the manufacturers recommendations.

SG 4.26 Tolerances

4.26.1 Tolerances for the construction of Stormwater Drainage Works shall comply with Table S4.2.

Table 4.2 Construction Tolerances

Location	Tolerance
Invert Levels	+10mm -10mm
Surface Levels	+50mm - 50mm in Allotments +10mm - 10mm in Roadways
Structure Locations	Within 100mm of design in Allotments or Park Within 50mm of design longitudinally along roadway Within 10mm of design at right angles to road
Crest of Spillway and Detention Basins	Trimmed to +25mm - 10mm

SG 5 – Water Reticulation

General

SG 5.1 Scope

5.1.1 This specification details all matters pertaining to Water Supply Reticulation Construction.

5.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

5.1.3 Aspects of modification or clarification of the Water Supply Code of Australia WSA 03 – 2002 are detailed in Appendix A of Design Guideline – D6.

5.1.4 Aspects of modification or clarification of the Water Supply Code of Australia WSA 03 – 2002 – Water Supply Code of Australia – Standard Drawings are detailed in Appendix A of this document.

SG 5.2 Reference Documents

5.2.1 Australian Standards:

- 5.2.1.1 AS1289 Methods of Testing Soils for Engineering Purposes
- 5.2.1.2 AS1432 Copper Tubes for Plumbing, Gasfitting and Drainage Applications
- 5.2.1.3 AS/NZS1477 PVC Pipes and Fittings for Pressure Applications
- 5.2.1.4 AS1646 Elastomatic Seals for Waterworks Purposed
- 5.2.1.5 AS/NZS1906 Retroreflective Material and Devices for Road Traffic Control Purposes
- 5.2.1.6 AS2032 Code of Practice for Installation of PVC Pipe Systems
- 5.2.1.7 AS2033 Installation of Polyethylene Pipe Systems
- 5.2.1.8 AS2129 Flanges for Pipes, Valves and Fittings
- 5.2.1.9 AS/NZS2280 Ductile Iron Pressure Pipes and Fittings
- 5.2.1.10 AS2638 Sluice Values for Waterworks Purposes
- 5.2.1.11 AS3500 National Plumbing and Drainage Code
- 5.2.1.12 AS3952 Water Supply – DN80 Spring Hydrant Valve for General Purposes
- 5.2.1.13 AS/NZS4129 Fittings for Plyethylene (PE) Pipes for Pressure Applications
- 5.2.1.14 AS/NZS4130 Polyethylene (PE) Pipes for Pressure Applications
- 5.2.1.15 AS4441 Oriented PVC (PVC-O) Pipes for Pressure Applications
- 5.2.1.16 AS/NZS4765 Modified PVC (PVC-M) Pipe for Pressure Applications

5.2.2 Department of Main Roads

- 5.2.2.1 MRS 11.45 Pavement Marking

5.2.3 Water Services Association of Australia

5.2.4 WSA 03 – Water Supply Code of Australia

Materials

SG 5.3 Pipes General

5.3.1 All pipes used for water main reticulation shall be constructed from the following materials:
- 5.3.1.1 Polyvinylchloride (PVC)
- 5.3.1.2 Polyethylene (PE); or
- 5.3.1.3 Ductile Iron.

SG 5.4 Unplacticised PVC (PVC-U)

5.4.1 Unplasticised PVC (PVC-U) pipes shall be manufactured in accordance with AS/NZS 1477 by an Australian Standards quality endorsed company.

5.4.2 Modified PVC (PVC-M) pipes manufactured in accordance with AS/NZS 4765 by an Australian Standards quality endorsed company may be used as an alternative to PVC-U.

5.4.3 Oriented PVC (PVC-O) pipes manufactured in accordance with AS 4441 by an Australian Standards quality endorsed company may be used as an alternative to PVC-U

5.4.4 PVC pipes 100mm diameter and greater to be Class 16 rubber ring jointed (Ductile iron O.D compatible).

5.4.5 Rubber Rings shall be manufactured and tested in accordance with AS 1646. Jointing lubricant in accordance with the manufacturers' specification should be used to facilitate jointing.

SG 5.5 Polyethylene Pipe

5.5.1 Polyethylene pipe shall be manufactured in accordance with AS/NZS 4130 by an Australian Standards quality endorsed company.

5.5.2 PE pipes up to 50mm inside diameter to be Class 16

5.5.3 Fittings shall comply with AS/NZS 4129.

SG 5.6 Ductile Iron

5.6.1 Ductile Iron pipes shall be manufactured and cement lined in accordance with AS/NZS 2280 by an Australian Standards quality endorsed company.

5.6.2 Socketed pipes to be Class K9 suitable for the patented "Tyton" type rubber ring joint. Flanged pipes to be Class K12.

5.6.3 Flanges shall comply with AS 2129 Table C. Bolts and nuts for flanged joints shall be in accordance with AS 2129.

5.6.4 All pipes and fittings shall be wrapped in a loose polyethylene sleeving 0.25mm thick. Wrapping and taping shall be carried out in accordance with the pipe manufactures recommendations.

SG 5.7 Bedding Material

5.7.1 Bedding Material shall consist of a clean coarse sand free from organic matter, clay, shells and deleterious material with 100% passing the 6.7mm AS sieve and not more than 5% passing a 0.150mm AS sieve.

SG 5.8 Valves

5.8.1 All Valves shall be manufactured in accordance with AS 2638 by an Australian Standards quality endorsed company.

5.8.2 Valves of 80mm diameter and larger, are to be coated with a thermosetting epoxy powder to AS 2638 and AS 3952.

5.8.3 All 50mm diameter valves shall be DR brass construction with appropriate pressure rating or approved equivalent and certified by QAS to Standards Mark or Water Mark. All valves shall be fitted with bronze tee handles.

5.8.4 All valves 80mm and greater to be anti clockwise to close.

SG 5.9 Hydrants

5.9.1 Hydrants shall be the spring hydrant "Maxi Flow" 2000 type (DN80) manufactured in accordance with AS 3952 by an Australian Standards quality endorsed company. Hydrants are to be coated with a thermosetting epoxy powder to AS 2638 and AS 3952.

SG 5.10 Bends and Tees

5.10.1 All bends for mains of 80mm diameter or larger and all other associated fittings shall be constructed in accordance with AS/NZS 2280, and have flanged or spigot and socket type joints as specified on the approved Project Drawings. Where flanges are used, bolts shall be matched sets and conform to the following criteria:

5.10.2 In above ground uses, bolts shall be Hot Dipped Galvanised ☐In below ground uses, bolts shall be Grade 316 Stainless Steel with nuts and washers Grade 304 stainless steel.

5.10.3 All bends, tees and miscellaneous fittings shall be factory nylon powder coated unless otherwise specified.

SG 5.11 Pavement Marking

5.11.1 The manufacture, supply and material requirements appropriate to the specification of pavement marking shall be in accordance with Main Roads Standard Specification "MRS11.45 Pavement Marking".

SG 5.12 Raised Retro Reflective Marking

5.12.1 Raised retroreflective pavement markers used to locate hydrants shall be blue bi directional markers.

5.12.2 The material requirements of the raised retroreflective pavement markers shall be in accordance with Main Roads Standard Specification "MRS11.45 Pavement Marking".

SG 5.13 Setout

5.13.1 The location and sizes of the mains and position of valves and hydrants shall be as stated on the approved Project Drawings.

5.13.2 Bends shall be positioned such that the correct alignment is maintained and remains within the allotted service corridor.

5.13.3 Where levels are nominated on the approved Project Drawings the Contractor shall ensure the main is laid within the given tolerances and the equipment used to level the main is approved and tested.

5.13.4 Alignment of the water main shall be 2.500m off the property boundary, with horizontal centreline deviations permissible provided the main remains entirely within the 450 mm wide footpath allocation.

5.13.5 Deflection of water mains is not allowed. Bends are to be used for change of direction.

5.13.6 Where a hydrant is placed at the end of a water main which will not be extended in the future, e.g., in cul-de-sac; the hydrant shall be installed with a hydrant bend located adjacent to the boundary of the last property serviced.

5.13.7 In cases where the main may be extended in the future, a hydrant tee and dead end shall be used, located as near as practicable (<0.5m) to the development boundary or nearest RP boundary.

5.13.8 The maximum spacing of hydrants shall be 80m with hydrants located at all crests, sags and ends of lines in cul-de-sacs.

5.13.9 Spring hydrants are to be oriented with bolts parallel to the water main.

SG 5.14 Clearing and Grubbing

5.14.1 All trenching and foundation works necessary for the installation of the pipeline or thrust blocks, shall be in accordance with Specification SG 1 EARTHWORKS.

5.14.2 The width of trenching excavation shall be in accordance with the Council's Standard Drawing at the trench base and comply with all regulations of Workplace Health and Safety Act.

5.14.3 In undertaking trench excavation, the Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.

5.14.4 Where public utilities exist in the vicinity of water main drainage works the Contractor shall obtain the approval of the relevant authority / corporation to the method of excavation before commencing excavation.

5.14.5 The safety of the public shall be considered at all times. Where necessary, fenced walkways and controlled vehicular crossways shall be provided across trenches to maintain access from carriageway to individual properties or within individual properties. All such installations shall be of adequate size and strength and satisfactorily illuminated.

5.14.6 In the event of any trenching being left open for longer than one week, the Contractor shall provide erosion control measures to ensure minimal soil disturbance and material loss off the site. Some or all of these measures shall be provided immediately upon the onset of rain with an open trench.

5.14.7 The Contractor shall leave a clear space of 600mm minimum between the edge of any excavation and the inner toe of spoil banks. No excavated materials shall be stacked against the walls of any building or fence without the written permission of the owner of such building or fence. Topsoil from excavations shall be kept separate and utilised to make good the surface after backfilling.

SG 5.15 Trenching

5.15.1 All trenching and foundation works necessary for the installation of the pipeline or thrust blocks, shall be in accordance with Specification SG 1 EARTHWORKS.

5.15.2 The width of trenching excavation shall be in accordance with the Council's Standard Drawing at the trench base and comply with all regulations of Workplace Health and Safety Act.

5.15.3 In undertaking trench excavation, the Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.

5.15.4 Where public utilities exist in the vicinity of water main drainage works the Contractor shall obtain the approval of the relevant authority / corporation to the method of excavation before commencing excavation.

5.15.5 The safety of the public shall be considered at all times. Where necessary, fenced walkways and controlled vehicular crossways shall be provided across trenches to maintain access from carriageway to individual properties or within individual properties. All such installations shall be of adequate size and strength and satisfactorily illuminated.

5.15.6 In the event of any trenching being left open for longer than one week, the Contractor shall provide erosion control measures to ensure minimal soil disturbance and material loss off the site. Some or all of these measures shall be provided immediately upon the onset of rain with an open trench.

5.15.7 The Contractor shall leave a clear space of 600mm minimum between the edge of any excavation and the inner toe of spoil banks. No excavated materials shall be stacked against the walls of any building or fence without the written permission of the owner of such building or fence. Topsoil from excavations shall be kept separate and utilised to make good the surface after backfilling.

SG 5.16 Cover

5.16.1 Unless noted otherwise on the approved Project Drawings the minimum depth of cover to be provided for mains shall be as follows:

5.16.1.1 For mains of 100mm and 150mm diameter: minimum 600mm - maximum 750mm, in a verge or roadway; measured from the top of pipe to the adjacent top of kerb.

5.16.1.2 For 225mm and 300mm diameter: minimum 700mm, maximum 850mm

5.16.1.3 For mains greater that 225 mm diameter, individual assessment dependent upon valve height shall be determined by the Engineer.

5.16.1.4 Where normal cover for mains is unable to be maintained due to the presence of existing services or other restricting factors ductile iron pipe, may be used, subject to the approval of the Engineer.

5.16.1.5 Main shall not be laid under stormwater, sewerage pipes or electricity conduits unless approved by the Engineer.

SG 5.17 Crossings

Major Road Crossings

5.17.1 Written approval from the Queensland Department of Transport is required if a main is to be constructed underneath or along a declared Main Road.

5.17.2 All road crossings shall have an enveloper pipe and the main shall be grouted in the enveloper pipe.

5.17.3 The design and construction of the enveloping conduit must be in accordance with Queensland Department of Transport's "Installation of Underground Conduits within the Boundaries of Declared Roads".

Crossings of Other Existing Roads and Streets

5.17.4 Unless otherwise approved in writing, all crossings of existing roads and streets shall be bored or jacked with no disturbance to the pavement, shoulders or kerb.

5.17.5 The Engineer may permit open trenching to streets below Collector, determined by the location, traffic conditions and age of the existing pavement.

5.17.6 The details of the crossing, pipe materials and grouting shall be submitted to Council for approval.

5.17.7 Crossings of other carriageways shall be trenched unless the Engineer specifies otherwise.

Railway Crossings

5.17.8 Written approval from the Queensland Rail is required if a main is to be constructed underneath a railway line. In such cases the crossing shall generally be designed and constructed in accordance with the requirements of Queensland Rail.

SG 5.18 Bedding

5.18.1 All pipes shall be uniformly bedded in order to ensure solid and uniform support for the full length of the barrel with bell holes formed to accommodate the sockets to ensure a minimum clearance of 20mm.

5.18.2 The depth of bedding shall be as detailed on Council's Standard Drawing with the bedding material complying with the "Bedding Material" section of this Specification.

SG 5.19 Laying and Jointing of Pipes

5.19.1 All contractors shall have undertaken a manufacturers pipe laying accreditation course.

5.19.2 All pipe lines shall be laid to such lines, offset, gradients and levels as shown on approved Project Drawings.

5.19.3 Care shall be taken to preserve uniform gradients and correct alignments. Bends shall be used to effect horizontal and vertical changes of direction.

5.19.4 The manufacturers' recommendations for maximum deflection at each joint shall be strictly adhered to, if approval is granted by Council to use deflections.

5.19.5 Jointing of pipes, valves and fittings is to be carried out to the manufactures recommendations and in accordance with Australian Standards where applicable.

5.19.6 For pipes with rubber ring joints, only the lubricant specified in writing by the manufacturer shall be applied in making the joint. When the joint is made, the witness mark shall at no point be more than 1mm from the end of the socket.

5.19.7 Before being laid, all pipes, fittings, valves, etc shall be cleaned and examined by the Contractor.

5.19.8 Approved plugs shall be used to prevent foreign matter entering sections of pipeline, which are left uncompleted overnight.

5.19.9 The Contractor shall take all necessary precautions to prevent flotation of pipes during laying, backfilling and initial testing. Any temporary supports shall be removed prior to completion of backfilling.

5.19.10 Pipes shall be cut as needed to suit closing lengths, to remove damaged pipe or fittings or to remove sockets if necessary when jointing a socketed fitting.

5.19.11 For field cuts, only an approved mechanical pipe cutter shall be used, except that uPVC pipes may be cut using a power saw or a fine toothed hand saw and mitre box.

5.19.12 Any pipes cut in the field shall have their ends prepared in accordance with the manufacturer's written instructions.

5.19.13 Where pipes are cut in the field, a witness mark shall be made on the pipe at the length specified by the manufacturer from the end of the pipe. Scoring of uPVC pipes shall not be permitted.

SG 5.20 Connection to Existing Mains

5.20.1 Ready tap, or equivalent, connection points shall be laid with the main within 300 mm of the side property boundaries.

5.20.2 The Ready tap connection point is to be installed with a valve on one side and a bung on the other.

SG 5.21 Fittings

5.21.1 The laying and jointing of mains shall include the fixing in position of all valves of any description, fire hydrants and all other fittings, which are necessary for the completion of the mains.

5.21.2 Joints to secure fittings to pipes shall be approved under Australian Standard AS1646.

5.21.3 All sluice valves, gate valves, air valves and hydrants shall be carefully placed in the final position so as to be the correct distance from the surface and installed in accordance with Council’s Standard Drawings. With air valves and hydrants, risers shall be installed where necessary and if required, trenches

shall be deepened and graded in the vicinity of all valves and hydrants in order to secure the correct depth below the surface.

5.21.4 Valves, hydrants and specials shall be thoroughly cleaned out prior to installation in main.

5.21.5 The spring hydrants shall be bolted to the flange of the hydrant junction so that the bolts of the hydrants are in line with the main, and the hydrant cover box fitted with its long axis along the centre line of the main. Hydrants must be protected during backfilling in such a manner as will prevent earth or grit from damaging the seating. Refer to Council's standard drawing.

5.21.6 Hydrants and valves shall be fully protected during laying and backfilling, on completion all glands shall be well screwed down, and all valves shall operate freely.

SG 5.22 Valve/Hydrant Markers

5.22.1 The position of all stop valve, scour valve, air valve and hydrants shall be indicated by a kerb marker plate, painted kerb marker or marker post and raised reflective pavement markers. The type of marker to be installed shall be as stated on the approved Project Drawings.

5.22.2 Painted symbols used to indicated hydrants shall be in accordance with Council's Standard Drawing.

5.22.3 Kerb marker plates used to indicate valve and hydrant locations shall be fixed to the kerb face it shall be in accordance with Council's Standard Drawing.

5.22.4 Kerb and channel shall be stamped or engraved, and posts with marker notice plates are to be located adjacent to each valve, hydrant, air valve and scour valve. The posts are to be located 0.3m on the kerbside of the property alignment unless otherwise directed by the Engineer.

5.22.5 Kerb stamping or engraving, and marker plates shall be marked "V", "H", "AV" and "S" indicating sluice valve, hydrant, air valve and scour valve respectively shall be installed on the posts.

5.22.6 In addition to painted kerb markers / marker posts, all hydrants shall have a road pavement marker to indicate the location of the hydrant. The road pavement marker shall be either a painted teardrop or blue bi directional raised retro reflective pavement marker as stated on the approved Project Drawings.

5.22.7 Where a painted teardrop is specified the teardrop shall be painted with a solid yellow enamel paint and be 630mm overall length with 200mm radius base and a 25mm radius tip. The teardrop shall be painted across the centreline of a two-lane road or in the middle of the near side lane of a multi laned road. The tapered end of the teardrop shall point towards the relevant hydrant

5.22.8 Where a blue bi-directional raised retro reflective pavement marker is specified it shall be fixed securely to the road pavement opposite the hydrant. On two lane roads, the marker is to be positioned on the road centreline. For multi-lane roads, it is to be positioned on the lane line between the first and second lane.

5.22.9 The installation requirements of and pavement makings and raised retroreflective pavement markers shall be in accordance with Main Roads Standard Specification "MRS11.45 Pavement Marking".

SG 5.23 Anchor Blocks

5.23.1 Where a main is installed at a grade of 1 in 6 or steeper, concrete anchor blocks shall be provided in accordance with Council's Standard Drawing

5.23.2 Concrete works shall comply with Specification SG 7 CONCRETE WORKS.

SG 5.24 THRUST BLOCKS

5.24.1 For vertical bends with an upward thrust additional concrete shall be placed so that the mass of concrete is greater than the thrust on the filling. Sufficient steel reinforcement shall be included to bend the weight of the block below the pipe centreline to the upper part of the block. These thrust blocks shall be designed to manufacturer's specifications.

5.24.2 Thrust blocks, sized in accordance with the requirements of the Manufactures specifications.

5.24.3 Concrete works shall comply with Specification SG 7 CONCRETE WORKS

SG 5.25 Water Service Connections

5.25.1 Connection points shall be laid within 300 mm of the side property boundaries and a maximum of 300mm inside the property boundary.

5.25.2 The connection point is to be installed in accordance with Council's Standard Drawings.

5.25.3 All services shall be turned on during the testing process.

5.25.4 Water service pipe riser material must be Copper (Northern Region) & Stainless Steel (Southern Region).

SG 5.26 Backfilling and Compaction

5.26.1 Material for the side support and overlay of the pipe shall comply with the pipe bedding material specification. The material shall be compacted in layers of not more than 150mm to 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289.

5.26.2 The remainder of the excavation shall be backfilled with excavated material. The backfill shall be compacted in layers of not more than 150mm thick to 95 per cent of the standard. maximum dry density of the material used when

determined in accordance with AS1289. Flooding of cohesive material shall not be permitted as a means of compacting backfill.

5.26.3 Backfilling and compaction shall be carried out without damaging the pipe or its external coating or wrapping or producing any movement of the pipe.

5.26.4 The edges of the trench shall be cut with a clean, straight line prior to excavation. The trench above the approved filling shall be backfilled with approved subgrade replacement material conforming to Table D3.2 Minimum Pavement Design Criteria, to a level 280 mm below the level of the existing pavement surface, 150 mm and 100 mm separate layers of 1.5% and 3.0% cement stabilised road base Type 2.1 and Type 2.3 shall be compacted over the excavated fill layer, both compacted to 95% relative dry density as determined by Test 5.1.1 of AS 1289 (Standard Compaction), and 30 mm of asphaltic concrete shall be used to compete the trench backfilling. The road shall be restored to a minimum standard stated above or equal to the original standard which ever is greater.

5.26.5 Backfill material down to a depth of 300mm below the underside of the pavement material shall be compacted to 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289, and backfill material below such depth shall be compacted to not less than 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289.

5.26.6 In cases other than those covered by the above clause backfilling above the level of 300mm above the top of the pipes in open trenches may be carried out by dumping from mechanical plant into the trench providing that no rock is placed in the trench until the pipes are covered by at least 300mm of soil backfill.

5.26.7 Compaction testing shall be carried out at a rate of 1 test for each 150 metres of trench backfilled or in the case where trenches are constructed under road pavements and road shoulders, 1 test for each 25 metres of trench backfilled.

SG 5.27 Restoration of Surfaces

5.27.1 Pavements, lawns and other improved areas shall be cleaned and left in the same order as they were at the commencement of the works. Lawns shall be restored with turf cut and set aside from the original surface and / or with imported turf.

5.27.2 All restored surfaces shall be maintained in the condition to which they are restored until the expiry of the Defects Liability Period applicable to those surfaces. Pavements shall be maintained with crushed metal, gravel or other suitable material allowing for consolidation and shall then be restored to a condition equivalent to that of the original pavement.

5.27.3 Immediately the backfilling of a trench excavated through a pavement has been completed, the pavement shall be temporarily restored. Where the trench crosses bitumen or concrete pavement, a pre-mixed asphaltic material shall be

used for such temporary restoration. Temporary restoration works shall be maintained by the Contractor until final restoration is carried out.

5.27.4 Final restoration of the pavement shall be carried out to restore the pavement and its subbase to no less than the original condition. Unless noted otherwise on the approved Project Drawings all trenches excavated through bitumen or concrete pavement shall be sawcut each side to facilitate a neat finish to the final restoration. Final restoration may include, if required, the removal of temporary restoration.

5.27.5 Backfill shall be placed sufficiently high to compensate for expected settlement and further backfilling shall be carried out or the original backfill trimmed at the end of the Defects Liability Period in order that the surface of the completed trench may then conform to the adjacent surface. Surplus material shall be removed and disposed of to areas arranged by the Contractor.

5.27.6 In locations where surplus material left in the vicinity of the trench would not be objectionable, the surplus material may be disposed by spreading neatly in the vicinity of the trench in such a way as to minimise future erosion of the backfill and adjacent ground surfaces. The Contractor shall maintain the backfill and adjacent ground until the end of the Defects Liability Period.

5.27.7 Where, within public or private property, the reasonable convenience of persons will require such, trenches to be levelled off at the time of backfilling. Any subsequent settlement shall be made good by the Contractor, as required by placing additional fill.

5.27.8 All tunnels shall be completely backfilled. The space between the outer surface of the pipes, internal lining and the fact of the tunnel excavation shall be backfilled with sand which shall be compacted by flooding. Sand used for backfilling shall comply with the grading requirements for bedding sand as hereinbefore specified.

5.27.9 The Superintendent may direct the Contractor to backfill the tunnel with Grade N20 concrete in lieu of sand.

SG 5.28 Testing of Lines

5.28.1 Hydrostatic pressure testing of all water mains shall be carried out prior to the acceptance of the works and witnessed by the consulting Engineer and a council officer.

5.28.2 The contractor shall have carried out a successful test prior to arranging a Council witness test.

5.28.3 Pressure testing shall not be carried out during wet weather unless otherwise approved by Council.

5.28.4 Before testing a pipeline section, it shall be cleaned and filled slowly with water, taking care that all air is expelled.

5.28.5 The minimum test pressure acceptable shall be 1200 KPa unless advised otherwise by the relevant Local Authority and shall be considered to be satisfactory if:

5.28.5.1 There is no failure of any thrust block, anchor block, pipe, fitting, valve, joint or any other pipeline component;

5.28.5.2 There is no visible leakage; and

5.28.5.3 There is no loss of pressure in the 24 hour test period outside of the parameters allowed for under AS2566.2, Constant Pressure Method.

5.28.6 The specified test pressure shall be maintained as long as required, while the whole section is examined, and in any case not less than 24 hours.

5.28.7 Any failure, defect, and / or visible leakage, which is detected during the pressure testing of the pipeline or during the Defects Liability Period shall be made good by the contractor and re-tested.

SG 5.29 Flushing

5.29.1 Upon completion of pressure testing, lines shall be adequately flushed and water samples taken for testing by a Council approved testing authority to the requirements of the National Health and Medical Research Council (NHMRC).

SG 5.30 Tolerances

5.24.1 Tolerances for the construction of water reticulation works shall comply with Table S5.1.

Table S5.1 Construction Tolerances

Description of Works	Tolerance
Alignment	On the allocated alignment (2500m off property boundary)
Hydrants, fittings	Within 0.3m of design relative to side property boundary
Water service connections / conduits	Extend 300mm behind back of kerb, be laid 100mm below pavement subgrade
Valves	Opposite the nearest RP boundary, spaced at 300m apart

SG 6 – Sewerage Reticulation

General

SG 6.1 Scope

6.1.1 This specification details all matters pertaining to Sewerage Reticulation Construction.

6.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

6.1.3 Aspects of modification or clarification of the codes are detailed in Appendix A of Design Guideline – D7

6.1.4 The requirements of this Manual will take precedence over the Water Services Association of Australia Codes

6.1.5 Aspects of medication or clarification of the codes Standard Drawings are detailed in Appendix H and Appendix I.

SG 6.2 Reference Documents

6.2.1 Australian Standards:

- 6.2.2 AS/NZS 1260 Unplasticised PVC (UPVC) Pipes and Fittings for Sewerage Applications
- 6.2.3 AS1289 Methods of Testing Soils for Engineering Purposes
- 6.2.4 AS1432 Copper Tubes for Plumbing, Gasfitting and Drainage Applications
- 6.2.5 AS/NZS1477 PVC Pipes and Fittings for Pressure Applications
- 6.2.6 AS1646 Elastomatic Seals for Waterworks Purposed
- 6.2.7 AS2032 Code of Practice for Installation of PVC Pipe Systems
- 6.2.8 AS2129 Flanges for Pipes, Valves and Fittings
- 6.2.9 AS/NZS2280 Ductile Iron Pressure Pipes and Fittings
- 6.2.10 AS3500 National Plumbing and Drainage Code
- 6.2.11 AS3996 Metal Access Covers, Road Grates and Frames
- 6.2.12 AS4198 Precast Concrete Access Chambers for Sewerage Applications
- 6.2.13 AS4441 Oriented PVC (PVC-O) Pipes for Pressure Applications
- 6.2.14 AS/NZS4765 Modified PVC (PVC-M) Pipe for Pressure Applications
- 6.2.15 AS5065 Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications.

6.2.2 QLD Government Legislation:

- 6.2.2.1 Sewerage and Water Supply Act

6.2.3 Water Services Association of Australia:
- 6.2.3.1 WSA 02 – Sewerage Code of Australia
- 6.2.3.2 WSA 04 – Sewerage Pumping Station Code of Australia

Materials

SG 6.3 Pipes General

6.3.1 All pipes used for sewer reticulation shall be constructed from the following materials:
- 6.3.1.1 Polyvinylchloride (PVC)
- 6.3.1.2 Ductile Iron.

SG 6.4 Unplasticised PVC (PVC-U)

6.4.1 Unplasticised PVC (PVC-U) pipes and fittings for gravity systems shall be manufactured in accordance with AS1260 suitable for rubber ring joints. Pipe classes shall be in accordance with the manufacturers' recommendation and shall be as shown on the approved Project Drawings.

6.4.2 Unplasticised PVC (PVC-U) pipes and fittings for rising mains and suction pipes shall be manufactured in accordance with AS/NZS 1477 minimum Class 12 suitable for rubber ring joints with a mauve coloured pigment.

6.4.3 Modified PVC (PVC-M) pipes manufactured in accordance with AS/NZS 4765 by an Australian Standards quality endorsed company may be used as an alternative to PVC-U.

6.4.4 Oriented PVC (PVC-O) pipes manufactured in accordance with AS 4441 by an Australian Standards quality endorsed company may be used as an alternative to PVC-U.

6.4.5 Rubber Rings shall be manufactured and tested in accordance with AS 1646. They shall be of natural rubber and only those impregnated with a Root Inhibitor shall be used.

6.4.6 All pressure mains 100m diameter and greater shall be D.I.O.D compatible.

SG 6.5 Ductile Iron

6.5.1 Ductile Iron pipes shall be manufactured and cement lined in accordance with AS 2280 by an Australian Standards quality endorsed company.

6.5.2 Socketed Pipes to be Class K9 suitable for the patented "Tyton" type rubber ring joint. Flanged Pipes to be Class K12.

6.5.3 Flanges shall comply with AS 2129 Table C. Bolts and nuts for flanged joints shall be in accordance with AS 2129

6.5.4 All pipes and fittings shall be wrapped in a mauve coloured loose polyethylene sleeving 0.25mm thick. Wrapping and taping shall be carried out in accordance with the pipe manufactures recommendations.

6.5.5 All bends for mains of 100mm diameter or larger and all other associated fittings shall be constructed in accordance with AS2280, and have flange or spigot and socket type joints as specified on the approved Project Drawings. Where flanges are used, bolts shall be matched sets and conform to the following criteria:

6.5.5.1 In above ground uses, bolts shall be Hot Dipped Galvanised

6.5.5.2 In below ground uses, bolts shall be Grade 316 Stainless Steel with nuts and washers Grade 304 stainless steel.

SG 6.6 Polypropylene Pipes

6.6.1 Pipes shall conform to the AS 5065. Pipes shall only be used with the prior approval of Council. “As Constructed” drawings shall clearly indicate location of polypropylene pipes.

SG 6.7 Bedding Materials

6.7.1 After the excavation has been completed, inspected and approved by the Superintendent, the foundation layer of bedding concrete or approved bedding material shall be placed. The minimum bedding depth shall be 100mm of approved material. Refer to Council’s standard drawings

6.7.2 Where directed, pipes shall be bedded on Grade N20 concrete cradle or encased in Grade N20 concrete surround or otherwise bedded in accordance with the drawings or such instructions as may be given by the Superintendent in writing.

6.7.3 Unless shown otherwise on the drawings, no pipes encased in concrete shall extend more than 150mm beyond the face of that concrete. Short pipes laid in sewers shall not exceed 600mm in length and short pipes laid in house connections shall not exceed 300mm in length.

6.7.4 Both approved bedding and approved filling or blanket course to 100mm above the crown of the pipe shall be compacted to 95% of the maximum density as determined by the Standard Compaction Test Department of Transport Q110A 1993.

6.7.5 The material used for bedding, surround and cover for pipes shall be sieved sand, 5mm pea gravel, or 5mm crushed rock free from dust and foreign material.

6.7.6 All junction pipes in a line of sewer shall be concrete bedded and encased with a minimum 150mm cover of Grade N20 concrete unless directed otherwise by the Superintendent.

6.7.7 Concrete blocks in Grade N20 concrete shall be built across the trenches where directed by the Superintendent.

6.7.8 Where passing through concrete, brickwork or masonry, pipes shall be cleaned and washed over with fresh cement grout and bedded on and surrounded with cement mortar at least 12mm clear thickness.

SG 6.8 Concrete

6.8.1 The concrete and reinforcement used in the construction of cast insitu manholes shall comply with Specification SG 7 CONCRETE WORKS.

SG 6.9 Precast Manholes

6.9.1 Precast manhole components shall comply with AS 4198.

SG 6.10 Manhole Covers

6.10.1 Manhole covers and frames shall be supplied for all sewer manholes shall be Cast Iron sealed (gastight) covers manufactured in accordance with AS 3996.

6.10.2 All openings shall conform to the details on Council's Standard Drawing

6.10.3 All covers shall have a raised stud pattern with the letters SEWER (65mm high) cast into the centre of the lid and "gatic" type lifting holes.

6.10.4 Unless noted otherwise on the approved Project Drawings the minimum class of manhole covers shall be Class C or D.

Construction

SG 6.11 Setout

6.11.1 The alignment and grade of sewer lines and position of manholes shall be stated on the approved Project Drawings.

6.11.2 The position of the centre of each manhole shall be pegged on the ground by a Registered Surveyor prior to the commencement of work.

6.11.3 Offset pegs shall be established prior to commencing construction of any line, at a convenient distance to remain clear of all works and remain intact for the duration of the work.

6.11.4 The levels of the sewers shall be maintained in strict accordance with bench marks and only approved and tested equipment shall be used to establish and maintain these levels in accordance with the design documents.

SG 6.12 Clearing & Grubbing

6.12.1 All clearing and grubbing works shall be in accordance with Specification SG 1 EARTHWORKS.

6.12.2 Where sewer lines pass through allotments any trees or obstructions not on the line of the pipes shall be preserved, Clearing and grubbing shall be carried out in accordance with Specification No. 3.1- Earthworks.

6.12.3 The Contractor shall be responsible for all damage to grass, cultivation, fences, building or stock, by fire, falling timber or other causes arising from his operations.

SG 6.13 Trenching

6.13.1 All trenching and foundation works necessary for the installation of the pipeline or thrust blocks, shall be in accordance with Specification SG 1 EARTHWORKS.

6.13.2 The width of trenching excavation shall be in accordance with the Council's Standard Drawing at the trench base and comply with all regulations of Workplace Health and Safety Act.

6.13.3 In undertaking trench excavation, the Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.

6.13.4 Where public utilities exist in the vicinity of sewer reticulation works the Contractor shall obtain the approval of the relevant authority / corporation to the method of excavation before commencing excavation.

6.13.5 In the event of any trenching being left open for longer than one week, the Contractor shall provide erosion control measures to ensure minimal soil disturbance and material loss off the site. Some or all of these measures shall be provided immediately upon the onset of rain with an open trench.

6.13.6 The Contractor shall leave a clear space of 600mm minimum between the edge of any excavation and the inner toe of spoil banks. No excavated materials shall be stacked against the walls of any building or fence without the written permission of the owner of such building or fence. Topsoil from excavations shall be kept separate and utilised to make good the surface after backfilling.

6.13.7 Where necessary the Contractor must arrange suitable traffic and pedestrian management.

SG 6.14 Crossings

6.14.1 Where a sewer main crosses a State Controlled Road, Railway line or creek, the affected work shall be carried out in accordance with the requirements of

the relevant Authority / Corporation. It shall be the Contractor's responsibility to complete written notification to the Authority / Corporation of the intention to carry out the work.

6.14.2 Where a sewer main crosses an existing road, the affected work shall be carried out in accordance with the requirements of Council. It shall be the Contractor's responsibility to notify Council of the intention to carry out the work.

6.14.3 Unless otherwise approved in writing, all crossing or existing roads and streets shall be bored or jacked with no disruption to the pavement, shoulder or kerb.

SG 6.15 Bedding

6.10.1 Bedding types shall be as detailed on Council's Standard Drawing with the bedding materials complying with the "Bedding Material" section of this Specification.

Type 1 Bedding

6.10.2 The bedding material shall be as specified and shall be placed and compacted for the full width of the trench to the level of the underside of the pipe.

6.10.3 An area of bedding adjacent to the position of the pipe collar should be removed to provide a minimum 20mm clearance to the collar while the remainder of the pipe is bedded evenly on the bedding material.

6.10.4 The remainder of the bedding material is then placed and carefully tamped to avoid disturbing the position of the pipe thus ensuring that the surface of every pipe is in full and even contact with the bedding material.

6.10.5 All bell holes shall be rammed prior to completion of the bedding operation. The bedding material shall be uniformly compacted so as to achieve the following standards:

6.10.5.1 Minimum dry density ratio 95% Standard (cohesive soils).

6.10.5.2 Minimum density index 65% (cohesionless soils)

6.10.6 Compaction requirements are with reference to the relevant Test Methods contained in AS1289.

Type 2 Bedding

6.10.7 Used in wet conditions particularly where the trench bottom requires stabilising the trench invert shall be over excavated to accommodate a "Crushed Rock Foundation" with a geotextile surround.

6.10.8 Water is to be removed from the excavation as work proceeds to allow for placement of the geotextile crushed rock layer. The crushed rock layer shall be laid in 100mm layers and compacted as required.

6.10.9 The geotextile shall surround the crushed rock layer and be overlapped minimum of 500mm.

6.10.10 The pipe bedding material shall placed and compacted over the crushed rock foundation as specified for Bedding Type 1.

Type 3 Bedding

6.10.11 Type 3 bedding incorporating designed piles that are driven by air or electric hammer on a heavy dolly.

6.10.12 Piles shall be driven to give a set in accordance with the design requirements and spaced accordingly as stated on the approved Project Drawings.

6.10.13 A 150 x 50 hardwood sleeper is placed on top of the pile with 150 x 50 hardwood planks spanning the sleepers.

6.10.14 A concrete cradle as detailed on the approved Project Drawings shall then be poured on the planks to support the pipes.

SG 6.16 Laying and Jointing of Pipes

6.16.1 All contractors shall have undertaken a manufacturers pipe laying accreditation course.

6.16.2 All pipelines shall be constructed of pipes of such sizes and laid true to such levels and grades as shown on the approved Project Drawings.

6.16.3 The lines, levels and grades of all lines shall be checked and all pipes found incorrect shall be removed and re-laid.

6.16.4 Trenches shall be kept free of water during pipe laying, and until completion of backfill.

6.16.5 Jointing of pipes, valves and fittings is to be carried out to the manufactures recommendations and in accordance with Australian Standards where applicable.

6.16.6 For pipes with rubber ring joints, only the lubricant specified in writing by the manufacturer shall be applied in making the joint. When the joint is made, the witness mark shall at no point be more than 1mm from the end of the socket.

6.16.7 Before being laid, all pipes, fittings, valves, etc shall be cleaned and examined by the Contractor.

6.16.8 Approved plugs shall be used to prevent foreign matter entering sections of pipeline, which are left uncompleted overnight.

6.16.9 The Contractor shall take all necessary precautions to prevent flotation of pipes during laying, backfilling and initial testing. Any temporary supports shall be removed prior to completion of backfilling.

6.16.10 Pipes may be cut as needed to suit closing lengths, to remove damaged pipe or fittings or to remove sockets if necessary when jointing a socketed fitting.

6.16.11 For field cuts, only an approved mechanical pipe cutter shall be used, except that uPVC pipes may be cut using a power saw or a fine toothed hand saw and mitre box.

6.16.12 Any pipes cut in the field shall have their ends prepared in accordance with the manufacturer's written instructions.

6.16.13 Where pipes are cut in the field, a witness mark shall be made on the pipe at the length specified by the manufacturer from the end of the pipe. Scoring of uPVC pipes shall not be permitted.

6.16.14 Gravity lines shall be constructed to the tolerances specified hereafter:

6.16.14.1 The maximum horizontal deviations to either side from the design axis of a pipeline shall be 100mm for all sizes of pipes.

6.16.14.2 The maximum vertical deviations from the design grade of pipelines of any diameter and grade, shall be + 5mm.

6.16.15 During the progress of the works the Contractor shall have at least two (2) days supply of tested and approved pipes, including junctions on the ground in advance of quantity fixed in position.

SG 6.17 Connections to Manholes

6.17.1 Pipelines shall be connected to manholes, structures or embedded concrete by means of 600mm long pipes such that two flexible joints are provided, the first joint being at the face of the structure. Refer to Council's Standard drawing

6.17.2 The position of the access chamber shall be as shown on the approved Project Drawings. The Contractor shall check the alignment prior to commencing construction and advice the design engineer of any obstructions (Structure, Flora, Services etc)

6.17.3 Allowable lateral deviations from the final design position of access chambers shall be in accordance with the tolerances for horizontal deviations of pipelines as specified. Longitudinal deviations from that position shall not exceed 300mm.

SG 6.18 Connection to Existing Infrastructure

6.18.1 Connection to existing live sewer mains and manholes shall be carried out in accordance with the requirements of Council. It shall be the Contractor's responsibility to notify Council of the intention to carry out and arrange for the timing of such works.

6.18.2 The upstream side of the existing manhole is to be plugged until all new sewer mains have been approved, tested and cleaned.

SG 6.19 Anchor Blocks

6.19.1 Concrete anchor blocks shall be provided in accordance with Council's Standard Drawing for 150 dia. lines laid at a grade of 1 in 6 or steeper and 225 dia. lines laid at 1 in 10 or steeper.

6.19.2 Concrete works shall comply with Specification SG 7 CONCRETE WORKS.

SG 6.20 House Connection Branches

6.20.1 House Connection Branches (HCB) to all properties shall be constructed in accordance with Council's Standard Drawing and to the types, locations, levels and dimensions stated on the approved Project Drawings.

6.20.2 Concrete surrounds shall be provided to all HCB's. All concrete works shall comply with Specification SG 7 CONCRETE WORKS.

6.20.3 Backfill around risers shall be sand compacted to the top of the socket or coupling, for the full width of trench and for a minimum distance of 500mm upstream and downstream of the riser.

6.20.4 The position of each riser, junction or end of a sideline shall be clearly marked by the Contractor on completion of backfilling, with a approved 13mm orange electrical conduit tied to the end of HCB and held in a vertical position during backfilling. The top end of the tape shall be left flush with ground level.

SG 6.21 Rising Mains

6.21.1 All works necessary for the installation of the rising mains including installation of thrust block and anchor blocks, shall be in accordance with Specification SG 5 WATER RETICULATION.

6.21.2 Air release valves and scour valves shall be installed where shown on the approved Project Drawings.

6.21.3 Unless otherwise noted on the approved Project Drawings, pipes for rising mains shall be laid on continuously rising grades from scour valve to air release valve, notwithstanding any minor irregularities in the ground surface.

6.21.4 Marking plates bearing the letters "AV" for air valves, "SV" for scour valves and "RM" at changes of direction and at such chainages that the location of the main is marked at least once each 200 metres.

6.21.5 Sewer rising main connections to discharge manholes are to be constructed in accordance with Council's Standard Drawings.

SG 6.22 Manholes

6.22.1 All concrete work associated with the construction of manholes shall comply with Specification SG 7 CONCRETE WORKS.

6.22.2 Manholes shall be constructed in accordance with Council's Standard Drawing, and to the types, locations, levels and dimensions stated on the approved Project Drawings.

6.22.3 Rendering of this invert and benching shall be in accordance with the Council's Standard Drawing.

6.22.4 Precast manholes are an acceptable alternative with precast base units for Inlet Type A manholes in accordance with Council's standard procedure for pre cast manholes.

6.22.5 Precast Manhole risers are acceptable for use with cast insitu manhole bases.

6.22.6 Precast riser units shall be jointed in accordance with the manufacturers' specifications utilising the recommended method and materials. Inlets into precast units shall be constructed in accordance with the details illustrated on Council's Standard Drawing.

6.22.7 The installation of all precast manhole components shall be in accordance with the manufacturers' recommended procedures, requirements and Council's standard installation procedure.

SG 6.23 Covers and Surrounds

6.23.1 Manhole covers shall be finished flush with the surface in roadways, footpaths and paved surfaces. Elsewhere, unless noted otherwise on the approved Project Drawings, covers shall be finished 50mm above the surface of the surrounding ground, in a manner designed to avoid as far as possible, the entry of surface water.

6.23.2 Manhole covers are to be located such that the position of the access opening is directly over the outlet pipe.

6.23.3 The installation of all precast manhole covers shall be in accordance with the manufacturers' recommended procedures and requirements.

SG 6.24 Backfill and Compaction

6.24.1 Material for the side support and overlay of the pipe shall comply with the pipe bedding material specification. The material shall be compacted in layers of not more than 150mm to 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289 Flooding of non-cohesive material shall be considered as an acceptable method of compacting bedding material.

6.24.2 The remainder of the excavation shall be backfilled with excavated material. The backfill shall be compacted in layers of not more than 150mm thick to 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289. Flooding of cohesive material shall not be permitted as a means of compacting backfill.

6.24.3 Backfilling and compaction shall be carried out without damaging the pipe or its external coating or wrapping or producing any movement of the pipe.

6.24.4 Where trenches are under constructed pavements or in other situations where required, the material used for backfilling shall be approved excavated material with linear shrinkage of the fines passing a 2.36mm sieve of not greater than 6 per cent. The Contractor may elect to use imported, select fill or sand for this purpose. The backfill shall be spread in layers not exceeding 300mm in loose depth at or near optimum moisture content and compacted using mechanical vibration equipment.

6.24.5 Backfill material down to a depth of 300mm below the underside of the pavement material shall be compacted to 95 per cent of the standard maximum dry density of the material used when determined in accordance with AS1289, and backfill material below such depth shall be compacted to not less than 95 percent of the standard maximum dry density of the material used when determined in accordance with AS1289.

6.24.6 In cases other than those covered by the above clause backfilling above the level of 300mm above the top of the pipes in open trenches may be carried out by dumping from mechanical plant into the trench providing that no rock is placed in the trench until the pipes are covered by at least 300mm of soil backfill.

6.24.7 Compaction testing shall be carried out at a rate of 1 test for each 150 metres of trench backfilled or in the cast where trenches are constructed under road pavements and road shoulders, 1 test for each 25 metres of trench backfilled.

SG 6.25 Cleaning Sewers

6.25.1 Before the sewers, manholes and house drains are accepted they shall be cleaned to remove all clay, sand and other materials.

6.25.2 All water plus materials used in the flushing of the reticulation system shall under no circumstances be discharged into existing sewers downstream of construction. All lines shall be inspected after flushing and will not be accepted until they present a clear barrel, free from any obstruction.

SG 6.26 Test of Manholes

6.26.1 All manholes shall be subjected to hydrostatic or vacuum tests to prove their water tightness unless directed otherwise by the Local Authority.

6.26.2 For hydrostatic tests, all pipe openings out of the manhole shall be plugged and the manhole filled with water to the lowest point on the top of the manhole cover surround. The plugs shall be positioned in the pipes as near as practicable to the internal face of the access chamber. After allowing an interval for absorption, the manhole shall be refilled.

6.26.3 The test on the manhole will be considered satisfactory provided the level does not drop more than 25mm in twenty four (24) hours. The plug of the outlet shall be fitted with a suitable release for emptying the manhole on satisfactory completion of the test.

6.26.4 Manholes failing the test shall be repaired and the test repeated. The process of testing, repair of defects and retesting shall continue until a satisfactory test is obtained.

6.26.5 Where the ground water level is high, an infiltration test may also be required. This shall not take place until ten (10) days after the placing of concrete.

SG 6.27 Testing of Lines

6.27.1 All gravity lines shall be subject to air testing to prove their water tightness unless directed otherwise by the Local Authority.

6.27.2 Testing may be done progressively, a minimum of 24 hours notice shall be provided to Council before commencement of testing. Ensure that pipes are clean before any test is performed.

6.27.3 If any of the tests proved to be unsatisfactory, the contractor shall be required to detect and repair the fault and then re-test. The contractor shall continue to repair and re-test until a satisfactory test is obtained. Even if testing produces satisfactory test results, the contractor shall repair any pipeline or conduit in which there is a visible or detectable leak or blockage.

6.27.4 The contractor shall carry out a visual inspection to ensure that all sewer lines present a full clean bore.

Air Testing General

6.27.5 Air testing shall be either pressure testing or vacuum testing, as directed by the Local Authority. The tests shall include the house connection branches and inspection tee.

6.27.6 Air Testing (Pressure) - The sewer line to be tested shall be pressurised to the "Initial Pressure" shown in the Table S6.2 for a minimum of 3 minutes to stabilise the temperature.

Table S6.2 Pressure Air Testing – Initial Pressures

	Sewer depth range (metres)				
	0-1.5	1.5-3.0	3.0-4.5	4.5-6.0	Over 6.0
Initial Pressure (KPa)	30	35	40	45	50
Test start pressure (KPa)	25	30	35	40	45

6.27.7 After the 3 minute stabilisation period the pressure shall be dropped to the "Test Start Pressure" shown in the above table and the pressure gauge monitored for 5 minutes.

6.27.8 The sewer line under test shall be considered to have passed the test when the pressure does not fall by more than 5 KPa during the 5 minute period.

6.27.9 Air testing (Vacuum) - The sewer to be tested shall be drawn to a vacuum of 28 KPa and the vacuum gauge monitored for 5 minutes. The sewer under test shall be considered to have passed the test when the vacuum does not fall by more then 5 KPa during the 5 minute period.

Ovality Testing

6.27.10 All gravity sewer pipes shall be tested to determine any excessive pipe defection (Ovality) by using a proving tool.

6.27.11 Testing for ovality shall be carried out in accordance with Appendix G of WSA 02-2002 Sewerage Code of Australia

6.27.12 The proving tool shall be:

6.27.12.1 Fabricated from steel or aluminium alloy with pulling rings at each end and marked to indicate the nominal pipe size and the provers' outside diameter.

6.27.12.2 Rigid, non-adjustable, have an odd-number of legs (min 9) and an effective length of not less than its nominal diameter. The minimum diameter at any point along the length shall be as shown in Table G1 of WSA 02-2002 Sewerage Code of Australia.

6.27.12.3 The shape of the proving tool must be approved.

6.27.13 Sewer pipes that exhibit excessive ovality, by failing the maximum allowable deflection as shown above, shall be replaced and the re-laid section retested for ovality.

SG 6.28 Testing of Rising Mains

6.28.1 Hydrostatic pressure testing of all sewer rising mains shall be carried out prior to the acceptance of the works.

6.28.2 The contractor shall have carried out a successful test prior to arranging a Council witness test.

6.28.3 Pressure testing shall not be carried out during wet weather unless otherwise approved by Council.

6.28.4 Before testing a pipeline section, it shall be cleaned and filled slowly with water, taking care that all air is expelled. Purging of air from rising mains shall be promoted by opening air valves.

6.28.5 The hydrostatic test pressure which shall be applied to each section of the pipeline shall be such that at each point of the section the test head shall be equal to or greater than the design head specified or shown on the approved Project Drawings, but shall not exceed same by more than 20 per cent.

6.28.6 The pressure testing of a section shall be considered to be satisfactory if:

6.28.6.1 There is no failure of any thrust block, anchor block, pipe, fitting, valve, joint or any other pipeline component;

6.28.6.2 There is no visible leakage; and

6.28.6.3 There is no loss of pressure in the 15 minute test period

6.28.7 The specified test pressure shall be maintained as long as required, while the whole section is examined, and in any case not less than 15 minutes.

6.28.8 Any failure, defect, and / or visible leakage, which is detected during the pressure testing of the pipeline or during the Defects Liability Period shall be made good by the contractor.

SG 6.29 Restoration of Surfaces

6.29.1 Pavements, lawns and other improved areas shall be cleaned and left in the same order as they were at the commencement of the works. Lawns shall be

restored with turf cut and set aside from the original surface and / or with imported turf.

6.29.2 All restored surfaces shall be maintained in the condition to which they are restored until the expiry of the Defects Liability Period applicable to those surfaces. Pavements shall be maintained with crushed metal, gravel or other suitable material allowing for consolidation and shall then be restored to a condition equivalent to that of the original pavement.

6.29.3 Immediately the backfilling of a trench excavated through a pavement has been completed, the pavement shall be temporarily restored. Where the trench crosses bitumen or concrete pavement, a pre-mixed asphaltic material shall be used for such temporary restoration. Temporary restoration works shall be maintained by the Contractor until final restoration is carried out.

6.29.4 Final restoration of the pavement shall be carried out to restore the pavement and its subbase to no less than the original condition. Unless noted otherwise on the approved Project Drawings all trenches excavated through bitumen or concrete pavement shall be sawcut each side to facilitate a neat finish to the final restoration. Final restoration may include, if required, the removal of temporary restoration.

6.29.5 Backfill shall be placed sufficiently high to compensate for expected settlement and further backfilling shall be carried out or the original backfill trimmed at the end of the Defects Liability Period in order that the surface of the completed trench may then conform to the adjacent surface. Surplus material shall be removed and disposed of to areas arranged by the Contractor.

6.29.6 In locations where surplus material left in the vicinity of the trench would not be objectionable, the surplus material may be disposed by spreading neatly in the vicinity of the trench in such a way as to minimise future erosion of the backfill and adjacent ground surfaces. The Contractor shall maintain the backfill and adjacent ground until the end of the Defects Liability Period.

6.29.7 Where, within public or private property, the reasonable convenience of persons will require such, trenches to be levelled off at the time of backfilling. Any subsequent settlement shall be made good by the Contractor, as required by placing additional fill.

6.29.8 Where shown on the approved Project Drawings or where the Contractor elects to tunnel under paving, kerb and channel or other improved surfaces in lieu of trenching, backfilling shall be so carried out as to restore full support to those surfaces. The Contractor shall remain responsible for the repair of the improved surfaces, if subsequently damaged due to subsidence of the backfill, until the end of the Defects Liability Period.

SG 6.30 Tolerances

6.30.1 Tolerances for the construction of sewer reticulation works shall comply with Table S6.4.

Table S6.4 Construction Tolerances

Location	Tolerance
Invert Levels	+25mm - -25mm
Location of alignment and structures	Lateral deviation from line + 100mm Longitudinally along line + 300mm
Grade on pipe	Design grade not compromised

SG 7 – Concrete Works

General

SG 7.1 Scope

7.1.1 This specification details all matters pertaining to the supply, placement, compaction and finishing of Concrete Works.

7.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 7.2 Reference Documents

7.2.1 Australian Standards

- 7.2.1.1 AS1012 Methods of Testing Concrete
- 7.2.1.2 AS1379 The Specification and Manufacture of Concrete
- 7.2.1.3 AS1478 Chemical Admixtures for Concrete
- 7.2.1.4 AS1553.1 Low Carbon Steel Electrodes for Manual Arc Welding of Carbon Steels and Carbon-Manganese Steels

7.2.1.5 AS1554.3 Welding of Reinforcing Steel
7.2.1.6 AS2203 Cored Steel Electrodes for Arc Welding
7.2.1.7 AS2717.1 Ferritic Steel Electrodes
7.2.1.8 AS3600 Concrete Structures
7.2.1.9 AS3610 Formwork for Concrete
7.2.1.10 AS3735 Concrete Structures for Retaining Liquids
7.2.1.11 AS3799 Liquid Membrane-forming Curing Compounds for Concrete
7.2.1.12 AS/NZS4671.2 Steel Reinforcing Bars for Concrete
7.2.1.13 AS/NZS4671.3 Steel Reinforcing Wire for Concrete
7.2.1.14 AS/NZS4671.4 Welding Wire Reinforcing Fabric for Concrete.

Materials

SG 7.3 Concrete – General

7.3.1 All concrete to be incorporated in the works shall be sourced from a Quality Assured Concrete supplier.

7.3.2 The production and delivery of ready-mixed concrete shall be in accordance with the requirements of AS 1379.

7.3.3 The quantity of concrete delivered in any truck shall not exceed the rated capacity of its agitator drum. The timing of deliveries shall be such as to ensure an essentially continuous placing operation.

7.3.4 Ready-mixed concrete shall be placed and compacted within 1 hour of charging the mixer for concrete temperatures up to 32°c and within 45 minutes of charging the mixer for concrete temperatures exceeding 32°c.

7.3.5 The Consulting Engineer's discretion where approved set-retarding admixtures are used. In this instance approved admixtures shall conform with the requirements of AS 1478 and shall be used in accordance with AS 1379. Calcium Chloride shall not be used as an admixture in concrete works.

7.3.6 A Manufacturer's Certificate in the form of a delivery docket in accordance with AS 1379 shall be supplied for each batch and shall be retained by the Contractor. Such certificates shall be held and maintained in the Contractors Quality records for the project. Further, the Contractor shall obtain a statement from the manufacturer qualifying the quality standard of the concrete in accordance with the requirements as specified herein.

7.3.7 The consistency and workability of concrete shall be such that it can be handled and transported without segregation and can be placed, worked and compacted into all corners, angles and narrow sections of forms, and around all reinforcement.

7.3.8 Concrete class shall be classed as Nx where x is the minimum 28-day compressive strength in megapascals.

7.3.9 For construction elements involving structural concrete construction activities, (eg. bridge slabs, bridge abutment footings etc.) the concrete class and slump shall be as detailed in the Project Documentation. The material quality

compliance testing in this instance shall involve on-site sampling and testing in accordance with Australian Standard AS 1012. The testing of the 200mm x 100mm diameter test cylinders shall be at a frequency not exceeding one sample of 2 cylinders for each 15m3 or part thereof placed in an essentially continuous manner with a minimum of two samples of 2 cylinders for each casting day.

7.3.10 All testing shall be undertaken by a NATA registered testing authority. 11.The class of concrete relative to each construction element shall be as shown in Table S7.1.

Table S7.1 Concrete Classes

Construction Element	Class[1]
Kerb/Kerb & Channel	N 25
Manholes (Sewer & Stormwater)[2]	N25 or N32 as shown on Standard Drawings
Gully Pits / Field Inlets[2]	N25 or N32 as shown on Standard Drawings
Headwalls/Wingwalls & Apron Slabs[2]	N 25
Pathways / Bikeways	N 25
Access Driveways	N 25
Edge Restraints for Segmental Pavers (On Road Pavements)	N 25
Edge Restraints for Segmental Pavers (On footpaths, bikeways and medians)	N 20
Stamped Concrete (where used in road pavement)	N 32
Stamped Concrete (where used as parking bay behind kerb or not subject to regular street traffic loadings)	N 25
Thrust Blocks	N 20
Concrete Surrounds for Sewerage House Connection Branches	N 20
Concrete Cradle for Sewer Bedding Type 3	N 15
General Concrete Works (Sign Post Bases, Bases for Post and Rail Fences etc.)	N 20
Notes: 1. **Tested in accordance with the relevant sections of AS 1012.** 2. **Where any part of the structure is located below RL 1.800 AHD,**	

	concrete to be in accordance with the appropriate exposure condition in AS3600

SG 7.4 No Fines Concrete

7.4.1 No fines concrete shall consist of cement, water and coarse aggregate. The quantity of cement used shall be as specified below. The nominal size of the aggregate for no-fines concrete shall conform with the grading limits specified in Table S7.2.

7.4.2 The water / cement ratio shall be within the range 0.5 to 0.6 by mass.

Table S7.2 No Fines Concrete – Grading Limits

AS Metric Sieve (mm)	Percentage Passing By Mass	
	Nom. Size 20mm	Nom. Size 10mm
26.5	100	-
19.0	85-100	-
13.2	0-10	100
9.5	0-5	85-100
4.75	0	0-10
2.36	0	0-2
Minimum Cement Content (kg/m^3)	210	250

SG 7.5 Lean Mix Concrete

7.5.1 Lean mix concrete shall consist of a graded sand and gravel aggregate of 40mm maximum size with the addition of 5% by mass of Portland Cement or 1 part Portland Cement to 19 parts of graded aggregate and sufficient water to ensure a slump of less than 12mm.

SG 7.6 Reinforcing Steel

7.6.1 All reinforcement shall comply with the following requirements where applicable:

7.6.1.1 Steel Reinforcing Bar - AS/NZS4671.2 Steel Reinforcing Bars for Concrete

7.6.1.2 Hard-draw Steel Reinforcing Bar - AS/NZS4671.3 Steel Reinforcing Wire for Concrete

7.6.1.3 Reinforcing Wire Fabric - AS/NZS4671.4 Welding Wire Reinforcing Fabric for Concrete

7.6.2 All reinforcement shall be sourced from and Quality Assured manufacturer of such products and the Contractor shall obtain a statement from the manufacturer qualifying the Quality Standard of the reinforcing steel in accordance with the above noted standards.

Construction

SG 7.7 Temperature Limits for Concrete Placement

7.7.1 No concrete shall be placed in the Works if:

7.7.1.1 The temperature of the concrete is less than 5°C or exceeds 30°C;

7.7.1.2 The ambient air temperature is likely to be greater than 45°C during placement or within two (2) hours subsequent to placement.

7.7.2 If the ambient air temperature measured at the point of placement is likely to exceed 30°C during placing and finishing operations, the Contractor shall take practical precautions, to ensure that the temperature of the concrete does not exceed the permitted maximum so that the concrete can be placed and finished without defects, otherwise it shall be rejected. Typical precautions include those listed below:

7.7.3 At the concrete manufacturing plan:

7.7.3.1 Shading aggregate stockpiles;

7.7.3.2 Painting water tanks white;

7.7.3.3 Insulating or burying delivery lines;

7.7.3.4 Adding crushed ice to replace mixing water (in part) or chilling the water;

7.7.3.5 Injection of liquid nitrogen into the mixer.

7.7.4 At the site:

7.7.5 Cooling the formwork by dampening with water sprays;

7.7.6 Shading the work areas;

7.7.7 Erecting wind breaks;

7.7.8 Minimising the time for placing and finishing;

7.7.9 Use of evaporation retarding curing oil.

7.7.5 Special attention shall be paid to providing early curing for hot weather concreting operations.

SG 7.8 Foundations

7.8.1 Foundations for concrete structures shall be prepared as specified on the Project Drawings.

7.8.2 Rock foundations shall be neatly excavated to form a bed for the concrete, and shall be thoroughly scraped and cleaned.

7.8.3 Soil foundation shall, as far as possible, be excavated neatly from the solid material to coincide with the under-surface of the concrete, or of the subbase material (where specified).

7.8.4 All soft, yielding or other unsuitable material shall be replaced with sound material and the subgrade shall be compacted to provide a minimum of 95 per cent standard compaction as determined by AS 1289.5.4.1 for standard compactive effort. If the subgrade is dry it shall be sprinkled with as much water as it will readily absorb, before the concrete is placed.

7.8.5 The surface shall then be checked for uniformity, line and level, and all irregularities shall be made good.

SG 7.9 Formwork and Falsework

7.9.1 All Formwork and Falsework shall conform to AS 3610 unless otherwise required by the specific Project Documentation.

7.9.2 All forms shall be built mortar tight and of sufficient rigidity to prevent distortion by the pressure of the concrete and other loads incident to the construction operations. Forms shall be constructed and maintained to prevent warping and the opening of joints due to shrinkage of the timber. The forms shall be substantial and unyielding and shall be so designed and set that the finished concrete will conform to the proper dimensions and within the tolerances specified herein. The design of the forms shall take into account the effect of vibration of the concrete as it is placed.

7.9.3 When forms are re-used, their original shape, strength, rigidity, mortar tightness and surface smoothness shall be maintained at all times. Material previously used in formwork must be cleaned off and oiled before re-use. Warped timber shall not be used.

7.9.4 Forms, which are unsatisfactory in any respect, shall not be re-used.

7.9.5 All timber shall be free from knotholes, loose knots, cracks, splits, warps and other defects, which would affect the strength of the structure or the appearance of exposed surfaces.

7.9.6 For narrow walls and columns where the bottom of the form is otherwise inaccessible, openings shall be provided so that they may be cleaned before placing the concrete, and for purposes of compaction and inspection.

7.9.7 All forms shall be treated with the lightest practical coating of release agent before the reinforcement is placed. Release agent shall not be placed on reinforcement or construction joints.

7.9.8 All forms shall be set and maintained to the line and level designated. Forms shall remain in place for periods, which shall be determined as specified herein. When forms appear to be unsatisfactory in any way, either before or during the placing of concrete, the work shall not proceed until the defects have been corrected.

7.9.9 Metal form ties shall be of an approved type, and if cast in, shall be of a type which permits removal of the end fittings to a depth of at least 30mm below the finished surface of the concrete. Ordinary wire ties shall not be used.

7.9.10 Form ties shall be located in a uniform symmetrical pattern relative to the finished surface. The cavities left when the end fittings of embedded ties are removed shall be as small as possible and shall be filled with cement mortar at the earliest possible time. The surface of such filled cavities shall be left smooth and uniform in colour.

7.9.11 Forms for plain exposed surfaces shall consist of plastic-coated plywood, waterproof plywood, timber lined with tempered hard-board or close-fitting unwarped metal forms. Unless otherwise specified, joints in the form sheeting for plain exposed concrete surfaces shall be either vertical or horizontal and spaced with a regular pattern.

7.9.12 Forms for surfaces not exposed to general view may consist of modular timber or metal panels. Timber forms shall be constructed and maintained in such a manner as to prevent warping and opening of joints due to shrinkage of the timber. The timber shall be free of any defects, which will affect the structure.

7.9.13 Forms shall be removed with care and without unnecessary hammering or wedging, and so as not to injure the concrete or disturb the remaining supports. Methods of form removal likely to cause overstressing of the concrete shall not be used.

SG 7.10 Reinforcing Steel

7.10.1 Reinforcement shall be free of kinks or other unwanted deformations, and shall be cut to length, and bent in accordance with the Project Drawings. Fabric reinforcement shipped in rolls shall be straightened into flat sheets before use.

7.10.2 The surface condition of reinforcement shall comply with the following requirements:

7.10.2.1 At the time concrete is placed reinforcement shall be free from mud, oil, grease and other non-metallic coatings and loose rust which would reduce the bond between the concrete and the reinforcement.

7.10.2.2 For the purpose of this Specification, rust shall not be deemed to be loose if on rubbing with the thumb it leaves only a stain thereon.

7.10.2.3 Nevertheless, a deformed bar complying with AS 1302, or a welded wire fabric complying with AS 1304, and having mill scale or rust or both shall be deemed to comply with this Specification if, after wire-brushing the cross-sectional dimensions, including height of deformations; and mass, are not less than the dimensions and mass required by the applicable Australian Standard.

7.10.2.4 Any reinforcement projecting from a previous concreting operation shall be cleaned free of adhering concrete or loose slurry prior to any further embedment.

7.10.2.5 Any reinforcement placed within 1km of the coastline shall be thoroughly washed with a high pressure fresh water jet immediately

prior to pouring concrete to remove any salts deposited during storage and placement.

7.10.2.6 Reinforcement which has been submerged by tidal or flood waters shall also be cleaned with a high pressure fresh water jet prior to pouring concrete.

7.10.3 Reinforcement shall be placed in position as shown on the Project Drawings. In the case of bar reinforcement, the bars shall be tied together by wiring each intersection using annealed wire not less than 1.25mm in diameter or by such other fastening devices as may be approved by the Designer, provided that, where the bar spacing is 300 mm or less, alternate intersections only need to be tied.

7.10.4 Clearance from forms shall be maintained by use of approved chairs. The shape of the chair shall be such that minimum obstruction is offered to the formation of the homogeneous concrete both within and around the chair. Tubular or cylindrical types shall not be used. Some bar chairs are suitable for soffit use only and should not be used against side forms. Bar chairs shall be sufficient structural strength to support the weight of reinforcement and workmen at temperatures experienced on site.

7.10.5 Metal chairs shall not be approved for any locations.

7.10.6 Precast mortar blocks shall not be used unless the blocks are manufactured from vibrated concrete of strength equivalent to that of the main concrete, and to a size and shape so as not to interfere with the structural integrity of the works. Such blocks shall have suitable fixing wires cast-in.

7.10.7 Layers of bars shall be separated by means of approved bar spacers. Stirrups and ligatures shall pass around the main reinforcement and shall be securely tied thereto.

7.10.8 Reinforcement shall be spliced by lapping or where permitted, by welding or by approved mechanical splices. Fabric reinforcement shall be lap spliced only.

7.10.9 The system of fixing shall be such as to form a rigid cage which maintains dimensional tolerances under loads experienced during placement of concrete. Welding of reinforcement to form a rigid cage shall comply with the following requirements:

7.10.9.1 Welding shall be in accordance with AS 1554.3. In particular tack welds shall not substantially reduce the cross-section of the reinforcing steel nor adversely affect its strength and shall have:

7.10.9.1.1 A throat thickness not less than 4 mm;

7.10.9.1.2 A length not less than the diameter of the smaller bar.

7.10.9.2 Welding shall not be carried out within 75 mm of any portion of a bar which has been bent or will be bent.

7.10.9.3 No more than one-third of the main reinforcement at any cross-section shall be so welded.

7.10.9.4 Hard drawn wire and fabric reinforcement shall not be welded or heated unless approved by the Engineer.

7.10.9.5 Welding electrodes that are to be used complying with AS 1553.1 or AS 2203 or AS 2717.1.

7.10.9.6 Splices shall be made by butt or by fillet welding. Butt welds shall be qualified complete penetration butt joints in accordance with AS 1554.3.

7.10.9.7 Suitability experienced and competent welding personnel shall be engaged to complete the works.

7.10.10 Splicing of reinforcement shall occur only in the locations shown on the Project Drawings. Where practical, splices in bar reinforcement shall be staggered.

7.10.11 The length of lap splices in bar reinforcement shall be as shown on the Project Drawings. All reinforcement shall be spliced in such a manner as to maintain specified clear cover to the surface of the concrete. Splicing of fabric reinforcement shall be achieved so that the two outermost transverse wires of one sheet of fabric overlap the outermost transverse wire of the sheet being lapped.

SG 7.11 Concrete Placement – General

7.11.1 The Contractor shall be solely responsible for placing and compacting the concrete in the forms to comply with this Specification and for achieving dense, sound concrete without voids and to the lines and levels shown on the Project Drawings.

7.11.2 When rain threatens or seepage exists in excavations, the Contractor shall have on site sufficient dewatering equipment and covers as applicable to prevent any additional water entering the concrete.

7.11.3 Concrete shall be placed in an essentially continuous manner between approved construction joints so as to avoid being placed against partially set concrete.

7.11.4 Any troughs and chutes used as aids in placing concrete shall be metal or metal lined and shall be arranged and used in a manner that does not cause segregation. The use of water to facilitate the movement of concrete along troughs or chutes is expressly prohibited, but all troughs and chutes shall be kept clean and free of coating of hardened concrete by flushing thoroughly with water, which shall be discharged well clear of concrete in place.

7.11.5 Troughs and chutes shall discharge into vertical downpipes at least 1 metre in length. Where steep slopes are required, the chutes shall be equipped with baffles or be in short lengths that reverse the direction of movement so that the concrete slides without segregation.

7.11.6 Pneumatic placers and concrete pump may be permitted for use subject to such equipment being arranged so that no vibrations will damage freshly placed concrete. The delivery end of the pipe shall terminate in a fitting of approved design, which shall prevent segregation of the concrete. After the completion of any concreting operations the equipment shall be thoroughly cleaned before re-use.

7.11.7 Concrete shall not be dropped from a height or in such a manner as will cause segregation or loss of material on the reinforcing steel or forms. When placing operations would involve dropping the concrete more than 2 metres it shall be

deposited through a sheet metal or other approve downpipe in such a way that the concrete does not segregate. As far as practicable, the pipes shall be kept full of concrete during placing and their lower ends shall be kept buried in the newly placed concrete. The depositing of a large quantity of concrete at any point with the intention of moving it along the forms, will not be permitted.

7.11.8 After initial set of the concrete, the forms shall not be jarred and no strain shall be placed on the ends of reinforcing bars which project.

SG 7.12 Concrete Placement – Under Water

7.12.1 Concrete shall not be placed under water unless specifically approved. The slump of the concrete to be placed underwater shall be between 150mm and 200mm.

7.12.2 Concrete shall not be placed in running water. Any pumping must cease and the water level must be constant where placement commences. The concrete shall be placed carefully in position by a tremie, a closed bottom-dump bucket or by other approved means. Concrete seals shall be placed in one continuous operation, the concrete shall not be disturbed after being deposited and the placing shall be regulated to continually maintain an approximately horizontal surface.

7.12.3 When a tremie is used it shall consist of a watertight tube and at no time shall concrete in the tube come in contact with water when it is being filled. The means of supporting the tremie shall be such as to permit free movement of the discharge end and to permit its being lowered rapidly when necessary to choke off or retard the flow of concrete. No water shall enter the tremie tube. The discharge end shall be completely submerged in concrete at all times and the tremie tube shall always be filled to a height to overcome the head of water.

7.12.4 When concrete is placed with a bottom-dump bucket, the bucket shall be lowered gradually and carefully until it rests upon the prepared foundation or upon concrete already placed. It shall then be raised slowly during the discharge travel so as to maintain as far as is practicable still water at the point of discharge and to avoid agitating the mixture. The concrete so placed shall not be disturbed.

SG 7.13 Compaction in Concrete Forms

7.13.1 Concrete during and immediately after depositing shall be thoroughly compacted. Concrete other than no fines concrete shall be compacted with high frequency internal vibrations as follows:

7.13.1.1 The vibrators shall be of an approved type and shall be capable of transmitting vibrations at a frequency not less than 150 Hz with an intensity which will visibly affect the concrete at a radius of 300mm.

7.13.1.2 The number of vibrators to be used by the Contractor shall be not less than one for each $4m^3$ of concrete placed per hour, with a minimum of 2 vibrators to be provided at any time.

7.13.2 Vibrators shall be inserted vertically at successive positions not more than 450mm apart and in a manner, which ensures compaction of the concrete around the reinforcing steel and any other embedded fixtures, and into all parts of the forms.

7.13.3 Vibration shall continue at each position until air bubbles cease to emerge from the concrete. The vibrators shall then be withdrawn slowly so as to avoid leaving a "pocket". The vibration shall be of sufficient duration to thoroughly compact the concrete, but shall not be continued so as to cause segregation.

7.13.4 Care shall be taken to ensure that newly deposited concrete is vibrated into any fresh concrete adjacent to it to provide a homogeneous concrete mass.

7.13.5 Vibration shall not be applied either directly or through the reinforcement to any concrete, which has taken its initial set.

SG 7.14 Removal of Forms and Falsework

7.14.1 Unless otherwise specified, forms and falsework shall remain in position until the times stated below have elapsed after completion of concreting:

7.14.1.1 Non structural concrete - Until such time as the concrete has reached 50% of the characteristic 28-day strength or a period of 3 days, whichever is the lesser.

7.14.1.2 Structural Concrete - Soffits of slabs, headstock and diaphragms - Until such time as the concrete has reached 70% of the characteristic 28-day strength or 7 days, whichever is the lesser. For side forms on structural concrete - 3 days minimum.

7.14.2 Where the timing for the removal of forms is based on concrete strength as specified herein, the strength shall be proven by testing in accordance with AS 1012.

7.14.3 Forms shall be removed with care, without hammering and wedging, and in a manner, which will not injure the concrete or disturb the remaining supports. Centre Forms shall be lowered gradually and uniformly in such a manner as to avoid injurious stress in any part of the structure.

7.14.4 Hole formers such as pipes and bars shall be removed as soon as the concrete has hardened sufficiently for this to be done without damage to the concrete.

SG 7.15 Finishing of Exposed Surfaces

7.15.1 Unless otherwise specified in the Project Documentation, all surfaces of concrete exposed to view in the completed structure shall be finished in accordance with the following:

7.15.1.1 Kerb and channel, invert crossings, vehicle crossings and industrial crossings shall be finished with an approved steel finishing tool.

7.15.1.2 Footpaths, bikeways and pram ramps shall be finished with a wooden float and broomed.

7.15.1.3 Where a sample panel is supplied or specified associated with a particular project. The concrete finish shall be in accordance with the specified requirement.

7.15.2 All concrete surfaces shall be true and even, free from stone pockets, depressions or projections beyond the surface. All arises shall be sharp and true, and mouldings shall be evenly mitred or rounded. Care shall be exercised in removing forms to ensure this result.

7.15.3 Immediately after removal of forms from mass or reinforced concrete work, all rough places, holes and porous spots shall be repaired by removing defective work and filling with stiff cement mortar having the same proportions of cement and fine aggregate as used in the concrete, and shall be brought to an even surface with a wooden float.

7.15.4 Any tie wires or other fitments extending to outside surfaces, shall be cut back after removal of forms, to a depth of at least 40mm with sharp chisels or cutters. All cavities caused by removal of fitments or tie wires shall be wetted and carefully packed with cement mortar, as above.

7.15.5 The surfaces of bolt cavities, tie wire holes, and all defects in concrete shall be coated prior to the placing of mortar, grout, or fresh concrete, with an approved bonding agent, in lieu of wetting with water. The method of application of such agent and the conditions in which it is to be used shall generally be as laid down by the manufacturer.

SG 7.16 Weepholes

7.16.1 Drainage adjacent to weepholes shall be provided by either a layer of broken stone or river gravel consisting of clean, hard, durable particles graded from 50mm to 10mm such that:

7.16.1.1 The maximum particle dimension shall not exceed 50mm

7.16.1.2 No more than 5 per cent by mass shall pass the 9.5mm A.S. sieve. 2. The broken stone or river gravel, enclosed in a filter fabric suitable for drainage without scour, shall be continuous in the line of the weepholes, extend at least 300mm horizontally into the fill and extend at least 450mm vertically above the level of the weepholes.

7.16.2 Alternatively the Contractor may provide a synthetic membrane of equivalent drainage characteristics. It shall be stored and installed in accordance with Manufacturer's instructions.

SG 7.17 Joints

7.17.1 Where horizontal construction joints are found to be necessary in walls, or cast-in-situ drainage structures the joints may be made at the base of walls and at other locations in the walls where approved by the Consulting Engineer. In order to provide for bond between the new concrete and the concrete which has already set, the surface on which the new concrete is to be placed shall be thoroughly cleaned of loose material, foreign matter and laitance. The surface shall be roughened or keyed and saturated with water. After any excess water has been removed, the surface shall be thinly coated with a neat cement grout.

7.17.2 Where vertical expansion joints are shown on the approved Project Drawings in retaining walls or other walls and structures the expansion joints shall consist of jointing material of approved quality, and of thickness stated on the drawings, and a depth sufficient to fill the joint. The jointing material shall be neatly cut to fit the surface of the concrete.

7.17.3 Extruded or cast in place kerbing, shall have narrow transverse vertical grooves, 40mm deep and not more than 6mm wide, formed neatly in the surface of the freshly placed concrete to produce contraction joints for the control of cracking. The contraction joints shall be at intervals not exceeding 3 metres.

7.17.4 In footpaths, median toppings and driveways, unless otherwise shown on the approved Project Drawings, expansion joints, 10mm in width for the full depth of paving, shall be constructed at intervals not exceeding 16m and where the pavement abuts against gutters, pits and structures. Expansion joints shall have an approved preformed jointing material. In addition, narrow vertical grooves 20mm deep and not more than 6mm wide shall be formed at internals not exceeding 2m to induce contraction joints for the control of cracking.

7.17.5 All unreinforced paving shall be provided with narrow vertical grooves, 20mm deep and not more than 6mm wide to induce contraction joints for the control of cracking. The joints shall be formed in the freshly placed concrete in a neat regular pattern to form "slabs" no bigger than $2m^2$. The ratio of the longest side to the shortest side shall not exceed 1.6.

SG 7.18 Curing

7.18.1 The curing of unformed surfaces of concrete shall commence as soon as finishing operations are complete.

7.18.2 If forms are removed in less than 7 days, curing of the formed surface shall commence within two hours of stripping.

7.18.3 Curing shall continue for a period after placing the concrete of not less than:

7.18.3.1 Top surface of slabs - 14 days;

7.18.3.2 Other surfaces - 7 days.

7.18.4 Curing shall be effected by either Water or Membrane Curing.

7.18.5 Water curing shall comprise surfaces being kept moist for the period specified by continuous spraying, ponding, wet hessian or wet sand blankets.

7.18.6 Membrane curing shall be effected by application of a sprayed curing compound or by covering with polythene sheet.

7.18.7 Sprayed curing compounds shall be of a paraffin wax emulsion type formulated and tested by the manufacturer to conform to AS 3799. The compound shall be mixed if necessary and applied at the rate recommended by the manufacturer.

7.18.8 Resin and PVA based compounds shall not be used.

7.18.9 Polythene sheet shall be of sufficient strength to withstand wind and any imposed foot traffic. Torn or punctured sheeting shall not be used. Laps should be 300mm minimum and edges and laps shall be sealed by tape or held down by boards or reinforcing bars. Water shall be sprayed under the sheeting at edges and at laps on the day after placing concrete and at regular intervals to maintain moist conditions.

SG 7.19 Backfilling

7.19.1 Backfilling at barriers, paving, etc, and minor concrete works shall not commence until after the concrete has hardened and not earlier than three days after placing.

7.19.2 No filling shall be placed against retaining walls, headwalls or wingwalls within 21 days after placing of the concrete, unless the walls are effectively supported by struts or when the Contractor can demonstrate that 85 per cent of the design strength of the concrete has been achieved.

7.19.3 Selected backfill shall be placed against retaining walls and cast-in-place box culverts for a horizontal distance equal to one-third of the height of the wall. It shall consist of granular material, free from clay and stone larger than 50mm gauge. The Plasticity Index of this selected backfill material shall not be less than 2 or more than 12 when tested in accordance with AS 12893.3.1. The material shall be placed in layers not exceeding 150mm and shall be compacted to provide a relative compaction of not less than 98 per cent as determined by AS 1289.5.4.1 for standard compactive effort.

SG 7.20 Sprayed Concrete

7.20.1 The minimum depth of sprayed concrete to be applied shall be 75mm.

7.20.2 Sprayed concrete shall have a minimum 28-day compressive strength of 25 MPa.

7.20.3 Earth surfaces shall be graded, trimmed and compacted and shall be dampened prior to applying the sprayed concrete. The Contractor shall take any precautions necessary to prevent erosion when the sprayed concrete is applied.

7.20.4 Rock surfaces shall be cleaned of loose material, mud and other foreign matter that might prevent bonding of the sprayed concrete onto the rock surface. The rock surface shall be dampened prior to applying the sprayed concrete.

7.20.5 The Contractor shall remove free water and prevent the flow of water, which could adversely affect the quality of the sprayed concrete.

7.20.6 Application shall begin at the bottom of the area being sprayed and shall be built up making several passes of the nozzle over the working area. The nozzle shall be held so that the stream of material shall impinge as nearly as possible perpendicular to the surface being coated. The velocity of discharge from the nozzle, the distance of the nozzle from the surface and the amount of water in the mix shall be regulated so as to produce a dense coating with minimum rebound of the material and no sagging. Rebound material shall be removed after the initial set by air jet or other suitable means from the surface as work proceeds and disposed of.

7.20.7 Spraying shall be discontinued if wind causes separation of the nozzle stream.

7.20.8 Concrete shall not be sprayed in air temperatures less than 5°C.

7.20.9 Construction joints shall be kept to a minimum. A joint shall be formed by placing or trimming the sprayed concrete to an angle between 30° and 45° surface. The joint edge shall be cleaned and wetted by air-water jet before recommencing concrete spraying.

7.20.10 When spraying around reinforcement, concrete is to be sprayed behind the reinforcement before concrete is allowed to accumulate on the face of the reinforcement.

7.20.11 Adjoining surfaces not requiring sprayed concrete shall be protected from splash and spray rebound. Splash or rebound material on these adjoining surfaces shall be removed by air-water jet or other suitable means as work proceeds.

7.20.12 Curing shall commence within one hour of the application of sprayed concrete and may be by water or by colourless wax emulsion curing compound complying with AS 3799 and applied in accordance with manufacturer's specifications.

7.20.13 In water curing, the surface of the sprayed concrete shall be kept continuously wet for at least seven days.

SG 7.21 No Fines Concrete

7.21.1 Where no fines concrete is incorporated in the works it shall be rodded sufficiently only to ensure the form is completely filled. It shall be screeded to the required surface level without tamping or vibrating. No fines concrete shall be moist cured for at least four (4) days by covering with wet hessian, polythene sheet or other similar materials. The use of wet sand or any other material, which can enter the voids, will not be permitted for curing purposes.

SG 7.22 Tolerances

7.22.1 Where tolerances for individual components and associated dimensions are not specified on the Project Drawings, deviations from established lines, grades and dimensions in the completed work shall not exceed the values stated herein.

7.22.2 The dimensional tolerances as shown in Table S7.3 are to cover strength, durability and fit of prefabricated elements and cast-in-situ elements.

Table S7.3 Dimensional Tolerances

Description	Tolerance (mm)
Cross-sectional dimension of members and thickness of slabs	+ 10, - 3
Length of members, length and width of slabs: **- Up to 18m dimension** **- 18m or over dimension**	 ± 6 1mm for every 3m in length
Clear cover to reinforcement	+ 6, - 3
Fitments for prefabricated elements – girder anchorages (including dimensions between anchorages on adjacent piers), cored holes, handrail anchorages and other embedded items	± 5 max. 1mm for every 1m in length

7.22.3 Positional tolerances, as shown in Table S7.4 refer to the departure of any point, plane or component of a structure from its correct position within the layout of the structure as shown on the Project Drawings.

Table S7.4 Positional Tolerances

Description	Tolerance (mm)
Level of Footings	± 20
Level other than footings	± 5
Horizontal location, where tolerances on fit is not acceptable	± 25

7.22.4 Relative tolerances refer to departures from linearity or planarity in any part of the structure. Tolerances are measured as the departure of any point in a line or surface from the remainder of that line or surface.

7.22.5 Departure may be sudden (e.g. misfit at joint in formwork) or gradual (e.g. a wobble in the surface). Tolerance on gradual departure is the value calculated by multiplying the overall length of the line or surface under consideration by the factor given below in Table S7.5.

Table S7.5 Relative Tolerances

Description	Tolerance (mm)
Exposed edge – gradual departure	0.001
Exposed surface – gradual departure	0.004 (10mm max.)
Exposed surface – sudden departure	3 mm max

SG 8 Landscaping

General

SG 8.1 Scope

8.1.1 This specification details all requirements pertaining to Tree Planting, Grassing, Turfing, Hydromulching and Irrigation works associated with permanent and temporary revegetation works.

8.1.2 Where there is any conflict determined between the requirements specified herein and the requirements of any referenced Australian Standard, Statutory Authority Standards or otherwise, the requirements specified herein shall apply.

SG 8.2 Reference Documents

8.2.1 Australian Standards:

- 8.2.1.1 AS1432 Copper Tubes for Plumbing, Gasfitting and Drainage Applications
- 8.2.1.2 S/NZS1477 PVC Pipes and Fittings for Pressure Applications
- 8.2.1.3 AS2032 Code of Practice for Installation of PVC Pipe Systems
- 8.2.1.4 AS2507 The storage and Handling of Pesticides
- 8.2.1.5 AS2845 Water Supply – Back Flow Prevention Devices
- 8.2.1.6 AS3785 Solvent Cements and Priming Fluids for Use with UPVC Pipes and Fittings
- 8.2.1.7 AS4419 Soils for Landscaping and Garden Use
- 8.2.1.8 S4454 Composts, Soil Conditioners and Mulches

8.2.2 Queensland Legislation:

- 8.2.2.1 Queensland Land Protection Act (2002)

8.2.3 Whitsunday Regional Council:

- 8.2.3.1 Biosecurity Plan 2016-2020

Materials

SG 8.3 Grass Seeding

8.3.1 The grass seeding species mix shall consist of the following:

- 8.3.2 30% Cynodon Dactylon (green couch) – hulled
- 8.3.3 30% Cynodon Dactylon (green couch) - unhulled
- 8.3.4 30% Axonpus Affinis (carpet grass)
- 8.3.5 10% Tetila Rye (in dry season) or Japanese Millet (in wet season)

8.3.6 The accepted final mix shall be dependent upon local conditions, soil properties, and method of works.

SG 8.4 Turfing

8.4.1 Turf shall consist of 25mm depth of dense, well rooted, vigorous grass growth with 25mm depth of topsoil. It should be free from any material toxic to plant growth, declared weeds, seeds or roots including nut grass and oxalis. The soil attached to the turf shall be free from rubbish, sticks and other deleterious material.

8.4.2 The turf shall be supplied as rolls in long lengths of uniform width, not less than 300mm, and shall be in sound unbroken condition.

8.4.3 The moisture level in the cut turf should be kept relatively consistent so that it is not saturated or severely dried out when laying. Both of these situations can cause turf to fall apart during laying.

8.4.4 The type of grass turf to be used shall as stated on the approved Project Drawings, where not stated broad leaf buffalo shall be used for un-irrigated areas and couch for irrigated areas.

8.4.5 Acceptable species for this region are as follows:

- 8.4.5.1 Axonopus compresus (Broad leaf buffalo)
- 8.4.5.2 Digitaria didactyia (Blue Couch)
- 8.4.5.3 Cynodon dactylon (Bermuda Couch / Green Couch).

SG 8.5 Hydromulch

8.5.1 The hydromulching mixture shall consist of the following:

- 8.5.1.1 Mulch - Pulped Paper / Bagasse or Cane fibre
- 8.5.1.2 Fertiliser - Broad spectrum type CK55 or equivalent.
- 8.5.1.3 Seed - 33% Cynodon Dactylon (Green Couch) - hulled 33% Cynodon Dactylon (Green Couch) - unhulled 33% Axonopus Affinis (Carpet Grass)
- 8.5.1.4 Water - Water used to establish and maintain the grassing shall have a pH of between 5.0 and 8.0, a total soluble salts concentration less than 1000mg/l and contain no chemicals or compounds toxic to growth.
- 8.5.1.5 Binder/Tackifier - Binder is to be non-toxic, inert, water soluble and non-flammable, e.g. Curasol or equivalent. Tackifier is be a non-toxic and biodegradable e.g. Envirotack or equivalent.

SG 8.6 Plant Stock

8.6.1 All plant species shall be as detailed on the approved Project Drawings. There shall be no substitution of any species without Council approval.

8.6.2 All palms, trees, shrubs and groundcovers shall be true to name. The root system of each plant shall be conducive to successful transplantation, all specimens shall be free from pests and disease, especially Phytopthera, palm beetle, sooty mould and scale, and all containers shall be free from pernicious weeds.

8.6.3 All plants shall be grown in containers and shall comply with the following minimum size requirements:

- 8.6.3.1 Trees - 25 litre container for street tree planting,
- 8.6.3.2 Trees - 45 litre container for medians, tree guards, traffic islands and roundabouts,
- 8.6.3.3 Single stemmed palms - 45 litre container,
- 8.6.3.4 Clumping Palms - 45 litre container □Shrubs - 200mm container,
- 8.6.3.5 Groundcovers – 140mm container.

8.6.4 Plants shall be watered before transportation to the planting site, and shall be delivered to the site in a covered container. During loading and unloading damage in handling shall be avoided.

8.6.5 Species identified in the following are prohibited from use:

- 8.6.5.1 Land Protection (Pest and Stock Route Management) Act 2002,
- 8.6.5.2 Land Protection (Pest and Stock Route Management) Regulation 2003
- 8.6.5.3 Species identified in the Local governments Pest Management Plans, and
- 8.6.5.4 Publication “Agricultural and Environmental Weeds – Far North Queensland” (Wet Tropics Management Authority and Department of Natural Resources and Mines & Energy)

SG 8.7 Soil Mix

8.7.1 A good quality landscaping soil mix shall be imported from an approved source to the planting site for backfilling the planting pits.

8.7.2 Specification for the landscaping soil mix are as follows:

- 8.7.2.1 It shall contain approximately 70% sandy loam and 30% composted or mature organic matter;
- 8.7.2.2 It shall be friable and not contain any clay;
- 8.7.2.3 The pH shall be between 5.5 and 7.0;
- 8.7.2.4 It shall be free from contaminants such as the seed of declared weeds, rocks sticks and salts;
- 8.7.2.5 It shall not contain any chemical fertilisers.

SG 8.8 Fertiliser

8.5.1 Fertiliser shall confirm to the requirements stated in Table S8.01.

Table 8.01 Fertiliser Types

Location	Chemical Type	Type of Application	NPK Analysis
Grass Seeding (Complete lawn fertiliser)	Inorganic	Surface broadcast	N 15 to 24 P 6 to 9
Turfing (Complete lawn fertiliser)	Inorganic	Surface broadcast	N 15 to 24 P 6 to 9
Tree Planting (Controlled release fertiliser)	Organic or inorganic	Fertiliser Tables (2 per tree)	N 15 to 25 P 3 to 9
Planting Beds (Controlled release fertiliser)	Organic or inorganic	Granular	N 18 to 25 P 3 to 7 K 9 to 18

SG 8.9 Irrigation Pipework

8.9.1 All below ground pipework shall be unplasticised Poly-vinyl Chloride (uPVC) unless otherwise approved. All pipes shall be Class 12 minimum with Class 18 fittings.

8.9.2 All above ground pipe work shall be copper tube (hard drawn) Type D manufactured in accordance with AS 1432 by an Australian Standards quality endorsed company.

Construction

SG 8.10 Grass Seeding

8.10.1 Prior to grass seeding all weeds shall be killed by spraying a suitable herbicide. Sprayed areas shall remain undisturbed for two weeks.

8.10.2 Prior to grass seeding the ground surface shall be lightly tyned to a depth of 100mm below finished surface levels (where slopes are less than 10%). All large stones, rubbish and other materials that may hinder germination shall be removed before topsoiling.

8.10.3 Parks may require additional topsoil to a depth of not less than 75mm and shall be lightly compacted and grassed if Council considers the in-situ topsoil of poor quality and is too rocky.

8.10.4 Grass seeding applied by drill seeding at the minimum rate of 50kg per hectare using the species mix specified.

8.10.5 Fertiliser should be applied following seeding at a minimum rate of 350kg per hectare, subject to specific site conditions, soil analysis and desired outcomes.

8.10.6 Seed and fertiliser should be applied at an even rate using a calibrated disc drill seeder followed by a chain and roller.

8.10.7 Disc's should cut approximately 12mm and create enough friable material for chains to cover the seed.

8.10.8 Where one pass fails to develop enough friable material a second pass should be made in a transverse direction.

8.10.9 Watering is the application of 10mm of water to the total area in not less than one hour and shall include any natural rainfall. The frequency of watering shall comply with the following minimum requirements:-

Table 8.02 Grass Seeding Water Requirements

Periods after Grassing	Watering(s)
Immediately	Once
Week 1	Twice / day during hot, dry or windy periods Once / day during cool / overcast periods
Week 2	Once / day
Weeks 3 & 4	Once every second day
Week 5 until necessary	Twice a week or as necessary to ensure 80% minimum strike rate

8.10.10 Acceptance shall be the achievement of a minimum vegetative cover of 80% of both the annual and perennial grass cover over the whole area. Grassed areas shall exhibit signs of healthy growth and shall be free of weeds, stones, sticks and other deleterious material. Maximum deviation from finished ground levels 50mm in any 2 metres.

SG 8.11 Turfing

8.11.1 Prior to turfing all weeds shall be killed by spraying a suitable herbicide. Sprayed areas shall remain undisturbed for two weeks.

8.11.2 Topsoil shall 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.

8.11.3 The prepared surface shall be watered within twenty four (24) hours prior 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.

8.11.4 After watering an approved lawn pesticide shall be applied at the rate specified by the supplier and in accordance with the Agricultural Chemicals Distribution Contract Act and Regulations.

8.11.5 Fertiliser should be applied prior to laying turf at a minimum rate of 350kg per hectare, subject to specific site conditions, soil analysis and desired outcomes.

8.11.6 Topsoil shall be raked before turf is laid. Turf shall 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.

8.11.7 A light top dressing shall 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. Alternative methods to rolling shall be used where slopes exceed 10%.

8.11.8 On steep slopes (exceeding 10%) turf may be held in position by softwood pegs or stakes, located at each end of the turf sections.

8.11.9 Watering is the application of 10mm of water to the total area in not less than one hour and shall include any natural rainfall. The frequency of watering shall comply with the requirements in table 8.03:-

Table 8.03 Turfed Watering Requirements

Periods after Grassing	Watering(s)
Immediately	Once
Week 1	Once every second day
Week 2, 3 & 4	Three times each week
Weeks 5 - 12	Twice a week

8.11.10 Acceptance shall be the achievement of an even green colour with a dense continuous sward over the whole area. Turf shall exhibit signs of healthy growth and shall be free of weeds, stones, sticks and other deleterious material. Maximum deviation from finished ground levels 50mm in any 2 metres.

SG 8.12 Hydromulching

8.12.1 Prior to hydromulching all weeds shall be killed by spraying a suitable herbicide. Sprayed areas shall remain undisturbed for two weeks.

8.12.2 Batter slopes less than 20% shall then be lightly tyned to a depth of 50mm to produce a loose surface and all large stones, rubbish and other materials that may hinder germination shall be removed before topsoiling.

8.12.3 Where batters have been stepped, the steps shall be loosely filled with topsoil. Elsewhere, topsoil shall be uniformly applied to provide an average thickness of 75mm with a minimum compacted thickness of 40mm at any location.

8.12.4 Dry surfaces shall be watered by a fine spray before the application of the hydromulch.

8.12.5 The slurry mixture of mulch, binder, fertiliser and seed is to be kept in a homogenously mixed state throughout the mulching operation.

8.12.6 During preparation of the hydromulch, a liquid form pesticide may be added to the storage tank, to facilitate surface application. Application rate should be in accordance with the manufacturer's recommendation.

8.12.7 Additional protective treatments (e.g. fibre matting, anionic bitumen emulsion etc) shall be as specified on the approved Project Drawings.

8.12.8 Hydromulch shall not be applied under the following weather conditions at the site:

8.12.8.1 when temperature is higher than 35°C

8.12.8.2 when winds exceed 15 km/hr;

8.12.8.3 where the surface is too wet or

8.12.8.4 during rain periods or when rain appears imminent.

8.12.9 The rate at which the mulch is applied is dependent on slope shall be in accordance with Table S8.02.

Table S8.02 Hydromulching Material and Application Rates (per 1000m)

Slope	<5%	5% - 12%	12% - 20%	20% - 50%	>50%
Pulped Paper	200kg	120kg	120kg	140kg	200kg
Bagasse (wet weight)	200kg	400kg	500kg	700kg	800kg
Cane Fibre (alternative to bagasse)	200kg	200kg	300kg	400kg	500kg
Fertiliser	50kg	50kg	50kg	50kg	50kg
Seed	5kg	5kg	5kg	5kg	5kg
Water	8000 litres	8000 litres	10,000 litres	12,000 litres	18,000 litres
Binder Curasol Envirotack	5 litres 3kg	5 litres 2kg	7.5 Litres 7.6 3kg	15 litres 5 kg	30 litres 5kg
Mulch Thickness	1-2mm	2-3mm	2-4mm	2-4mm	4-6mm

8.12.10 Watering is the application of 10mm of water to the total area in not less than one hour and shall include any natural rainfall. The frequency of watering shall comply with the following minimum requirements:-

Periods after Grassing	Watering(s)
Immediately	Once
Week 1	Twice / day during hot, dry or windy periods Once / day during cool / overcast periods

Week 2	Once / day
Weeks 3 & 4	Once every second day
Week 5 until necessary	Twice a week or as necessary to ensure 80% minimum strike rate

8.12.11 A follow up fertiliser treatment is to be applied to 4 – 6 weeks after germination has occurred. Fertilisation should be with a product that provides for the following elements: Nitrogen (N) 13%, Phosphorus (P) 4% and Potassium (K) 12%.

8.12.12 Acceptance shall 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 shall exhibit signs of healthy growth and shall be free of weeds, stones, sticks and other deleterious material.

SG 8.13 Planting

8.13.1 Planting shall be carried out as soon after delivery to the site as possible. All containers, unless fully biodegradable, shall be removed at the latest point before planting.

8.13.2 All plants shall be obtained from a nursery located in an area having a similar climate to the site of the Works.

8.13.3 Shrub and ground cover planting to verges and traffic islands etc. shall be as detailed on the approved Project Drawings.

8.13.4 Prior to planting all weeds shall be killed by spraying a suitable herbicide. Sprayed areas shall remain undisturbed for two weeks.

8.13.5 Street trees shall be planted at the locations as shown on the approved Project Drawings.

8.13.6 During backfilling around the plants the soil shall be lightly firmed to ensure intimate contact with the roots, but with large material successive layers of soil will need to be firmed as backfilling proceeds.

8.13.7 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 shall be removed by pruning.

8.13.8 Plants should be watered directly after planting prior to spreading of mulch. The mulch shall be left just clear of the plant stem.

8.13.9 All trees shall be staked with three (3) 38 x 38 x 2400mm hardwood stake, extending into the ground to a depth of 500mm. Do not allow the stake to penetrate the root ball. Secure the tree to the stake with plastic multi-purpose chain ties. Refer Council's Standard Drawings.

8.13.10 Mulch shall be aged hardwood woodchip, stockpiled for a minimum of 6 weeks, or other mulch approved by Council, free from rocks, non-biodegradable and toxic material. In paved footpath planters it shall 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.

8.13.11 Peanut shell or forest litter mulch may be used in "natural" planting areas only, such as buffer planting or parkland planting. It should be installed to a minimum 150mm compacted depth, free from rocks, nut grass, and any other invasive weed.

8.13.12 Tea-tree mulch is prone to combustion and shall not be used unless permission is obtained from Council.

8.13.13 All plants shall be watered, immediately upon planting, and at the rate of 10 litres per plant every third day for the first twelve weeks.

8.13.14 Weed and grass growth in mulched areas shall 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 shall be avoided and any damage repaired, or damaged plant material replaced.

8.13.15 Acceptance shall be subject to achieving the following criteria:

8.13.15.1 Plants, which do not meet the acceptance criteria, shall be replaced.

8.13.15.2 Replacement plants shall be of similar size and quality and of identical species and variety to the plant being replaced.

8.13.15.3 Plants shall exhibit signs of healthy growth,

8.13.15.4 Plants shall be well formed,

8.13.15.5 Plants shall be free from disease or insect pests,

8.13.15.6 Plants shall be free of physiological disease symptoms (yellowing, wilting etc),

8.13.15.7 Mulch shall be free from weeds, sticks, rubbish and other deleterious material.

Irrigation

SG 8.14 General

8.14.1 Application shall be made to Council for connection of irrigation systems to the water main. The Contractor shall arrange with the Council for the timing of the work. All works shall be carried out by the relevant Local Authority at the applicants cost.

8.14.2 The Applicant will be responsible for the payment of all water used during construction, testing, establishment and maintenance of the irrigation system and landscape works.

SG 8.15 Excavation

8.15.1 Do not excavate by machine within 500mm of existing underground services.
8.15.2 The standard width of trench for pipes shall be 150mm.
8.15.3 Unless noted otherwise on the approved Project Drawings or directed by Council all pipe work is to be installed with a minimum cover of 350mm.

SG 8.16 Laying of Pipes

8.16.1 All pipe work to be bedded in clean fill sand with a minimum cover of 50mm all round.
8.16.2 Special precautions are to be taken to exclude dirt, sand, grit or gravel from entering pipelines.
8.16.3 The open ends of pipes shall be plugged at the end of the day's work to prevent entry of water or mud.

SG 8.17 Pressure Testing

8.17.1 All work shall satisfy a test pressure of the nominated working pressure for a period of two (2) hours. The test shall be carried out during the coolest part of the day. The point at which the test pressure is measured shall be at the lowest point in the profile of that section of main under test.
8.17.2 All tests shall be carried out under the supervision and in the presence of the Council Inspector.
8.17.3 Any defects that arise during the tests shall be repaired in an approved manner. Any leak however small will be classed as a defect. All such repair work shall be similarly tested and approved before acceptance.
8.17.4 The Contractor shall give 48 hours notice to Council so that arrangements can be made for supervision of the testing.
8.17.5 The Contractor shall accept all risks and expenses incurred during testing and shall provide all labour together with all pumps, engines, pipes, temporary valve plugs, flanges and all other equipment as may be necessary to undertake testing

SG 8.18 Flushing

8.18.1 After pressure testing has been carried out the new pipework shall be flushed as thoroughly as possible with the available water pressure.

SG 8.19 Controllers

8.19.1 All Council landscaped areas, which require irrigation systems shall be controlled by electrically, operated solid state controller.

SG 8.20 Filtration

8.20.1 All irrigation systems shall be fitted with an approved flow strainer installed in a secure enclosure.

SG 8.21 Valves

8.21.1 Electrically actuated solenoid valves shall have flow control, manual bleed screw, 24 VAC solenoid, Buna N diaphragm, and be constructed of PVC and stainless steel. They shall be suitable for direct burial and have 150 psi maximum working pressure. They shall be pressure regulating solenoid valves.

8.21.2 Isolation valves shall be of bronze construction and of the BSP screwed gate type as approved by the engineer. They shall be installed on the supply side at every solenoid valve to enable isolating.

8.21.3 Protective valve boxes are to be provided for each solenoid valve. They shall 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.

8.21.4 The wiring from the solenoid to the controller shall be laid in conduit and shall be of 250 volt grade and shall be installed to approved standards. The wiring shall be located with all pipework.

8.21.5 All solenoid valves shall be connected to controller by 0.05mm solid core wire and to have seven insulated cores within a common plastic protective shield. It shall be similar in all respects to RIS multi-core 7/0.5mm electrical control wire and shall be continuous between valve and controller, and valve to valve. An additional one metre length of cable shall be provided at each wire termination. Cable shall be sized for voltage drop not exceeding four (4) volts over total route length.

SG 8.22 Backflow Prevention Devices

8.22.1 All Council landscaped areas, which require irrigation systems, shall 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 2845.

SG 8.23 Performance Test

8.23.1 On completion of the installation the system shall be tested in the presence of a Council Inspector.

8.23.2 The system shall be operated to demonstrate that all components function as required by the design.

8.23.3 The Contractor is responsible for making all necessary alterations to the system so that the performance is in accordance with the design specifications.

SG 8.24 Backfilling of Trenches

8.24.1 Trenches shall be backfilled with the excavated material. If the excavated material is considered unsuitable for backfilling by the Council Inspector, it shall be removed from the site and replaced with clean approved backfill material.

8.24.2 All trenches so backfilled shall be compacted and lightly raked to ensure that surface levels marry with adjacent surface levels, are free draining and free from mounds or depressions. All rocks or evidence or excavated subgrade shall be raked up and removed.

Form 1 - Statement of Compliance Operational Works Design

This form duly completed and signed by an authorised agent of the designer shall be submitted with the operational works application to Council approval.

Name of Development:

Location of Development:

Applicant:

Designer:

it is hereby certified that the calculations, drawings, specifications and related documents submitted herewith have been prepared, checked and amended in accordance with the requirements of the Whitsunday Regional Council Development Manual and that the completed works comply with the requirements therein, except as noted below.

Compliance with the requirements of the Operational Works Design Guidelines	Non-compliance - refer to non-compliance report/drawing number
Plan presentation	
Geotechnical requirements	
Geometric road design	
Pavements	
Structures/bridges	
Subsurface drainage	
Stormwater drainage	
Site regrading	
Erosion control and stormwater management	
Pest plant management	
Cycleways/pathways	
Landscaping	
Water source and disinfection/treatment infrastructure	
Water reticulation pump stations	
Sewer reticulation and pump stations	
Electrical reticulation and street lighting	
Public transport	
Associated documentation/specification	
Priced schedule of quantities	
Referral agency conditions	
Supporting information (AP 1.08)	
Other	

Designer: RPEQ No.

Signature: Date:

Form 2 – Security Lodgement Form

This sheet must be completed prior to the acceptance of any bond by Council.

Development Name:	
Stage:	
File No.:	
Applicant:	
Consultant:	
Purpose of Bond:	

Uncompleted Works Bond Assessment:

Estimated time to complete bond works (not greater than 90 days)	days
Current contract completion date	
Anticipated completion date	
Consulting engineers estimated value of uncompleted works	
Bond value (apply factor 1.50)	

Construction/defects liability bond assessment :

Consulting engineer's estimated value of completed works	
Construction/maintenance bond value (apply factor 0.05) (min $500)	

Council shall retain any interest accrued on cash monies paid to Council and held in trust by Council.

Consulting Engineer:

Signature:

RPEQ No.

Date:

Form 3 – Inspection Certificate for Witness/Hold Point

This certificate registers evidence that the works as noted herein have been inspected by the Council officer noted below and were found to be satisfactory.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	

Works being inspected/Tested/Witnessed:

Defaults/Corrective Action Required:

Defaults Corrected? Y N N/A

Council Inspector Signature:

Name of Inspector:

Date of Inspection:

Form 4 – Works Acceptance Inspection Checklist

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	

Item	Verification (Yes/No/N/A)	Comment
ALLOTMENT DRAINAGE The works have been finally inspected and:		
60. Concrete catch drains constructed in approved location and to a satisfactory standard;		
61. Field inlets constructed in approved location and to a satisfactory standard;		
62. Overland flow path constructed to correct profile;		
63. Pipework has been visually inspected and is satisfactory in terms of: a. alignment and grade; b. free of debris and siltation; c. no visual sign of trench subsidence; and d. outlets are satisfactory.		
64. Lots not provided with allotment drainage can be drained to the kerb and channel.		
STORMWATER DRAINAGE SYSTEM The works have been finally inspected and:		
65. Pipe layout is as per plan or approved amendments with respect to pipe size, levels and location.		

66. Pipework has been visually inspected and is satisfactory in terms of: a. alignment and grade; b. free of debris and siltation; c. lifting plug holes sealed; d. no visible sign of trench subsidence; and e. no damaged pipes.		
67. Gully pits and manholes have been constructed to the correct standards i.e.: a. Correct type of grate or cover; b. Lintels; c. side entry slots; d. benching (no water ponding) e. grates are satisfactorily sealed in frames; f. we poles provided to bedding material; g. no damaged structures; h. converter slabs/sections mortar bedded; i. correct drops through gullies/manholes; and j. all lids/grates finished to match surface level.		
68. All density tests to backfill are available and satisfactory.		
69. Material gradings are available for bedding material and are satisfactory;		
70. Outlets/inlet structures are satisfactorily constructed and are free from scour or siltation.		
71. All manhole and gully pit pipe connections are mortared flush with the walls and no pipe reinforcement is exposed.		
72. Open cut channels have been finally inspected and a satisfactory i.e.: a. Cut to design profiles; and		

b. lining of channel is to the required thickness and reinforcement, with appropriate weep holes.		
73. Overland flow, the works have been finally inspected an appropriate flow paths are provided and clear of obstruction.		
74. Outlets and outfalls have been constructed to control discharge flow in accordance with the plans.		
75. Subsoil drainage discharges to gullies or other approved point of discharge.		
76. All grousing requirements to channels, swales, outlets, inlets etc have been completed.		
77. CCTV inspection of stormwater pipes completed.		
WATER QUALITY The Works have been finally inspected and:		
78. Water quality structures have been constructed in accordance with approved engineering drawings;		
79. Structures are free of debris and sediment.		
EROSION AND SEDIMENT CONTROL The works have been finally inspected and:		
80. Control structures required until the site is stabilised in accordance with the contractor's ESCP are in place.		
81. Structures are free of debris and sediment.		
EARTHWORKS		

The Works have been finally inspected and:		
82. Toe of batters not on Council Road reserve except as approved.		
83. Retaining walls clear of Road reserve except as approved.		
84. Retaining walls constructed in accordance with drawings.		
85. Batter slopes constructed in accordance with drawings.		
86. Batter slopes stabilised against erosion.		
87. Interim drainage constructed in accordance with drawings.		
88. All areas disturbed by the works have been rehabilitated.		
89. Allotment levels are as per the design plans.		
90. Verge levels are as per the design plans.		
SEWER RETICULATION The Works have been finally inspected and:		
91. Pipe layout is as per the plan or approved amendments with respect to pipe size, levels, and location.		
92. Pipework has been visually inspected and is considered satisfactory, i.e.: a. Pipework flush with internal walls of manhole; b. alignment and grade; c. flexible joints; d. line flushed and cleaned; e. no visible sign of trench subsidence; f. a density test of backfill is available and satisfactory;		

g. CCTV survey results submitted and satisfactory.		
93. Manholes and maintenance shafts have been constructed to the correct standards, i.e.: a. Cast in situ; b. Benching; c. curvature satisfactory; d. no ponding; e. profile satisfactory; f. no weeps (free of infiltration); g. concrete work; h. no honey combing; i. covers; j. covers checked to be gas tight; k. correct type; l. imprint in accordance with standards; m. depth of cover surround; n. depth of top slab; o. location; p. relative to allotment boundaries; and q. 50 to 75 mm proud of finished surface level.		
94. Material gradings for bedding material are available and satisfactory.		
95. Pressure test results are available and satisfactory.		
96. Manhole hydrostatic test all satisfactory.		
97. Sewerage connection Private Works fees paid.		
98. On-site sewer report provided (if applicable).		
99. PUMP STATION - refer separate PS checklist.		
WATER RETICULATION The works have been finally inspected and:		

100. Pipe layout and services fixtures (valves and hydrants) are as per the plan or approved amendments with respect to pipe size and location.		
101. Pipework has been pressure tested in accordance with Council's requirements and test results are available and satisfactory.		
102. Pipework has been chlorinated in accordance with Council's requirements.		
103. There are no visible signs of trench subsidence for leaks.		
104. Valves and hydrants have been inspected and a satisfactory, i.e.; a. Location; b. setts and surrounds correctly installed to prevent ingress of soil, etc; c. mortar packing to boxes correctly completed; d. depth to top of hydrant or valve stem within limits; e. dust caps to hydrants; f. colour of marker plate correct; g. direction of flow indicated; h. marking plates correctly installed; and i. size of plate correct.		
105. Material gradings for bedding material are available and satisfactory.		
106. Water supply connection Private Works fees paid.		
107. PUMP STATION - refer separate checklist.		
ROAD PAVEMENTS The works have been finally inspected and:		

108. Plan layout and geometry of Road system is in accordance with the drawings.		
109. Finish levels at Crown and channel are at design levels.		
110. Cross falls are to the approved plan.		
111. AC is satisfactory with regards to finish and thickness.		
112. Joints in the seal (especially where various development stages apply) are flush.		
113. The sealed surface is free of blemishes.		
114. All compaction test, material quality (CBR), material grading, AC core tests are satisfactory and available.		
115. Ponding of stormwater does not occur.		
SEGMENTAL PAVERS (Where Constructed) The Works have been finally inspected and:		
116. All pavers have been correctly laid to pattern, within allowable tolerance, compacted, and the joints filled;		
117. Bedding sand for pavers drains to subsoil drainage.		
118. Pavers adjacent to concrete kerb and channel, edge restraints etc have been cut and laid in accordance with all relevant requirements.		

Form 5 – Registered Engineer's Certification of "As Constructed" Works

This certificate registers evidence that the locations, surface and invert levels of all works and infrastructure presented on the drawings noted below and in the digital ADAC data have been surveyed and meet the accuracy standards as defined within the WRC Development Manual.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Contractor:	
Surveyor Name:	
Surveyor Firm:	

Drawings & Documents pertaining to the above:

Signed:

Date:

Form 6 – Registered Surveyor's Certification of "As Constructed" Works

This certificate registers evidence that the "As Constructed" drawings submitted herewith have been prepare, checked and amended in accordance with the requirements of the WRC Development Manual and that the completed works comply with the requirements therein.

Development Name:	
Development Location:	
File No.:	
Consulting Engineer:	
Consulting Firm:	
Surveyor Name:	
Surveyor Firm:	

Certification by Registered Surveyor (Consulting) attached: Yes / No

(Note: Certification is to be in accordance with the Development Manual).

Compliance with the manual Design Intent and Function not compromised by the "As Constructed" Works	**Compliance Yes/No**	**Non-Compliance refer to attached redesign of works to ensure satisfactory performance**
Earthworks		
Roadworks		
Stormwater Drainage		
• Flow System and Structures		
• Major Flow System and Structures		
Water Reticulation		
Sewerage Reticulation		
"As Constructed" Documentation		

Signed:

RPEQ No.

Date:

Tables of Appendix 1

Appendix 1 Index and glossary of abbreviations and acronyms

Table AP 1.1 Abbreviations and acronyms

Abbreviation/ acronym	Description
AEP	Annual exceedance probability
AHD	Australian height datum
ARI	Average recurrence interval
ASS	Acid sulfate soils
AS	Australian Standard
AO	Acceptable outcomes
AV	Articulated vehicle
BCA	Building Code of Australia
CO	Compliance outcomes
CPTED	Crime prevention through environmental design
DEHP	Department of environment and heritage protection
DFE	Defined flood event
DFL	Defined flood level
DNRM	Department of natural resources and mines
DSDIP	Department of state development, infrastructure and planning
DSTE	Defined storm tide event
DTMR	Department of transport and main roads
EP Act	*Environmental Protection Act* 1994
EPBC Act	*Environmental Protection and Biodiversity Conservation Act* 1999
ESCP	Erosion and sediment control plan
GFA	Gross floor area
GLA	Gross leasable area
GIS	Geographic information systems
GPS	Global positioning system
HAT	Highest astronomical tide
HRV	Heavy ridged vehicle
ICOMOS	International council on monuments and sites
km	Kilometre
LGIP	Local government infrastructure plan
LP Gas	Liquid petroleum gas
m	Meter
MCU	Material change of use
MLES	Matters of local environmental significance
MNES	Matters of national environmental significance

Abbreviation/ acronym	Description
MSES	Matters of state environmental significance
MU	Mixed use
PMF	Probable maximum flood
PMVA	Property map of assessable vegetation
PO	Performance outcomes
PSP	Planning scheme policy
QDC	Queensland Development Code
ROL	Reconfiguring of a lot
RPEQ	Registered professional engineer Queensland
SC	Schedule
SPA	*Sustainable Planning Act* 2009 (repealed)
SPP	State planning policy
SQMP	Stormwater quality management plan
SRV	Small rigid vehicle
the Act	*Planning Act 2016*
the Regulation	Planning Regulation 2017
TUA	Total use area
WQO	Water quality objectives
WRC	Whitsunday Regional Council
WWMP	Wastewater management plan

Tables of Appendix 2

Appendix 2 Table of amendments

Table AP 2.1 Table of amendments

Commencement date	Planning scheme version	Amendment type	Amendment description
30/06/2017	V3.4	Making a Local Government Planning Instrument	Whitsunday Planning Scheme 2017 was adopted.
03/07/2017	V3.5	Alignment amendment	Alignment with the Planning Act 2016.
29/06/2018	(LGIP) V1.6	Amendment to include a Local Government Infrastructure Plan (LGIP)	• Inclusion of Part 4 of the Planning Scheme; • Inclusion of Schedule 3 of the Planning Scheme; and • Amendment to Schedule 1 definitions to include LGIP terminology.
16/06/2018	V3.6	Administrative amendment and amendment to a Planning Scheme Policy (Schedule 6.8)	• Clarification of various outcomes, formatting and grammatical amendments; and • Amendments to Development Manual.
30/11/2020	V3.7	Interim LGIP Amendment	• Amendment to Part 4 and Schedule 3 to remove Water reservoir (W8) located in Bowen South; • Update Schedule of Works Model to reflect removal of Water reservoir (W8); • Align LGIP Version 1.6 with the Planning Scheme, such that both become Version 3.7.