Schedule 7. Planning scheme policies

SC7.1. Advertising devices planning scheme policy

SC7.1.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area if involving an advertising device. The application of the maximum signage will apply in the following zones: centre category zones, industry category zones, the specialised centre zone, and the sport and recreation zone unless stated otherwise in the development works code, zone code or overlay codes.

SC7.1.2. Purpose

This planning scheme policy provides direction on how to calculate maximum total sign face area of an advertising advice.

SC7.1.3. Advice for calculating maximum total sign face area

Compliance with the maximum total sign face area is a way of meeting the acceptable outcomes for advertising devices in the Development Works Code, and will assist in demonstrating that the location and type of signage does not visually dominate the streetscape.

The total sign face area for premises, is calculated using either of the following calculation methods:

- Method One - the street frontage boundary length calculation method; or
- Method Two - the building elevation calculation method.

The allowable total sign face area, is the greater of either of these two calculations. The total sign face area for premises includes the sign face area of all advertising devices on the premises. Where a preferred sign is capable of accommodating an advertisement on the front and back, the sign face area of one side only contributes to the total area. To remove any doubt, supporting frames and architectural features do not form part of the calculated total sign face area.

SC7.1.3.1. Method One - Boundary length calculation method

Under this method the total sign face area is calculated as the length of the site frontage multiplied by one (1) square metre to give a square metre calculation of the maximum allowable sign area for the given site. If located on a corner site that has been truncated, measure from the point created by extending both property boundaries facing the street through each other as if there was no truncation.

Note: For a site with more than one (1) tenancy or business, the maximum total sign face area calculated may be increased by twenty-five (25) per cent.

SC7.1.3.2. Method Two – Building elevation calculation method

The building elevation method is based on the height and width of a building fronting a street in which the advertising device is to be located or to which the advertising device will address.

Table SC7.1.3.2.1 below provides the basis for calculating the total sign face area for a site containing a single or multistorey building. For the purposes of Table SC7.1.3.2.1, the building width of a storey in a building is calculated by projecting the floor area of each storey onto a horizontal plane, then measuring the horizontal width of the frontage of each storey to the street frontage to which the advertising device will face.

Table SC7.1.3.2.1 — Basis for calculating using the building elevation method

Sign face area per metre of building width	Storey
1.0 square metres of sign face area per metre of building width	The ground level storey
0.5 square metres of sign face area per metre of building	The first storey above the ground level

Sign face area per metre of building width	Storey
width	storey
0.25 square metres of sign face area per metre of building width	For each additional storey

Note: For a site with more than one (1) tenancy or business, the maximum total sign face area calculated may be increased by twenty-five (25) per cent.

The manner in which the total sign face area is calculated is demonstrated using Figure SC7.1.3.2.1 and Figure SC7.1.3.2.2 below.

Figure SC7.1.3.2.1

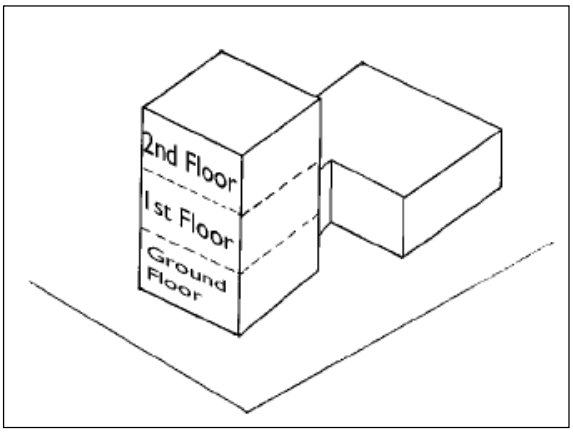
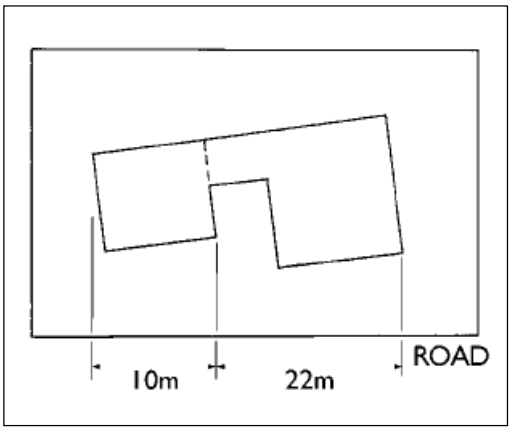


Figure SC7.1.3.2.2



For the scenario outlined above, based on Figure SC7.1.3.2.1 and Figure SC7.1.3.2.2:

- the total ground floor of the building measured at right angles to the road is thirty-two (32) metres
- the width for the first floor and the second floor is ten (10) metres each.

The calculation looks like this:

- (ground floor: 32m x 1m^2) + (first floor: 10m x 0.5m^2) + (second floor: 10m x 0.25m^2) = 39.5m^2.

SC7.2. Bushfire hazard planning scheme policy

SC7.2.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area, particularly where bushfire hazard needs to be considered.

SC7.2.2. Purpose

The purpose of this planning scheme policy is to:

(1) identify and provide guidance about information that may be required to support a development application where the site is affected by or at risk from bushfire hazards;

(2) provide guidance about the preparation of a bushfire hazard assessment report and bushfire hazard management plan; and

(3) identify Council's tolerable risk for development in bushfire hazard areas.

Editor's note—nothing in this planning scheme policy limits Council's discretion to request other relevant information in accordance with the Act.

SC7.2.3. Provision of bushfire hazard assessment report and management plans for development applications

(1) A Bushfire Hazard Assessment Report and Management Plan must be provided to support applications for Material Change of Use or Reconfiguring a Lot on land affected by bushfire hazard areas identified as having high potential bushfire intensity or very high potential bushfire intensity.

(2) Council may require that a Bushfire Hazard Assessment Report and Management Plan be provided to support applications for Material Change of Use or Reconfiguring a Lot on land affected by bushfire hazard areas identified as having medium potential bushfire intensity or on land within potential impact buffer areas.

(3) In cases where a Bushfire Hazard Assessment Report and Management Plan has been prepared for Reconfiguring a Lot, it will generally be considered acceptable for the same document to be used in support of a development application for Material Change of Use. However, in cases where detailed assessment shows that further site-specific information is required, Council may require the submission of a new or updated Bushfire Hazard Assessment and Management Plan with additional details in association with the Material Change of Use.

SC7.2.4. Qualifications of the preparer of the bushfire hazard assessment report and management plan

(1) The Bushfire Hazard Assessment Report and Management Plan must be prepared by a suitably qualified and experienced professional who has proven technical expertise in bushfire hazard identification, assessment and mitigation. The professional should also have qualifications and expertise in relation to the protection of biodiversity values, or if not, the person must take into account the recommendations/report(s) of another suitably qualified professional in relation to biodiversity values (where they are known or likely to be present).

(2) It is essential for the author(s) of a Bushfire Hazard Assessment Report and Management Plan to be able to satisfy all requirements documented in this Planning Scheme Policy.

(3) With regard to the assessment of expected radiant heat from a fire, where a Bushfire Hazard Assessment and Management Plan deviates from Method 1 of *Australian Standard 3959 Construction of Buildings in Bushfire Prone Areas*, the author(s) of the report must have the

necessary qualifications, expertise, and experience to be able to undertake assessment in accordance with Method 2. For example, this requirement may be satisfied if the author(s) hold Bushfire Planning and Design accreditation and are sufficiently qualified and experienced to assess fuel loads and follow the detailed methodology specified in Method 2 of the said Australian Standard.

SC7.2.5. Guidance for the preparation of a bushfire hazard assessment report and bushfire hazard management plan

The Bushfire Hazard Assessment Report and Management Plan are used by the assessment manager and end users (i.e., residents or occupants). The documents should accordingly contain the necessary level of technical detail and be written in a manner that is readily understandable for both stakeholders. Furthermore, clear expectations should be set regarding the level of hazard that can be expected, as well as the maintenance responsibilities for future occupants/ managers of the premises.

Consultation should be undertaken as part of the preparation of the Bushfire Hazard Assessment Report and Management Plan as follows:

(1) consultation with Council and the local branch of the Queensland Fire and Emergency Services at a minimum;

(2) where sites contain matters of environmental significance, consultation with Council or other relevant regulators so as to determine areas of significance to be protected and the extent to which other vegetation clearing should be avoided;

(3) where development relies on the management or maintenance of park land or other reserves in close proximity to the proposal, consultation with the managers of that land should be undertaken to establish a clear understanding of the expected fuel loads based on maintenance standards.

Bushfire Hazard Assessment Report

When assessing the level of hazard experienced by the development site, the assessment should include due consideration of the following:

(1) Macro context – The hazard assessment should:

  (a) have regard for locality-based bushfire behaviour (including on the basis of fire history); and

  (b) take into account the implications for fire hazard associated with nearby bushland up to ten (10) kilometres away from the site.

(2) Site context – The hazard assessment should:

  (a) take into account the following factors which influence bushfire behaviour and place constraints on development:

    (i) vegetation;

    (ii) aspect;

    (iii) slope;

    (iv) overall hazard;

    (v) environmentally significant areas;

  (b) Give due consideration to the following factors:

    (i) the ability to site buildings and structures downhill from the hazard to reduce risk;

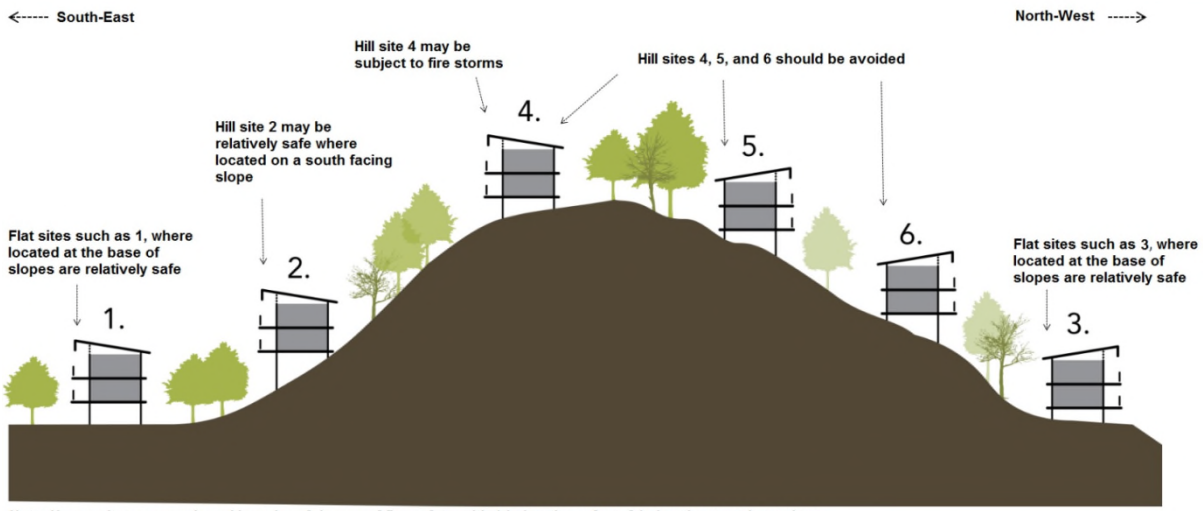
(ii) siting should not place development immediately above a source of bushfire hazard, or where this is unavoidable, siting should ensure adequate mitigation measures can be implemented;

(iii) siting should avoid ridge-tops and high hazard locations depicted in Figure SC7.2.5.1.

(iv) to establish a building pad, siting should rely on 'cut-in benches,' rather than fill that causes a development site to extrude towards a down-slope hazard source.

(3) Expected bushfire behaviour – The hazard assessment should include a consideration of the expected bushfire behaviour, taking into account both the macro and site contexts.

Figure SC7.2.5.1 Development site degree of safety



Note: House sites are numbered in order of degree of fire safety, with 1 being the safest, 6 being the most hazardous.

Bushfire Management Plan

A bushfire management plan is to:

(1) state the purpose, aim and objectives of the bushfire management plan; and

(2) define the level of hazard on the land and identify actions and responsibilities for the management and mitigation of the hazard.

All bushfire hazard and mitigation actions must be set based on the following principles:

(1) primary importance is to be given to the protection of life; and

(2) strong importance is to be given to the protection of property and the minimisation of detrimental impacts to the environment and economy.

Taking into account the above principles, as well as the Bushfire Hazard Assessment Report for the site, the Bushfire Management Plan should:

(1) Minimise risk to persons and property by identifying an appropriate location or options for development, taking into account the location and severity of bushfire hazard.

Advice:

(a) Development sites should be chosen where bushfire hazard is avoided or minimised. Where a location in a bushfire hazard area is demonstrated to be essential, medium potential bushfire intensity sites are preferred over high potential bushfire intensity sites and high potential bushfire intensity sites are to be avoided unless it is impractical to locate the use elsewhere. Very high potential bushfire intensity sites (as confirmed by site based assessment) are unacceptable.

(b) For a development application for Reconfiguring a Lot, the Bushfire Hazard Assessment Report and Management Plan should actively guide the design of the development to minimise hazard, rather than providing the assessment of the hazard levels experienced as a result of a particular subdivision design.

(2) Ensure that the site choice accounts for environmentally significant features and areas that need to be protected.

Advice:

(a) Advice regarding areas or features of environmental significance can be obtained from Council or the relevant State department, depending on jurisdiction.

(b) Although the Bushfire Hazard Assessment and Management Plan may have limited focus on hazard sources and environmental factors, other factors such as visual landscape quality may also have strong implications for site choice.

(3) For reconfiguring a lot, address the need for perimeter roads, open space, and other such arrangements to:

(a) ensure the distance between newly created lots and the hazard source(s) is sufficient to satisfy the requirements of the planning scheme Bushfire Hazard Overlay Code and the State Planning Policy; and

(b) achieve sufficient separation between the hazard source and newly created lots to ensure that the expected radiant heat exposure is no greater than 29 kW/m^2 - Bushfire Attack Level 29 (BAL 29) as per the Australian Standard 3959 Construction of Buildings in Bushfire Prone Areas.

(4) For material change of use, identify appropriately sized setbacks that are required to be maintained as buffers between the development and hazard source(s). In this regard, the Bushfire Management Plan is required to:

(a) ensure the distance between development and the hazard source(s) is sufficient to satisfy the requirements of the Bushfire Hazard Overlay Code and the State Planning Policy; and

(b) utilise Australian Standard 3959 Construction of Buildings in Bushfire Prone Areas to ensure that the inner protection areas of building protection zones are sufficiently sized to limit the expected radiant heat exposure to 29 kW/m^2 - Bushfire Attack Level 29 (BAL 29).

Editor's note: Setback areas are required for the purpose of establishing separation between development and hazard sources. Terms such as Defendable Space, Asset Protection Zones, and the like may be used to describe and establish requirements for setback areas.

(5) Identify any specific requirements for the management of setback areas/building protection zones.

(6) Identify limitations on the extent to which landscaping can be undertaken within the setback areas, and include guidance or requirements for species choice.

Advice:

Bushfire Protection Zones comprising inner and outer protection areas should be established wherever necessary, in accordance with best practice, to differentiate between landscaping requirements based on their proximity to the development.

(7) Recommend the minimum distance to be maintained between non-habitable structures and the hazard source(s).

(8) Provide access of an appropriate standard, taking into account:

(a) length, width, formation, and slope to ensure access is available to two wheel drive and emergency services vehicles to be able to enter and exit the premises during all weather conditions; and

(b) turnaround requirements for fire fighting vehicles.

Advice:

To enable fire fighting vehicles to enter and exit rural premises and bushfire trails in a forward direction, site specific circumstances should be evaluated and provision should be considered for:

(a) a turnaround area with an inner turning radius of six (6) metres and an outer turning radius of twelve (12) metres; or

(b) a 'T' or 'Y' head turning area designed in accordance with Austroads Design for an 8.8 metre vehicle, or other common vehicles used by the Queensland Fire and Emergency Service in the local area.

(9) Specify the minimum requirements for water supply and pressure, as well as materials, fittings, and construction arrangements associated with the provision of water supply.

(10) Identify any restrictions for building elements, such as the minimum distance between gas cylinders and water tanks.

(11) For development that utilises a Community Management Scheme arrangement and it abuts a source of bushfire hazard, ensure the following:

(a) suitably sized and maintainable setbacks are established such that development is not expected to be exposed to radiant heat greater than 29kW/m^2;

(b) clear maintenance requirements are set so that maintenance responsibility is placed on site occupants;

(c) areas required to be kept in a cleared and maintained state between the development and the bushfire hazard source(s) generally do not have a slope greater than eighteen (18) per cent or ten (10) degrees. Small areas up to twenty-five (25) per cent or fourteen (14) degrees may be considered acceptable, but need to be avoided wherever possible. Slopes above twenty-five (25) per cent are considered unacceptable.

(12) Where fire trails are proposed, the trails are required to:

(a) be located within easements with a minimum width of six (6) metres, which allow access by Council and the Qld Fire and Rescue Service;

(b) be four (4) metres wide at minimum;

(c) be cleared to a width of one (1) metre on either side;

(d) be suitable for two wheel drive vehicles;

(e) have a maximum slope of eighteen (18) per cent (ten degrees) where unsealed, or twenty five (25) per cent (fourteen degrees) where sealed;

(f) have a cross fall no greater than eighteen (18) per cent (ten degrees); and

(g) facilitate access and egress by fire fighting vehicles such that:

(i) the vehicles are able to enter and exit the bushfire trail(s) in a forward direction; or

(ii) a turnaround area is provided with an inner turning radius of six (6) metres and an outer turning radius of twelve (12) metres; or

(iii) a 'T' or 'Y' head turning area is provided, designed in accordance with Austroads design for an 8.8 metre vehicle, or larger vehicles used by the Queensland Fire and Emergency Service in the local area.

Advice:

The design of any fire trails should be prepared taking into account that Council does not maintain fire trails. Any proposals that rely on fire trails will be required to institute private maintenance arrangements, such as a Community Management Scheme.

(13) For development that involves the extension of an existing building, requirements are identified for mitigation measures that achieve compliance with the performance outcomes of the Bushfire Hazard Overlay Code.

(14) Take into account all requirements of the Bushfire Hazard Overlay Code.

(15) Include clearly articulated requirements for the on-going maintenance of the premises.

SC7.2.6. Tolerable risk

Council considers the level of risk to be tolerable where development is sufficiently removed from the source(s) of bushfire hazard so that the expected level of radiant heat exposure is no greater than 29kW/m^2 (BAL-29). Bushfire mitigation measures should be undertaken to reduce the expected radiant heat exposure to this extent.

SC7.2.7. Limitations of Bushfire Management Plan

Although a Bushfire Management Plan seeks to reduce risks from bushfire hazard to a tolerable level of risk, it must be recognised that the plan may not in itself prevent the loss of life or property. As such, the document should acknowledge this limitation and it should at least identify:

(1) the need for a Bushfire Survival Plan to be prepared by future occupants;

(2) that leaving too late, when a fire is approaching the area or the premises, is a common cause for fatalities during a bushfire event;

(3) that a decision to stay when a fire is approaching involves activating the Bushfire Survival Plan and undertaking planned actions before, during, and after the fire.

Advice:

A Bushfire Survival Plan template and/or guidance material can be obtained from the Queensland Fire and Emergency Service.

SC7.2.8. Checklist for compliance with Bushfire Management Plan

For complex proposals involving Reconfiguration of a Lot, a checklist for future Material Change of Use may be required to ensure successful implementation of the Bushfire Management Plan. This checklist should expressly include requirements for setbacks/building protection zones, water supply, access requirements and the like, to ensure that mitigation measures are in place and are functioning in accordance with the approved bushfire management plan.

As these measures will be required to be in place prior to the commencement of the use, a checklist will make it easier and clearer for land owners/purchasers to check development compliance. This will also assist building certifiers to fulfil statutory obligations to take into account the Material Change of Use requirements prior to the final inspection for the building(s) being passed.

The checklist in Table SC7.2.8.1 below may be used to confirm that a Bushfire Management Plan has been prepared in accordance with this Planning Scheme Policy.

Table SC7.2.8.1 Checklist for gauging compliance with the Bushfire Planning Scheme Policy

Summarised components of Bushfire Planning Scheme Policy	Compliance		
	Yes	No	If no, justifications provided
Assessment			
Macro context considered			
Site context (vegetation, aspect, slope, overall hazard, ecologically significant areas) addressed			
Mitigation measures			
Site chosen to minimise risk or keep risk within tolerable limits			
Site chosen to minimise detrimental impact on significant environmental features			
Appropriately sized setbacks/building protection zones recommended			
Management requirements for setback areas specified			
Landscaping limitations for setback areas specified			
Minimum distance between non-habitable structures and hazardous vegetation specified.			
Access requirements specified			
Water supply and pressure requirements (including materials, fittings, etc.) specified			
Additional building requirements specified (if any)			
Community Management Scheme requirements outlined (if applicable)			
Fire trail requirements addressed (if applicable)			
Bushfire Hazard Overlay Code adequately considered and addressed			
Pre-certification checklist prepared (for ease of use by certifiers to evaluate compliance with Bushfire Management Plan)			
Limitations of Bushfire Management Plan identified			
Maintenance requirements			
On-going maintenance requirements for occupants clearly specified			

SC7.3. Carpark planning scheme policy

SC7.3.1. Application

(1) This policy applies to non-residential development:

(a) identified in contribution areas in the localities of Yeppoon and Emu Park — for contribution charge rates set out in councils fees and charges; or

(b) other areas as resolved by the Livingstone Shire Council from time to time.

(2) Council will only consider applying this policy to development in the areas identified above where:

(a) the following circumstance:

(i) access to a site for the purposes of providing car parking will not be granted by the Livingstone Shire Council or State Government agencies; or

(ii) the site is occupied by a building which is listed on either the Local Heritage Register or the Queensland Heritage register which limits the land area available for on-site parking; or

(iii) the site fronts a designated active frontage street and alternative access to the rear of the site is not feasible; and

(b) the road / street to which the site has frontage is not proposed for widening or works, which would otherwise remove the provision of on-street parking; and

(c) Council is satisfied that:

(i) proposed on-site parking and movement arrangements will result in an undesirable, unsafe or inefficient vehicle parking and movement outcomes; or

(ii) a portion, or the entire allocation of on-site car parking, as stated in the Development Works Code:

(A) is not proposed to be provided on the site of the proposed development; or

(B) is deemed by the Livingstone Shire Council to be inappropriate.

SC7.3.2. Purpose

The purpose of this policy is to:

(1) prescribe those circumstances under which a developer can satisfy the relevant performance outcomes contained in the Development Works Code where the proposed development does not provide on-site car parking as required under the code;

(2) provide details for areas that qualify for this planning scheme policy and car parking contributions;

(3) provide details for how to calculate a cash-in-lieu contribution rate and the procedure for determining the amount of contribution payable where the performance outcomes contained in the Development Works Code are to be satisfied under this policy by way of an agreement;

(4) state the time for payment of the cash-in-lieu contributions where the performance outcomes are to be satisfied under this policy by way of an infrastructure agreement; and

(5) state information Council may request in relation to on-site car parking for a development application.

SC7.3.3. General provisions

(1) The policy does not replace a developer's obligation to provide on-site car parking.

(2) The policy adopts, as the requirement for a car parking space on a development site, the provisions of Australian Standard AS2890.

(3) Any car parking spaces constructed due to agreements involving non-provision, or constructed by a developer pursuant to a condition imposed pursuant to section 626 of the *Sustainable Planning Act 2009* shall remain available to the public and be administered by the Council.

(4) The car parking cash-in-lieu contribution rates are set in Council's fees and charges and apply in determining the applicable contribution for non-provision. Payments are subject to review by the local government.

SC7.3.4. How to satisfy the assessment criteria and information Council may request for assessment of an application

SC7.3.4.1. Determining the number of parking spaces required

(1) If a proposal provides the number of required on-site car parking spaces as described in Development Works code, the proposal satisfies the on-site car parking requirements and no further regard needs to be had to this policy.

(2) Council's assessment of the required number of car parking spaces will take into account, but is not limited to the following:

(a) zone code provisions and table of assessment parameters regarding the re-use of existing buildings or requirements for new development;

(b) the defined use of new development, land use mix and size of the development;

(c) the need for provision or on-site parking for residential purposes;

(d) whether the number or size of vehicles associated with a development (operationally or from clientele) will create a traffic hazard, queuing or create on-street parking congestion;

(e) whether there will be any adverse impact on the amenity of the surrounding locality due to solutions for car parking;

(f) the location of the site with respect to existing and proposed public car parking areas;

(g) the road or street as they relate to the road hierarchy;

(h) the location of the development in the Yeppoon Major Centre or Emu Park Local Centre;

(i) existing uses/activities on the site and the adequacy of existing car parking arrangements on the site and in the vicinity; and

(j) the configuration, topography and specific features of the site.

(3) Information required

When assessing a development application Council may request the following information:

(a) an empirical assessment of car parking demand in the locality;

(b) a quantitative assessment of any car parking deficiencies or surplus associated with the existing use of the locality;

(c) the availability of public transport in proximity to the development including an assessment of whether the public transport results in a reduced demand for parking for the development;

(d) an assessment of any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;

(e) an assessment of the peak demand for the proposed use and whether it would be staggered with existing uses in the locality;

(f) on-site movement including the location of vehicle and pedestrian ingress and egress and circulation within the site;

(g) design, layout and construction standards of Australian Standard AS2890; and

(h) any site specific matters considered relevant.

(4) Infrastructure agreement

Following the assessment of a development application, Council may, in order to ensure the development satisfies the performance outcomes of the Development Works Code:

(a) enter into an infrastructure agreement accepting the applicant's offer to make a cash-in-lieu contribution towards the provision of some or all of the required on-site car parks. The contribution would be set aside in a fund to upgrade parking, fund measures that will reduce parking congestion in the identified areas or carry out planning for future parking strategies. That may include additional parking in the road reserve, improved public transport measures or other measures aimed at reducing congestion. Any infrastructure agreement requiring the payment of a cash-in-lieu contribution will require the contribution to be paid to Council prior to the commencement of the use, with the Certificate of Classification only being issued after the contribution has been paid; or

(b) enter into an infrastructure agreement to accepting the offer that requires the applicant to undertake the construction of car parking or streetscape improvements in the road reserve in another location suitable to Council to a value equivalent to the 'in lieu' contribution that would be payable for the development under this policy, particularly where it is not possible or desirable to undertake streetscape improvements in the immediate road reserve. The location would be in the same parking contribution area as the development; or

(c) impose a condition on the development requiring the applicant to supply on site car parking; or

(d) impose a condition on the development requiring the applicant to supply public car parking infrastructure.

(5) Contribution charges

If Council considers that it is appropriate for it to enter into an agreement requiring the applicant to make a cash-in-lieu contribution, for the rates set out in Councils adopted fees and charges for the areas nominated in Figures SC7.3.4.1.1 and SC7.3.4.1.2

Figure SC7.3.4.1.1 - Emu Park car parking contribution area

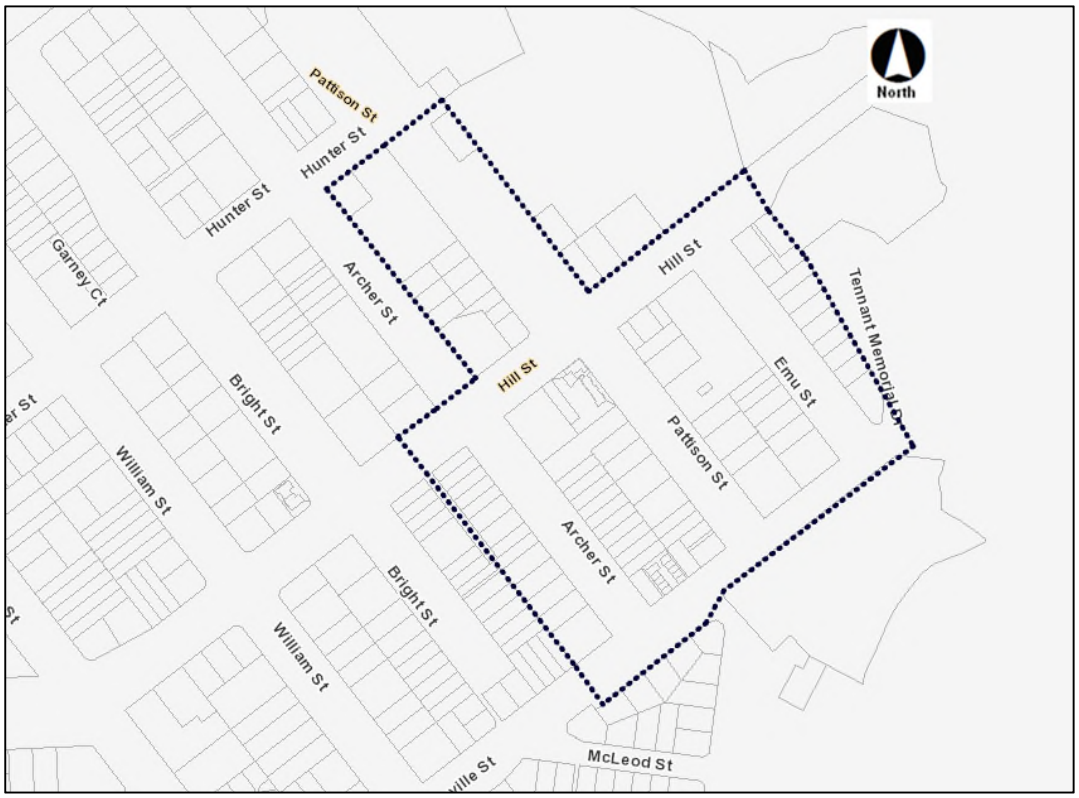
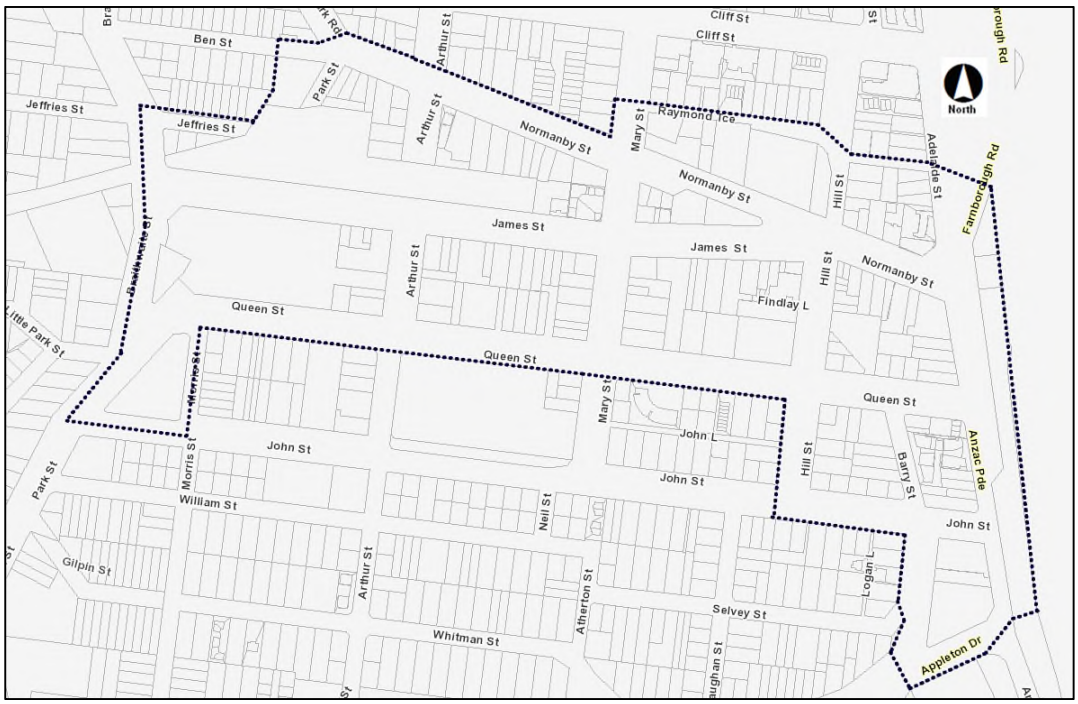


Figure SC7.3.4.1.2 - Yeppoon car parking contribution area



SC7.4. Coastal hazard planning scheme policy

SC7.4.1. Application

This planning scheme policy will assist development within the Livingstone Shire Council planning scheme area, particularly where coastal hazards are to be understood and considered for development.

SC7.4.2. Purpose

The purpose of this planning scheme policy is to:

(1) define the procedure to be followed in carrying out a coastal hazard assessment to determine the severity of coastal hazard risk, for development that may be exposed to storm tide inundation areas or be located in erosion prone areas;

(2) provide guidance on how to minimise coastal hazard risk by addressing the items required for a coastal hazard risk assessment;

(3) ensure development is sited, designed and managed to minimise the risk of coastal hazards to people and property;

(4) detail the requirements for preparing a shoreline erosion management plan (SEMP) to proactively plan for erosion management in erosion prone areas.

SC7.4.3. Coastal hazard mapping

“Natural hazards, which include flooding, landslide, bushfire, coastal erosion and storm-tide inundation, can cause loss of life, damage to property, infrastructure and the environment. These are often unpredictable in nature but can be planned for up to a defined likelihood.” (Source: Queensland State Planning Policy, July 2014 - http://www.dilgp.qld.gov.au/resources/policy/state-planning/state-planning-policy-jul-2014.pdf).

The Queensland Government has mapped coastal hazard areas along the Queensland coast. These maps are used as overlays in the Livingstone Planning Scheme and are indicative of the extent of Queensland’s coastal areas projected to be at risk from coastal hazards to the year 2100. The Queensland Government coastal hazard mapping has been included in this planning scheme for locations where detailed local studies have not been undertaken. Locations where local studies have been undertaken are shown on the coastal hazard area overlay maps.

The coastal hazard maps in this planning scheme show:

(1) erosion prone areas — due to storm impact and long-term trends of channel migration; and

(2) storm tide hazard areas.

SC7.4.3.1. Permanent inundation (coastal hazard - erosion prone areas overlay)

Permanent inundation as a result of sea-level rise will be experienced as shoreline erosion events in which the original extent of the foreshore is unlikely to recover from an erosion event.

SC7.4.3.2. Temporary inundation (coastal hazard – storm tide hazard areas overlay)

Temporary inundation (storm-tides) is an infrequent event, but it is not rare in Queensland and the effects on life and property can be dramatic. Unlike coastal erosion and permanent loss of land, storm tides do not permanently inundate areas and can generally last hours or days. The frequency, depth and longevity of inundation changes with elevation above the highest astronomical tide level (HAT). In simple terms HAT is the highest point a tide reaches during the year. People and development located on land that is flooded to a depth of a metre or more during a defined storm-tide event are at significant risk. This is due to the water depth being sufficient to generate damaging waves and the strength of tidal flows.

SC7.4.4. Coastal hazard risk assessment

As part of a development application a site specific coastal hazard risk assessment may be required, identifying appropriate risk mitigation measures before development in erosion prone or coastal hazard areas can be considered for approval.

A coastal hazard risk assessment must demonstrate that adverse coastal hazards that affect the safety of people and the operational and structural integrity of development are avoided or are able to be mitigated. This includes ensuring the development is able to continue to function and maintain its design lifespan without maintenance or repair beyond the normal requirements for a development of its type. The risk assessment is to outline how these impacts are avoided through location, design, construction and operating standards, including any coastal protection works.

SC7.4.4.1. Coastal hazard risk assessment process

(1) Identify if the development site is affected by coastal hazards. Firstly refer to the coastal hazard overlays contained within the planning scheme to determine if the site is affected. Where available, local scale mapping which takes into account local conditions may be used to establish whether the site is affected by coastal hazards.

(2) If the site is affected by coastal hazards then determine the nature of the hazard (temporary or permanent inundation) and the extent of inundation (depth and area) on the site. A survey of the site, by a registered surveyor, should be undertaken to create a property scale plan with the contours and topography at a scale to show the depths of inundation across the site.

(3) Determine the level of risk assessment required. Is the type of development considered to be minor, moderate or high level of intensification? Table SC7.4.4.1.1 sets out various types of development within a coastal hazard area and the likely category of that type of use. The proponent will need to provide sufficient information to support the scope of risk assessment chosen for a development proposal in a coastal hazard area.

Table SC7.4.4.1.1 — Classification of development intensification

Classify the scale of development intensification		
Minor intensification	**Moderate intensification**	**High intensification**
Description		
• Small number of additional persons living or working on site • Development does not involve constructing new community infrastructure such as roads or sewerage treatment plants	• Moderate number of additional persons living or working on site • Development may involve small scale community infrastructure such as a new local road	• Large number of additional persons living or working on site • Development involves construction of new community infrastructure such as local and feeder roads, major intersection upgrades, new railway stations, etcetera

(4) Determine the impact of the hazard on the proposed development. The nature and extent of a coastal hazard is measured assuming that no mitigation measures are employed. The measure of the impact of the hazard on the development must consider the following:

(a) its structural integrity over the life of the development;

(b) the safety and wellbeing of people;

(c) effects on short- and long-term operations; and

(d) whether the development is an essential community service.

(5) Identify potential measures that mitigate the risks to the development (including its operation) from exposure to adverse coastal hazard impacts for the life of the use of the site or to at least the year 2100. There may be different responses should the hazard be permanent inundation compared to temporary inundation above a defined storm tide event (DSTE). This may include design, siting and response options such as:

(a) filling land above inundation level (or partial filling combined with other actions);

(b) habitable rooms of the built structure being located above the assessed inundation level;

(c) a safe refuge available for people within the development site (appropriate for a temporary inundation event);

(d) a safe evacuation route above the inundation level;

(e) essential operational services (electricity, switchboards, pumps, hot water systems) that are located so they are not inundated during a defined storm tide event;

(f) associated infrastructure such as roads are located and constructed so they are not permanently inundated.

(6) Assess the viability of mitigation measures both onsite and offsite, taking into account environmental, social and financial factors. This includes considering the impact of the options on the development itself, associated infrastructure, neighbouring land use and development and public amenity taking into account long-term environmental, social and financial considerations. Assessing the viability of potential mitigation measures should also consider the most cost-effective manner in which to mitigate the risk. The cost of setting back the development, filling the development site, constructing coastal protection structures or building design measures should be weighed against the value, use and vulnerability of the development.

(7) After assessing the viability of potential mitigation measures, the preferred option(s) are to be identified, described and incorporated as part of the development proposal.

SC7.4.5. Preparing a shoreline erosion management plan (SEMP)

SC7.4.5.1. Purpose of a shoreline erosion management plan

In accordance with the coastal hazard overlay code, a shoreline erosion management plan may be required to proactively plan for erosion management in erosion prone areas.

Typically the identification of areas in need of a shoreline erosion management plans are mooted and prepared by local governments in consultation with the relevant state agencies.

Within the planning scheme area, Council is also investigating opportunities under the Coastal Hazard Adaptation Scheme (CHAS) program. That program may centre on a coastal hazard strategy for the majority of the shires coastline, as well as identifying the extent of the coastal zone and the development of shoreline erosion management plan for specific beach units.

The purpose of a shoreline erosion management plan is to:

(1) enable local government and developers to proactively plan for erosion management in priority areas where development proposals may negatively impact on erosion prone areas;

(2) investigate and address the underlying causes of shoreline erosion and likely future progression, at the local scale;

(3) determine cost-effective and sustainable erosion management strategies that maintain natural coastal processes and resource, and consider community needs in both the short-term and the long-term.

SC7.4.5.2. Benefits of a shoreline erosion management plan

A shoreline erosion management plan may be beneficial when:

(1) natural coastal processes in an area pose a threat to existing development, such as roads and other community infrastructure or multiple private properties, along a coastal sector; or

(2) existing or proposed land uses are disrupting natural coastal processes, or are increasing the erosion risk by destroying native vegetation, removing sand or altering land levels, or changing currents and wave actions which transfer erosion to other areas; or

(3) natural coastal processes need to be allowed to proceed by managing an area as an erosion buffer zone or by maintaining areas free of permanent development.

SC7.4.5.3. Inclusions in a shoreline erosion management plan

A shoreline erosion management plan may include, but are not limited to:

(1) Assessment, identification and review of factors comprising risk, physical coastal processes, implementation strategies and responses including:

(a) an assessment, analysis and documentation of the severity of shoreline erosion and the subsequent risks posed for the community and development within the area;

(b) a description of the local and regional coastal processes impacting the area (specifically sediment transport processes, hydrodynamic regimes and the role of plants in erosion control and land building);

(c) identification of the cause of shoreline erosion, the geomorphic system responses and likely future trends, in a manner that can be understood by all stakeholders;

(d) a review of the effectiveness and suitability of existing erosion responses and strategies being implemented (including an analysis of the structural integrity and effectiveness of any existing protection works) to determine if these are consistent with government policy. The identification of any knowledge gaps that may limit the management of shoreline erosion.

(2) Management options and strategies:

(a) the provision of technical descriptions of shoreline erosion or buffer zone management options;

(b) a ranking of management options with regard to environmental, social and economic cost benefits, sequentially prioritising options having regard to:

(i) minimising adverse impacts on coastal processes and biodiversity;

(ii) preserving areas of high conservation or ecological values with specific reference to areas of state significance (natural resources), coastal wetlands, biodiversity, environmental values and water quality objectives, and any relevant marine park zoning plan or declared fish habitat area. Other international, national, state and regional designations may also be relevant and should be identified and considered;

(iii) maintaining or enhancing buffer zones (dune, mangrove or riparian);

(iv) maintaining foreshore access and recreational amenity of the site;

(v) minimising the threat to permanent development;

(vi) minimising the risk within storm tide coastal hazard areas;

(vii) a recommendation of the preferred management strategy based on the ranking.

(3) Budgetary information, including:

(a) an outline of the estimated costs associated with the preferred management strategy and possible funding sources;

(b) a summary of potential sources and costs of materials should a preferred management strategy require the use of sand for nourishment or rock for seawalls.

(4) Implementation strategies, including:

(a) a program or strategy to implement preferred erosion and buffer zone management works;

(b) details of all federal, state and local government development approvals and requirements that may be required to undertake works associated with the recommended management strategies;

(c) a summary of how the preferred management strategy complies with all relevant legislation particularly the *Coastal Protection and Management Act 1995* and relevant Queensland Government coastal planning provisions.

SC7.4.5.4. Stakeholder roles in preparing a shoreline erosion management plan

Stakeholder roles in preparation of a shoreline erosion management plan may entail Council, the developer and the relevant State Government Department working together to develop and manage the shoreline erosion management plan. Council and the developer may administer the shoreline erosion management plan and be responsible for ensuring erosion mitigation measures are delivered once the details of the shoreline erosion management plan are agreed upon during the development approval process. The relevant State Government Department may also provide technical direction and expert coastal advice to proponents.

If the shoreline erosion management plan will impact on a local community, there should be consultation/dialogue on the proposed shoreline erosion management plan, whereby the community is asked to provide feedback on the management options provided. If the shoreline erosion management plan will impact on the broader community and is required to address more than one erosion prone area the development of the shoreline erosion management plan should generally be based on the following methodology:

(1) Divide the coastal section into logical units or localities for individual investigation. This could be based on physical boundaries, such as headlands or river entrances or administrative boundaries.

(2) Identify coastal resources, including wildlife and vegetation communities (such as shoreline vegetation, migratory shorebirds, nesting turtles, and intertidal communities), environmental values and water quality objectives of waters in each locality and their relative importance with regards to biodiversity conservation, water quality protection and maintenance of coastal processes.

(3) Identify and describe the physical coastal processes at work in each locality.

(4) Determine the threats within each coastal locality and describe present and emerging risks to people, property and the environment from shoreline erosion. In addition, the benefits of the coastal areas to the community should be outlined.

(5) This information is then used to outline the processes required to retain coastal resources and maintain or return a stable coastline. This should be based on a planning period of up to twenty (20) years and would comprise:

    (a) mapping the erosion prone areas showing the various land uses with particular emphasis on property, infrastructure (including roads and access points), existing coastal protection works and areas of high ecological significance; and

    (b) identifying or mapping existing coastal resources.

SC7.5. Environmental management planning scheme policy

SC7.5.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area, particularly where matters of environmental significance[1] need to be considered.

Reference should be made to this planning scheme policy if:

(1) the subject site is located in an area identified as containing matters of environmental significance; or

(2) the consequences of development may have an impact on an area containing matters of environmental significance; or

(3) Council may require a proposal to be supported by any combination of the following:

- (a) an ecological assessment report;
- (b) an environmental management plan; or
- (c) a rehabilitation plan.

SC7.5.2. Purpose

The purpose of this planning scheme policy is to contribute to the protection of biodiversity in the planning scheme area by:

(1) providing guidance on the process and information requirements in relation to:

- (a) achieving ecologically sustainable development by minimising adverse impacts caused by development and by maximising beneficial impacts of the development;
- (b) preparing an ecological assessment report, an environmental management plan, or a rehabilitation plan;

(2) providing information to assist in the design and formulation of development proposals which need to retain or integrate with areas containing matters of environmental significance;

(3) list locally significant trees, stands of trees and other vegetation.

SC7.5.3. Protecting biodiversity values

(1) Both the State and local government have an interest in protecting biodiversity values via the appropriate regulation of development.

(2) Measures to protect biodiversity values from impacts of development during site selection, construction and operation may include:

- (a) identifying and avoiding areas known to or likely to contain matters of environmental significance;
- (b) retaining native and locally significant vegetation through integration with development of the site and minimising edge effects (Council may condition a development to retain the vegetation through a mechanism such as a vegetation covenant);
- (c) enhancing retained vegetation through removal of weeds and strategic plantings of endemic native species;
- (d) rehabilitating with local endemic plants in undeveloped areas of the site where practicable before, during or immediately following completion of the development;
- (e) allowing native vegetation to regenerate in cleared or disturbed areas of the site except for fire breaks and building location envelopes;
- (f) landscaping with local endemic plants;

(1)

[1] This encompasses matters of National Environmental Significance (MNES), matters of State Environmental Significance (MSES) or matters of Local Environmental Significance (MLES).

(g) locating and designing public access to avoid disturbance to areas of biodiversity value through measures such as exclusion devices, legal covenants, signage and designated access points;

(h) avoiding or minimising alterations to the natural landform, hydrology and drainage patterns and groundwater recharge processes so that development on the site does not negatively affect areas of biodiversity value (as far as possible, natural topography must be maintained);

(i) incorporating measures that avoid or minimise the disruption of wildlife and their habitat and allow for their safe movement through or around the site (for example appropriate measures may include vegetated buffers, fauna-friendly fencing, wildlife underpasses and overpasses, road signs alerting motorists to fauna movement and associated speed restrictions, access restriction, exclusion or guide fencing, noise control and sensitive lighting, and use of nest boxes in retained or nearby vegetation);

(j) implementing effective measures to prevent disturbance or predation of native fauna from domestic and pest species, such as exclusion zones which prevent physical entry to identified areas (where practicable);

(k) implementing effective measures to anticipate and prevent the entry or spread of pest plants and animals in the areas of biodiversity value relevant to the development;

(l) retaining biodiversity corridor values;

(m) retaining riparian vegetation;

(n) minimising potential changes in fire regimes and the need for fire breaks on areas outside building location envelopes;

(o) clustering development lots and building location envelopes and minimising development footprints to maximise the ecological connectivity of native vegetation within the subject site and on adjoining properties;

(p) minimising edge effects on retained areas of biodiversity value by retaining vegetation in the largest possible patches with the smallest possible perimeter to area ratios; and

(q) co-locating required infrastructure, building location envelopes and service and access corridors and locating in existing cleared areas where possible to minimise impacts on areas of biodiversity value.

(3) Where development occurs adjacent to areas with biodiversity values, impacts are mitigated by:

(a) setting back buildings and structures as far away from the areas with biodiversity values as possible. Particular attention should be given to the future operation and potential impacts of nuisance (such as noise, light, vibration);

(b) retaining native vegetation to the greatest extent possible adjacent to the area with biodiversity values;

(c) allowing for the regeneration of native vegetation to the area or rehabilitating with locally endemic plants in non-vegetated areas of the site adjacent to the area with biodiversity values, immediately following practical completion of the development, and landscaping with local endemic plant species;

(d) locating and designing public access to avoid disturbance of ecological values in the adjacent area with biodiversity values;

(e) avoiding or minimising alterations to the natural landform, hydrology and drainage patterns and groundwater recharge processes so that development on the site does not negatively affect areas of biodiversity value (as far as possible, natural topography must be maintained);

(f) incorporating measures that avoid the disruption of threatened wildlife and their habitat and allows for their safe movement through the site to the adjacent area with biodiversity values. Appropriate measures may include vegetated buffers, fauna-friendly fencing, wildlife underpasses or overpasses, road signs alerting motorists to fauna movement,

noise control and sensitive lighting (for example ensuring artificial lighting as seen from a turtle nesting beach is not increased), and use of nest boxes in retained or nearby vegetation;

(g) implementing effective measures to prevent disturbance or predation of native fauna from domestic and pest animal species;

(h) implementing effective measures to prevent the entry or spread of pest plants;

(i) minimising potential changes in fire regimes and the need for fire breaks on areas outside building location envelopes and fire trails;

(j) minimising the need for local government mosquito and biting midge control measures;

(k) ensuring structures as a result of the development minimise shading of areas with biodiversity values;

(l) rehabilitating undeveloped areas of the site where practicable before, during and immediately following completion of the development;

(m) retaining and enhancing ecological corridor values;

(n) clustering development lots and building location envelopes and minimising development footprints to maximise the ecological connectivity of native vegetation within the subject site and with vegetation on adjoining properties, and minimise edge effects on retained areas of biodiversity value by retaining vegetation in the largest possible patches with the smallest possible perimeter to area ratios; and

(o) co-locating infrastructure and building location envelopes and service and access corridors in existing cleared areas where possible to minimise impacts on areas of biodiversity value.

(4) Within biodiversity corridors, protection of wildlife movement can be enhanced by:

(a) incorporating fauna-friendly fencing;

(b) fencing to exclude domestic, livestock and pest species or encourage the regeneration of native vegetation;

(c) including wildlife underpasses and overpasses;

(d) installing road signs alerting motorists of fauna movement;

(e) retaining habitat trees;

(f) using nest boxes and other supporting measures used;

(g) applying appropriate buffers and setbacks;

(h) applying appropriate levels of access, lighting and noise;

(i) fencing to exclude domestic and pest species, encourage revegetation and prevent predation;

(j) ensuring that development (for example roads, pedestrian access, in-stream structures) both during construction and operation does not create barriers to the movement of fauna along or within biodiversity corridors;

(k) providing wildlife movement infrastructure where necessary and directing fauna to locations where wildlife movement infrastructure has been provided to enable fauna to safely negotiate a development area;

(l) separating fauna from potential hazards (for example through fencing);

(m) using exclusion fencing that does not result in a barrier or hazard to the movement of fauna to manage the threat of pest species and to prevent stock from carrying weeds and exotic plants into the corridor; and

(n) during construction and operation of development, corridor biodiversity values are protected from impacts associated with noise, light or visual disturbance in the following ways:

(i) lighting is managed to ensure it does not have an adverse effect on the fauna values of a biodiversity corridor, in accordance with expert ecological advice;

(ii) noise is managed to ensure it does not have an adverse effect on the fauna values of a biodiversity corridor, in accordance with expert ecological advice;

(iii) visual disturbance is controlled to ensure it does not have an adverse effect on the fauna values of a biodiversity corridor, in accordance with expert ecological advice. Visual disturbance may be controlled through exclusion of activities in certain areas (for example, line of sight buffers, exclusion fencing) and the use of visual screens, or similar, during sensitive periods such as breeding and roosting periods.

SC7.5.4. Vegetation clearing

(1) Applications for clearing of significant vegetation are required to:

(a) demonstrate that the vegetation:

(i) is in poor condition and it is not practical to retain it; or

(ii) is a risk to public safety; or

(iii) is causing an impediment to infrastructure; or

(iv) is no longer environmentally significant; and

(b) provide expert advice to support the proposal (including details of landscaping proposals for the enhancement of a site) including:

(i) reasons, with appropriate evidence, for clearing of the locally significant vegetation; and

(ii) an accurately drawn site plan and/or other information that identifies the locally significant vegetation to be cleared; and

(iii) details of the method proposed for the processing and disposal of cleared vegetation.

(2) The acceptable method for disposal of cleared vegetation will be nominated by Council as a condition of an approval and may include:

(a) wood chipping or preparation/use for landscaping purposes;

(b) preparation/use as firewood; or

(c) transportation off-site for processing by another lawful process.

(5) Burning of cleared vegetation is not an acceptable method of disposal within urban and future urban areas defined in the Strategic Framework, except where a relevant permit from the local fire brigade has been provided to Council.

(6) Vegetation clearing is required to be cleared in a planned sequence in the presence of a qualified fauna spotter to provide opportunities for fauna to vacate affected land.

SC7.5.5. Ecological assessment reports

An ecological assessment report is a tool used to provide detailed information about a development proposal, the potential ecological impacts of the proposal and the measures proposed to avoid or minimise adverse impacts. As a result each ecological assessment report is specific to the individual proposal.

Where a development site is subject to the provisions of this policy, the proponent is strongly encouraged to meet with council officers prior to lodgement of the application. This will assist in determining and clarifying the relevant items to be addressed in the report. As a general guide the following format and contents description indicates the items required to be detailed:

(1) Introduction:

(a) title and address of proposed development;

(b) qualifications of author:

The ecological assessment report must be prepared by a suitably qualified person (tertiary qualifications in ecology, conservation biology, environmental planning, or other appropriate disciplines). In addition persons undertaking this report must be suitably experienced in the survey, assessment and reporting of the ecosystems, flora, fauna and threatening processes occurring in the Livingstone region. References and experience of the author (such as other similar reports prepared by the consultant or consultants) should also be included.

(2) Federal ,State and local interests:

The report should address any applicable legislation (both at federal and state level), and relevant local government policies and codes, other relevant plans and associated guidelines.

(3) Overview:

The aim of the overview is to provide a clear and concise summary of what is discussed in the report, leaving the reader with a clear understanding of the reports detailed assessment of the proposals potential impacts and measures to minimise the potential adverse impacts. The following may assist in conveying this information:

(a) background and scope of proposal — summarise the proposed development including the purpose and objectives, addressing the construction and operation of the project and associated infrastructure developments;

(b) existing environment — summarise the features of the physical, biophysical and built environment relating to the proposed development and associated infrastructure;

(c) potential impacts of the proposed development — summarise the main potential impacts of the project (direct, indirect and cumulative), both beneficial and detrimental, and any alternatives, on the existing environment;

(d) impact monitoring, protection and management procedures;

(e) summarise the safeguards, standards and management procedures proposed to protect the environment, including environmental monitoring and the methods proposed to ameliorate or alleviate the potential impacts; and

(f) conclusions — summarise the key strategies and measures to the proposal to address any adverse environmental impacts.

(4) Background and scope of proposal:

(a) outline in detail the purpose and objectives of the proposed development;

(b) discuss the following to illustrate the background of the proposal:

(i) the need for the proposed development or works;

(ii) the history of the proposal's formulation;

(iii) any alternatives considered and reasons for choosing the preferred option;

(iv) action already taken to minimise potential adverse impacts;

(c) provide a description of the project, addressing:

(i) the precise nature and scale of works;

(ii) the location and site requirements;

(iii) the plant and/or building layout, size and design and the development staging program;

(iv) the range and quantity of materials to be produced;

(v) the production process;

(vi) possible waste discharges;

(vii) on-site works and operations;

(viii) off-site works and operations;

(ix) transport systems;

(x) infrastructure requirements (water, sewerage, energy, waste disposal);

(xi) the workforce;

(xii) project life and time scale for completion;

(xiii) the possible future expansion of associated development/works;

(d) use of resources:

(i) detail the implications of the proposal for the use of natural resources, including the quantity and source of water, raw materials and energy to be used.

(5) Existing environment:

The existing environment of the site and surrounding areas should be described in sufficient detail to allow the ecological impacts of the proposal to be accurately and adequately assessed, and to provide a baseline against which predicted and future changes can be established. This section shall address features such as the physical, biophysical and built environment relating to the proposed development and associated infrastructure. The following provides a comprehensive, but not exhaustive, list of elements, which may need to be discussed to enable an adequate assessment on potential ecological impacts.

(a) site and locality;

(b) physical features including:

(i) landform, geology and geomorphology;

(ii) hydrology (surface water and groundwater);

(c) climate;

(d) water quality;

(e) air quality;

(f) noise environment;

(g) coastal processes (if applicable);

(h) waterways, including:

(i) details of adjacent waterways;

(ii) nature of the waterway (fresh/salt water);

(iii) riparian vegetation;

(iv) existing disturbances;

(v) plans showing tidal levels or banks;

(i) ecological status/significance including:

(i) types, structure and location of vegetation associations on the site and surrounding areas, including measures of foliage cover, health and natural regeneration;

(ii) species of flora and fauna (aquatic and terrestrial, native and introduced), weed and pest species, including the location and abundance of each species, especially the presence of rare or endangered species;

(iii) conservation significance — local, regional and national status;

(iv) special ecological values of the site such as refuge habitat, a breeding habitat, a corridor for wildlife movement and use by migratory species;

(j) social cultural and economic characteristics;

(k) indigenous and cultural history, including consultation with the environmental protection agency indigenous sites database and traditional owners regarding potential impacts to cultural heritage values;

Editor's note — where an information request requires a cultural heritage survey to be submitted for assessment, it is recommended the survey be undertaken in consultation with the relevant Indigenous owners and by a cultural heritage practitioner under a permit issued by the Environmental Protection Agency pursuant to *Aboriginal Cultural heritage Act 2003.*

(l) landscape character and visual amenity;

(m) infrastructure, addressing items such as:

(i) transport;

(ii) water supply;

(iii) effluent treatment and disposal;

(iv) solid waste;

(v) power and communications.

(6) Potential impacts of the development on the existing environment:

Identify and detail the nature of any potential impacts, including cumulative impacts of the development on the existing environment including joint resolution of conflicts between economic, social and environmental impacts. These may be adverse or beneficial, direct or indirect, short- or long-term or incremental and are to be considered for both the construction and operation phases of the development. Detail any irreversible commitment of resources that would be involved if the proposed development is implemented. Discussion on the potential impacts of the development on the existing environment should include potential impacts on:

(a) bio/physical features including:

(i) geology and geomorphology; and

(ii) hydrology (surface and groundwater);

(b) ecological status/significance;

(c) air quality;

(d) water quality;

(e) noise levels;

(f) coastal processes (if applicable);

(g) waterways, including:

(i) proposed disturbance to waterways;

(ii) reasons for the disturbance;

(iii) disturbance of any marine or riparian vegetation;

(h) infrastructure;

(i) safety and risk assessment including:

(i) potential events;

(ii) safety program;

(7) Mitigation strategies:

Prepare proposal plans and management plans detailing the location, extent and nature of all measures designed to prevent, avoid, mitigate and/or manage the identified impacts. Information must clearly demonstrate how the proposed mitigation strategies will enable the proposal to meet the nature conservation obligations as described in the relevant statutory planning mechanisms.

(8) Biodiversity survey principles:

Observe the following principles when undertaking a biodiversity survey for flora and fauna species and/or vegetation communities:

(a) any survey program should account for the life histories and habitat requirements of native wildlife known or likely to inhabit a site. A survey program must provide adequate coverage of all habitat types within the subject site, including ecotones, as well as use survey techniques that are suited to the flora and fauna species and vegetation communities being surveyed and to the site characteristics.

(b) identify aspects of the survey program that may affect the quality of data collected and adequately address these aspects. This may include the following influencing factors:

(i) seasonal and daily variation in fauna breeding, foraging and migration patterns;

(ii) prevailing weather conditions on survey days for example temperature, humidity, rainfall or wind;

(iii) general weather conditions prior to survey;

(iv) habitat coverage;

(v) duration of the surveys for example number of trap nights;

(vi) timing of the surveys for example diurnal, nocturnal or early morning;

(vii) observer skill and experience.

(c) assess and redress the accuracy and validity of survey findings when these aspects are taken into account.

(d) ensure data is collected in a consistent format and is transparent and repeatable.

(e) always employ practices that avoid or minimise environmental impacts or disturbances when undertaking any ecological investigation or survey.

(9) Impact monitoring, protection, risk management and post development management procedures:

(a) An environmental management plan should be prepared for the development to outline measures to maintain or monitor potential impacts of a proposal (refer to section 6.8.6 of this policy for detail on an environmental management plan).

(10) Consultation:

The applicant/consultant should consult with relevant interest groups and parties likely to be affected by the proposal, and issues generated should be documented along with any proposed measures to address these issues.

(11) References:

(a) list other reference material and literature used;

(b) list authorities consulted and contributors to the report; and

(c) cross-reference the reference material in the text to allow easier access to information.

(12) Appendices:

(a) include detailed technical information collected through the investigation; and

(b) include relevant documents or correspondence from Government authorities.

SC7.5.6. Environmental management plans

(1) An environmental management plan (EMP) seeks to ensure that the potential impacts of development on the environment are identified and adequately controlled. An environmental management plan is a written description of what levels of environmental management are intended to be achieved and how it is proposed to achieve them. This can include construction, operational and decommissioning or rehabilitation stages of a development.

(2) Environmental management plans will vary for each site or location based on the different characteristics and issues for each proposal. The environmental management plan allows the

Council to assess how the issues associated with a proposal on site will be managed to maintain or enhance its environmental values. The range of issues that may be addressed in an environmental management plan include, but is not limited to, the following:

(a) acid sulfate soil;

(b) air quality;

(c) biting insects;

(d) buffer area management;

(e) building/structure conservation or retention;

(f) bushfire risk management;

(g) climate change (adaptation and mitigation)

(h) energy efficiency and management;

(i) erosion and sediment control;

(j) fauna;

(k) groundwater

(l) land stability;

(m) loss of topsoil and associated dust problems;

(n) management of activities and events, including monitoring and corrective action;

(o) management of the impacts of land uses on surrounding sites;

(p) natural and cultural heritage preservation/management;

(q) noise control;

(r) rehabilitation of sites including landscaping;

(s) resource and waste management;

(t) stormwater management;

(u) vegetation management;

(v) visual amenity;

(w) water quality,waterway health, and hydrological change;

(x) weed control; and

(y) wetlands.

(3) Essential components of an environmental management plan must aim to:

(a) identify all aspects of the project that require environmental management;

(b) establish agreed performance criteria in relation to environmental and social impacts;

(c) detail practical and achievable prevention, minimisation and mitigation strategies (including design standards) for controlling environmental impacts of the proposal at specific sites;

(d) detail the proposed monitoring of the effectiveness of remedial measures against the agreed performance criteria based on legislative requirements and government policies. The frequency of monitoring for each parameter and proposed location of monitoring sites should be shown to allow consideration of monitoring in risk assessment;

(e) detail the features of alternatives investigated and the reasons for choosing the preferred option;

(f) identify the authority and their responsibility for implementing management measures during both construction and operational stages of a proposal;

(g) include timing (milestones) of environmental management initiatives;

(h) identify reporting requirements and auditing responsibilities for meeting environmental performance criteria;

(i) establish procedures for monitoring and reporting incidents;

(j) detail courses of action (and responsibility) for responding to incidents or non-compliance and emergency events which may be detailed or arise;

(k) identify corrective actions to rectify any deviation from performance standards; and

(l) include provision of accurate maps to support/illustrate any of the above.

The suggested format for the environmental management plan is as follows:

(1) Introduction:

(a) description of the development proposal;

(b) the need for the environmental management plan in relation to the development; and

(c) structure and scope.

(2) Aims of the environmental management plan:

(a) provide a framework which outlines how the development proposal will address and monitor the significant environmental impacts of the proposal;

(b) illustrate compliance with legislative requirements and government policies; and

(c) provide evidence that the works and operations are being conducted in an environmentally responsible manner.

(3) Identification of environmental issues and activities likely to impact the environment and associated management actions:

(a) for each issue or activity, outline the following:

(i) policy for addressing the issue/activity;

(ii) performance criteria;

(iii) implementation strategy;

(iv) monitoring program; and

(v) details of how reporting will influence mitigation measures and how reporting is to take place.

SC7.5.7. Rehabilitation plans

A rehabilitation plan is prepared where rehabilitation of a site(s) is proposed to be or required to be undertaken. The requirement for this would be discussed during the deliberation for a development and as a condition of approval, infrastructure agreement or requiring works as a result of clearing works undertaken without approved. A rehabilitation plan must include the following:

(1) Methodology

(a) describe the process used to develop the plan;

(b) include all field surveys, mapping data and literature used; and

(c) provide background information and describe the complexity of the project.

(2) Environmental values

(a) describe the key environmental values within and adjoining the rehabilitation area, these may include but not be limited to fauna or flora, vegetation communities, cultural heritage, geological, habitat, environmental corridors or biophysical values.

(3) Ecosystem threats

(a) describe the current and future threats to ecosystem and environmental values, this may include but not be limited to weed infestation, illegal access, erosion, grazing,

inappropriate fire or hydrological regimes, inappropriate access, sedimentation or salinity.

(4) Ecosystem condition

(a) identify the condition of ecosystems within the rehabilitation area, which is referenced and used to determine management objectives and activities; and

(b) the current condition should be accompanied by a series of photographs taken from established reference points.

(5) Rehabilitation targets

(a) determine appropriate and realistic rehabilitation targets based on assessment of ecosystem threats and condition.

(6) Overall rehabilitation goals

(a) provide an overarching statement of the desired outcome(s) for the rehabilitation plan.

(7) Rehabilitation objectives

(a) develop objectives to meet rehabilitation goals which will form the basis of the rehabilitation plan; and

(b) objectives can be used to set milestones and determine rehabilitation progression.

(8) Rehabilitation activities

(a) identify and describe all activities that are required to meet the objectives. (it must be clear what activities will be undertaken during the project and how they will be implemented).

(9) Performance criteria

(a) performance criteria must be measurable, specific and relate directly to rehabilitation goals, objectives and activities; and

(b) the performance criteria may include but not be limited to floristic and structural vegetation parameters, weed abundance, erosion, natural revegetation, recruitment, vegetation condition and fauna populations an may be appropriate.

(10) Management zones

(a) for clarity it is important to identify management zones based on rehabilitation activities;

(b) define which parts of the rehabilitation area will be retained, regenerated and or revegetated. The management zones must be provided in a geographical information system spatial layer or a clearly annotated site map/aerial photograph.

(11) Implementation schedule

(a) determine an appropriate implementation schedule stating what activities will be undertaken during development and what activities need to be continued once transferred to Council. To improve the handover process to Council it is necessary to identify at what stage Council will need to continue with rehabilitation activities.

(12) Monitoring and reporting

(a) provide a monitoring and reporting schedule that will be implemented over the duration of the project. Work records of all activities including photos of the works must be submitted to Council quarterly for the duration of the project (includes the maintenance period).

SC7.6. Flood hazard planning scheme policy

SC7.6.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area, particularly where areas affected by flood hazards need to be considered for a development application.

Reference should be made to this planning scheme policy when preparing a flood hazard risk assessment, flood study, or a flood impact report to demonstrate the suitability of development.

SC7.6.2. Purpose

The purpose of this planning scheme policy is to:

(1) Provide a technical guide to aid the assessment of development applications on land affected by flooding against the risk, hazard and adverse consequences caused by flooding;

(2) define the procedure to be followed in carrying out a flood hazard risk assessment to determine the severity of flood risk a site may be exposed to and to identify measures to eliminate or minimise flood risks by addressing the items required for either a flood impact report or a flood study;

(3) quantitatively and qualitatively trade-off the economic, social, environmental costs & benefits of conducting activities on the floodplains against the risk, hazard and adverse consequences to those activities caused by the flooding; and

(4) ensure land uses and other developments are sited, designed and managed to minimise the risk of flooding to people and property.

SC7.6.3. Floodplain risk management

SC7.6.3.1. Introduction

The flood management strategy used by the Council is based on the principles of floodplain risk management to ensure that development on a floodplain only occurs having regard to:

(1) the compatibility of the development type with the flood hazard to minimise the risk to people's safety or structural damage to buildings; and

(2) the social, economic and environmental costs and benefits of developing within a floodplain when balanced against the flood risks; and

While development controls may apply to land affected by the Defined Flood Events which is typically, but not always a 1% AEP flood event, significantly larger floods can occur up to a Probable Maximum Flood. Some types of development that are more susceptible to flooding will need to consider, mitigate for or design to floods larger than the 1% AEP.

When considering the safety of people, a full range of flood probabilities up to the probable maximum flood need to be considered. Development should not wholly rely on Council's disaster management response for managing the risk with such rare floods, although it is a consideration in managing the risk.

SC7.6.3.2. Sources of flooding in the Livingstone Shire

Types of flooding that may affect premises in the planning scheme area are:

(1) River and Creek flooding (Watercourses[1]). In relation to a watercourse, this means floodwater[2] overflowing the outer banks normally onto the adjacent floodplain[3]. For the Fitzroy River watercourse the flooding warning time may be a few days. For local creek watercourses, the flooding warning time may several minutes to an hour depending on the catchment size, shape and slope.

[1] Watercourse As defined by Water Act 2000
[2] Floodwater As defined by Water Act 2000
[3] Floodplain As defined by Water Act 2000

(2) Gully flooding (Drainage Feature[4]). In relation to a drainage feature, this means floodwater overflowing the outer banks onto the adjacent land. For local gully drainage features, the flooding warning time may be only a few minutes.

(3) Overland flow[5]. This is the local gravity flow of stormwater[6] and path of stormwater towards a drainage feature or a watercourse. The conveyance of overland flow by property owners is to be consistent with the health and amenity intentions of a range of legislation for buildings and the environment. These areas will not be mapped.

(4) Drainage problem area flooding – This is typically areas where the topography ground slope is so flat that conventional gravity flow of stormwater is not possible, and significant ponding results during rain events. Some known drainage problem areas are also represented in the following overlays: wetlands and waterways, drainage problem (information overlay only), flood hazard and storm tide hazard areas. Conventional gravity design infrastructure is normally inadequate. For coastal sand dune drainage problem areas, any residual ponding level and duration will depend on groundwater aquifer levels.

(5) Storm-tide flooding – this is the effect on coastal water levels of a storm surge combining with the normally occurring astronomical tide. Storm surge is a rise above normal water level due to the combined effects of surface wind stress and atmospheric pressure fluctuations caused by severe weather conditions such as tropical cyclones. The flooding warning time may be a couple of hours.

(6) Tidal inundation – this is the regular and periodic inundation of estuarine areas typically characterised by land located below the highest astronomical tide level.

SC7.6.4. Flood Hazard

SC7.6.4.1. Flood Hazard Components

Flood hazard is a measure of safety which is applied to people, vehicles and structures during a flood. It represents the potential risk to life, health, risk of serious injury and potential damage to property resulting from flooding and may be directly caused by floodwaters (e.g. flood loads on structures) or an indirect action (e.g. a higher risk of electrocution due to major electrical services being inundated).

The derivation of flood hazard is based on the determination of hydraulic hazard with the main determinant being related to the velocity of the floodwater and flood depth.

The degree of flood hazard is related to the severity of the hydraulic hazard (depth and velocity) but may be influenced by warning time, emergency management and population density.

Hazard characteristics of floodwaters vary within the Fitzroy River, waterways/creeks and overland flow paths. As a result, flood hazard and hazard management solutions are also vary.

Factors which determine flood hazard include:

(1) size of flood;

(2) depth and velocity of flood waters as determined by the size of the flood and the hydraulic characteristics of the river and its floodplain;

(3) effective warning time and rate of rise of floodwaters which is influenced by catchment characteristics and the rainfall event(s) which caused the flood;

(4) duration of flooding, being how long people and property are cut off by flood waters;

(5) obstructions to the flow of floodwater, which may be caused by buildings, embankments, bridges, built-up lands and fences blocked with debris;

(6) flood awareness, as a high degree of community awareness leads to quicker response times by members of the community when flood warnings are issued;

(7) access, being the availability of trafficable roads to facilitate evacuation or provision of supplies;

[4] Drainage Feature As defined by Water Act 2000
[5] Overland Flow As defined by Water Act 2000.
[6] Flow of Stormwater In accordance with Local Government Act 2009

(8) evacuation problems, which may be affected by depth and velocity of floodwaters, ability to leave the flood affected land on foot (wading) or by vehicle, distance from flood free ground and degree of isolation;

(9) potential for damage, which is influenced by the amount and type of development in a flood prone area; and

(10) health issues

SC7.6.4.2. Flood Velocity

The velocity of floodwater greatly influences the ability of people to safely wade or evacuate an area, on foot or by vehicle. It may also limit the ability for emergency services to respond to people at risk. Velocity also has significant impact on the structural integrity of buildings and the resulting damage that may occur, both from the forces of the floodwater itself and from debris impacts on such structures. However, velocity will vary with the severity of a flood event and even backwater areas may experience significant velocity during an extreme flood such as the probable maximum flood.

Rivers, Creeks and Gullies are areas where higher flow velocity is expected in Minor and Major storm flood events. Lowest parts of the creek areas that would typically flood more frequently, such as areas within the 10% AEP flood extent, are generally at the highest risk of exhibiting unsafe velocity because they represent the floodway of creeks conveying a large proportion of total flood flows. Shallower areas that are not regularly flooded are identified as flood fringe areas that would typically exhibit lower velocities in creeks. However in overland flow paths, unsafe velocity may occur throughout the full extent of flooded area depending on the underlying terrain.

SC7.6.4.3. Flood Depth

The depth of floodwater has a direct relationship with peoples' safety, accessibility by vehicles and resulting flood damage to building contents. There were occasions that the greatest flood damage was affected by the greatest flood even though the water was slow moving.

SC7.6.4.4. Classification of hydraulic hazard

In accordance with the flood hazard overlay code, a site-specific flood hazard risk assessment may be required to facilitate assessment of development on flood-prone land to ensure the proposal is located on land with the least risk and where management of the hazard is achievable.

For engineering classification of hydraulic hazards during a defined flood event refer to the Queensland Urban Drainage Manual (QUDM) and Australian Rainfall and Runoff.

(1) For safe depths and velocity depth products in road reserves and vehicle parking areas refer to the Queensland Urban Drainage Manual (QUDM) section 7.4.1.

(2) Vulnerable uses such as facilities for elderly and/or disabled persons, educational establishments and those areas that are readily accessible to children, the implications of velocity/depth products would need to be considered for each development as there is no safe velocity/depth product applicable (refer to QUDM 7.4.2). However as a guide, a velocity/depth product greater than 0.2m2/s would be considered highly unsafe for those uses.

(3) The interpretation of hydraulic hazard severity for overland flow flooding is to have consideration of national and State Government standards such as Australian Rainfall and Runoff and the QUDM.

SC7.6.4.5. Overland flow

Flooding from overland flow sources is substantially different from other flooding types in that it is often associated with flash flooding and has a very high degree of uncertainty with respect to the terrain. Such flow paths may contain obstructions, many of which can be modified over time with no planning approvals such as fences, paving or landscaping. Some areas subject to flooding are not mapped as overlays and are known to locals only in rain events.

Therefore, determining flood risk often requires a detailed hydraulic assessment of the hydraulic controls and roughness parameters through the study area. In all cases, the determination of hydraulic hazard should use actual design Manning's roughness values, not those used to set flood immunity which often assume rougher conditions.

SC7.6.4.6. Trafficability

For trafficability requirements for roads (including evacuation routes) and accesses in a flood event refer to CMDG, Queensland Urban Drainage Manual (QUDM) and Australian Rainfall and Runoff.

SC7.6.4.7. Flood Warning Time

While the flood risk posed by floodwaters can be reduced by evacuation if adequate warning time is available, the hydraulic hazard remains unaffected. Available warning time is determined largely by catchment characteristics with larger and flatter catchments typically exhibiting a slower rate of rise of floodwaters, and therefore a longer available flood warning time. By comparison, in small or steep catchments there is often no available warning time as the rate of rise of floodwaters can be rapid.

The key factors in evaluating safe evacuation time include:

(1) the time required to mobilise State Emergency Service resources and communicate flood and evacuation warnings to affected areas;

(2) the preparation time prior to self-evacuation;

(3) the time available until evacuation routes are cut off; and

(4) the travel time which depends on the distance to be travelled to a safe area above the defined flood event flood level and the characteristics of the evacuation route.

When considering these factors, in most instances a minimum of 10 hours or more warning would be required to effectively implement an evacuation. However, for creek/waterway or overland flow flooding there may be at most 2 hours warning time from the issue of a Bureau of Meteorology extreme weather warning, and possibly only minutes available for evacuation from when a major flood event occurs. Therefore, the only flooding sources that are considered to have suitable flood warning time include:

(1) Fitzroy River flooding. The assumed times in these sections are based on approximate flood peak travel times. It is noted that the time for floodwaters to rise is variable within the Fitzroy River. Council has a flood forecasting model that uses Council's network of real-time rainfall and flood-level monitoring systems and a flood modelling program, together with the Council's geographical information system to provide a flood warning and information service to the community.

(2) Storm-tide flooding from tropical cyclones and severe low pressure systems are able to be predicted or tracked and advanced warnings provided by the Bureau of Meteorology.

(3) All other flooding sources are not suitable for applying warning time as a consideration to mitigating flood hazard. This is because the time of concentration, critical storm duration and rise of floodwaters, often from minutes to less than a few hours, is too short to allow for adequate warning time. In addition, there is no ability to predict with any certainty how severe a flood would be in small catchments. Therefore, these creeks may already be significantly flooded before an evacuation is clearly required.

SC7.6.5. Development Assessment Requirements

SC7.6.5.1. Flood hazard risk assessment

The Flood Overlay Code sets out the circumstances where a flood hazard risk assessment may be required by Council to determine the suitability of a land use to the flood hazard or for setting flood immunity levels for specific development types.

In a hazard area, or where the nature of flooding at a specific site is uncertain, an applicant is required to submit a written assessment of the nature of flooding at the site of a proposed development. This assessment, called a flood hazard risk assessment will contain details of the assessed flood characteristics at the site and how the proposed development will mainly address a Defined Flood Event (DFE) with recommendations included outlining how Flood risks will be eliminated or mitigated.

A flood hazard risk assessment can be achieved in two forms (as applicable):

(1) through the preparation of a flood study (where the flood risk is known or for areas disputed by the applicant as being flood affected); or

(2) through the preparation of a flood impact report (where the nature of flooding at a specific site is uncertain).

The proponent must first identify the flood level (metres at Australian Height Datum - AHD), flood depth and velocity (if applicable) to the site.

(1) Scope of Application

The flood hazard risk assessment is a formal means of identifying and managing the existing, future and residual risks of flooding. It may be a stand-alone document or incorporated into a flood study or flood impact report. A suitably qualified professional is to be engaged to undertake the flood hazard risk assessment in accordance with the framework outlined in AS/NZS ISO 31000:2009 Risk management. Where aspects of the flood risk assessment discuss engineering principles, the flood hazard risk assessment must be jointly undertaken and signed by a Registered Professional Engineer Queensland with expertise in that field of engineering.

The aim is to ensure that risks, including safety, environmental, social and economic, associated with the proposed use are compatible with the flood hazard and level of flood immunity and the risk to people is minimised.

(2) Risk Assessment Process

There are instances where the exact future use of a development is not known, such as centre activities and industrial activities, and instances where the use is known, such as the lobby of an apartment block. The risk management formulation should cover a range of proposed and likely future uses.

The flood hazard risk assessment process includes:

(1) 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. For example, residential and special care uses are typically less tolerant to flood risk than industry.

(2) Identification of public and private premises, social systems and environmental elements at risk of flooding, and including consideration of extreme flood events.

(3) Identification of all critical electrical services, hazardous storages and other high risk elements.

(4) Estimation of 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.

(5) Consideration should be given to not only building and contents damages from flooding, but the flood compatibility of any activities being conducted on the premises and the economic impacts of downtime during flood recovery on business and employees' economic resilience during a flood.

(6) Assessment of the flood risk and implications up to and in excess of the defined flood event.

A flood risk management strategy is to include:

(1) 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;

(2) the procedure to conduct emergency flood management, evacuation and rescue operations including flood emergency management plans.

(3) Issues requiring consideration

The minimum information to be included in a flood risk assessment is (but not limited to):

(1) current natural surface levels and any proposed adjustment to natural surface levels;

(2) estimated flood depths and velocity;

(3) potential impact of development on flood depth and velocity;

(4) number of people likely to be at risk and who may need to be evacuated;

(5) hazard in larger floods – 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;

(6) flood warning time;

(7) 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;

(8) isolation – potential to have evacuation route cut off early in the flood;

(9) vertical evacuation – while an important element it cannot be totally relied on and will require an estimation of extreme floods such as the probable maximum flood and isolation issues;

(10) identify special care uses – the publication Evacuation Planning by Emergency Management Australia (Commonwealth Government 2005) provides a list of special needs groups;

(11) 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;

(12) 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;

(13) length of flood recovery and social and economic impacts;

(14) hazardous goods, mitigation and associated environmental impacts;

(15) 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;

(16) impact of increases in rainfall intensity at 2050 and 2100 in regard to safety and property damage;

(17) a severe storm impact assessment being provide in accordance with Queensland Urban Drainage Manual; and

(18) any other matters particular to the site which are considered relevant by the assessment manager on behalf of Council.

(4) Environmental harm

In assessing an application to develop on flood prone land, Council will take into consideration whether any adverse environmental and health impacts may occur as a result of flooding of the development. For example, inundation of certain developments might release and/or disperse contaminants, chemicals, wastes or other pollutants into flood waters. This is especially particular to hazardous materials. In addition to this the release of significant amounts or types of debris into flood waters has the potential to cause adverse environmental impacts downstream and may effect changes to the dispersal of flood waters.

In the case of an application for development which may produce adverse environmental impacts as a result of flooding, Council will base its decision on the requirements of the flood hazard overlay code, if the applicant cannot demonstrate that this risk will be sufficiently mitigated.

(5) Earth works in a floodplain

Development takes account of existing or created overland flow paths and makes due provision in the design. Impacts of filling within an area affected by flooding are assessed by a flood study undertaken by a Registered Professional Engineer Queensland with suitable experience and expertise in undertaking flood studies, stormwater management and drainage infrastructure design.

Filling does not remove the flood hazard for all floods. It only mitigates the flood hazard for the particular flood immunity for which it is designed. Therefore, filling in areas of flood hazard requires careful consideration to minimise any unacceptable risk to people in flood events greater than the defined flood event.

In assessing an application involving the filling of land in the flood prone area, the applicant is required to demonstrate that it will not adversely affect flood behaviour, including depth and velocity, and is recommended not to:

(1) cause an afflux greater than 0.1 metres; or

(2) if a similar relaxation in filling policy was to be permitted on all allotments in the vicinity of the proposed development, cause an overall afflux greater than 0.15 metres during the defined flood event; or

(3) interrupt or cause water ponding or materially change the surface water drainage from or onto adjoining land; or

(4) create, in the event of a major flood event, a sudden change in flow distributions, flood level or velocity that could result in:

(a) breaking of a levee; or

(b) establishment or blockage of a breakout; or

(c) excessive scour; or

(d) possible channel realignment; or

(e) sedimentation; or

(f) worsening of emergency access; or

(g) increased flood hazard; or

(h) any adverse effect on existing structures or buildings in the locality.

In respect to excavation, the applicant is required to demonstrate that it will not have an adverse impact on flow paths, velocity or flood behaviour.

SC7.6.6. Requirement for a flood study

SC7.6.6.1. General

Many waterways have flood level information from flood studies. Use of that information for assigning flood planning levels is acceptable when a development is not modifying the floodplain. This information may not be suitable for developments that modify terrain within, or obstruct parts of the flood planning areas as it may alter flood levels. In addition, site-specific studies are required where impacts of development are being assessed.

In deciding an application, where determined to be necessary, the Council may require as part of an information request under the Integrated Development Assessment Process (IDAS) a detailed flood study, certified by a suitably qualified engineer experienced in the field of hydraulic engineering and floodplain management to assess the flood hazard of a site or the flood damage caused by the proposal and the impact of the proposal on flood flows and flood levels.

Any operational works application for filling or excavation is likely to require the carrying out of a flood study.

SC7.6.6.2. Preparation of a Flood Study

A flood study involves hydrological and/or hydraulic assessments where required to estimate catchment flows, flood levels, or demonstrate that the development or any flood mitigation work would not adversely impact on flooding to upstream, downstream or adjacent premises.

A flood study is to be supervised and certified by a Registered Professional Engineer Queensland with demonstrated expertise in hydrology, hydraulic modelling and stormwater engineering.

The minimum information to be included in a flood study includes, but is not limited to, the following:

(1) The flood study is to include where applicable:

(a) site survey plan showing location of buildings and underground stormwater infrastructure (line and level);

(b) a catchment plan detailing internal and external drainage catchments and their respective areas;

(c) the location and details of drainage easements associated with underground drainage, open channel drainage or overland flow paths;

(d) a scaled drawing showing the hydraulic model layout (cross-sections) or digital elevation model over a cadastral background, also noting details of relevant structures (hydraulic controls);

(e) flood afflux and Manning's roughness maps when using 2D modelling techniques;

(f) detailed plans for any proposed waterway structures;

(g) detailed earthworks plans for any channel works or flow path modifications proposed by the development;

(h) location of waterway corridors and relevant flood hydraulic hazard areas;

(i) advice from effected waterway authorities;

(j) cross-sections of existing or proposed basins, embankments, spillways and any other structures that may act as hydraulic controls;

(k) increases in rainfall intensity associated with climate change should be consistent with best practice (Australian Rainfall and Runoff guidelines / Queensland Urban Drainage Manual);

(l) details of the existing (pre-development) and modified (post-development) ground levels over the subject land and all adjoining properties and any other properties that may be affected by any change in behaviour of floodwaters as a result of the proposed; and

(m) development; scaled drawings showing a comparison of existing (pre-development) and modified (post development) flood inundation extents levels and details of velocity of floodwaters over the subject site and all adjoining properties and any other properties that may be affected by any change in the behaviour of floodwaters as a result of the proposed development.

(2) The potential impact of the proposed development on:

(a) peak flow rates;

(b) flood levels;

(c) frequency of flooding;

(d) velocity of flood waters;

(e) sedimentation or scour effects;

(f) duration of inundation;

(g) trafficable access routes; and

(h) freeboard levels.

(3) All information used in the preparation of the study, including, but not limited to:

(a) source/s of information;

(b) methodology;

(c) hydrologic and hydraulic models;

(d) calibration techniques for mathematical models; and

(e) model accuracy.

SC7.6.6.3. Choice of Hydraulic Model

Hydraulic conveyance is a measure of the flow carrying capacity of a watercourse and is a function of the geometry and surface impedance of that watercourse. The loss of conveyance from obstruction or filling is usually characterised by increases in flood levels upstream.

Mathematical models are used to assess the impacts on flood flow conveyance when adverse impacts are being assessed such as the HEC-RAS steady/unsteady state hydraulic model.

Mathematical models that are appropriate to assess the impacts of flood and flood storage are to be fully dynamic 1D/2D hydraulic model such as TUFLOW.

A 2D modelling technique is used where flow paths cannot be adequately represented using 1D modelling techniques, which is often the case with overland flow flooding or where demonstrating the impacts of development on flood storage where compensatory earthworks in creeks/waterways are required.

The use of a LIDAR survey is acceptable for 2D hydraulic analysis, particularly for areas outside of the subject. However, critical hydraulic controls must be surveyed. If sections of the floodplain contain channels which could be represented by 1D modelling techniques, it is desirable to use an integrated 1D/2D modelling technique if surveyed cross-sections can be integrated into the 2D grid.

The adopted grid size is to be justified.

At a minimum, all 2D flood analysis of existing and developed conditions is to provide drawings/figures in the flood study, including:

(1) digital elevation model showing any obstructions and blockages;

(2) existing and design Manning's roughness;

(3) flood depth with velocity vectors to visually indicate the conveyance versus storage areas of the floodplain;

(4) flood afflux to show flood level impacts; and

(5) flood hazard (depth x velocity product) to show areas of safe and unsafe hydraulic hazard.

SC7.6.6.4. Hydrological model assumptions

The report is to justify the basis of the values adopted for the hydrologic modelling parameters used in the analysis, including the following:

(1) rainfall loss model values;

(2) sub-catchment fraction imperviousness (development assumptions);

(3) routing parameters;

(4) flow velocity and time of concentration estimates;

(5) Manning's 'n' roughness values in relation to land use;

(6) structure capacity and hydraulic headloss assumptions (HGL analysis);

(7) the capacity of culverts considering inlet/outlet control.

Editor's note - Where consideration of increased rainfall intensity for climate change is required, refer to current advice from the Queensland Government or Australian Rainfall and Runoff guidelines.

SC7.6.7. Structural engineer's certification

Where it is proposed to construct a building or structure on a flood-prone site Council, in its assessment of a proposed development, is likely to require a certificate from a registered professional engineer, with relevant experience in structural engineering.

The structural engineer's certificate shall confirm that the building has been designed to withstand the forces created by floodwaters and debris loading anticipated for that location. Matters to be addressed in the report include, but are not limited to:

(1) the attachment of the building to its foundations in order to prevent flotation;

(2) the provision of flood resistant materials for those parts of the building constructed below flood level;

(3) the requirement that where possible walls below flood level be aligned parallel to the direction of flood flow;

(4) structural design to withstand the following concurrent forces;

(5) serviceability wind load;

(6) stream flow forces (based upon the flood flow velocity);

(7) debris loading (one (1) metre of debris mat at flood level);

(8) In addition, the material type shall be chosen such that, in combination with appropriate bracing and connectivity, the structure whilst suffering some damage, would not disintegrate in the event of a log impact; and

(9) adequate protection of the building foundations from the effects of scour during flood.

SC7.6.8. Terminology

In this planning scheme policy, unless the context or subject matter otherwise indicates or requires, a term has the following meaning:

(1) Annual Exceedance Probability (AEP): the probability of exceedance of a flood of a given size or larger being exceeded within any period of one (1) year, generally expressed as a percentage.

(2) Average Recurrence Interval (ARI): a statistical estimate of the average period in years between the occurrences of a flood of given size or larger. (The ARI of a flood event gives no indication of when a flood of that size will occur next).

(3) Defined Flood Event (DFE): Probabilistic flood events, corresponding to specified AEPs or ARIs- represent an expected outcome for a particular set of design assumptions.

(4) Flood: Relatively high water levels caused by excessive rainfall, storm surge, dam break or a tsunami that overtop the natural or artificial banks of a stream, creek, river, estuary, lake or dam.

(5) Floodplain: all areas that would be flooded by the Probable Maximum Flood (PMF), which is the largest flood that could conceivably occur at a particular location (SCARM, 2000).

(6) Flood hazard: a measure of safety which is applied to people, vehicles and structures during a flood. It represents the potential risk to life, risk of serious injury and potential damage to property resulting from flooding and may be directly caused by floodwaters (e.g. flood loads on structures) or an indirect action (e.g. a higher risk of electrocution due to major electrical services being inundated). Flood hazard is influenced by factors such as evacuation and warning time.

(7) Hydraulic hazard: the classification of flood hazard with respect to the velocity/depth product and maximum flood depth to define safe and unsafe conditions with respect to people, vehicles and property. Hydraulic hazard is related to the direct action of floodwaters during the flood event. Hydraulic hazard is not influenced by situations such as warning time or evacuation. Refer to section 3.4. Described flood events include:

   (a) 0.05% AEP flood event: equivalent to a 2000 year average recurrence interval (ARI) flood;

   (b) 0.2% AEP flood event: equivalent to a 500 year ARI flood;

   (c) 1% AEP flood event: equivalent to a 100 year ARI flood;

   (d) 2% AEP flood event: equivalent to a 50 year ARI flood;

   (e) 5% AEP flood event: equivalent to a 20 year ARI flood; and

   (f) 10% AEP flood event: equivalent to a 10 year ARI flood.

SC7.7. Laneways planning scheme policy

SC7.7.1. Application

(1) This policy applies to development located in the areas shown on Figure SC7.7.2.1.1.

(2) The purposes of this policy are to establish:

(a) Council's requirements with regard to establishing new laneways in the Yeppoon major centre;

(b) the relationship between laneways and nominated active street frontages;

(c) the design of laneways; and

(d) contribution requirement for laneways.

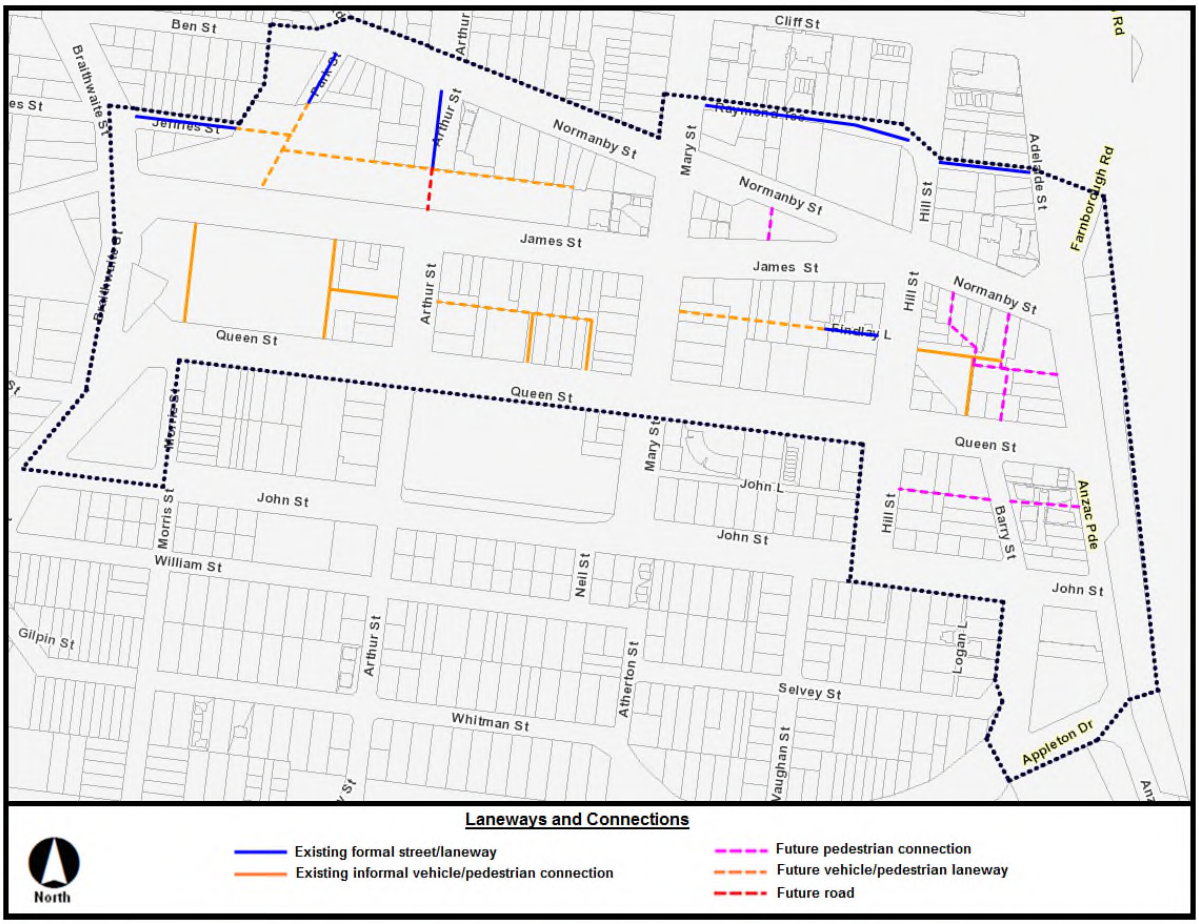
SC7.7.2. Policy Provisions

SC7.7.2.1. Policy intent

Council wishes to establish a number of new laneways in the Yeppoon major centre, which will run approximately mid-block between streets as shown on Figure SC7.7.2.1.1. Laneways will include multi-use laneways with vehicle and pedestrian access, and pedestrian-only lanes linking back to shopping streets.

In exchange for laneway land and construction, Council will provide a credit towards on-site parking requirements, at a rate of one car space per 20 square meters of laneway land contributed and constructed in accordance with (1) and (2) above, rounded to the nearest whole number.

Figure SC7.7.2.1.1 – Laneways Contribution Area.



These laneways form part of a wider street-scaping strategy to improve shopper amenity in Yeppoon. The development of a continuous rear laneway system will provide opportunities for rear-lot loading and unloading facilities, which in turn will enable the development of continuous footpaths on the main shopping streets. These footpaths will be clear of driveway crossings and will have continuous awnings providing shelter from sun and rain.

At the same time, rear laneways provide the opportunity to open up the rear of commercial properties for on-site vehicle parking, primarily to accommodate staff parking. They will also provide opportunities to re-locate infrastructure including water, sewer and drainage and possibly provide garbage collection services.

In order to maximise the use of existing retail and commercial frontage on the main shopping streets, new retail and commercial frontage to laneways will not be supported, until such time as the street frontages have been fully developed with continuous footpaths and awnings.

SC7.7.2.2. Laneway design (Refer Figure SC7.7.2.2.1)

Multi-use laneways will need to be wide enough to provide two-way vehicle movement, as well as a safe walking space for pedestrians. Pedestrian-only connections from laneways to the main shopping streets are preferred over arcades, and will be provided wherever there is an opportunity. These laneways will need to be safe and attractive.

Multi use laneways will require as a minimum:

(1) a total width of nine (9) metres, fully sealed and drained;

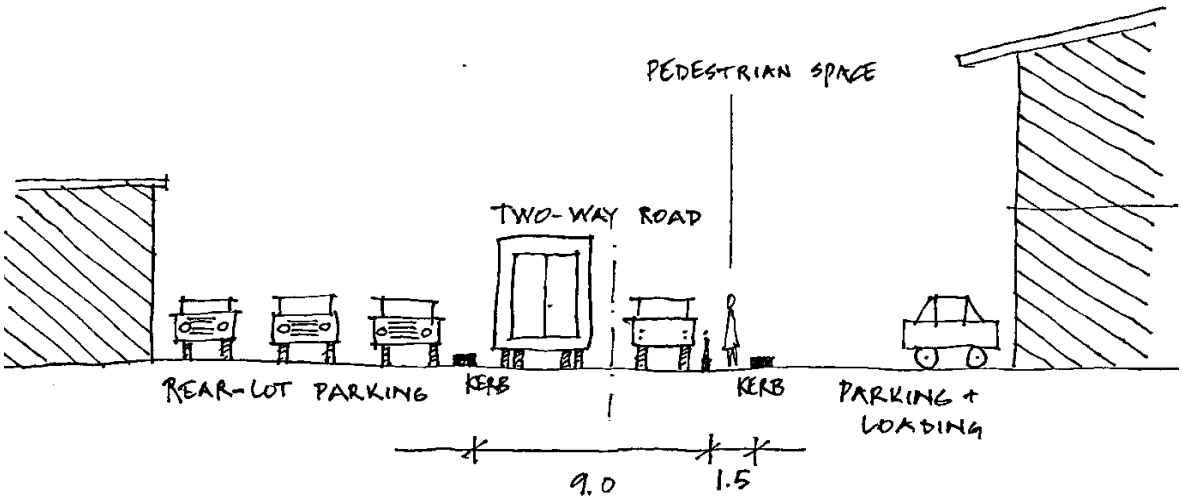
(2) a two-way carriageway of 7.5 metres wide;

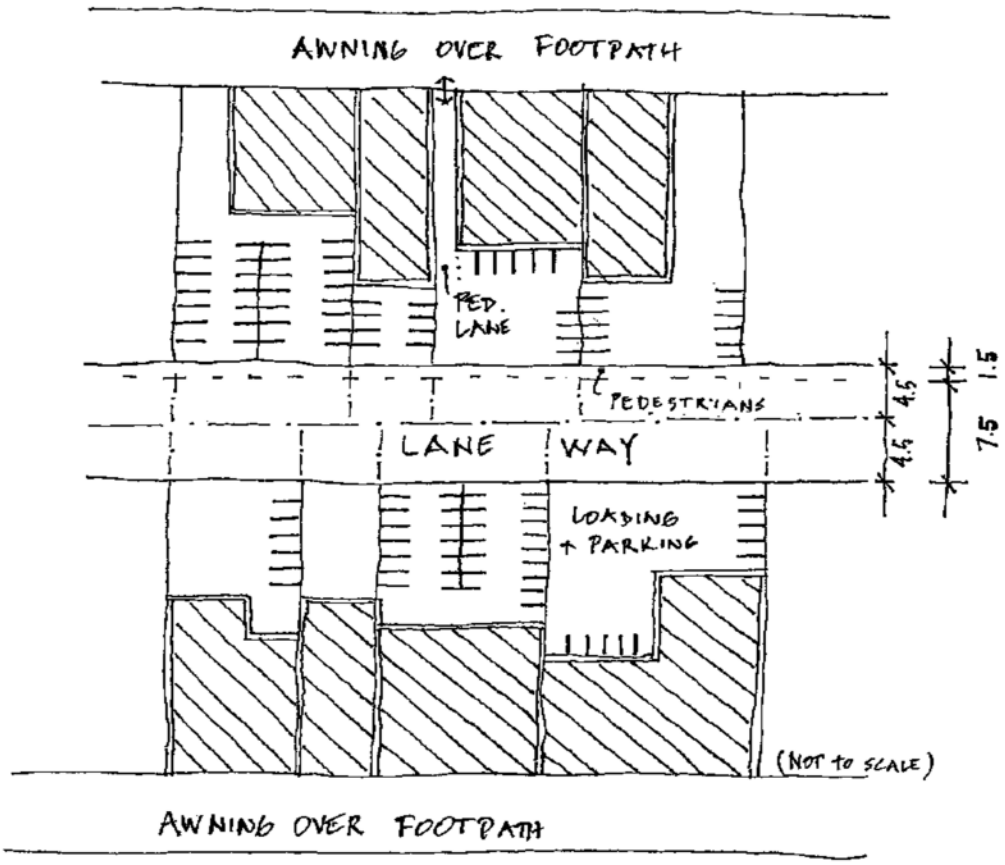
(3) a 1.5 metre wide strip along one side, line-marked and with bollards for pedestrian access only;

(4) lighting connected to the street light network.

Buildings facing laneways will ideally be set-back to accommodate vehicle loading and parking areas. If rear-lot parking is proposed, these will need to be designed in accordance with Australian standards Pedestrian access is to be provided from a rear-lot parking areas to the tenancies in the building(s) on the site

Figure SC7.7.2.2.1 – Laneway design





Where opportunities exist, pedestrian-only laneways will link multi-use laneways to streets. Pedestrian laneways will require:

(1) a total minimum width of three (3) metres;

(2) lighting connected to the street light network;

(3) bollards to prevent vehicle access;

(4) paving and drainage to ensure a dry and safe walking surface; and

(5) landscaping and street furniture to enhance pedestrian safety and amenity.

SC7.7.2.3. Contributions

In order to achieve continuous mid-block laneways, Council will work co-operatively with land owners to achieve an outcome which benefits shop keepers and land owners.

As part of new development, Council requires that a strip of land at the rear of each lot be dedicated to create a continuous laneway system. Council also welcomes voluntary dedication of laneway by land owners at any time, who wish to improve rear access to properties.

Contributed land for laneways will require:

(1) a minimum 4.5m wide strip along the entire rear boundary, which is capable of connecting with existing or future laneways on adjoining lots; and

(2) paving and drainage to Council's satisfaction.

SC7.8. Local heritage register planning scheme policy

SC7.8.1. Application

Council has adopted a Local Heritage Register in accordance with the requirements and processes stipulated in Division 2 of the *Queensland Heritage Act 1992*. The Local Heritage Register is progressively updated to add, remove or amend details for places of significance. This planning scheme policy applies to structures, archaeological and industrial sites, monuments and iconic buildings and places within the planning scheme area, which are nominated for inclusion in the Livingstone Shire Council local heritage register.

Editor's note: Heritage sites included in the Queensland Heritage Register under the *Queensland Heritage Act 1992* are mapped for development adjacent to within the planning scheme. In addition to the nine entries on the *Queensland Heritage Register, there are other features locally nominated.*

SC7.8.2. Purpose

The purpose of this planning scheme policy is to:

(1) identify the criteria for entry of a heritage place in the Livingstone Shire Council local heritage register; and

(2) provide guidance on the process for requesting the entry of a heritage places in Livingstone Shire Council local heritage register.

SC7.8.3. Process to add a place to the Livingstone Shire Council Local Heritage Register

(1) The process for nomination of a place for inclusion in or removal from the local heritage register is established in Division 2 of the *Queensland Heritage Act, 1992* as amended from time to time.

(2) Only the local government or the Chief Executive of the relevant State government department may nominate a place for inclusion on the local heritage register.

SC7.8.4. Request to add a place to the Livingstone Shire Council Local Heritage Register

(1) Any person may make a written request to Council to include a place on the local heritage register.

(2) A request made under (1) above, shall be accompanied by a statement of significance report detailing the proposed heritage place's compliance with at least one of the following criteria for entry:

- (a) The place is important in demonstrating the evolution or pattern of the region's history.
- (b) The place demonstrates rare, uncommon or endangered aspects of the region's cultural heritage.
- (c) The place has potential to yield information that will contribute to an understanding of the region's history.
- (d) The place is important in demonstrating the principal characteristics of a particular class of cultural places important to the region.
- (e) The place is important to the region because of its aesthetic significance.
- (f) The place is important in demonstrating a high degree of creative or technical achievement at a particular period for the region.
- (g) The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons important to the region.
- (h) The place has a special association with the life or work of a particular person, group or organisation of importance in the region's history.

(3) Alternatively, a place may be entered onto the local heritage register if it satisfies at least one of the following Australian Natural Heritage Character criteria:

(a) It is of natural significance because of the importance of its ecosystems, biodiversity or geodiversity for its existence value, or for present or future generations in terms of its scientific, social, aesthetic and life support value; or

(b) It has biological diversity of significance, that is, a variety of life forms — the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form; or

(c) It has geodiversity of significance, that is, a range of earth features including geological, geomorphological, paleontological, soil, hydrological and atmospheric features, systems and earth processes; or

(d) It has natural integrity, that is, the natural system has retained its condition and natural rate of change in terms of size, biological diversity, geodiversity and habitat.

(4) The report accompanying a request made under (1) above shall be undertaken by a recognised heritage practitioner. The report must include at least the following information:

(a) The name of the place (and other names if known).

(b) The specific location of the place.

(c) A description of the place.

(d) A brief history of the place.

(e) A statement of significance for the place.

(f) An estimation of the integrity and condition of the place.

(g) The date on which the place was inspected for the purposes of compiling the nomination.

(h) Recent photos of the place.

(i) References of works used to compile the history and/or description of the place.

(5) Council may seek additional information or assistance from:

(a) The owner of the place, if the owner did not make the nomination.

(b) Any person or body with a special knowledge of, or interest in, the place.

(c) Any person or body with a special knowledge or interest in the region's cultural heritage.

(6) The submission and supporting information shall be sent to:

Chief Executive Officer
Livingstone Shire Council
PO Box 2292
YEPPOON QLD 4703

(7) Once a submission and report is received by Council for entry in the local heritage register, if the submission is not lodged by the owner/s, Council will contact the owner/s in writing and they will have the opportunity to;

(a) consent to; or

(b) not consent to the proposed listing.

(8) If the owner does not agree to consent to the proposed listing, Council will not undertake an assessment of the report received by the heritage practitioner, thus the site will not continue through the process for entry of a place in the local heritage register. However, Council will make available the submission and report for viewing for future reference.

(9) Where the owner/s consents to entering their place on Livingstone Shire Council local heritage register, Council will undertake an assessment of the report submitted to ensure the heritage place satisfies the cultural or natural heritage criteria. The assessment process will include a report prepared by Council officers to Council outlining the place's compliance or non-compliance with the criteria for entry in the local heritage register. Council will notify the

submitter and/or owner in writing, of the outcome of Council's assessment that is if the place complied with the criteria for entry or if it did not comply with the criteria of entry and the reasons for non-compliance.

(10) In the event a place is determined to not comply with the criteria for entry Council will keep the submission and report available for viewing for future reference. If further detailed research reveals such information that may alter Council's decision, an additional or amended report prepared by a recognised heritage practitioner, can be submitted for reassessment.

SC7.8.5. Request to remove a place from the Livingstone Shire Council Local Heritage Register

(1) Any person may make a written request to Council that a place be removed from the Livingstone Shire Council Local Heritage Register.

(2) The request must:

(a) identify the name and location of the place; and

(b) provide information that clearly demonstrates the place is no longer of heritage significance. To achieve this, the applicant must address the statement of significance report for the place.

(3) The submission and supporting information shall be sent to:

Chief Executive Officer
Livingstone Shire Council
PO Box 2292
YEPPOON QLD 4703

Editor's note: If a place is nominated to be included on, or to be removed from the Local Heritage Register, Livingstone Shire Council will be required to undertake an amendment to the planning scheme.

Table SC7.8.5.1- Local heritage register[1]

Local heritage place	Address	Lot No.	Plan number	Date registered
3. Ross Creek Seawall	Via Wattle Grove, Yeppoon			17 October 2005
5. South Sea Island Gravesites at Emu Park Cemetery	Rockhampton Emu Park Road, Emu Park	132	CP906603	17 October 2005
6. Singing Ship structure within Peace Park	Tennant Memorial Drive, Emu Park	83	SP113132	17 October 2005
8. WWII memorial plaque, Camp Cobbera	Artillery Road, Ironpot	6	RP899412	17 October 2005
10. Historic school building	Joskeleigh Road, Joskeleigh	1	RP600674	17 October 2005
11. Mt. Jim Crow, Mulara	Yeppoon-Rockhampton Road	893	NPW29	17 October 2005
13. Family grave and headstone	32 Dolphin Crescent, Taranganba	32	RP607841	17 October 2005
14. Cemetery	Cnr Yaamba Siding Road and Iris Street, Yaamba	79	LN1344	17 October 2005

[1] In addition to these local places, there are nine (9) entries on the Queensland Heritage Register for Livingstone shire. These are mapped as items 1, 2, 4, 7, 9, 12, 18, 22, and 25. All features, local and state, are mapped. There are triggers for development adjacent to and on a State registered feature in addition to the triggers for development within or adjacent to a local feature. The numbering allocated to the features is replicated in the overlay maps for each of the features.

Local heritage place	Address	Lot No.	Plan number	Date registered
15. “Byriel’s” – 1948 features and the historic Pie Alley is well known locally	14 Normanby Street, Yeppoon	2	RP601811	17 October 2005
16. “Regent theatre” and adjacent building – 1941 features	14-16 James Street, Yeppoon	1-4	RP605351	17 October 2005
17. “Former Fire Brigade building” (1948)	30-32 James Street, Yeppoon	1-2	SP155351	17 October 2005
19. Norfolk Pines	In road reserve (roundabout) corner of James Street and Normanby Street, Yeppoon	3	Y17124	17 October 2005
20. Post Office (1924)	Normanby Street, Yeppoon	2	RP620460	17 October 2005
21. Fig Trees [in front of lot 2 RP620460 - Post Office (1924)]	Normanby Street, Yeppoon	2	RP620460	17 October 2005
23. Hoop pines, Yeppoon War (Memorial is situated over three streets and a park in Yeppoon)	Anzac Parade, Yeppoon	road reserve		17 October 2005
24. Hoop pines, Yeppoon War (Memorial is situated over three streets and a park in Yeppoon)	Normanby Street, Yeppoon	road reserve		17 October 2005

For the purposes of this planning scheme policy and overlay code the following terms have the following meanings.

Term	Meaning
Heritage Management Plan	A plan that outlines the significance of the place, the conditions of approval for development to a Local 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.
Local Heritage Place	A place of regional heritage significance listed in the Livingstone Shire Council Local Heritage Register.
Place	A site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views (*Australia ICOMOS Burra Charter, 1999*).
Statement of Impact	A statement (generally in the form of a report) that outlines the significance of a place and provides an analysis determining the extent to which a proposed development activity will impact or conserve that significance.

SC7.9. Local parks planning scheme policy

SC7.9.1. Application

This policy applies to:

(1) all development applications for reconfiguring or material change of use a lot in the following zones, where one or more urban residential lots are created:

- (a) low density residential zone;
- (b) low-medium density residential zone;
- (c) medium density residential zone;
- (d) emerging community zone; and

(2) all preliminary approval and development permit applications for material change of use which result in one or more additional accommodation units on the same site, for the following types of residential accommodation:

- (a) community residence;
- (b) dual occupancy;
- (c) dwelling house;
- (d) dwelling unit;
- (e) multiple dwelling;
- (f) relocatable home park (more than two relocatable dwellings);
- (g) residential care facility;
- (h) retirement facility (more than two dwellings or multiple dwellings); and
- (i) rooming accommodation (more than two rooms).

SC7.9.2. Purpose

The purpose of this policy is to:

(1) provide details pertaining to the planning, design and location of local recreation areas and reserves and their relationship to higher order recreational parklands;

(2) prescribe those circumstances under which a proponent can satisfy the relevant performance outcomes regarding connectivity and linkages for new urban expansion areas and infill;

(3) state the matters related to linkages and connectivity to be considered and addressed in a development application;

(4) prescribe the catchment, location and site characteristics for the development of local parks;

(5) describes works and embellishments required to develop local parks, the dedication of land for local parks as part of the development process; and

(6) outline how the relevant provisions can be satisfied to reflect the scale of the proposed development.

Editor's note: Local parks are not included in trunk infrastructure networks and items identified in Part 4 Local government infrastructure plan.

SC7.9.3. Background

SC7.9.3.1. Need for parkland

New residential development, including subdivision and re-development in existing urban areas, increases the population which in turn, generates an increased need for open space. It is vital that new communities are created and encourage active lifestyles and relate to their environment by providing safe and accessible connections. Four main types of local parks are required:

(1) active open space – including playing fields for formal recreation and sports activities;

(2) passive open space – including parks for informal recreation and 'green space' within urban areas to soften the built environment;

(3) environmental open space – including natural areas conserved for environmental, visual amenity and recreation purposes; and

(4) linkages between open spaces, residential, industrial and commercial areas – including walkways, cycleways and horse trails.

It is therefore relevant and reasonable to require a contribution towards parkland provision from new development, to share the benefits and costs of developing and maintaining open spaces for the whole community.

Different levels of open space provision are required to service the resident and visitor population. Development contributions towards the provision of regional and district level open space are required as part of Part 4 Local government infrastructure plan of this planning scheme. This policy applies to local level parks and linkages which provides for the open space and recreational needs of residential neighbourhoods.

SC7.9.3.2. Existing local parks

Many existing local parks in residential areas, which were contributed via the development process over many years of prescribed provisions, are small or not suitable to serve the recreational needs of residential neighbourhoods. The maintenance of numerous small parks and parks which are unsuitable for recreational needs extends Council's resources for the benefit of few users. Evidence has shown that the parks which are larger, well located and well developed with a range of facilities, are better patronised and serve as community hubs.

SC7.9.3.3. New local parks

Council wishes to establish a network of usable new local parks which are of a suitable size, slope and configuration and which are provided with facilities and embellishments to provide for a range of residents' needs and requirements.

In order for the community to gain the best value from the capital and maintenance investment in local parks, new local parks will need to service approximately 1,000 dwellings (approximately 2,500 – 3,000 people) with a desirable minimum site area of one (1) hectare[1]. New local parks, where proposed, will need to be generally level[2], well located and easily accessible to the catchment population. The desirable minimum standards for new local parks and the level of embellishments required are indicated in SC7.9.5 of this policy.

The dedication of land less than one (1) hectare will not be accepted. Council acknowledges that the majority of subdivision developments may not be able to dedicate one (1) hectare of land, and this policy establishes alternative options for developments to fulfil their open space requirements. These considerations for linkages, pathways and the like from new developments to existing infrastructure should be built into the front end of the development process. Alternative options may include one or more of the following:

(1) part land contributions; or

(2) monetary contributions; or

(3) works contributions.

Planning for local parks in new residential estates will be undertaken as part of the structure planning process established in SC7.14 Structure planning and urban design planning scheme policy, which will co-ordinate the provision of all urban infrastructure between developments.

Part of the success of new local parks will depend on their accessibility to all modes of transport and their connection to other recreation facilities in the urban area. The provision of a network of bike and pedestrian connections between parks and other community facilities, including centres and schools will be an integral part of the local parks development process. These pathways will need to be well

[1] Kele Park, Kerr Park are just in excess of 1hectare with Olive Dorey Park being approximately 2 hectares.
[2] In some cases, parks may accommodate drainage infrastructure, provided the land is dry, level and usable.

shaded and provide safe and convenient connection through urban areas. Connections can include quiet streets and laneways as well as dedicated bike and pedestrian ways.

To achieve this goal, Council will require the development process to contribute land, works, embellishments or monetary contributions towards the development of these larger, local parks. It is Council's first preference that land is dedicated for local parks. Council will require that new development follow the structure planning process established in SC7.14 Structure planning and urban design planning scheme policy to help create local parks which are approximately one (1) hectare in extent, and capable of being developed to achieve the requirements of SC7.9.5 of this policy.

SC7.9.4. Planning Scheme Policy Provisions

SC7.9.4.1. General Provisions

(1) Council requires as a condition of development, that contributions towards the provision of local parks is provided for:

(a) development applications for reconfiguring a lot in the following zones, where one or more additional lots are created:

(i) low density residential zone;

(ii) low-medium density residential zone;

(iii) medium density residential zone;

(iv) high density residential zone; and

(b) all preliminary approval and development permit applications for material change of use which result in one or more additional accommodation unit on the same site, for the following types of residential accommodation:

(i) community residence;

(ii) dual occupancy;

(iii) dwelling house;

(iv) dwelling unit;

(v) multiple dwelling;

(vi) relocatable home park (more than two relocatable dwellings);

(vii) residential care facility;

(viii) retirement facility (more than two dwellings or multiple dwellings); and

(ix) rooming accommodation (more than two rooms).

(2) The desirable minimum standards for new local parks and the level of embellishments required are indicated in Table SC7.9.5.1.

SC7.9.4.2. Development contributions

(1) Land contributed for local park purposes:

(a) is equal to a minimum of ten percent (10%) of the total area to be subdivided;

(b) meets, or can be developed to meet the catchment, location and site characteristics requirements of Table SC7.9.5.1.

(2) Where the land contributed for local park purposes does not meet, and cannot be developed to meet the catchment, location and site characteristics requirements of Table SC7.9.5.1, Council may accept an offer from a developer to enter into an infrastructure agreement for the provision of:

(a) a monetary contribution for all of the land required; or

(b) part of the land required and a monetary contribution for any balance; or

(c) land required to connect existing parks and a monetary contribution for any balance; or

(d) the performance of capital works, including the provision of local park embellishments or the improvement of land for use as a local park in accordance with the requirements of Table SC7.9.5.1. Capital works may include:

(i) works within a local park; or

(ii) works required to connect the development to external networks;

(3) When determining whether to require land to be dedicate land or to enter into an infrastructure agreement providing for a cash-in-lieu contribution and/or a works contribution, Council shall have regard to:

(a) the provision of existing or proposed local parks in the locality which would adequately serve the population catchment;

(b) opportunities to connect local park land with existing open space;

(c) any previous local park contributions made to Council;

(d) the open space or local park provisions contained within a structure plan that may relate to the area in which the development is located; and

(e) the purposes of this policy.

(4) Where capital works, including the provision of local park embellishments, are provided in accordance with this policy, the value of such works shall in the opinion of the Council, be at least equivalent to the relevant cash-in-lieu contribution that would be payable pursuant to an infrastructure agreement under this policy.

(5) The specified rates of monetary contributions are detailed in SC7.9.6 of this policy.

(6) Monetary contributions received by Council shall be expended by Council towards:

(a) the acquisition of land for local parks; or

(b) the provision of works or recreation facilities for the improvement of existing parks.

(7) Where land is proposed to be reconfigured in stages, Council may require the total area of land for park to be dedicated as part of the first stage of subdivision.

SC7.9.5 Requirements for the location and development of local parks

Table SC7.9.5.1- Requirements for local parks

1. Catchment, location and site characteristics
Minimum site area: one (1) hectare
Preferred shape: square to rectangular, with a maximum depth to frontage ratio of two to one
Maximum grades: a cleared and generally flat, kick-about space of 2,000m^2. Balance of the site to be no steeper than 1:14
Flood immunity: at least 25% of the site flood-free and 50% located above the 2% annual flood exceedance probability.
Service catchment: 1,000 dwellings (2,500 – 3,000 persons)
Located preferably centrally and within approximately 600m walking distance of the residential catchment
At least 50% of total site boundary length to comprise road frontage
Safe and convenient bicycle and pedestrian connection to the local street network or bikeway network
Not separated from the residential catchment by a physical barrier (for example: a major road or river)
Not located on contaminated land, oil or gas supply easements

Not provided as buffer to a transport corridor
All parts of the park clearly visible from surrounding houses to allow for community surveillance
2. Infrastructure and embellishments
Provided with a water supply connection point(s) and sewerage connection
Fenced (or other suitable barrier) to prevent vehicular access and fencing around playground equipment
Car parking - minimum 30 spaces on-site or on road
Roadside lighting and lighting over BBQ and picnic areas
Internal pedestrian pathways: high traffic areas only, between facilities
Bench seating: Two positioned for supervision of any play area; two for views/appreciation of the surrounding park/area
Recreation activity areas: mix of two or three (for example, toddlers, kick-about, children, active youth space, free to use courts)
Shelters/gazebo with tables, seating and BBQ facilities and shade structures or trees over playgrounds
Tap/bubbler
Rubbish bins: minimum 1 located near playground, 2 located a t BBQ facilities and I each at major entry points
Signage: park name sign located at main entrance. Generic 'local park' street signage where entrances are on cul-de-sacs
Irrigation: dependant on access to water. Ideally, high use areas are irrigated
Public artwork

SC7.9.6 Cash-in-lieu contribution rates where Council enters into an infrastructure agreement – open space (local parks)

Table SC7.9.6.1 below applies to development applications for reconfiguring a lot where one or more additional lots are created in the low density residential zone; low-medium density residential zone; medium density residential zone; or high density residential zone.

Table SC7.9.6.1 Contribution rates for reconfiguring a lot

Applicable area	Contribution rate
Livingstone Planning Scheme area	$1,000.00 per additional lot.

Table SC7.9.6.2 below applies to preliminary approval and development permit applications for material change of use, which result in one or more additional dwellings or accommodation room or other accommodation unit on the same site, for the following types of residential accommodation: community residence, dual occupancy, dwelling house, dwelling unit. multiple dwelling, relocatable home park (more than two relocatable dwellings), residential care facility, retirement facility (more than two dwellings or multiple dwellings) and rooming accommodation (more than two rooms).

Table SC7.9.6.2 Contribution rates for material change of use

Applicable area	Contribution rate
Livingstone Planning Scheme area	$750.00 per additional dwelling or accommodation room or other accommodation unit.

Note — these rates will be indexed to the Producer Price Index (PPI) on an annual basis from the commencement date of this planning scheme.

SC7.10. Scenic amenity planning scheme policy

SC7.10.1. Application

This planning scheme policy applies to:

(1) land identified on the Scenic Amenity overlay maps; or

(2) places considered by Council to have scenic landscape features and an amenity that is valued by the community and which is sensitive to the visual impacts of development.

SC7.10.2. Purpose

The purpose of this planning scheme policy is to:

(1) provide guidance on information that may be required to support a development application over places considered to be sensitive to the visual impacts of development; and

(2) provide guidance on how to prepare a visual impact assessment to support a development application.

SC7.10.3. Advice for minimising development impacts on scenic landscape features

The visual impacts of development on a significant scenic landscape feature may potentially be mitigated by incorporating design responses including but not limited to the following:

(1) retention or rehabilitation of vegetation on ridgelines and prominent slopes;

(2) retention or rehabilitation of waterways, drainage paths, and riparian vegetation;

(3) locating buildings so that there is minimal disruption to the skyline, and locating buildings so that roofs are below the canopy height of surrounding trees or ridgelines;

(4) retention of mature trees and stands of established vegetation;

(5) use of non-reflective roofing materials and colours;

(6) use of building materials and colours that are drawn from or complement the natural or rural landscape of the locality;

(7) avoidance of the use of imported building types and themes that are incompatible with the natural or rural landscape of the locality;

(8) avoidance of the creation of extended straight lengths of new road or driveways in areas of hilly topography or where inconsistent with the established road pattern of the locality;

(9) avoidance of fencing, landscaping and lighting treatments that are urban in scale and appearance if the site is in a rural or non-urban setting;

(10) provision of building setbacks to boundaries and provision of spacing between buildings which are in proportion to the size of allotments;

(11) retention of mature vegetation and planting of new vegetation in building setback areas, particularly the setback areas located within the sight of major public roads and public viewer places;

(12) location of buildings and other structures so as not to obscure or interrupt any significant views from a public viewer place to an identified significant scenic landscape feature;

(13) minimising the scarring of the land due to earthworks and the use of large retaining walls at highly visible locations;

(14) if for a subdivision, the creation of larger lot sizes at highly visible locations, with the lots having sufficient size to accommodate buildings and structures while retaining significant vegetation coverage;

(15) removing advertising signage along scenic transport routes; and

(16) if adjoining a scenic transport route or coastline foreshore area:

(a) use of vegetation buffers, non-overbearing building heights and stepped building designs where appropriate; and

(b) minimising multi-level development, except within in a zone allocation which specifically encourages higher densities and higher maximum building heights.

SC7.10.4. Guidance for the preparation of a visual impact assessment report

Compliance with the relevant performance outcomes of the planning scheme's scenic amenity overlay code or the relevant performance outcomes of a zone code may be demonstrated in part or aided by the submission of a visual impact assessment report prepared by a competent person. For the purpose of this planning scheme policy, a competent person is an appropriately qualified and experienced consultant (that is, an architect, landscape architect, urban designer) with appropriate and proven technical expertise in landscape and visual assessment.

A visual impact assessment report must evaluate and assess the potential visual impacts of development on any significant scenic landscape features at the site and its surrounding area and should at a minimum include the following:

(1) a review of any existing scenic amenity and landscape studies that have been undertaken in the Livingstone Shire planning scheme area relevant to the location of the proposed development;

(2) a description of the development and its visual components;

(3) any assumptions and limitations associated with the methodology used in the visual impact assessment report;

(4) an evaluation of the existing scenic landscape features at the site, adjoining the site, and in the surrounding area;

(5) identification and assessment of the impacts on views from viewer places (sensitive receptors) sensitive to the impacts of development;

(6) images to illustrate the site and its setting pre-development and post-development, particularly as viewed from impacted public viewer places;

(7) an assessment of the significance of effects (for example, major, moderate, minor, negligible) on the scenic landscape features at the site, adjoining the site, and in the surrounding area as a direct result of the development, when seen from an identified public viewer place;

(8) identification and discussion of any proposed mitigation strategies and including how the development minimises its impact on identified scenic landscape features by the use of design means such as siting, vegetation retention, landscaping, and stepping, chamfering or breaking up the visible mass of the building form or roofline, or by other design responses;

(9) identification and discussion of any residual or cumulative effects likely to result from the development; and

(10) a report on the findings of the assessment.

SC7.10.5. Advice for scenic amenity management areas identified by an overlay

The planning scheme identifies and displays by overlays, places known to have significant scenic landscape features which contribute to a high scenic amenity along a coastal section of the planning scheme area, which is facing increasing development pressure. The information used for the overlays has been sourced from information contained within the *Capricorn Coast Landscape Study, prepared by Chenoweth April 2003*.

Specific development that is located at sites affected by a scenic amenity overlay may trigger a development assessment against the scenic amenity code in addition to any applicable zone code for the site. A general summary of the major public coastal viewer places and scenic amenity management areas identified by overlays is provided in Table SC7.10.5.1 and Table SC7.10.5.2.

Table SC7.10.5.1 —Major public coastal viewer places identified by an overlay

Broad viewer place type	Specific viewer places
Coastal headlands	Coastal headlands: • Spring Head • Wreck Point • Wave Point • Double Head • Bluff Point • Tanby Point • Ritamada Point • Emu Point • Rocky Point • Arthurs Point • Zilzie Point • Cocoanut Point
Coastal scenic transport route	Sections of the following major roads where identified by an overlay: • Emu Park Road • Farnborough Road • The Scenic Highway • Tanby Road • Yeppoon Road
Coastline foreshore	Sections of the coastline foreshore where identified by an overlay: • If there is a frontal dune, within forty (40) metres of the toe of the dune • If there is not a frontal dune, within forty (40) metres of the Mean High Water Spring Tide

Table SC7.10.5.2 —scenic amenity management areas identified by an overlay

Scenic amenity management area	General description
Scenic Amenity Management Area A	Highly visible areas such as coastal headlands, coastal ridges, and coastal hill slopes, which have the following characteristics: • are very sensitive or sensitive to the impacts of development; • provide a strong contribution to coastal identity; and • have a high scenic quality.
Scenic Amenity Management Area B	Moderate to highly visible areas such as coastal headlands, coastal ridges, and coastal hill slopes, which have the following characteristics: • are sensitive or moderately tolerant to the impacts of development; • provide a strong or moderate contribution to coastal identity; and • have a medium or high scenic quality.
Coastal green breaks	Coastal waterways, wetlands and riparian vegetation areas located between and separating the coastal urban settlements and includes areas generally described as the following: • Bangalee green break (between Pacific Heights and the Capricorn International Resort); • Yeppoon inlet green break (Ross Creek and Yeppoon Creek); • Pinnacle Point and the Causeway Lake green break;

Scenic amenity management area	General description
	• Ritamada and Shoal Bay green break; and • The Cawarral and Coorooman Creek wetlands green break.
Coastal scenic transport route	Linear view corridors containing non-overbearing development on land adjoining the mapped sections of the following major coastal scenic transport routes: • Emu Park Road; • Farnborough Road; • The Scenic Highway; • Tanby Road; and • Yeppoon Road. The linear view corridors along the major coastal scenic transport routes comprise the following: • Where the road reserve is twenty (20) metres wide or less, the view corridor includes the road reserve plus ten (10) metres on each side of the road reserve; • Where the road reserve is twenty (20) metres to thirty (30) metres wide, the view corridor includes the road reserve plus fifteen (15) metres on each side of the road reserve; and • Where the road reserve is thirty (30) metres wide or greater, the view corridor includes the road reserve plus twenty (20) metres on each side of the road reserve. Note — to determine whether buildings and other structures located adjoining a coastal scenic transport route are likely to adversely interrupt view corridors along these roads, any assessment of impacts is only to be made from viewer points located along the scenic transport route alone (not other viewer places identified in Table SC7.10.5.1).
Coastline foreshore	Coastline foreshore: • If there is a frontal dune, within forty (40) metres of the toe of the dune; and • If there is not a frontal dune, within forty (40) metres of the mean high water spring tide.

SC7.10.6. Advice for scenic amenity management areas that are not identified by an overlay

There are a number of places and features places located throughout the Livingstone Shire planning scheme area that have not been the specific focus of detailed landscape and scenic amenity studies. Some of these places however, contain landscape elements and features that are distinctive, well known, and highly valued by the community for their scenic amenity and their strong contribution to character, identity and sense of place.

Council at its discretion may call upon the content of SC7.10.4 of this planning scheme policy when assessing development that Council considers could potentially have an adverse effect on the scenic amenity of places including, but not limited to those broadly identified in Table SC7.10.6.1.

This planning scheme policy may be called upon for impact assessable development and for code assessable development for reconfiguring a lot or for material change of use applications where the development does not strictly comply with the stated acceptable solutions of the applicable codes.

Table SC7.10.6.1 —Scenic amenity management areas not identified by an overlay

Scenic amenity management area	General description
Keppel Bay and coastal	• Keppel bay • Keppel group of islands

Scenic amenity management area	General description
islands	• Inshore islands
Hinterland mountains, ridges and hills	• Highly visible ridges • Highly visible hill slopes • Volcanic plugs
Hinterland green breaks	• Significant hinterland waterways, wetlands and riparian vegetation areas located between and separating urban settlements and townships

SC7.11. Sewerage and waste water infrastructure planning scheme policy

SC7.11.1. Application

This policy applies to development in the Livingstone Shire area which is required to provide sewerage infrastructure in accordance with the General development code and Development works code.

SC7.11.2. Purpose

The Capricorn Municipal Design Guidelines (CMDG) is the standard used by Livingstone Shire Council for the design and construction of sewerage infrastructure which is expected to be contributed to Council following an on-maintenance period.

This planning scheme policy provides guidance to applicants on administrative procedures and Council policy in relation to works associated with the design and construction of sewerage Infrastructure, which is not covered in the CMDG.

SC7.11.3. Sewerage connections/disconnections

Council has a system to apply for a sewerage connection/disconnection.

Note: To apply for a private works quotation, please complete the *Private Works Form – Application for Water and Sewerage Services* and return to Livingstone Shire Council. Alternatively you can contact Livingstone Shire Council Customer Service office between 08:00 and 17:00 Monday to Friday on 1300 790 919. The *Private Works Form – Application for Water and Sewerage Services* can be found on Council's website.

SC7.11.4. Building over/adjacent to local government relevant infrastructure

The Queensland Development Code (QDC) Section MP1.4 dictates the requirements for building over or near relevant infrastructure in residential zones.

For purposes of QDC MP1.4, Council includes the following works, including connections in its definition of *relevant infrastructure:*

(1) a *sewer* operated by or for a *sewerage service provider*; or

(2) a *water main* operated by or for a *water service provider*; or

(3) a *stormwater drain* operated by or for a local government; or

(4) a *combined sanitary drain*.

Where the requirements of QDC Section MP1.4 cannot be met, the written consent of Livingstone Shire Council is required to build over or adjacent to relevant infrastructure.

SC7.11.5. Trade waste

Liquid waste generated by industry, small business and commercial enterprises is referred to as trade waste. Section 193 (1) of the Water Supply (Safety and Reliability) Act 2008 prohibits the unauthorised discharge into the sewerage system.

For non-residential development, compliance with Council's Trade Waste Policy, Trade Waste Environmental Management Plan *Water Supply (Safety and Reliability) Act* and the *Plumbing and Drainage Act* is required.

Trade waste is required to be treated at an approved treatment facility or obtain approval from Council to discharge to the sewerage system or obtain an environmental authority under the Environmental Protection Act 1994 to treat the waste before discharge to the environment.

Council may consider the acceptance of trade waste containing toxic or hazardous substances and non-degradable pollutants to Council's sewerage system only after the waste has been pre-treated by on-site "best practicable treatment" to ensure sewer admission limits are not exceeded.

Compliance with the above legislation and obtaining a Trade Waste Permit is required for the discharge of any non-domestic waste into Council's sewerage reticulation. Council's Trade Waste

Policy, Trade Waste Environmental Management Plan and the Trade Waste Information and Application Guide can be found on Council's website.

SC7.11.6. Design and construction of sewerage reticulation systems

All applications for contributed infrastructure are to be designed and constructed in accordance with the Capricorn Municipal Development Guidelines Design (CMDG) and construction specifications and other relevant legislation. The following order or priority for interpretation of documents will apply:

CMDG D12 Sewerage Design & Construction Guideline

(1) CMDG Standard Drawings

(2) AS2566 Buried Flexible Pipelines

(3) AS 2032 Installation of PVC pipe systems

(4) Sewerage Code of Australia WSA 04-2001

(5) Sewerage Pumping Station Code of Australia WSA 04-2001

(6) Department of Energy and Water Supply, Planning Guidelines for Water Supply and Sewerage, April 2010

(7) Department of Environment and Natural Resources, Planning Guidelines for Water Supply and Sewerage, 1991 and 1992

(8) Water Supply (Safety and Reliability) Act

(9) Plumbing and Drainage Act

The CMDG Design Guideline sets out requirements for the design of the sewerage reticulation system for a development.

(1) The guideline contains procedures for the design of the following components of a sewerage system:

  (a) reticulation

  (b) pumping stations.

(2) A main will only be classified a trunk main if deemed by the local government agency. The Sustainable Planning Act definition of trunk infrastructure:

  trunk infrastructure, for a provision about a local government, means all of the following—

  (a) development infrastructure identified in the LGIP as trunk infrastructure;

  (b) development infrastructure that, because of a conversion application, becomes trunk infrastructure;

  (c) development infrastructure that is required to be provided under a condition imposed under section 647(2).

SC7.11.7. Sewerage network desired standards of service

The objective of a sewerage system is to transport sewerage from domestic, commercial and industrial properties using gravity flow pipes and where this is not possible, or uneconomical, by pumping to the treatment plant.

The Desired Standards of Services for the Wastewater Network are detailed within Livingstone Shire Council's Adopted Infrastructure Charges Resolution. The AICR can be found on Council's website.

SC7.11.8. Standard drawings

Reference is to be made to the Capricorn Municipal Development Guidelines standard drawings for sewerage reticulation. CMDG Standard Drawings can be found at www.cmdg.com.au.

SC7.11.9. Sewerage Network Modelling

The preparation of any development application may require the submission of a sewerage network analysis to determine the development requirements and impacts on surrounding areas. Council has a sewerage network model and uses SWMMv5 software. Council is able to provide a network analysis upon request, for a fee. Council's hourly rate is indicated on Council Fees and Charges however a quotation is required for each project and will be provided upon request. Council's network model is based on the DSS identified in Council's AICR.

SC7.11.10. Additions/modifications to the Capricorn Municipal Development Guidelines

In addition to the Capricorn Municipal Development Guidelines requirements the following design criteria are to be adopted:

(1) Lots with zero boundary offset requirements for buildings, the sewerage infrastructure must be located at the front of lot where possible.

(2) Sewers located in industrial/commercial precincts must be located at the front of the lot where possible.

(3) Large trees planted in the footpath of a new development must be located a minimum of one (1) metre from the centreline of sewerage infrastructure. Small shrubs and groundcover are acceptable.

(4) Where development is proposed on allotments currently serviced by combined house drainage systems the applicant will be responsible to upgrade the system to current sewerage standards. This responsibility may extend to adjoining properties.

SC7.11.11. Maintenance

Maintenance of all sanitary drainage services within a property owner's property is the responsibility of the property owner, with the exception of mains within property easements owned by Council.

Construction of any new plumbing and sanitary drainage works must comply with the provisions of Council's Plumbing and Drainage Policy in addition to:

(1) AS/NZS 3500.2:2003 (as amended) and in particular clause 3.2

(2) *Plumbing and Drainage Act 2002*

(3) Standard Plumbing and Drainage Regulation 2003

(4) Plumbing Code of Australia (PCA)

(5) Council's Plumbing and Drainage Policy can be found on Council's website.

SC7.11.12. Consent of adjoining landowners

Written approval is required from adjoining property owners authorising any operational works on their property. Refer to the Capricorn Municipal Development Guidelines for further details.

SC7.11.13. Submission of digital "As Constructed" information for development works

The following information and associated links are provided for consultants and developers who have an association with subdivisional and developmental works within the Livingstone Shire Council area, and are required to submit final "As Constructed" plans to Council.

The "As Constructed" process requires the submission of all "As Constructed" documentation in accordance with Council's "As Constructed" Submission Manual. Please refer to Council's website for the as-constructed submission manual. The manual provides detailed guidance on the following:

(1) documentation required as part of the submission;

(2) survey guidelines; and

(3) plan layout specifications and specific guidance as to the attribute information required.

To assist consultants and developers to provide Council with the required attribute information, Council has developed a template “As Constructed” Microsoft Excel spreadsheet that aligns with the Manual. A reference guide is also available that is aimed at assisting during the surveys, map production and completing the Microsoft Excel spreadsheet and identifies the common causes of errors that delay Council approval of the submission documentation as well as summarising the key changes from the previous versions.

SC7.11.14. Development outside the sewerage and water service areas

Council has adopted a Water and Sewer Service Area Extension Policy. Where a property is located outside the water service area and is able to connect to the reticulated water supply, it may be in the public interest to do so. Where there is an unacceptable risk to the health and wellbeing of the community, Council may resolve to amend the service area to include the area and hence request the properties to connect. The Water and Sewer Service Area Extension Policy can be found on Council’s website.

Editor’s note: inclusion within the water or sewerage service area does not mean or imply that the site is included within the Priority Infrastructure Area in the Local Government Infrastructure plan.

On-site sewerage systems — where not within the sewerage service area and the applicant does not intend to connect to reticulated sewerage, developments have an on-site sewerage system that complies with the Queensland Plumbing and Wastewater Code and the *Plumbing and Drainage Act 2002*. A site evaluation report is to be prepared by a suitably qualified person in accordance with the Queensland Plumbing and Wastewater Code.

The allotment must be of adequate size to cater for the on-site sewage disposal system. Where risks to public health or the environment threaten non-viability of individual septic or on-site treatment systems, connection to the municipal sewerage system is required.

Special sewerage arrangement — a developer may request connection to the sewerage reticulation system if the site is located outside the sewer service area. Council cannot guarantee a connection, or a particular level of service. For such connections, Council is not responsible for the maintenance of the infrastructure. The applicant must enter into a special sewerage arrangement with Council, pay the costs associated with the extensions and an appropriate infrastructure contribution as determined by Council policy.

New reticulated sewerage area — where development is outside the service area and would like to be included as a new reticulated area, written evidence of agreement with a registered service provider in accordance with the *Water Supply (Safety and Reliability) Act 2008* is required.

SC7.12. Slope stability assessment report planning scheme policy

SC7.12.1. Application

This policy applies to development on land steeper than fifteen percent or where in Council's opinion the site may be subject to land instability and where the filling or excavation works are proposed.

SC7.12.2. Purpose

The purpose of this planning scheme policy is to:

(1) ensure development on land which is steep (slopes generally greater than fifteen percent), erosion prone, or prone to slip, properly addresses factors affecting land stability on the site and the possible effects of development on land above and below the site;

(2) ensure on-site disposal of wastewater can be sustainably managed within the boundaries of the lot; and

(3) provide guidance on the preparation and assessment of slope stability assessment reports.

SC7.12.3. Preparation of a geotechnical assessment report

The main aim of a slope stability assessment report is to ensure development on steep land has had appropriate regard to the geological elements of the site, and possible future impacts on land above and below the site. The report is required to assess the suitability of the site for the proposed development in terms of:

(1) slope stability and the structural integrity of proposed buildings and structures;

(2) safety of persons using the site; and

(3) impacts of development on the natural environment.

The slope stability assessment investigation is required to be prepared by a professional, qualified in geological and/or geotechnical engineering, and being a registered professional engineer. It is desirable that the person has local experience with steep land, land slip areas and/or erosion prone areas and the mitigation of possible adverse effects.

Laboratory testing is required to be undertaken by a National Association of Testing Authority (NATA) certificated laboratory and all investigations, testing and design should be undertaken in accordance with industry standard practice and the provisions of relevant Australian Standards.

Where a development site is subject to the provisions of this policy, the proponent is strongly encouraged to meet with Council officers prior to lodgement of the application. This will assist in determining and clarifying the relevant items, identified below, to be addressed in the report.

SC7.12.4. Slope stability assessment report template

As a general guide the following format and contents description indicates the depth of detail required:

(1) Introduction

  (a) Details of the proposed development, such as site location and description including the real property description;

  (b) Method and scope of investigations; and

  (c) Qualifications of responsible individual(s) and/or company.

(2) Description of existing conditions

  (a) Existing research material (if any) including:

(i) aerial photographs;

(ii) geological maps;

(iii) geological reports; and

(iv) site classification;

(b) Geology (local and regional), including:

(i) surface and subsurface materials; and

(ii) geomorphology (slopes, ground contours, natural features, terrain analysis, landslip features);

(c) Groundwater, including:

(i) water table; and

(ii) springs and seepage areas in the local area of interest;

(d) Surface drainage patterns;

(e) Vegetation cover on and around site; and

(f) Buildings, other structures, earthworks, etcetera.

(3) Assessment of land stability/suitability

(a) Site history:

(i) location and classification of any existing slips (type, severity and likely mode of failure);

(ii) extent and type of any existing occurrences of erosion; and

(iii) information on hazards (of rock fall, landslip, etcetera) on land above the site;

(b) Proposed development components;

(c) Potential geotechnical effects – from field and/or laboratory testing or assessment, classification of surface and subsurface materials to determine:

(i) erosion potential;

(ii) foundation conditions that could affect structural performance;

(iii) suitability for wastewater disposal; and

(iv) any other relevant characteristics.

(4) Assessment of development impacts

(a) Site layout;

(b) Roadworks, driveways and other pavements;

(c) Earthworks (excavation, materials usage);

(d) Foundations;

(e) Surface drainage;

(f) Wastewater (treatment and disposal);

(g) Detail existing stability of subject land and of geotechnical constraints on building(s) and/or other development works on the site as well as on land above and below the site;

(h) Overall effect of development on the stability of the land as well as on land above and below the site; and

(i) Overall effect on any on-site sewerage disposal system on:

(i) surface and groundwater integrity;

(ii) surrounding land uses; and

(iii) slope stability due to reduced cohesiveness, increased poor water pressure, increased lubrication of bedding planes, etcetera.

(5) Measures recommended to mitigate impacts

(a) Recommendations on appropriate measures required to avoid or minimise risks of instability, or other adverse environmental effects, on the subject site as well as land above or below the site, including:

(i) preferred locations for buildings, other structures, driveways, etcetera;

(ii) foundation requirements such as bearing pressures, piling parameters, special techniques for expansive clays, etcetera;

(iii) pavement types and designs;

(iv) construction methods to avoid problem areas associated with loose materials and groundwater seepage;

(v) preferred excavation/retention/stabilisation techniques and suitability of excavated materials for use in on-site earthworks;

(vi) surface and subsurface drainage requirements;

(vii) preferred methods of wastewater disposal; and

(viii) vegetation protection and revegetation requirements.

Editor's note—If addressing the suitability of land for effluent disposal, the geotechnical report is to follow Australian Standard/New Zealand Standard AS/NZS 1547:2000 On-site domestic wastewater management and must comply with the Plumbing and Drainage Act 2002.

(6) Summary and conclusions about the overall suitability of the land for the proposed development

(a) Appendix;

(b) Field and laboratory test results, including the location and level of field investigations such as boreholes, trench pits and core penetrometer soundings.

SC7.12.5. Standard conditions

Standard conditions which Council may attach to a development approval are likely to include, but not be limited to the following:

(1) A Development Permit for Operational Works (site works) must be obtained prior to the commencement of any site works.

(2) Any application for a Development Permit for Operational Works (site works) must be accompanied by an earthworks plan which clearly identifies the following:

(a) the location of cut and/or fill;

(b) the type of fill to be used and the manner in which it is to be compacted;

(c) the quantum of fill to be deposited or removed and finished cut and/or fill levels;

(d) details of any proposed access routes to the site which are intended to be used to transport fill to or from the site; and

(e) the maintenance of access roads to and from the site so that they are free of all cut and/or fill material and cleaned as necessary.

(3) All site works must be undertaken in accordance with Australian Standard *AS3798 "Guidelines on Earthworks for Commercial and Residential Developments"* and the approved *'Slope Stability Assessment'* document.

(4) Cut and fill of the subject allotment(s) must only be undertaken in areas where site-specific slope stability assessments have been carried out by a Registered Professional Engineer of Queensland experienced in geotechnical investigations. In this regard, any works must comply with the recommendations of the site-specific assessments as approved by Council.

(5) Slope stability must be managed as follows:

(a) all engineering drawings/specifications and designs must comply with the requirements of the relevant Australian Standard AS3798 "Guidelines on Earthworks for Commercial and Residential Developments", and must be approved by a Registered Professional Engineer of Queensland;

(b) site inspections must be undertaken by a Registered Professional Engineer of Queensland to confirm the design; and

(c) full engineering certification must be undertaken by a Registered Professional Engineer of Queensland.

(6) Site works must be constructed such that they do not, at any time, in any way restrict, impair or change the natural flow of runoff water, or cause a nuisance or worsening to adjoining properties or infrastructure.

(7) Construction of retaining walls in excess of one (1) metre in height must only be undertaken by a licenced tradesperson holding the appropriate licence to do so. A completed Form 16 Inspection Certificate/Aspect Certificate/QBCC Licensee Aspect Certificate must be submitted to Council detailing the competent person inspecting/certifying the works as well as the relevant licenced tradespersons details who constructed the retaining wall. A copy of this certification must be provided to Council as part of the submission of the Building Works application.

(8) A detailed inspection and as constructed record must be provided to Council by the consultant Registered Professional Engineer of Queensland prior to acceptance of the works. The consultant must include in the certification confirmation that the wall's foundation ground conditions nominated in the design were inspected and achieved during construction.

(9) The detailed inspection and As Constructed record must demonstrate to Council that the retaining wall construction work was closely monitored throughout construction by the Registered Professional Engineer of Queensland including the achieved foundation ground conditions.

(10) The approved design and/or the construction of the retaining walls must not be modified or altered without Council's prior written approval.

SC7.13. Stormwater management planning scheme policy

SC7.13.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area, particularly where stormwater management needs to be considered.

SC7.13.2. Purpose

The purpose of this planning scheme policy is to provide guidance in relation to the provision of stormwater management infrastructure for development in order to ensure stormwater infrastructure design and construction satisfies Council's Desired Standards of Service requirements, environmental, health and safety expectations.

SC7.13.3. Introduction

The planning, design and implementation of stormwater drainage system must integrate the two distinct components of stormwater management that is water quantity and water quality.

The stormwater drainage system must:

(1) prevent or minimise adverse social, environmental, and flooding impacts on people, properties, waterways, overland flow paths and constructed drainage network; and

(2) achieve acceptable levels of stormwater run-off quantity and quality by applying total water cycle management and water sensitive urban design principles.

SC7.13.3.1. Reference standards and guidelines

Stormwater drainage systems/networks are to be designed and constructed in accordance with the current edition of the following and local best practice engineering:

(1) Capricorn Municipal Development Guidelines;

(2) Queensland Urban Drainage Manual (QUDM);

(3) Australian Rainfall and Runoff (ARR);

(4) Urban Stormwater Quality Planning Guidelines (DERM);

(5) WSUD Technical Design Guidelines for South East Queensland, South East Queensland Healthy Waterways Partnership; and

(6) Best Practice Erosion and Sediment Control, International Erosion Control Association (Australasia).

SC7.13.3.2. Design principles

(1) All stormwater management systems/networks must have appropriate land tenure and lawful point of discharge as defined by the QUDM.

(2) Stormwater drainage systems/networks are to be designed and constructed to comply with the performance objectives of the 'major / minor' system concept in accordance with the QUDM.

One of the potential adverse effects of this design philosophy is that the degree of storm/flood damage can dramatically escalate during severe storms that exceed the major storm design standards. Design processes must accompany "Severe Storm Impact Statement" meeting the relevant performance objectives.

SC7.13.4. Design standards and parameters

SC7.13.4.1. General

The design criteria for the major and minor design storm for various planning scheme uses is provided below in Table SC7.13.4.1.1.

Table SC7.13.4.1.1 – Design criteria for major and minor design storms

Development category	Design parameter	Minimum design standard	
		AEP	ARI (years)
Rural areas (typically 2–5 dwellings per hectare)	Minor drainage system Major drainage system	39% 1%	2 100
Residential developments (Low density residential)	Minor drainage system Major drainage system	18% 1%	5 100
	Inter allotment drainage	Level II QUDM	
Residential developments (Low–medium density to High density)	Minor drainage system Major drainage system	18% 1%	5 100
	Inter allotment drainage	Level II QUDM	
Industrial uses	Minor drainage system Major drainage system	18% 1%	5 100
	Inter allotment drainage	Level III QUDM	
Commercial land uses (centre zones)	Minor drainage system Major drainage system	10% 1%	10 100
	Inter allotment drainage	Level III QUDM	
Open Space Parks	Minor drainage system Major drainage system	63% 1%	

Notes -

- The design standard of major drainage system is to safely manage the difference between the minor and major flows where a minor system is provided in accordance with QUDM.
- A severe storm impact assessment is to be provided where development may interfere with the passage of stormwater during the major flow event. Refer to QUDM for applicability and design considerations.
- Level III inter allotment drainage system may be required Council for residential developments in some instances based on the site topography (e.g., steep slope).

SC7.13.5. Hydrology and hydraulics

SC7.13.5.1. General

The following factors must be considered in the design and selection of the final drainage treatment:

(1) Design discharges based on the ultimate development in the catchment;

(2) Future maintenance requirements to ensure the drainage facility continues to meet its design performance;

(3) Safety of persons, particularly children;

(4) Erosion and siltation both within and on adjoining properties not increased as a result of the development;

(5) The existing treatments of other sections of the drainage system;

(6) The general amenity of the area and particular use of parkland;

(7) Environmental issues, including vegetation protection orders, maintenance of natural channels and buffer vegetation, preservation and rehabilitation of flora and fauna habitats, riparian vegetation, archaeological values, heritage values, water quality and existing features such as wetlands; and

(8) Integration of total water cycle management.

SC7.13.5.2. Design rainfall data

The most up to date design Intensity Frequency Duration (IFD) data is to be obtained from the Bureau of Meteorology website using the IFD tool available. The appropriate co-ordinates are to be entered for the area subject to the development.

SC7.13.5.3. Flow estimation methods

(1) For guidance to the design of urban drainage systems, Council refers the designer to Queensland Urban Drainage Manual, CMDG and Australian Rainfall and Runoff. Council may accept flow estimates using the Rational Method for conceptual designs in certain situations.

(2) For complex drainage situations (particularly as part of a flood study for setting building development levels) or for sizing detention systems, a run-off/storage routing models (for example DRAINS, ILSAX, XP-RAFTS, WBNM, RORB) must be used to estimate flows.

Design AEP's shall be in accordance with land use types in accordance with Table SC7.13.4.1.1.

SC7.13.5.4. Inter-allotment drainage

(1) The inter-lot drainage shall be designed in accordance with CMDG and Queensland Urban Drainage Manual to a minimum Level (II) standard.

(2) For minimum easement widths refer CMDG.

(3) Filling, retaining walls, buildings, fences, or other obstructions must not block overland flow. Furthermore these obstructions must not cause the overland flow to be diverted to, or concentrated onto, another property.

SC7.13.5.5. Finished Ground or floor levels

Refer approved flood studies by Council.

SC7.13.5.6. Stormwater quantity and quality management reports

(1) In deciding an application, where determined to be necessary, the Council may require as part of an information request under the Integrated Development Assessment Process (IDAS), detailed Stormwater Quantity and Quality Management reports, to assess the impact of the proposal.

(2) It is recommended catchment areas, major flow paths, water courses, planned trunk infrastructure, and priority infrastructure areas be confirmed with Council prior to submission.

(3) All reports must be certified by a suitably qualified Registered Professional Engineer Queensland (RPEQ).

SC7.13.6. On-site stormwater detention and retention systems

SC7.13.6.1. General

(1) When a development is likely to increase run-off to such an extent that the downstream drainage (both piped and overland) cannot cater for the additional capacity or adverse impacts are created, it may become necessary to incorporate stormwater detention to reduce peak discharges, these basins can be either dry (detention basin) or wet (retention basin).

(2) Both types may have multiple uses for example pollution control, environmental wetland, recreational, as well as hydraulic functions.

(3) As a general rule, detention storage is less likely to be required at the bottom one-third of the catchment.

(4) Detention maybe required depending on drainage system capacity or the presence of existing development that could be flooded adversely as a result of future catchment redevelopment.

(5) If the detention storage is a Council owned asset, only aboveground detention basins are permitted as they are more readily maintained than underground storage facilities, such above ground detention should be integrated with water quality treatment measures.

SC7.13.6.2. General design objectives

(1) The volume of detention provided must be sufficient to attenuate the peak discharge from the site; to ensure non-worsening of the flow regime immediately downstream of the development for a selected range of Annual Exceedance Probability (AEP) events up to Defined Flood Event (inclusive) for a range of storm durations including critical storm duration.

SC7.13.6.3. Safety and amenity

(1) The danger to children moving in and out of the basin during times of inundation must be carefully considered.

(2) The outlet/inlet grates must be designed such that any child will be able to crawl away from the grate under all operating conditions. Dense landscaping must be used to deter access.

(3) Internal batters located adjacent to publicly accessible areas (playgrounds and parks) must have a maximum one (1) vertical in six (6) horizontal batter, preferable one (1) vertical in twenty (20) horizontal.

(4) Basins located away from public use areas must incorporate one (1) vertical in six (6) horizontal batters within the basin for safe egress from floodwaters.

(5) Sensitive signing must be erected at strategic locations alerting people to the possible hazards of the detention basins. Where detention basins are located directly upstream of a dedicated roadway or residential property, safety and damage consequences as a result of basin collapse or overtopping to the road users/residents must be carefully evaluated.

SC7.13.6.4. Access for maintenance

(1) All detention basins are provided with a vehicle access from the nearest public road into the basin at a grade no steeper than ten (10) percent.

SC7.13.6.5. Major overland flow paths

(1) It is strongly recommended that Major Overland Flow paths are not located within private properties. If it is unavoidable, a drainage easement must be provided.

(2) This provides for passage of stormwater along the easement and prohibits the erection of structures, the alteration of surface levels, and any activity within the easement which may obstruct the flow of storm run-off (for example debris retentive fences, landscaping, walls, filling).

(3) The overland flow easement must be sized for a Defined Flood Event (DFE), and cover full flood extent and be vegetated or paved to prevent potential scouring (in accordance with recommendation of flood investigations and roughness assumptions).

(4) Filling, retaining walls, buildings, fences, or other obstructions must not block overland flow. Furthermore these obstructions must not cause the overland flow to be diverted to, or concentrated onto, another property.

SC7.14. Structure planning and urban design planning scheme policy

SC7.14.1. Application

This policy applies to all applications which require a structure plan to accompany a development application for material change of use, preliminary approval or reconfiguring a lot, as required by a code in this planning scheme.

SC7.14.2. Purpose

The purpose of this planning scheme policy is to provide guidance on the outcomes expected from structure plans, urban design principles and the process required to prepare structure plans.

SC7.14.3. Policy provisions

SC7.14.3.1. Structure planning: process and product

The process of structure planning is as important as the documents which are produced. This policy acknowledges that there are a number of ways to prepare a structure plan and that the scope and content will vary in accordance with the circumstances of the site. Council encourages public and stakeholder consultation in the structure planning process, and will seek additional consultation input where it deems necessary.

The structure planning process is expected to produce documents that include a report, site analysis plan(s), structure plan map(s), subdivision designs for new urban areas (greenfield sites) and existing urban areas (brownfield sites), and additional technical supporting documents. These documents will coordinate the provision of transport networks, public open space, utility and service networks, urban water management, development standards and community and other infrastructure investment and staging programs.

SC7.14.3.2. Outcomes of a structure plan

A structure plan ensures that development for urban purposes:

(1) is orderly and promotes an efficient and coordinated use of land and infrastructure;

(2) achieves well designed places for communities;

(3) is well integrated with existing and proposed development adjoining and in the immediate area;

(4) provides convenient and safe access to the transport network which includes pedestrian, cyclist, public transport and private vehicle connections and avoids the use of cul-de-sac layouts;

(5) provides pedestrian linkages that meet acceptable CPTED requirements between residential areas and open space, centres and public facilities;

(6) enables the provision of a variety of lot sizes to achieve the outcomes of the relevant zone;

(7) locates higher density residential uses in and around centres which are served by higher order roads and other transport facilities;

(8) the street layout has a legible pattern that provides choices of direct routes to neighbourhood centres, other community focal points and public transport routes;

(9) streets are interconnected in a modified grid and define blocks of a walkable scale;

(10) avoids or otherwise manages potential impacts of development on significant environmental areas, natural features, cultural heritage features and other important aspects of the development site;

(11) avoids areas of natural hazard risk, including landslip, flooding, bushfire, storm surge; and

(12) enables buildings to be located and constructed to achieve high levels of climate responsiveness.

SC7.14.3.3. Urban design guidelines

The Urban Design Protocol for Australian Cities provides a strong set of principles for undertaking structure planning to achieve good urban design outcomes. The Urban Design Protocol is founded on five pillars:

Productivity - Enhances economic productivity and living affordability

Sustainability - Fosters environmental responsibility

Liveability - Cultivates healthy, cohesive and inclusive communities

Leadership - Demonstrates visionary leadership and governance

Design - Integrates design excellence

Twelve basic principles underpin the Urban Design Protocol based on design, leadership and governance. These principles are interrelated with the five foundation pillars of the Protocol. It is expected that all new development will be designed in accordance with the Urban Design Protocol.

Principles	Outcomes	Attributes – How it helps to achieve world class urban design
Enhancing	Enhances the local economy, environment and community	• It respects the needs and aspirations of the community that lives and works there • It creates opportunities for people to prosper and local businesses to thrive • It sustains and enhances the natural environment • It enhances the built environment visually, physically and functionally • It celebrates unique characteristics—heritage, culture and community—that create a sense of place and identity
Connected	Connects physically and socially	• It is well connected to surrounding areas • You can see where you are and where you are going • There is a range of transport options, including public transport, walking and bicycling • It is connected to places with jobs, schools, shops, facilities and services • It is connected with the past—the heritage of a place—and with the community and its culture • It feels connected with the natural environment
Diverse	Diversity of options and experiences	• Each locality has its own character and qualities • There is a rich range of experiences—how you move around and interact with others, what buildings and spaces look and feel like, and what things you can do • There is a range of facilities, services and activities • Despite the diversity, there is an overall harmonious blend • You can take different routes depending on your mood, or if you're visiting different places on your way • It meets different people's needs, including a diversity of housing options • There is biodiversity in the flora and fauna
Enduring	Sustainable, enduring and resilient	• It is resilient to extreme weather events, natural disasters and a changing climate • Things are built to last, where appropriate – they're made of robust materials, are designed well and there's

Principles	Outcomes	Attributes – How it helps to achieve world class urban design
		a sense of quality • It is visually and aesthetically pleasing as well as practical • It is well maintained and cared for • It is designed to save resources like water, energy and materials, and minimises its impact on the environment • It considers current and future activities and can evolve and adapt over time
Comfortable	Comfortable + welcoming	• It feels comfortable to walk through, sit, stand, play, talk, read, or just relax and contemplate • It is not too exposed to unpleasant noise, wind, heat, rain, traffic or pollution • You can freely use the place, or at least part of it, without having to pay • You can be yourself and feel included as part of the community • It caters for people with various physical capabilities, the old and the young
Vibrant	Vibrant with people around	• You can see that there are other people around • People are enjoying themselves and each other's company • There are places to meet and interact, play, explore, recreate and unwind • It is a place you want to visit, experience, or live in
Safe	Feels safe	• It feels safe and secure, even at night or on your own • There aren't signs of decay such as graffiti, rubbish, weeds or derelict buildings and places • Roads and paths are safe for adults and children to walk or ride their bikes
Walkable	Enjoyable and easy to walk and bicycle around	• It prioritises people walking or riding before vehicles • It is easy to get around on foot, bike, wheelchair, pushing a pram or wheeling luggage • Buildings and streets feel like they're the right size and type for that place • It encourages physical activity and social interaction, and promotes a healthy lifestyle
Context	Works within the planning, physical and social context	• It sets, or works within the strategic planning framework • It integrates with the physical environment, including its topography, biodiversity, landscape and views, existing streets and buildings, and infrastructure • It incorporates the heritage, culture and historical context of surrounding communities and places • It is compatible with the surrounding social and economic activities
Engagement	Engages with relevant stakeholders	• It acknowledges that urban design is primarily about creating places for people • It engages people in the development of their community • It adopts a multi-disciplinary and collaborative approach

Principles	Outcomes	Attributes – How it helps to achieve world class urban design
		to planning and design
Excellence	Fosters excellence, innovation and leadership	• It prioritises best practice planning, design, engineering, procurement and maintenance • It champions universal design and accessibility • It integrates design, and design expertise, from the earliest stages of a plan or project through to completion • It engages competent, skilled professionals to design and deliver on projects
Custodianship	Considers custodianship and maintenance over time	• It recognises that communities, environments and cities are continually evolving and adapting • It considers the wider environmental, social and economic costs and benefits of development, operations, maintenance and disposal • It ensures that the design of a place is appropriate for its ongoing maintenance, operations and upkeep • It incorporates strategies to reduce and adapt to climate change

SC7.14.3.4. Structure plans and Constraints

Structure plans may be required to accompany a development application. It is intended that smaller developments will require a basic analysis of the site and its locality, and demonstration that the proposed development will be well integrated with surrounding development and will be adequately serviced. A larger development will require a more comprehensive assessment of the site in its context and a more detailed plan demonstrating how the development achieves the strategic outcomes sought in the planning scheme, as well as the detailed outcomes of the relevant zone codes for the land uses proposed.

A structure plan will provide a response to a site analysis plan. A site analysis plan typically includes the following minimum information on one or more plans, drawn to a suitable scale depending on the size of the project. It is expected the site analysis plan will be accompanied by one or more technical reports.

(1) A site analysis plan for the site and its locality which shows the site and its context:

(a) lot and road boundaries;

(b) all applicable planning scheme overlays;

(c) existing residences, improvements and structures on site and on adjoining land;

(d) open space and community infrastructure – schools, child care etcetera;

(e) existing and proposed infrastructure, including: roads, water, sewer, drainage (piped and open channel), open space network, pedestrian and cycle linkages (made or unmade);

(f) movement networks – pedestrian, cycle, public transport and vehicles;

(g) slope and topography (minimum one (1) metre contours);

(h) existing land uses for the site and surrounding areas;

(i) environmental attributes, creeks, rivers, existing vegetation;

(j) flooding and drainage; and

(k) Other site attributes including views and vistas.

Once the site characteristics and constraints have been identified they must be addressed by the Structure Plan as recommended by the relevant Codes and Local Plan 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.

(2) A Structure Plan for the site and its locality demonstrates a response consistent with the principles set out in Urban Design Protocol for Australian Cities and should respond to the site and locality analysis. The Structure Plan should detail:

(a) all proposed lots (size and frontages) and road boundaries;

(b) all proposed structures and improvements including details of height, density, setbacks, site cover etcetera;

(c) details of the proposed movement network (pedestrian, cycle public transport and vehicular) and all proposed connections, intersections and improvements. For smaller sites this includes specific details about vehicles access to the site and any detail about servicing and loading;

(d) particulars of the proposed land use response. Where mixed use is proposed an indication of the likely composition of that mix. Where non-residential land uses are proposed the applicant is required to provide details about buildings and other structures, GFA, site access and how these proposed uses integrate with adjoining uses (existing and proposed);

(e) proposed infrastructure improvements including details of earthworks (cut and fill) and other operational works matters such as: roads, water, sewer, stormwater management and drainage; and

(f) details of any open space, vegetation retention or revegetation.

SC7.14.3.5. Preparation of a structure plan for preliminary approval

A preliminary approval is the most common application type to facilitate development of new urban communities within the emerging community zone. A preliminary approval may seek to make future development applications code assessable or potentially self-assessable in some instances and careful consideration of future impacts will be required where this is proposed. A preliminary approval must not change the level of assessment unless the following is achieved through the structure planning process:

(1) the structure plan contains specific detail regarding the proposed uses, their locations, density, scale and height;

(2) the structure plan contains provisions including a Table of Assessment and all relevant Codes to enable a comprehensive assessment of future development applications; and

(3) provision for infrastructure has been assessed and determined to be sufficient at a concept level, and where required, an infrastructure agreement entered into.

SC7.15. Water supply infrastructure planning scheme policy

SC7.15.1. Application

All applications for the proposed construction of Council owned water supply infrastructure are to include a design in accordance with the Capricorn Municipal Development Guidelines (CMDG), and other legislation as described in section SC7.15.6. The order or priority for this interpretation of the documents is also described in this section.

SC7.15.2. Purpose

The purpose of this planning scheme policy is to provide a framework to guide development affecting new and existing water infrastructure across Livingstone Shire Council.

SC7.15.3. Water connections/disconnections

To apply to have a water meter connected to your property the following apply:

(1) Standard twenty (20) millimetre water connection in a new subdivision (that have a ball valve and raised to 300mm below ground level)

  (a) Complete and lodge with Council a Water Connection / Disconnection - this form needs to be lodged, along with the appropriate fees, at one of the Livingstone Shire Council's customer service offices.

(2) Greater than a twenty (20) millimetre water connection:

  (a) Private works quotation required.

(3) Water connection twenty (20) millimetre (not in a new subdivision):

  (a) Private works quotation required.

(4) Water disconnections:

  (a) Complete the Water Connection / Disconnection form and pay the appropriate fee as described above.

(5) To apply for a private works quotation, a Private Works Application for Water and Sewerage Services form and return to Livingstone Shire Council is required. Alternatively you can contact Livingstone Shire Council Customer Service Centre by email enquiries@livingstone.qld.gov.au or phone 1300 790 919.

SC7.15.4. Water metering

Livingstone Shire Council, as the water service provider, will require any premises meeting the below criteria and drawing a water supply from Livingstone Shire Council to have sub-meters installed.

(1) Each lot within a community title scheme, including the common property;

(2) The sole occupancy unit of a Class 2, 4, 5, 6, 7 and 8 building in a water service provider's area; and

(3) Each storey of a Class 5 building in a water service provider's area where the building consists of more than one storey and sole occupancy units are not identified at the time of the building's plumbing compliance assessment.

The policy, guideline, and procedure referred to below provides a guide as to when sub-meters are required, the type of meters preferred, location and approval process.

In addition Council has adopted a sub-metering policy, sub-metering guidelines and a sub-metering procedure. These documents are located on Council's website.

SC7.15.5. Standard drawings

Reference is to be made to the Capricorn Municipal Development Guidelines standard drawings for water reticulation. CMDG Standard Drawings can be found at www.cmdg.com.au.

Design and construction of water reticulation systems

The Capricorn Municipal Development Guidelines Design and Construction Specifications are to be utilised for the planning, design and construction of water reticulation works. The following order or priority for interpretation of documents will apply:

(1) Relevant parts of the Capricorn Municipal Development Guidelines for Livingstone Shire.

(2) Relevant Planning Scheme Policies.

(3) Planning Guidelines for Water Supply and Sewerage, Department of Natural Resources and Mines.

(4) Water Reticulation Code, WSAA.

The Capricorn Municipal Development Guidelines set out the requirements for the design of water reticulation systems. The guideline contains procedures for the design of the following components of a water supply system:

(1) reticulation; and

(2) pumping stations.

A water main will only be classified a trunk main if deemed by the Local Government agency. The Sustainable Planning Act definition of trunk infrastructure can be found on the Queensland Legislation website.

SC7.15.6. Water supply network desired standards of service

The objective of a water supply system is to provide to the consumer a reticulated potable water supply to meet the demands imposed upon it by both the consumers and fire fighting requirements.

The Desired Standards of Services for the Water Supply Network are detailed within Livingstone Shire Council's Adopted Infrastructure Charges Resolution (AICR). The AICR can be found on Council's website.

SC7.15.7. Water Supply Network Modelling and Hydrant Pressure and Flow Tests

The preparation of any development application may require the submission of a water network analysis to determine the development requirements and impacts on surrounding areas. Council is able to provide a network analysis upon request and for a fee. Council's hourly rate is indicated on Council Fees and Charges however a quotation is required for each project and will be provided upon request. Council's network model is based on the desired standards of service identified above.

Council is able to conduct a hydrant pressure and flow test upon request and payment of the appropriate fee. The Water Main Pressure and Flow Test application form is located on Council's website.

SC7.15.8. Additions/modifications to Capricorn Municipal Development Guidelines

In addition to the Capricorn Municipal Development Guidelines requirements there are also design criteria for the following:

(1) Water meter boxes within trafficable areas to be lowered to suit the finished surface levels and provided with heavy duty trafficable lids;

(2) Large trees planted in the footpath; and

(3) Stop valves.

SC7.15.9. New fire services

Where internal hydrants and/or sprinkler systems and fire hose reels are required, a single connection shall be provided with a check valve and metered bypass located adjacent to the property boundary.

Diameters of fire services (including the diameter of metered bypasses for fire hose reels) shall be determined and certified for each project by an approved certifier (as outlined in the Queensland Department of Housing and Local Government Register of Fire Systems Certifiers).

All properties within the declared water area requiring water connections for fire fighting purposes must comply with the provisions of Council's Metering of Fire Lines Policy. The policy is to ensure all new fire lines are metered to identify and eliminate avoidable system leakage and non-fire related water consumption through those services.

The Metering of Fire Lines Policy can be found on Council's website.

SC7.15.10. Maintenance

Maintenance of all water services within a property owner's property is the responsibility of the property owner, with the exception of mains within property easements owned by Council.

Construction of any new plumbing and sanitary drainage works must comply with the provisions of Council's Plumbing and Drainage Policy in addition to:

(1) AS/NZS 3500.2:2003 (as amended) and in particular clause 3.2;

(2) Plumbing and Drainage Act 2002;

(3) Standard Plumbing and Drainage Regulation 2003; and

(4) Plumbing Code of Australia (PCA).

SC7.15.11. Development outside the water service area

Council has adopted a Water and Sewer Service Area Extension Policy. Where a property is located outside the water service area and is able to connect to the reticulated water supply, it is often in the best interest of Council and the community to do so. In any case where there is an unacceptable risk to the health and wellbeing of the community, Council may resolve to amend the service area to include the area and hence request the properties to connect.

Council's Water and Sewer Service Area Extension Policy can be found on Council's website.

(1) On-site water supply:

  (a) Where not within the service area, an urban area or rural residential area, and the applicant does not intend to connect to reticulated water supply, developments have an on-site water supply. The water quality must be in accordance with the recognised standards that safeguards community health.

  (b) Provides from an appropriate on-site storage and distribution system sufficient supply for fire fighting purposes relevant to any fire hazard risk.

  (c) Involving a dam or bore, is provided to accord with a report from a qualified hydrologist is required to certify the safe yield of the supply source.

(2) Special water supply arrangement:

  (a) A request may be made for connection to the water reticulation system for unserviced areas. Advice will accord with the relevant infrastructure charging regime in place at that time.

(3) New reticulated water supply area:

  (a) Where development is outside the service area, urban area or rural residential area, and where development would like to be included as a new service area, written evidence of agreement with a registered service provider in accordance with the Water Supply (Safety and Reliability) Act 2008 is provided.

SC7.16. Landscaping planning scheme policy

SC7.16.1. Application

This planning scheme policy applies to development throughout Livingstone Shire Council planning scheme area, particularly where species selection and preparation of landscaping plans are required to be prepared.

SC7.16.2. Purpose

The purpose of this planning scheme policy is to:

(1) provide a guide for the preparation of a landscape plan to accompany development applications within the planning scheme area;

(2) promote the increased use of local provenance Australian native species in landscaping;

(3) promote the use of appropriate species for the right locations;

(4) encourage the use of water efficient plant species to minimise water consumption used to maintain landscaped areas;

(5) improve the quality of potential wildlife habitats and corridors through the process of landscaping the urban environment;

(6) improve the visual amenity of the built environment;

(7) place a priority on the importance of landscaping in our communities and the health and economic benefits that it brings;

(8) identify likely species which may be used to complement existing vegetation along view corridors and within areas of scenic amenity; and

(9) promote shade trees and screening plants to transform streetscapes within the planning scheme area where new developments occur.

SC7.16.3. Plant establishment and retention of existing vegetation

The selection of appropriate species is just as important as the planting environment being landscaped. In this regard consideration should be given to the chosen pot sizes at the time of establishment. For most scenarios Table SC7.16.3.1 can be used as a guide.

Table SC7.16.3.1 — Minimum pot sizes at the time of establishment

Plant type	Minimum pot size[1]
Feature trees	100 litres
Street trees	45 litres
Other trees	45 litres
Shrubs	200 millimetres
Ground covers	140 millimetres
Macrophytes	Tube stock
Revegetation works	Tube stock

In many instances, existing vegetation on a site can be considered to be incorporated into a development. As a general rule, existing trees and shrubs over four (4) metres from any building work or approved car parking area or access thereto should, as part of a detailed site layout plan for the

[1] Any required 'storm staking' of mature trees stock (twenty-five (25) litre and above) to mitigate the impacts of high winds, should be staked using a minimum of two (2) appropriate wooden stakes per tree to provide support to the tree in very high winds. Tree straps/ties must be fitted to hang loose during normal conditions and not rub or cause damage to the tree.

intended development, be retained and included in a landscape plan. A development approval and relevant conditions may identify appropriate tree(s) to be retained[2].

SC7.16.4. Determining the site for suitable landscape treatments

In the development of a detailed site plan, it is important to explore:

(1) how the site functions;

(2) the use, its location, streetscape and setting;

(3) the end use and the likely maintenance regime;

(4) which areas are public areas within the site that customers will interact with;

(5) if the development has a direct interaction with major public areas such as foreshore areas, island esplanades, public forecourts, parklands and the like, their urban design elements and how landscaping components will complement these areas;

(6) any areas that are for private use;

(7) the existence or development conditions/overlays likely to require or have easements/covenants such areas on any landscape plan should be clearly identified as areas that are not to be disturbed;

(8) the need for screening landscape treatments to respond to adjacent land uses and the like;

(9) the various types of landscaping and if the site can accommodate one or many aspects - areas of grass, pathways, stepped areas, terraces, gardens;

(10) if the plant species for the site need to be able to withstand bushfire threat if adjacent to a potential bushfire risk area, or if being planted as part of a bushfire management plan; and

(11) the slope and geological characteristics to ensure compatibility of the treatment and the site characteristics (Table SC7.16.4.1 sets out nominated slope ranges for various landscape treatments).

Table SC7.16.4.1 — Preferred gradients for various landscape treatments

Landscape item	Absolute range %	Preferred range %	Minimum required crossfall
Pathways	0.5 - 12	1 - 8	
Entrance works	0.5 - 8	1 - 4	
Pedestrian ramps	up to 12	up to 8	
Stairs	25 - 50	33 - 50	
Ball play area	1 - 5	1 - 3	
Play ground pad	1 - 4	1 - 3	
Paved gutters	0.25 - 100	1 - 50	
Grassed swales	1 - 15	2 - 10	
Terrace and sitting areas	0.5 - 3	1 - 2	
Grassed banks	up to 25[b]	up to 16[b]	
Planted banks	up to 50[a]	up to 33[a]	
Stone mulched areas			1:100
Grassed areas			1:50
Garden areas			1:25

[2] Appropriate action must be taken to minimise disturbance to identified vegetation to be retained during on-site building work.

Paved areas			1:100
Drainage pipe/trench base			1:100

[a] dependent on soil type and slope stability.

[b] maximum recommended mowable slope.

SC7.16.5. Landscaping plans and specifications

Traditionally a landscaping plan will emulate a site plan and will show the site as it relates to its surroundings, the intended development footprint, vegetation and landscape. This includes the location of existing and new vegetation. It will show both hard and soft treatments.

An accompanying written report will outline the plan itself in detail and its consideration of the site in its design and application, and how the landscaping will be executed. This detail should be prepared for lodgement where possible in the material change of use process where conditions are negotiated, or submitted for approval as operational works to reflect conditions imposed by a previous approval and relevant Australian and industry standards.

Elements considered relevant for consideration for a landscaping plan and specification include but are not limited to:

(1) Landscaping soft works such as soils, fertilisers, mulches, seeding, turfing, planting, revegetation;

(2) Landscaping hard works such as paving and concreting, edge treatments, entry statements, fences and barriers, landscape furniture playground equipment;

(3) Road corridor landscaping such as the spacing between trees on road reserves, road medians and roundabouts;

(4) Site based landscaping - Car parks, power supply, irrigation systems; and

(5) Preferred species and specifications.

SC7.16.6. A guide to landscaping softworks

SC7.16.6.1. Topsoil and garden soil

Topsoils must be ameliorated and used. Natural topsoils may require blending or conditioning to attain required specifications for use in landscaped areas. Imported soil must comply with relevant Australian Standards.

Necessary measures are taken to prevent the importation of fire ants or any stages of the fire ant life cycle to the work site. If fire ants are suspected contact the relevant State Government Department immediately.

SC7.16.6.2. Fertilisers

An establishment and routine fertiliser regime must form an integral component of the construction and maintenance programs. A landscape plan must specify a fertiliser program for all planted areas.

SC7.16.6.3. Mulches

All garden beds and revegetation areas must be mulched. The following mulch composition or origins are not acceptable:

(1) sawdust; or

(2) inorganic; or

(3) treated or painted timbers; or

(4) noxious or undesirable weeds; or

(5) insufficiently composted or stored; or

(6) excessively bound so unable to shed water.

Organic mulch matting will be required as a substitute for loose particle mulches on steep or unstable slopes. Inorganic, nylon mesh or wire net binding mulch matting products must not be used.

SC7.16.6.4. Seeding

Seeding, where proposed, can be implemented using a reliable broadcast method, scarifier, direct drill, or purpose built hydroseed/mulch mixer and pump. All traffic to be kept off seeded areas during establishment. Failed seeded areas must be covered or re-sown promptly to ensure that adequate germination levels are likely to be attained.

All seeding methods must ensure that the following requirements are met:

(1) selected seed is viable;

(2) minimum germination and cover requirements are seventy-five per cent germination at two (2) months;

(3) specified coverage rates are to be achieved before the commencement of the use, approval of the plan of survey or 'On Maintenance', whichever is applicable and occurs first;

(4) method of application is even and reliable;

(5) ground preparation is consistent with seeding method;

(6) soil moisture levels are maintained prior and after seeding to promote strong germination and establishment; and

(7) weed competition is eliminated or sufficiently maintained.

SC7.16.6.5. Turfing

Development approvals requiring turfed areas are likely in the following areas, as well as to frame or border the edge of treatments:

(1) high traffic areas;

(2) passive recreation areas;

(3) slopes or overland flows; and

(4) cleared areas prone to erosion and siltation problems.

The installation of the most suitable turf will be selected appropriate to proposed situation, siting and use.

SC7.16.6.6. Planting specifications

The selection of appropriate plants will include one or a combination of the following: containerised plant stock, transplanting ex-ground stock, or pruning of existing trees. This may also include the need to retain vegetation on-site.

(1) Introducing new plant stock, will benefit from the following:

- (a) minor root prune – this ensures plant roots are growing laterally immediately prior to planting;
- (b) minor formative prune - where required in accordance with 'AS4373 Pruning of amenity trees';
- (c) appropriate excavation for installation - sufficient size planting holes, and backfill with suitable soil, to promote strong establishment, whilst allowing for normal long-term root development;
- (d) appropriate positioning of the plant - ensures upon settlement that top of root ball is level with final grade;
- (e) where recommended stake plants as specified - allow for stake removal prior to completion of maintenance period;
- (f) fertilise and maintain – this will promote vigorous growth; and

(g) planting must be positioned to avoid and minimise encroachment of plants onto walkways, roads, car parking areas or similar pedestrian or vehicle circulation areas.

(2) Street trees must conform to the following specifications at planting:

(a) In the event of a development taking place within an area subject to a public realm manual – those provisions takes precedence in relation to street trees and footpaths;

(b) NATSPEC: Specifying Trees or 'FCRC Generic Nursery Stock Standards for the Supply of Container Grown or Bare Rooted Urban and Amenity Trees';

(c) minimum single trunk clearance — one (1) metre (streets), 1.7 metre (roundabouts);

(d) appropriate tree size indices as per NATSPEC to meet these minimum clean stem heights;

(e) any pruning is undertaken in accordance with 'AS4373- Pruning of amenity trees'; and

(f) are located a minimum of 600 millimetres behind the back of kerb or equidistant between any kerb and adjoining pathway.

(3) Transplanting ex-ground stock must be carried out in accordance with an approved landscape management plan, or condition of approval.

(4) Any pruning must be undertaken in accordance with 'AS4373 - Pruning of amenity trees'.

SC7.16.6.7. Revegetation

(1) Species, density and relative abundance are consistent with an appropriate regional ecosystem and/or vegetation association for the site. The following densities will be required: Forests: 1.5 to two (2) metre centres, Heathlands: two (2) plants per square metre. The revegetation planting is designed to achieve rapid canopy closure and 'site capture' to reduce short-term- to medium-term maintenance requirements.

(2) Revegetation works consider appropriate limitations to successful revegetation works including but not limited to: soil types, soil contamination and soil amelioration/management, appropriate mulching, pests and disease, hydrology, roughness coefficient and layout when planting within flood plains, weeds, past and present site and adjoining land uses, ecosystem processes, fire regimes and management/maintenance requirements to ensure successful vegetation establishment.

(3) Direct seeding for rehabilitation of native vegetation preservation areas may be approved where:

(a) ground preparation is suitable;

(b) sound technical expertise is employed; and

(c) required plant species seed is available.

SC7.16.7. A guide to landscaping hardworks

SC7.16.7.1. Edge treatments

(1) Edge treatments, when using the following specification, will assist in ease of short term maintenance if they are designed and installed according with the following requirements:

(a) edge treatments are to be a minimum of seventy-five (75) millimetres wide and mountable, for ease of mowing and maintenance;

(b) turf or mulch is to be twenty-five (25) millimetres below top grade of adjoining edge;

(c) minimum curvature radius at three (3) metres;

(d) minimum access between edges and other treatments to be three (3) metres; and

(e) avoid restricting access into narrow corners.

(2) Where edge treatments are proposed to be paver (clay or concrete) edge treatments the following is preferred:

(a) minimum sixty (60) millimetres depth;

(b) minimum 110 millimetres width (230 millimetres preferred);

(c) mortar base and exposed edges (20 mega pascals); and

(d) regular inspections and observation to identify cracking, with replacement required.

(3) Materials acceptable for timber edge treatments are:

(a) minimum 150 millimetres log (winged) or 200 millimetres by eighty (80) millimetres sleeper (bevel edges);

(b) suitably treated for in ground use (H4 treated or durability class 1 or 2 hardwood);

(c) finish end and joints neatly; and

(d) securely pin and fix.

(4) Materials acceptable for continuous concrete:

(a) minimum width 150 millimetres;

(b) minimum depth 100 millimetres;

(c) minimum twenty (20) mega pascals;

(d) may be coloured or patterned;

(e) finish ends neatly and flush;

(f) bolster cut control joints where required; and

(g) no cracking.

SC7.16.7.2. Paving and concreting

Where a paved, plain or textured concrete surface finishing must be used, appropriate consideration must be given to its long-term skid resistance.

Construction details must clearly specify and reference particulars of paving and concrete works including: colours; patterns; paving material; exposed aggregate (size, colour and surface texture); widths, thickness, strength and reinforcement, and base preparation.

SC7.16.7.3. Entry statements

Where approved, entry statements to developments must be fully contained within private property and must not revert to Council ownership. If proposed the details and how it complements landscaping in general and footpath treatments should be outlined it the landscaping plan. Such elements and the need for resource entitlements, building permits and structural engineering should be raised with Council prior to the development application.

SC7.16.7.4. Fences and barriers

Barrier fences, bollards and or landscaping may be required to prevent vehicular trespass into parklands and other public open spaces. Construction drawings must clearly reference and specify all fence treatments, including materials.

SC7.16.7.5. Landscape furniture playground equipment

(1) All landscape furniture, playground equipment and associated infrastructure must be in accordance with all relevant statutory requirements and Australian Standards including the following:

(a) AS 4685.1 — AS4685.6 — Playground equipment safety set (general safety requirements and test methods, particular safety requirements and test methods for swings, slides, runways, carousels and rocking equipment);

(b) ‘AS 4486.1:1997 — Playgrounds and playground equipment — Development, installation, inspection, maintenance and operation’; and

(c) 'AS/NZS 4422:1996 — Playground surfacing — Specification, requirements and test method'.

(2) All fittings to timber work must be stainless steel.

(3) All furniture, playground equipment and surrounds must be durable, vandal resistant and low maintenance.

(4) All furniture and playground equipment must be subjected to a successful safety inspection by Council officers prior to acceptance of any infrastructure as a Council asset.

(5) Any special tools, equipment, keys, spare parts, warranties, instructions and maintenance requirements associated with any equipment must be provided to Council prior to acceptance of any infrastructure.

SC7.16.8. Road corridor landscaping

SC7.16.8.1. General

(1) The provision of landscaped areas within road reserves and traffic calming devices is generally provided by and maintained by Council, with plant species chosen to accord with the application, location and the maintenance requirements as detailed in relevant Council controlled land policy.

(2) Street trees, in commercial business areas, may be appropriate. Where landscaping is to be installed it must not increase risk to vehicles travelling within the road corridor.

SC7.16.8.2. Design criteria

Likely considerations for the suitability of an area for street trees and the provision of appropriate street trees include the following:

(1) Planting trees should contribute to stormwater management and pedestrian shade cover.

(2) Plantings should favour whole street plantings or blocks within streets in preference to individual plantings.

(3) Plantings should favour clear trunked, small to medium shade tree species in residential streets to minimise nuisance.

(4) Community participation in vegetation planting programs should be encouraged to promote ongoing stewardship.

(5) Planting is to be in scale with the streetscape.

(6) Street trees must be located such that when mature, they do not impact on the street lighting, future driveway locations or other infrastructure.

(7) Street trees and landscaping must not impact on vehicle sight distances in accordance with AS2890 or unduly restrict visibility to pedestrians and children in verge areas.

(8) Plants are not to be placed at access points.

(9) Plants do not obstruct access to services.

(10) The street tree alignment is within the corridor shown on Council's standard drawing.

(11) Earthworks are not to be carried out within close proximity of existing vegetation.

(12) All street gardens, including roundabouts and medians, should be provided with an automatic irrigation system (refer irrigation section of this policy).

(13) Subsoil drainage should be provided between all street gardens and the road pavement.

(14) Pedestrian access must be maintained around and, where applicable, through all street planting.

(15) Visibility lines must be checked to ensure that the minimum stopping distance for vehicular traffic is maintained.

SC7.16.8.3. Medians and roundabouts

Landscaping in median and roundabouts must provide for sight distances in accordance with Austroads 'Guide to Road Design' and the Department of Transport and Main Roads 'Road Planning and Design Manual – edition 2'.

Acceptable landscaping treatments may include decorative pavements, turf, clear–trunked trees (preferably) or local palms, shrubs and groundcovers; taller plantings are acceptable where visibility between carriageways is not critical, or a combination of any of these. Trees must be incorporated where possible. Such installations may require an automatic irrigation system to all planted medians and a tap connection should be fitted to all roundabouts. Subsoil drainage is required to the standard specified in the subsoil drainage section of this planning scheme policy. Medians with an area less than five (5) square metres or less than one (1) metre in width should be of concrete of other approved material.

SC7.16.9. Site based landscaping

SC7.16.9.1. Car parks

The landscape design for a car park is to include the following requirements:

(1) car park areas include parking bays and access aisle, and exclude driveways that extend beyond the access aisles;

(2) landscape areas abut a parking bay or access aisle and include landscaped buffer strips, and the minimum 2.25 square metres per shade tree to allow free circulation of air and water to the tree's root system and protection from pedestrian and vehicular traffic;

(3) a minimum of one (1) medium size shade tree per six (6) car parking spaces throughout the car park;

(4) shade trees are species that have a rounded or spreading form, medium to dense foliage and provide accessible shade for pedestrians and motorists. Local palms may be included in the planting scheme but are not acceptable as shade trees;

(5) root guards must be used where tree roots will cause damage to surrounding hard surfaces; and

(6) an automatic irrigation system should be provided to all car park planting areas.

SC7.16.10. Irrigation systems

SC7.16.10.1. General

(1) Automatic irrigation systems should be provided to all garden beds constructed within road reserves, parks, sporting fields and open space as part of development works.

(2) Recycled water for irrigation purposes should be utilised where available. Recycled water use must accompany appropriate signage indicating recycled water usage and comply with all relevant safety guidelines appropriate at the time.

(3) The irrigation systems must comply with the requirements defined below and AS2698 and Urban Best Management Practise Guidelines.

(4) The developer will be responsible for the cost of all irrigation water used and irrigation system maintenance costs incurred to establish plants and to maintain the planting during the maintenance period.

(5) Irrigation systems must be installed in accordance with the manufacturers' specifications.

(6) All irrigation systems connected to the public water supply must be metered.

(7) Irrigation plans identifying layout and components are to be submitted to Council for approval. All irrigation maintenance schedules associated with the irrigation system are to be presented to Council at time of handover.

SC7.16.10.2. Layout

(1) All irrigation systems should be fully automatic pop-up spray, drip emitter or subsurface microporous flexible pipe.

(2) Spray sprinklers must be located for head to head coverage and minimal over spray onto abutting hard finished surfaces.

(3) Appropriate filter screens must be placed within the system adjacent to the connection to the water main.

(4) All irrigation emitters must deliver sufficient precipitation for maximum soil absorption and water uptake by plants with minimum run-off.

(5) The design must prioritise deep, less frequent watering.

SC7.16.10.3. Backflow prevention devices

Backflow prevention devices must be installed in accordance with Australian Standard AS 2845.

SC7.16.10.4. Controllers

Systems accompanied by controllers, are to adhere to have regard to the following:

(1) The controller must be installed in a metal cabinet that is lockable, dust proof and rust proof.

(2) It must be constructed so as to minimise the effects of vandalism.

(3) It must be easily accessible for maintenance and inspection.

(4) The controller must be connected to 240 volts, a solar system or other approved power supply.

SC7.16.11. Preferred species and specifications

The following section provides details of species for use in landscape plans for the Livingstone Shire area. The emphasis of this policy is on the use of local provenance Australian native species. While the use of some exotics, signature species and hybrid natives is inevitable and even desirable in some instances, better outcomes can be achieved through the increased use of local provenance natives. These outcomes include increased biodiversity, better suitability to local climate and soils and hence greater survival rate, and a natural look to the area. Appropriate species also need to be selected for the right location. There can be huge differences between locations only a short distance from each other.

SC7.16.11.1. List of Preferred Species

Trees suitable under power lines:

(1) Cuban Pink Trumpet Tree (Tabebuia pallida);

(2) Golden Penda (Xanthostemon chrysanthus);

(3) Ivory Curl Flower (Buckinghamia celsissima);

(4) Silver Trumpet Tree (Tabebuia argentea);

(5) Tulipwood (Harpullia pendula);

(6) Pink Bottlebrush (Callistemon ‘eureka’); and

(7) Backhousiea (Backhousiea angustifolia).

Trees on footpaths 4.5 metres wide or greater (the tree must have more than 1.5 metre clearance from the kerb or footpath strip):

(1) Broad Leaved Paperbark (Melaleuca quinquinervia);

(2) Jacaranda (Jacaranda mimosifolia); and

(3) Poinciana (Delonix regia).

General Street Trees:

(1) Brush Box (Lophostemon confertus);

(2) Bumpy Ash (Flindersia schottiana);

(3) Cassod Tree (Cassia siamea);

(4) Crows Ash (Flindersia australis);

(5) Eumundi Quandong (Eleocarpus eumundii);

(6) Kaffir Bean (Schotia brachypetala);

(7) Pink Trumpet Tree (Tabebuia palmeri syn handroanthus impetiginosus);

(8) Small Leaf Lilly Pilly (Syzygium leuhmanii);

(9) Tuckeroo (Cupaniopsis anacardioides);

(10) Weeping Satinash (Waterhousea floribunda);

(11) Yellow Poinciana (Peltophorum pterocarpum); and

(12) Leopard Tree (Caesalpinea ferrea).

Other Recommended Street Trees:

(1) Weeping Lilly Pilly (Waterhousia floribunda);

(2) Pink Flowering Euodia (Melicope elleryana);

(3) Ivory Curl (Buckinghamia celcissma);

(4) Swamp Bloodwood (Corymbia ptchocarpa);

(5) Tulip Wood (Harpullia pendulla);

(6) Golden Penda (Xanthostemon chrysanthus);

(7) Small Leaf Tuckeroo (Cupaniopsis parvisolia).

Otherwise the onus is on proponents of proposed developments to consult the following sources to determine appropriate species for site based landscaping:

(1) *Plants of Capricornia* by Melzer, R. and Plumb, J. (2007)

(2) *Native Plants for the Fitzroy Basin* by Society for Growing Australian Plants (2003)

(3) *Guide to Native Plants for Revegetation and Gardens in Livingstone Shire* by Livingstone Remnant Vegetation Study (2004)

(4) Officers involved in vegetation management within the Parks and Natural Resource Management Units of Livingstone Shire Council

(5) Landcare

(6) Livingstone Remnant Vegetation Study group

SC7.16.11.2. Undesirable species of vegetation

The undesirable species of vegetation and declared pests that must be avoided and not used in any circumstance in proposed landscaping, due to the ecological and economic damage they cause, are as follows:

(1) Class 1, 2 and 3 declared pests as identified in the *Land Protection (Pests and Stock Route Management) Act 2002.*

(2) Declared local pests identified in Livingstone Shire Council Local Law No.1 (Community and Environmental Management) 2014.

(3) Undesirable species listed in the below table SC7.16.11.2.1.

Table SC7.16.11.2.1 — Undesirable species of vegetation

Scientific name	Common name
Abrus precatorius	Crab's Eye Creeper
Agave americana	Century Plant
Albizia lebbeck	Flee Tree or Indian Sirus
Altemanthera denthata	Purple Joyweed
Ardisia ellitica	Shoe-button Ardisia
Ardisia humilis	Coral Berry
Aristolochia species	Dutchman's Pipe
Asystasia gangetica	Chinese violet or Enchanting Bells or Asytasia Enchanting Bells or Browallia White Troll or Browallia Blue Troll
Barleria repans	Red Barleria or Coral Bells or Barleria Coral Bells
Brugmansia candida	Angels trumpet
Callisia fragrans	Purple Turtle Vine
Callisia repens	Creeping Inch Plant
Catharanthus roseus	Vinca or Pink Periwinkle
Celtis sinensis	Chinese Elm
Cereus hildmannianus	Peruvian Apple Cactus
Cestrum parqui	Green Cestrum
Cinnamomum camphor	Camphor Laurel
Cotoneaster pannosus	Silver-leaf Cotoneaster
Coreopsis lanceolate	Coreopsis
Crocosmia x crocosmiiflora	Montbretia
Cyperus involucratus	Umbrella Sedge
Dalbergia sissoo	Penny Leaf
Duranta erecta	Prickly Duranta
Duranta repens	Pigeon Berry
Ficus elastic	Rubber Tree
Gazania rigens	Gazania
Hypoestes phyliostachya	Polka Dot Plant
Koelreuteria paniculata and Koelreuteria elegans	Golden Rain Tree
Leonotis leonurus	Lion's Tail
Ligustrum species	Privet

Scientific name	Common name
Muntinga calabura	Strawberry Tree
Nephrolepis cordifolia	Fishbone Fern
Nerium oleander	Oleander
Ochna serrulata	Mickey Mouse Plant
Pennisetum alopecuroides	Fountain Grass
Phyllostachy aurea	Golden Bamboo
Phyllostachy pubescens	Moso Bamboo
Pinus caribaea	Caribbean Pine
Pinus alliottii	Slash Pine
Pinus taeda	Loblolly Pine
Protoasparagus species	Asparagus fern
Psidium guajava	Common or Yellow Guava
Pyracantha species	Fire thorn
Rhapiolepsis indica	Common Indian Hawthorn
Ruellia tweedia	Mexican Petunia
Sabal palmetto	Sabal Palm
Salvia coccinea	Red Salvia
Sansevieria trifasciata	Mother in Laws Tongue
Schefflera actinophylla	Queensland Umbrella Tree
Schinus Molle	Pepper Tree
Senna pendula	Easter Cassia
Spathodea campanulata	African Tulip
Stapelia gigantea	Carrion Plant
Syagrus romanzoffiana	Cocos Palm
Tamarisk species	Tamarisk
Thevetia peruviana	Peruvian Oleander
Thunbergia alata	Black-eyed Susan
Titonia diversifolia	Japanese Sunflower
Tradescantia zebrine	Seven Inch Plant
Triplaris species	Mulato Tree
Verbena aristigera	Fine-leaf verbena
Washingtonia robusta	Cotton Palm
Zanthadeschia species	White Arum Lily

Editor's note — the use of palms within landscapes throughout the Livingstone Shire area is an issue that must be considered carefully. Palms may either enhance a landscape design or make it appear completely out of character. Whilst the use of palms is not completely discouraged, a monoculture of palms is inappropriate. Palms have their correct place in landscape design and some species are more appropriate than others. For instance, in tight, narrow garden beds, courtyards and beside walls, the use of palms may be appropriate. Palms may also be attractive planted as a clump, or in small groups amongst other tree types. Palms are to be an emergent, rather than the dominant feature in landscape design, and should be planted to mirror their occurrence in a natural environment.

SC7.16.12. Buffers

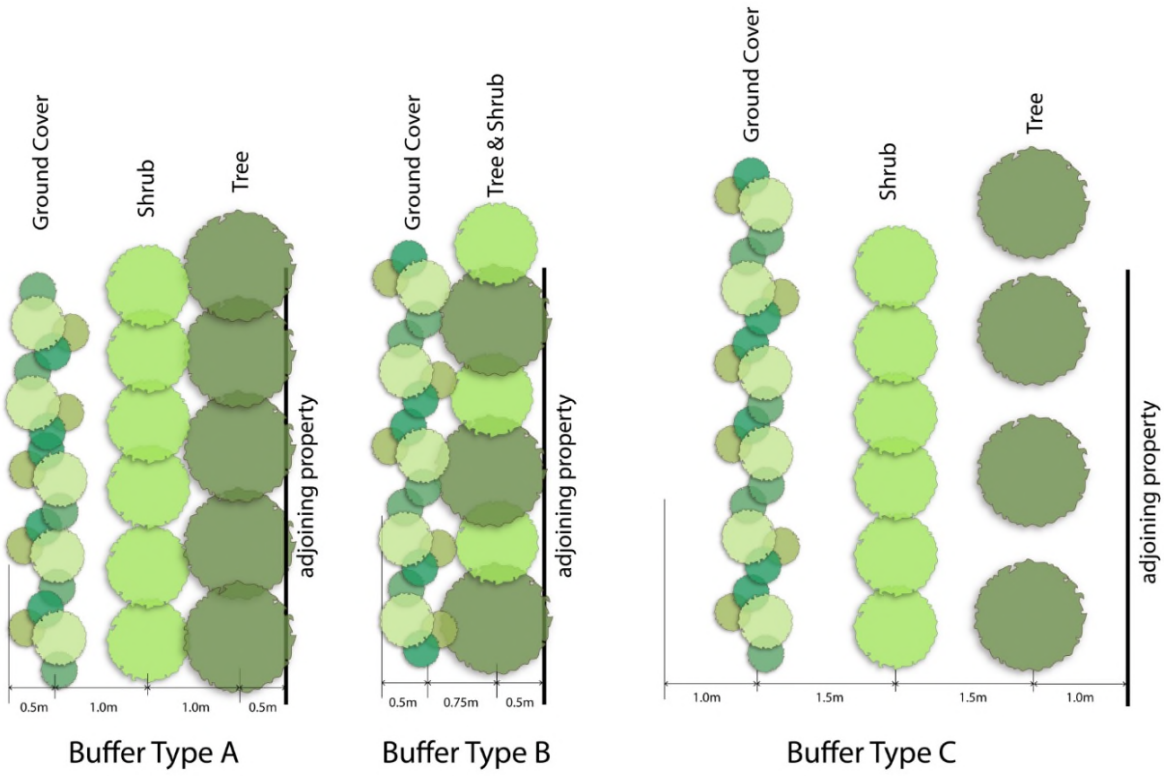
Where buffers are required to be created within a development site, the choice of plant species and the location of plants are critical in determining the effectiveness of the buffer. Buffers when required to facilitate in mitigating impacts between incompatible land uses are to be designed to meet the following objective:

(1) That the landscaping creates a dense, mature, vegetated buffer within twelve months of the use commencing with the species used endemic to the Central Queensland region able to grow to heights that will ensure they interrupt the visibility of the whole of the development from adjoining properties.

SC7.16.13. Buffer layouts

In order that buffers are able to achieve their intended purpose and the objective set out above, buffers are to be planted in accordance with the following layouts dependent on their size and purpose, unless specified otherwise in a code in the planning scheme.

Figure SC7.16.13.1 — Planning suggestions for buffers



SC7.16.14. Fire management and vegetation

A list of vegetation that could be considered 'fire-retardant' or 'hard to burn' has not been included in this policy as all plants can burn in a high intensity fire. Only guidance on the characteristics of vegetation to avoid in development is provided. In addition, basic information on vegetation management to minimise bushfire risk is also provided.

SC7.16.14.1. Vegetation characteristics to avoid in bush fire prone areas

Plants to avoid include those that:

(1) accumulate and/or create lots of dry, dead debris during the fire season;

(2) have loose flaky bark or thin bark;

(3) have masses of very fine leaves;

(4) have low salt and low moisture content of leaves;

(5) have high volatile oil content of leaves; and

(6) have branches low to the ground.

SC7.16.14.2. Management of vegetation on a property to reduce risk in bush fire hazard areas

Activities to be undertaken to reduce the risk of vegetation catching fire include:

(1) using mulch, pebbles or rocks as mulch to keep plants moist after watering. If using mulch, keep it wetted down or covered with soil or sand during the fire season and try to concentrate mulch to small areas, concentrating on individual plants and their roots;

(2) regularly watering plants and removing weeds;

(3) regularly mowing, raking or slashing fine fuel loads, such as grasses, around building structures;

(4) removing accumulated debris such as garden mulch, flaky loose bark, dead branches, leaves or needles from within branches. If possible remove lower branches of trees;

(5) pruning between the tree top and the ground to break the distribution of fuel load; and

(6) manually removing loose, fibrous or stringy bark if possible, taking care to avoid damaging the tree under the bark.

SC7.17. Road infrastructure and hierarchy planning scheme policy

SC7.17.1. Application

This policy applies throughout the planning scheme area and provides additional information to support the codes within the planning scheme. Development where for a material change of use, reconfiguring a lot, or operational work (involving vehicle access and movement), are required to consider the site as it relates to the road and its place in the hierarchy.

Both the road hierarchy and the need for facilities for public transport should form part of any pre-lodgement discussions with council during any due diligence procedures undertaken to purchase lands. This may also involve discussions with state agencies for higher order trunk road networks and services.

SC7.17.2. Purpose

The purpose of this planning scheme policy is to:

(1) ensure that land use activities which generate vehicular or other traffic movements do not conflict with the function of the road network in accordance with the road hierarchy overlay; and

(2) assist in the identification and preservation of public transport routes.

SC7.17.3. Policy Context

The road hierarchy is divided into a range of road classifications, ranging from highways (highest order road) to rural access road (lowest order road) and depends on the road management authority powers in accordance with legislation. Each classification adopts a different function of movement and access for the volume of traffic and infrastructure standard, providing clarity and differentiation between roads.

The road hierarchy supports land use activities across the planning area but also will restrict conflicts to the function of the road network. As a result, road infrastructure standards and traffic management will reflect and protect residential amenity while providing a traffic movement function. It is considered important to reduce the potential for conflict between different road users of the road system.

Public transport provision is often required to be considered in the design of developments, and is another consideration in addition to the provision of landscaping and car parking areas for example.

The road hierarchy overlay map is for information only, and does not change the level of assessment. The hierarchy map will assist in the development of a safe and efficient road network catering for the movement and access of people and goods, while maintaining the amenity of urban areas.

SC7.17.3.1. Road Classifications

(1) The type of road classifications used in the hierarchy were compiled taking into consideration the following:

  (a) The Roads Alliance (2003) classification system; and

  (b) The Austroads (1989) classification system.

  (c) The range of road functions with the four major environments of: urban, rural, industrial and Central Business District (CBD).

(2) It must be noted that:

  (a) in determining the road class, emphasis is placed on the road function description. The description detailed in the comment column is a guide only;

  (b) traffic figures are a guide only;

(c) for roads that perform multiple functions, the road class is determined by the major road function; and

(d) planning and design advice must be sought from the particular road management authorities.

Table SC7.17.3.1.1 describes the road classification, function and guide to maximum traffic volumes, while the road hierarchy overlay illustrates diagrammatically the road hierarchy for the Livingstone Shire Council local government area. Refer to the Capricorn Municipal Development Guidelines road cross section drawings for design standards for each road classification.

Table SC7.17.3.1.1 - Road classification, function and guide to maximum traffic volumes

Description and guide to traffic volume	Function description
State controlled road and Highway	A trunk road that forms the principal avenue of transport between and through major regions of Australia (for example direct connection between capital cities). A trunk road whose main function is to form the principal or alternative avenue for movements between: (a) a capital city and adjoining states and their capital cities; or (b) a capital city and key towns or areas of regional economic/social significance; or (c) key towns or areas of regional economic/social significance. The trunk road also perform a local function of: (a) carrying local traffic and freight movements across and in between urban areas; and (b) acting as connections between local arterial and collector roads.
Urban Arterial (Greater than 10,001 average annual daily traffic (AADT))	A trunk road whose main function is to form the principal or alternative avenue for movements between key towns or villages centres. The trunk road also perform a local function of: (a) carrying local traffic and freight movements across and in between urban areas; and (b) acting as connections between local sub-arterial and major collector roads.
Rural Arterial (Greater than 10,001 average annual daily traffic (AADT))	A trunk road whose main function for road transport movements between: (a) important rural centres and the arterial or state controlled road network and/or key towns; or (b) important rural centres which have a significant economic, tourism or recreation role.

Description and guide to traffic volume	Function description
Urban Sub-Arterial (6,001 to 10,000 average annual daily traffic (AADT))	A trunk road whose main function is to perform as the principal arteries for through traffic and freight movements across urban areas. They form the primary local road network and link main districts of the urban area.
Rural Sub-Arterial (6,001 to 10,000 average annual daily traffic (AADT))	A trunk road whose main function is to perform as the principal arteries for through traffic and freight movements across rural areas. They form the primary local road network and link main districts of the rural area.
Urban Major Collector (3,001 – 6,000 average annual daily traffic AADT)	A trunk road whose main function is significant collection and distribution traffic movements to: (a) complete the major road network across the urban areas and carry intra-urban traffic; or (b) serve as supplementary public transport corridors; or (c) form part of a regularly spaced road network supplementary to the arterial urban road network.
Rural Major Collector (1,001 - 6,000 average annual daily traffic (AADT))	A trunk road whose main function is significant collection or distribution urban areas and carry intra-urban traffic; or (a) serve as supplementary public transport corridors; or (b) form part of a regularly spaced road network supplementary to the arterial urban road network.
Industrial collector	A trunk road whose main function is to: (a) carry industrial traffic through an industrial area; or (b) link industrial areas to the arterial or state controlled road network.
CBD Collector	A trunk road whose main function is to provide public access to properties with predominantly commercial and retail uses within CBD areas.
Urban Minor Collector (751 to 3,000 average annual daily traffic (AADT)	A non-trunk road whose main function is to collect and distribute traffic from local areas to the wider road network (can include access to abutting properties).
Rural Minor Collector (151 to 1,000 average annual daily traffic (AADT))	A non-trunk road whose main function is to collect and distribute traffic from local areas to the wider road network (can include access to abutting properties).
Urban Access Street (251 – 750 average annual daily traffic (AADT))	A non-trunk road whose main function is to: (a) provide access to residences and properties; or (b) provide exclusively for one activity or
Urban Access Place (less than 250 average annual daily traffic	

Description and guide to traffic volume	Function description
(AADT))	function.
Rural Access (less than 150 average annual daily traffic (AADT))	A non-trunk road whose main function is to: (a) provide access to rural residences and properties; or (b) provide exclusively for one activity or function (for example access to national parks, dam access, mining and forestry roads).
Industrial Access	A non-trunk road whose main function is to provide access to properties with predominantly industrial uses within industrial areas.
CBD Access	A non-trunk road or lane whose main function is to provide access to properties with predominantly commercial and retail uses within CBD areas.

SC7.17.3.2. Road construction standards - reference documents

The construction standards for infrastructure works are, in order of priority, for transport – roads, pedestrian, bicycle, public transport, the following:

(1) Relevant parts of the Capricorn Municipal Development Guidelines (CMDG) for Livingstone Shire.

(2) Relevant Planning Scheme Policies and the Planning Scheme.

(3) Road Planning & Design Manual, (Queensland Department of Transport and Main Roads).

(4) Manual of Uniform Traffic Control Devices (MUTCD).

(5) Austroads Guidelines.

(6) Local Government Act.

(7) Transport Infrastructure Act.