CHAPTER N16: FALLS CREEK/WOOLLAMIA RURAL RESIDENTIAL AREAS
Chapter N16: Falls Creek / Woollamia Rural Residential Areas

Contents

1 Purpose .....................................................................................................................3
2 Application .................................................................................................................3
3 Context ......................................................................................................................4
4 Objectives ................................................................................................................4
5 Controls ....................................................................................................................4
  5.1 Bushfire risk ..........................................................................................................4
    5.1.1 Objectives ......................................................................................................5
    5.1.2 Performance criteria and acceptable solutions .............................................5
  5.2 Biodiversity ..........................................................................................................7
    5.2.1 Objectives ......................................................................................................9
    5.2.2 Performance criteria and acceptable solutions .............................................9
  5.3 On-site effluent management .............................................................................10
    5.3.1 Objectives ......................................................................................................11
    5.3.2 Performance criteria and acceptable solutions – Onsite effluent management 11
  5.4 Stormwater management and flooding ...............................................................13
    5.4.1 Objectives ......................................................................................................14
    5.4.2 Performance criteria and acceptable solutions – Stormwater management ..14
  5.5 Miscellaneous .....................................................................................................19
6 Advisory Information ...............................................................................................20
  6.1 Other legislation or policies you may need to check ...........................................20

Figures

Figure 1 - Subject Land Map .........................................................................................3
Figure 2 - Specifications for indented/splayed driveway crossings (designed to comply with Planning for Bushfire Protection requirements) ...........................................7
Figure 3 - Biodiversity values within the subject land - Woollamia Road .................8
Figure 4 - Biodiversity values within the subject land - Seasongood Road .............8
Figure 5 - Diversion drain cross section ....................................................................13
### Amendment history

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Date Adopted by Council</th>
<th>Commencement Date</th>
<th>Amendment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22 August 2017</td>
<td>24 November 2017</td>
<td>New</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chapter N16: Falls Creek / Woollamia Rural Residential Areas**
1 Purpose

This purpose of this Chapter is to guide rural residential subdivision and development within the subject land.

**Advisory Note:** In addition to the provisions outlined in this Chapter, you must refer to:
- Chapter N16 Supporting Maps 1 and 2.

2 Application

This Chapter applies to land identified in Figure 1.

![Figure 1 - Subject Land Map](image-url)
3 Context

Shoalhaven Local Environmental Plan 2014 (SLEP 2014) Amendment No. 17 allowed increased rural residential densities on 15 lots in the Falls Creek / Woollamia areas. This concluded a Planning Proposal (PP) arising from an action in the Jervis Bay Settlement Strategy (JBSS) 2003 to investigate the Falls Creek / Woollamia rural residential deferred areas. Further information on the land’s planning history is available on Council’s website.

A number of strategic planning and environmental assessments were completed to assist with preparation of the PP. This Chapter incorporates the key findings and recommendations of those assessments, to potentially enable development and manage bushfire risk while also protecting the environment.

4 Objectives

The objectives are to:

i. Facilitate low-impact rural residential subdivision that is sympathetic to the environment and consistent with the objectives of Amendment No. 17 to Shoalhaven Local Environmental Plan (LEP) 2014.

ii. Enhance the overall biodiversity value while applying strategic bushfire risk management principles.

iii. Protect hydrology and water quality in downstream environments, including wetlands, Currambene Creek and Jervis Bay.

iv. Provide guidance on information requirements and considerations for development applications.

5 Controls

5.1 Bushfire risk

The subject land is identified as Bushfire Prone Land on mapping endorsed by the NSW Rural Fire Service (RFS). Individual applications for development are required to be assessed in accordance with Section 79BA of the Environmental Planning and Assessment Act 1979, or where relevant (including residential subdivision and “special fire protection purposes”) in accordance with Section 100B of the Rural Fires Act 1997.

Note: Bushfire planning requirements in NSW are set out in the RFS’s Planning for Bushfire Protection (PBP) and the Australian Standard for building and construction in bushfire prone areas (AS3959) (or equivalent documents).

While any application for subdivision and residential development on bushfire prone land will need to address PBP, the controls in this section provide a strategic approach to minimising bushfire risk while also protecting the environment and local amenity. This will be achieved principally by aligning/clustering dwellings as shown on the Supporting Maps.
Bushfire risk mitigation measures are detailed below and on Supporting Maps 1 and 2. They will help ensure that any future rural residential subdivision is able to meet the requirements of Planning for Bushfire Protection (PBP).

Note: The RFS advises landowners to prepare a Bush Fire Survival Plan and make an early decision about whether to stay and defend their property or evacuate.

5.1.1 Objectives

i. Ensure subdivision and rural residential development complies with the objectives of PBP and AS3959 (or equivalent documents) whilst having due regard to the environmental constraints.

ii. Promote a strategic approach to locating new dwellings to manage bushfire risk.

iii. Ensure safe all-weather access is provided for residents and firefighters in accordance with PBP.

iv. Ensure that hazard reduction activities can be safely and effectively conducted at the bushland interface.

5.1.2 Performance criteria and acceptable solutions

Note: Your application must consider any relevant provisions in:

- Chapter G11: Subdivision of Land.
- Chapter G12: Dwelling Houses, Rural Worker’s Dwellings, Additions and Ancillary Structures.

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1.1 Dwellings and associated structures are located adjacent to existing development and/or roads.</td>
<td>A1.1 Subdivisions are consistent with the Suggested Subdivision Layout shown on the applicable Supporting Map.</td>
</tr>
<tr>
<td>P1.2 Development balances the need to minimise the APZ area whilst avoiding flame contact.</td>
<td>A1.2 New dwellings will be located within the building lines shown on the relevant Supporting Map.</td>
</tr>
<tr>
<td></td>
<td>A1.3 Building envelopes are identified on subdivision plans.</td>
</tr>
<tr>
<td></td>
<td>Note: Other building setbacks are provided in Chapter G12: Dwelling Houses, Rural Worker’s Dwellings, Additions and Ancillary Structures.</td>
</tr>
<tr>
<td>Performance Criteria</td>
<td>Acceptable Solutions</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
| A1.4 The building envelope enables BAL-29 construction or less under AS3959 (or equivalent). | **Notes:**
1. BAL-29 is a construction standard under “AS3959 – Construction of buildings in bushfire prone areas”. ‘BAL’ stands for bushfire attack level and ‘29’ means the building is designed to withstand ember attack and radiant heat of up to 29 kW/m². BAL 19 is designed to withstand up to 19 kW/m².
2. Clustering dwellings so that APZs overlap with those on adjoining properties may enable the dwelling (or part thereof) to be constructed to a lower BAL level subject to a bushfire assessment report. |
| P2 There is legal certainty that APZs will be maintained in perpetuity | A2.1 APZs are located within the property boundary
A2.2 Where APZs extend onto adjoining land, easements are established |
| P3 Access requirements comply with Planning for Bushfire Protection (PBP) while also minimising impacts on the environment and local amenity. | The proposal complies with PBP and specifically:
A3.1 Secondary property access is provided for dwellings further than 200 metres from a public road, with the exception of No.’s 21 and 23 Seasongood Road (refer to A3.2 )
A3.2 In lieu of secondary access at No.’s 21 and 23 Seasongood Road, and as indicated on Supporting Map 2, new dwellings are:
   i. located adjacent to existing approved dwellings; and
   ii. provided with APZs which achieve a radiant heat no greater than 19 kW/m²; and
   iii. constructed to a minimum of Bushfire Attack Level (BAL) 29 under AS3959.
A3.3 Driveways are designed in accordance with the splayed driveway specifications provided in Figure 2.
A3.4 Watercourse crossings will accommodate category 1 firefighting vehicles and existing access roads will be upgraded where necessary.|
### Performance Criteria

<table>
<thead>
<tr>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3.5 Access roads will be sealed and/or screened as appropriate to mitigate impacts on adjoining residences.</td>
</tr>
</tbody>
</table>

| To be fenced |
| No fence or gates |

![Diagram](image)

**Figure 2** - Specifications for indented/splayed driveway crossings (designed to comply with Planning for Bushfire Protection requirements)

### 5.2 Biodiversity

The biodiversity value of native vegetation within the subject land varies depending on a range of factors including: vegetation type, presence of weeds, maturity, connectivity, species diversity, and the degree of disturbance. An indication of the biodiversity value across the subject is provided in Figures 3 and 4 for Woollamia Road and Seasongood Road respectively.

Land shown as ‘high’ value biodiversity land includes land aligning watercourses, endangered ecological communities, hollow-bearing trees. Riparian land helps to stabilise banks, maintain water quality, and provide habitat and links for native species and communities. The biodiversity value of other native vegetation was based on a quantitative assessments of integrity, diversity and connectivity.
Development should aim to avoid or minimise impacts on biodiversity value. Figures 3 and 4 provide an indication of the constraints to development. They are based on a 2014 preliminary habitat assessment: nocturnal and targeted species’ searches were NOT
undertaken as part of the assessment. Note that parts of the ‘high’ and ‘moderate-high’ biodiversity land are also mapped as ‘Biodiversity – significant vegetation’ on SLEP 2014, to which clause 7.5 applies.

Each application involving removal or disturbance of native vegetation will be required to complete a Biodiversity Assessment. Targeted surveys will need to be undertaken for the relevant species, by an appropriately qualified consultant.

Each subdivision application will need to demonstrate that biodiversity will be maintained and improved. In some cases it may be necessary to offset the impacts of the development through a formal biobanking agreement.

5.2.1 Objectives
i. Ensure that development has minimal impact on biodiversity.
ii. Protect and enhance the ecological value of watercourses and riparian land.

5.2.2 Performance criteria and acceptable solutions

Note: Your application must consider any relevant provisions in:
- Chapter G2: Sustainable Stormwater Management and Erosion/Sediment Control
- Chapter G4: Tree and Vegetation Management
- Chapter G5: Threatened Species Impact Assessment
- Chapter G11: Subdivision of Land

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4 Subdivision and development is designed to minimise impacts on the biodiversity values.</td>
<td>A4.1 Subdivision is consistent with the Suggested Subdivision Boundaries (SSB) shown on the Supporting Maps.</td>
</tr>
<tr>
<td></td>
<td>A4.2 Minimal clearing of threatened species habitat is required to accommodate driveways and property access roads.</td>
</tr>
<tr>
<td></td>
<td>A4.3 Building envelopes are sited to minimise the need to remove or otherwise impact on</td>
</tr>
</tbody>
</table>
## Performance Criteria and Acceptable Solutions

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5.1 Watercourses and riparian lands are protected to minimise the impact of development on the wider catchment and the biodiversity values of the area.</td>
<td>A5.1 Proposed subdivision boundaries do not cross watercourses and will minimise impact on riparian buffers.</td>
</tr>
<tr>
<td>P5.2 Watercourse crossings are located and designed to have minimal impact on biodiversity, water quality and hydrology.</td>
<td>A5.2 New watercourse crossings are avoided or minimised.</td>
</tr>
<tr>
<td></td>
<td>A5.3 Existing crossings are utilised wherever possible and upgraded as necessary to comply with the relevant specifications.</td>
</tr>
<tr>
<td></td>
<td>A5.4 A 30 metre vegetated riparian buffer comprising a 20 metre core riparian zone and a 10 metre vegetated buffer, is provided on both sides of the watercourse (refer to the applicable Supporting Map).</td>
</tr>
<tr>
<td></td>
<td>i. The riparian buffer will be fenced off and maintained as native bushland. Cleared areas will be rehabilitated / regenerated.</td>
</tr>
<tr>
<td></td>
<td>ii. Overlap of APZs onto riparian land will be avoided except where shown on Supporting Map, where it will be limited to the outer 10 m and be offset by increasing the riparian buffer elsewhere on the Lot by at least an equivalent area.</td>
</tr>
</tbody>
</table>

## 5.3 On-site effluent management

The Falls Creek/Woollamia area is not connected to reticulated sewer and will not be in the foreseeable future. Hence, household wastewater must be managed on each lot. As part of the planning proposal process, a strategic onsite wastewater assessment was completed for the subject land. The findings and recommendations are incorporated into the following provisions.

In summary, the soils within the subject land are generally:

- are at least 1,000 mm deep;
- are duplex (textural contrast) soils comprising a sandy loam topsoil and a light to medium clay subsoil;
- are strongly to moderately acidic;
- are not saline;
- are non-sodic;
- are not significantly dispersive;
• are moderately drained on crests and higher side slopes but less well drained on lower slopes where grey mottling occurs in the clay subsoil;
• are not suited to disposal of primary treated effluent in an absorption system because of their low permeability;
• have a moderate phosphorous sorption capacity in the topsoil and a high phosphorous sorption capacity in the subsoil; and
• have a low cation exchange capacity in the topsoil and a moderate cation exchange capacity in the subsoil.

While this Chapter contains specific requirements derived from the Strategic Water Cycle Assessment, Chapter G8 provides generic guidelines and requirements for onsite sewage management (e.g. minimum buffers / setbacks). When preparing onsite effluent management information to support your development application, you must address any applicable requirements in Chapter G8 as well as those below.

5.3.1 Objectives
i. Ensure that onsite effluent management is given appropriate consideration in the design of subdivision layouts and the design and siting of individual dwellings.
ii. Minimise the risk to public health.
iii. Prevent the deterioration of land and decline in vegetation quality through soil structure degradation, salinisation, waterlogging, chemical contamination or soil erosion.
iv. Protect ground and surface waters from contamination from any flow from treatment systems and land application areas.
v. Conserve water resources and reuse domestic wastewater (including nutrients, organic matter and water) where possible and within the constraints of other performance objectives.
vi. Protect community amenity.

5.3.2 Performance criteria and acceptable solutions – Onsite effluent management

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6 Effluent will be treated to at least secondary standard before land application.</td>
<td>A6.1 Effluent will be treated by a NSW Health accredited aerated wastewater treatment system (AWTS) or equivalent that is compatible with the soil characteristics of the land.</td>
</tr>
</tbody>
</table>

Note: Your application must consider any relevant provisions in:
• Chapter G8: Onsite Sewage Management
### Performance Criteria

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P7.1 Treated effluent is applied to an appropriately sized and located effluent application area (EAA) to prevent adverse health and environmental impacts.</td>
<td>A7.1 Treated effluent will be applied to a dedicated EAA via a pressurised or dose-loaded subsurface application system.</td>
</tr>
<tr>
<td>P7.2 The EAA will be set up to facilitate maintenance and minimise the risk of failure.</td>
<td>A7.2 All components of the application system will be correctly sized and configured to provide for adequate effluent pumping and even distribution of effluent, effluent filtration, line flushing and maintenance of the effluent application system.</td>
</tr>
<tr>
<td>A7.3 The size of the EAA is based on the most limiting factor (i.e. whichever is largest) determined from water and nutrient (nitrogen and phosphorus) balance calculations.</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Sub-surface irrigation is generally preferred over surface irrigation, particularly on slopes greater than 6%.
2. The proposal must comply with all other requirements of Chapter G8: Onsite Sewage Management, including provision of a reserve area.
3. Disinfection is likely to be required to comply with public health standards. Refer to NSW Health for current standards.
4. The designer of the effluent application areas must have appropriate professional indemnity insurance for the system design.
5. The system must be installed by contractor(s) licensed by NSW Fair Trading. That could be a licensed plumber or a licensed irrigation contractor (or both).
6. It will be beneficial to spread a commercially available organic soil blend that conforms to AS4419 (“Soils for landscaping and garden use – Organic soil”) across the effluent application area, particularly if the topsoil depth is 200mm or less.

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P8.1 Existing systems do not pose a risk to human health and the downstream environment.</td>
<td>A8.1 Existing systems affected by the proposed subdivision that are determined to be failing (i.e. effluent is coming to the surface) will be upgraded to ensure compliance with this section and Chapter 8.</td>
</tr>
<tr>
<td>P8.2 Existing systems will not be compromised by the subdivision and/or development.</td>
<td>A8.2 The location and description of existing system (including required buffer distances) is shown on the subdivision plan and is contained within the lot that encompasses the existing dwelling.</td>
</tr>
</tbody>
</table>
### Performance Criteria

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P9</td>
<td>A9.1 A diversion drain will be provided upslope of the EAA to prevent stormwater and/or groundwater ingress. Refer to Figure 5.</td>
</tr>
<tr>
<td></td>
<td>A9.2 The boggy area identified at No. 111 Woollamia Road will not be used for onsite effluent application.</td>
</tr>
<tr>
<td></td>
<td>A9.3 Alternatively to A11.2, the boggy area identified at No. 111 Woollamia Road will be remediated in accordance with a hydrological / geotechnical assessment prepared by a practicing stormwater / geotechnical engineer.</td>
</tr>
</tbody>
</table>

**Figure 5 - Diversion drain cross section**

### 5.4 Stormwater management and flooding

The subject land drains to Currambene Creek via wetlands which are protected under State Environmental Planning Policy SEPP 14. Currambene Creek flows into Jervis Bay at Huskisson and its tidal extent forms part of the Jervis Bay Marine Park.

The controls in this section are partly based on the recommendations of a Strategic Water Cycle Assessment (SWCA) to protect downstream environments and ensure that development has a neutral or beneficial effect on water quality (NorBE). This is achieved by incorporating Water Sensitive Urban Design (WSUD) principles into the design of subdivisions and subsequent developments. WSUD principles encourage the treatment,
use and re-use of stormwater in a way which mimics and is sensitive to the natural hydrology.

Parts of the subject land are flood prone. Confining structures to within the building lines shown on Supporting Maps 1 and 2 will ensure flood prone land is avoided. However, three properties, namely No.’s 18, 21 and 23 Seasongood Road will require watercourse crossings. These watercourse crossings must be designed and built to ensure the safety of residences and emergency services personnel without exacerbating flooding on adjoining land or damaging the natural environment. The Department of Primary Industries (Office of Water) should also be consulted to determine if the proposed works require a controlled activity approval (CAA) under section 91 of the Water Management Act, 2000.

5.4.1 Objectives

i. Ensure stormwater runoff from new development has a neutral or beneficial effect on the water quality and ecological condition of sensitive downstream environments.

ii. Ensure that development does not increase potential flood risks to people, property and the environment.

5.4.2 Performance criteria and acceptable solutions – Stormwater management

Note: Your application must consider any relevant provisions in:
- Chapter G2: Sustainable Stormwater Management and Erosion/Sediment Control
- Chapter G9: Development on Flood Prone Land
- Chapter G11: Subdivision of Land

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P10 Stormwater runoff quality will be equivalent to, or better than pre development runoff quality.</td>
<td>A10.1 A Water Cycle Management Study (WCMS) accompanies each subdivision application demonstrating that the development will have a neutral of beneficial effect (NorBE) on water quality. A10.2 The NorBE assessment uses MUSIC (Model for Urban Stormwater Improvement Conceptualisation) modelling to show that the export of total nitrogen (TN), total phosphorus (TP), or total suspended sediment (TP) in stormwater will not increase.</td>
</tr>
</tbody>
</table>

Note: The WCMS must describe the sites hydraulic conditions pre and post development, taking into account changes to imperviousness as a result of dwellings and associated structures, driveways, paving etc, and any
### Performance Criteria | Acceptable Solutions
---|---
| **P11** A pre-development hydrological regime is maintained. | **A10.3** As part of the WCMS the responsibilities for the ongoing management of the storm water management measures clearly identified and form part of a subsequent Operational Environment Management Plan (OEMP) and on the property title via a section 88B restriction as to user.
| **A11.1** Rainwater collection tanks with a minimum capacity of 20,000 litres are provided for each dwelling. This is in addition to any water storage requirements needed to satisfy bushfire fighting requirements. | **A11.2** Rainwater tank overflow / roof runoff is directed into a stormwater infiltration trench or rain garden. The infiltration trench /rain garden shall:
  i. Have a surface area of 5 m² for every 100 m² of roof/impervious area.
  ii. Have the capacity to store a minimum of 1.75 m³ of stormwater for every 100 m² of roof/impervious area. This may be achieved in any number of ways including gravel filled tranches, reln drains, plastic cells or a combination. Clean washed aggregate (10-20 mm) shall be assumed to have a void ratio of 0.35 to 1.
  iii. Have 200 mm depth of storage above the surface of the trench.
  iv. Include a sediment trap on the inlet where accepting flows other than from a rainwater tank.
  v. Be rectangular in shape with a minimum length to width ratio of 5:1 and be orientated such that the long axis of the trench is parallel to the contour of the land.
  vi. Be bound by a hard landscaped edge, such as treated pine sleepers or concrete edging, in order to protect the long term integrity of the surface storage component. The downslope edge shall be level and at natural ground level in order to evenly disperse overflows onto the adjacent ground surface.
Shoalhaven Development Control Plan 2014

Chapter N16: Falls Creek / Woollamia Rural Residential Areas

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>vii.</td>
<td>Be located downslope of the dwelling and in such a manner so as not to cause nuisance to adjacent properties.</td>
</tr>
<tr>
<td>viii.</td>
<td>Not be located any closer than 5 m from any building or property boundary.</td>
</tr>
</tbody>
</table>

**Notes:**
1. The bed of the trench is to be level.
2. Top soil removed can be used for landscaping.
3. Clay subsoil not to be spread over the top soil.
4. (Further information and technical specifications is provided in Chapter G2.)
5. Onsite stormwater infiltration disposal system to comply with AS1289.

A11.3 Runoff from hardstand areas is collected in a vegetated swale and delivered to an on-site stormwater infiltration trench or rain garden before release.

A11.4 Alternatively to A12.2 and/or A12.3, runoff could be directed to a small dam sized to meet the property’s harvestable right (0.115 ML/ha) and used for garden irrigation.

A11.5 The development will not alter runoff behavior on adjoining land.

**Note:** Where a road or right of way (ROW) is constructed, drainage must be provided in accordance with:
- Chapter G2: Sustainable Stormwater Management and Erosion/Sediment Control
- Chapter G11: Subdivision of Land

<table>
<thead>
<tr>
<th>P12.1</th>
<th>Driveways are designed and constructed to minimise impact on hydrology and water quality.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P12.2</td>
<td>Appropriate documentation is submitted for driveways.</td>
</tr>
</tbody>
</table>

A12.1 Within the property boundary, the driveway will:

i. Generally have a width of 3 m unless required to be wider to accommodate fire fighting vehicles.

ii. Have a minimum cross fall of 3% to facilitate drainage and prevent longitudinal flow.

iii. As a minimum, be constructed of compacted gravel (DGB 20 or equivalent) from an imported source.
Performance Criteria | Acceptable Solutions
--- | ---
iv. Drain to vegetated swales with appropriate runoff dispersion, or table drains which terminate in small raingardens.

A12.2 The driveway crossing is designed generally in accordance with Council’s Engineering Design Specifications using:
i. A dish crossing where the swale or table drain is shallow enough.
ii. A pipe, only where the depth and grade of the swale or table drain are suitable.
iii. If the road is sealed, the driveway crossing must also be sealed.

Notes:
1. Longitudinal grade of the swale must be 3% to 4% to allow inlet and outlet erosion control works.
2. Inlet and outlet works must be no flatter than 1% unless suitably lined to control erosion where a grade of 0.5% will be permitted.
3. A swale longitudinal section will also be required where a pipe crossing is requested.
4. The pipe is to be sized for the 20% AEP storm flow (1:5 year ARI) for the swale at the location of the driveway or be a minimum of 375 mm diameter (whichever is the greater). Calculations by a qualified drainage engineer (or suitably experienced surveyor) are to be provided with the application.
5. The design is to be approved by either the Development Services Manager or delegate prior to any works within the road reserve being carried out. All construction works will require inspection prior to relevant stages of construction.
6. Compliance with AS2890.1 will not guarantee that the driveway crossing suits all makes and models of vehicles.
7. The existing road shoulder must not be raised or filled to accommodate a pipe crossing.
8. An approval under section 138 of the Roads Act will be required from Council prior to any work commencing.
### Performance Criteria

<table>
<thead>
<tr>
<th>P13.1</th>
<th>Watercourse crossings meeting appropriate safety standards and are designed to withstand flood waters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P13.2</td>
<td>Flooding will not be exacerbated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A13.1 Road surface level is at least 10% AEP.</td>
</tr>
<tr>
<td>A13.2 Crossings are designed to enable emergency vehicles to safely cross thus “Water depth – velocity product” shall not exceed 0.3 m²/s for 1% AEP flood event for pipe/culvert overtopping.</td>
</tr>
<tr>
<td>A13.3 Road surfaces below 1% AEP are sealed.</td>
</tr>
<tr>
<td>A13.4 Flood warning signs and depth indicators will be provided in accordance with AS1472.</td>
</tr>
<tr>
<td>A13.5 A hydraulic impact assessment prepared by a suitably qualified hydraulic engineer demonstrates that the development will not increase flood hazard or flood damage to other properties, or adversely affect flood behaviour for a 5% AEP up to the PMF scenario.</td>
</tr>
</tbody>
</table>

**Notes:**

1. Technical specifications are provided in Chapter G2: Sustainable Stormwater Management and Erosion/Sediment Control.
2. The Department of Primary Industries (Office of Water) should also be consulted to determine if the proposed works require a controlled activity approval (CAA) under the Water Management Act.

<table>
<thead>
<tr>
<th>P14</th>
<th>Erosion prevention measures are used to minimise the impact of development on the quality of the water leaving the development site.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Acceptable Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A14.1 Where less than 2,500 m² of disturbance is proposed, applications are accompanied by an erosion and sediment control plan (ESCP). Where more than 2,500 m² is proposed, applications are accompanied by a soil and water management plan (SWMP) as per the ‘Blue Book’ (Landcom, 2004).</td>
</tr>
<tr>
<td>A14.2 The extent of vegetation removal and soil disturbance is minimised.</td>
</tr>
<tr>
<td>A14.3 Road batter slopes shall not exceed 1 in 4.</td>
</tr>
<tr>
<td>A14.4 Cut and fill shall be minimised to limit the duration and extent of disturbance and the need for stockpiling of material.</td>
</tr>
</tbody>
</table>
5.5 Miscellaneous

P15 Driveway crossings are located and designed to enable safe access/egress from/to the public road.

A15.1 The number of new driveway crossings is minimised through shared driveways where the opportunity exists. Refer to Supporting Maps 1 and 2.

A15.2 Sight distance will be improved by trimming / removing vegetation at the locations shown on Supporting Map 2.

A15.3 Details of the driveway are submitted with any dwelling applications including:

i. Location of the driveway on the site plan.

ii. A design of indented rural access as per Figure 2.

Notes:
1. Clearing of vegetation to improve sight distances must be included and assessed as part of the subdivision application.

2. Any works within the road reserve, including vegetation removal requires approval under section 138 of the Roads Act.

3. Council’s Traffic Unit advised that the following measures should be considered (subject to approval by the Shoalhaven Traffic Committee and Council) at Seasongood Road:

   - ‘BS’ type broken separation line marking should be replaced by ‘BB’ type barrier lines at the bend adjacent to No. 18 Seasongood Road; and

   - the 80 km/hour speed sign located immediately to the west of the driveway at No. 13 Seasongood Road should be moved 20 km further west.

P16 Applications are supported by a description of the site’s history to enable the contamination risk to be evaluated.

A16.1 The site history clearly demonstrates that site activities have been non-contaminating.

A16.2 Alternatively to A16.1, where contaminating activities are suspected or known to have occurred, or if the site history is incomplete, the application is supported by a preliminary site contamination assessment. (Depending on the findings of the preliminary site contamination assessment, a detailed site contamination assessment may be required.)
6 Advisory Information

6.1 Other legislation or policies you may need to check

Note: This section is not exclusive and you may be required to consider other legislation, policies and other documents with your application.

<table>
<thead>
<tr>
<th>Council Policies &amp; Guidelines</th>
<th>Contributions Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural Wastewater Supply Policy</td>
</tr>
<tr>
<td></td>
<td>Driveway Access to Private Properties</td>
</tr>
<tr>
<td>External Policies &amp; Guidelines</td>
<td>Planning for Bushfire Protection 2006</td>
</tr>
<tr>
<td></td>
<td>Standards for Asset Protection Zones (NSW Rural Fire Service)</td>
</tr>
<tr>
<td>Legislation</td>
<td><em>Environmental Planning and Assessment Act 1979</em></td>
</tr>
<tr>
<td></td>
<td><em>Rural Fires Act 1997</em></td>
</tr>
<tr>
<td></td>
<td><em>Water Management Act 2000</em></td>
</tr>
<tr>
<td></td>
<td><em>Threatened Species Conservation Act 1995</em></td>
</tr>
</tbody>
</table>