

LOCAL PLANNING SCHEME NO. 10

LOCAL PLANNING POLICY NO. 4 - FLOODPLAIN MANAGEMENT & DEVELOPMENT

BACKGROUND

This policy has been prepared with the primary objective of establishing a framework for floodplain management. The framework will be used to guide the decision-making process and for identifying where responsibilities lie with respect to the development and management of land that has identified flood potential.

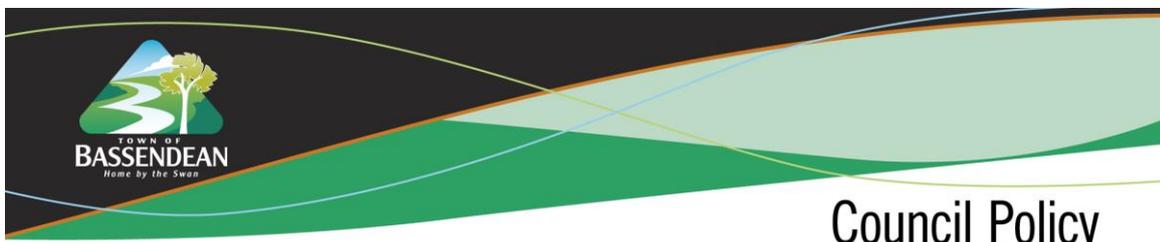
The criteria outlined in this policy is based on information obtained from the Department of Water and the Swan River Trust.

The Department of Water has 100 year ARI floodplain mapping of the Swan River with an associated floodplain development strategy. The floodplain development strategy is based on two guiding principles, ie:

- proposed development has adequate protection from 100 year ARI flooding, and
- proposed development does not detrimentally impact on the existing 100 year ARI flooding regime of the general area.

The 100 year ARI floodplain mapping shows the extent and level of flooding in a 100 year ARI flood event. The 100 year ARI floodplain is delineated into flood fringe and floodway areas where:

- proposed development (ie, filling, building, etc) that is located outside of the floodway is considered acceptable with respect to major flooding. However, a minimum habitable floor level of 0.50 metre above the adjacent 100 year ARI flood level is recommended to ensure adequate flood protection.
- proposed development (ie, filling, building, etc) that is located within the floodway and is considered obstructive to major flows is not acceptable as it would increase flood levels upstream. No new buildings are acceptable in the floodway.



PURPOSE

The purpose of this policy is:

- * to reduce loss of life and property due to floods;
- * to conserve the floodplain environment;
- * to guide residential development which permits access to residences in times of flooding;
- * to ensure that proposed development is compatible with flood hazard in order to minimise the risks of damage and impacts of flooding;
- * to encourage development which maintains or enhances the physical and visual amenity of the floodplain; and
- * to provide guidelines for the use and development of the floodplain.

DEFINITIONS

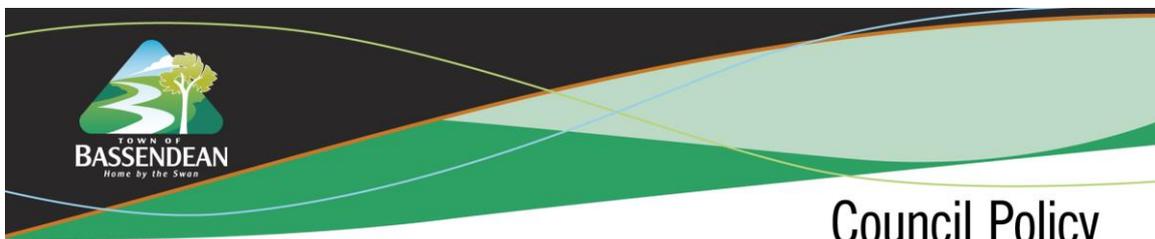
Average Recurrence Interval (ARI): A statistical estimate of the average period in years between the occurrence of a flood of a given size or larger.

100 Year ARI Flood: A major river flow which has a one per cent average probability of occurring in any one year. This flood is expected to occur on average once every 100 years. The 100 year flood has been generally adopted in Australia and overseas as the basis for floodplain management and planning.

100 Year ARI Floodplain: The area which is affected by flooding in a 100 year ARI flood event as shown on the Department of Water's floodplain mapping.

Floodway: The part of the floodplain which contains the river channel and portion of the floodplain and forms the main flow path for floodwaters once the main channel has overflowed. Proposed development in the floodway should be avoided wherever possible as obstructive developments would increase flood levels upstream.

Flood Fringe: The part of the floodplain where proposed development is considered hydraulically acceptable but is subject to appropriate building conditions that will achieve adequate flood protection.



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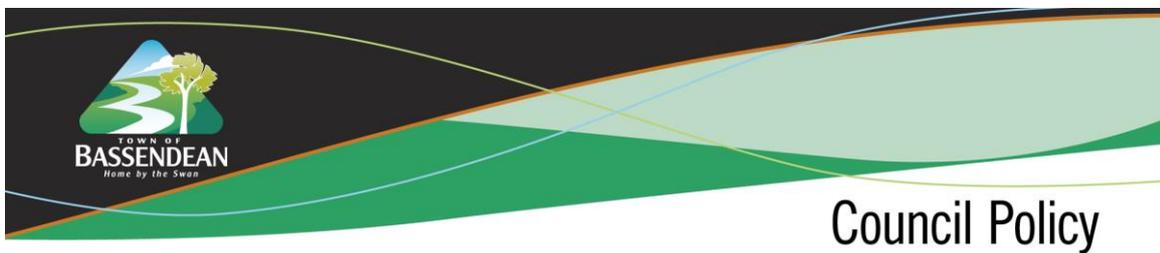
Designated 100 Year ARI Flood Level: The 100 year ARI flood level assuming all flood fringe areas have been filled and developed. This level is used as a basis for determining minimum habitable building floor levels.

Minimum Habitable Building Floor Level: A minimum habitable building floor level of 0.50 metre above the designated 100 year ARI flood level is set to achieve adequate flood protection to proposed development.

POLICY

1. Planning Proposals

- 1.1 Council will determine planning proposals for floodprone land according to the guidelines in this policy, and may seek and have regard to the comments of the Department of Water, the Swan River Trust and the WA Planning Commission.
- 1.2 Within the flood fringe areas defined on the floodplain mapping, Council will consider each planning application on its merits and will determine the development standards or refuse approval for that development after taking into account:
 - a) the specific site characteristics of the development site and the surrounding areas including natural surface or fill levels and existing floor levels;
 - b) areas of environmental significance;
 - c) potential impacts of the proposal on the hydrology, ecology and amenity of the floodplain; and
 - d) any positive aspects of the development.
- 1.3 Council, in permitting any development on floodprone land, should:
 - a) advise the applicant of the flood hazard to the development; and
 - b) require the applicant to lodge a notification under Section 70A of the Transfer of Land Act 1893, at the applicant's expense, advising registered and prospective purchasers that the property is located in the floodplain of the Swan River and is liable to be affected by flooding. The notification shall also advise of any restrictions on the use of the premises, as contained in the conditions of any planning consent that may be granted. The notification shall be registered on the Certificate of Title prior to the issue of a building permit.



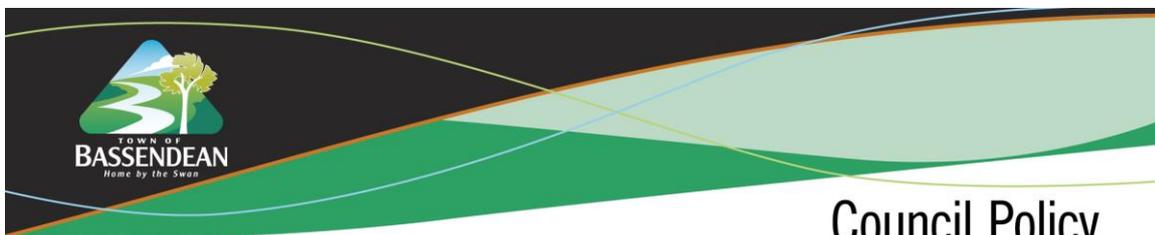
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2. Environmental Conservation

- 2.1 Council will have regard to the impact of development on areas within the floodplain which it considers to be of environmental significance. These areas may include Aboriginal sites, river banks, wetlands and stands of vegetation. The retention, protection or rehabilitation of these areas by fencing, replanting, and other measures may be required as condition of planning approval.
- 2.2 Council may seek the advice of the relevant government departments in determining the significance and treatment of such area within or adjoining development sites.

3. Proposed Development in the Floodway

- 3.1 The topography of the floodway should remain in its natural state to ensure the effective discharge of floodwaters. Preferably, rural and recreational uses which will not impede flood flow should be developed.
- 3.2 Further subdivision of land wholly within the floodway will not be supported.
- 3.3 The following conditions will apply for proposed development within the floodway:
 - a) planning consent will not be granted for the construction of a dwelling within a floodway unless it is to replace an existing dwelling and the applicant can demonstrate that the dwelling can be constructed to be protected from a 100 year ARI flood;
 - b) the obstruction of the new dwelling to the floodway should be no greater than the obstruction of the existing dwelling;
 - c) a detailed Engineer's report will be required in support of the application and Council will take into consideration comments from the Department of Water in making a decision;
 - d) site access shall be designed to be functional at all times;
 - e) minor additions to existing dwellings will be supported subject to confirmation from the Department of Water that the new development will not adversely affect the existing flooding regime;



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- f) any urban or rural development, including associated tree clearing, site works, fencing and landfill, which will detrimentally impact on the free flow of floodwaters and the moderating influence of wetland vegetation will be prohibited; and
- g) where planning consent is granted for a structure to be established within a floodway the proponent will be required to enter into a flood damage indemnity agreement with Council.

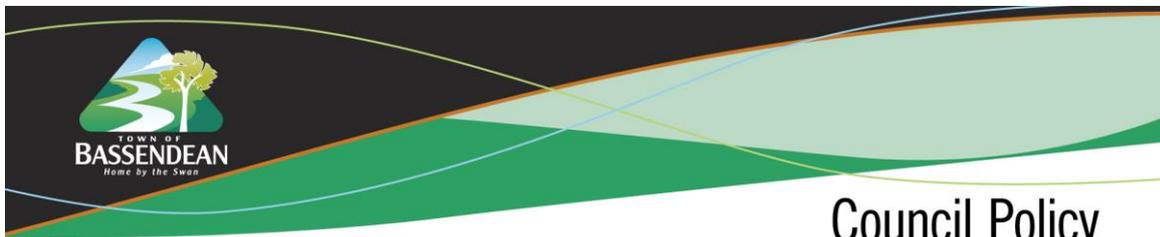
4. Proposed Development in the Flood Fringe

The following guidelines will apply to proposed development in the flood fringe:

- 4.1 Habitable floor levels and all electrical installations should be a minimum of 0.50 metre above the 100 year ARI flood level, except depending on the circumstances in each case, Council may consider the granting of building licenses for the following:
 - a) alternative housing forms to achieve the required habitable floor level, such as two storey developments with non-habitable rooms on the ground floor, stumped houses or raised pads, should be flood proofed (electrical/structural) and designed to ensure the building drains in the event of a flood. The minimum floor level of these non-habitable areas should be a maximum of 1.8 metres below the 100 year ARI flood level as determined by the Department of Water;
 - b) minor non-habitable outbuildings including sheds, which will not be used to store hazardous chemicals, may be exempt from the minimal floor level requirement, but should be flood proofed (electrical/structural) and designed to ensure the building drains in the event of a flood. Council may identify a lower flood level below which development will not be approved.

The granting of building licences under the special conditions of this clause will be subject to normal setback distances from the river or boundaries adjacent to reserves for the main building and a certificate from a competent structural engineer that the structure would be safe under severe flood conditions.

- 4.2 A licensed surveyor will be required to check and certify habitable floor levels following completion of any building on floodprone land.
- 4.3 The following conditions will apply for the construction of non-habitable undercroft areas on floodprone land:
 - a) the proposed floor level of the undercroft area shall be a maximum of 1.8 metres below the 100 year ARI flood level as determined by the



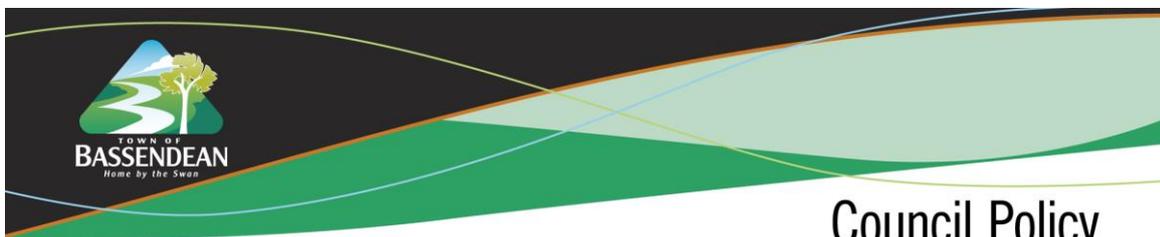
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Department of Water. The minimum habitable floor level shall be determined on the advice of the Department of Water as being 0.50 metre above the 100 year ARI flood level;

- b) unless otherwise specified in the building code for non-habitable areas, the minimum clearance height (headroom) shall be 2.1 metres above the finished floor level;
 - c) the undercroft floor area shall be flood proofed (electrical/structural) and designed to ensure it drains in the event of a flood;
 - d) the granting of building licences for undercroft development will be subject to:
 - i. normal setback distances from the river or boundaries adjacent to reserves for the main building; and
 - ii. a certificate from a certified structural engineer that the structure would be structurally sound in severe flood conditions.
- 4.4 Land filling should not encroach into the floodway and the height and location of fill will be determined by Council having regard to the advice of the Department of Water. Subject to site conditions, the following standard generally apply:
- a) grassed embankments with fill batters at a slope of no steeper than 1:4 (vertical: horizontal) and the toe of the batter to not extend beyond the floodway limit; or
 - b) where fill is prone to flood impact due either to its proximity to the mainstream of the river or its exposure to the increased velocity of flood waters, the fill to be protected from erosion by a retaining wall which is designed to the engineering standards specified by Council and maintained by the applicant.

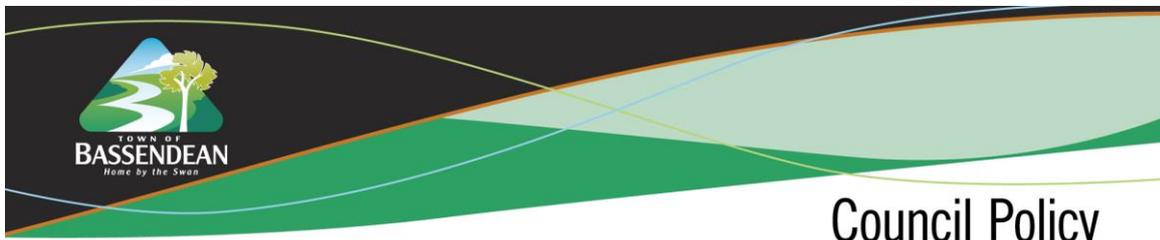
5. Landscape Amenity

- 5.1 Council, in considering planning proposals in or abutting the floodplain, will have regard to the visual and physical relationship of the proposals to the character and landscape amenity of the floodplain.
- 5.2 The following guidelines will apply to development in the flood fringe areas:
- a) Building bulk and design should be integrated with the floodplain landscape using the following design features:



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- i. where possible, building should occur outside the floodplain and the floodplain areas of a development site should be integrated with the development as open space;
 - ii. building materials and finishes should be sympathetic to adjoining development;
 - iii. the tree canopy line should not be exceeded; and
 - iv. where necessary, the building bulk should be modified by supplementary landscaping.
- b) Fences which are visible from the floodplain should be unobtrusive:
- i. post and rail fences are preferable, particularly in the floodway;
 - ii. cyclone fences are acceptable in most areas but should be of a suitable colour to merge with the floodplain landscape; and
 - iii. solid screen walls, including fibro-cement fences, are not appropriate in the floodplain landscape, but may be permitted if the materials and colours are not visually intrusive are adequately screened by landscaping.
- c) Land fill height and location will be determined on the basis of the following guidelines:
- i. as far as practicable, land fill within the floodplain should be minimised and the floodplain left intact to preserve its integrity and amenity;
 - ii. for aesthetic reasons, the maximum height of fill should not exceed the existing surface level of adjoining development except for reasons of flood mitigation;
 - iii. land fill should preferably reflect the natural topography;
 - iv. slopes steeper than 1:4 (vertical: horizontal) should be retained using either:
 - materials and colours prevalent in the locality; or
 - stone pitching, Humes crib blocks or equivalent which should be planted with creepers and groundcovers and adequately reticulated.



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- v. Retaining walls higher than 1.5 metres are visually intrusive and restrict access to the floodplain and will only be permitted if:
 - there is no other practical alternative; or
 - the Department of Water advises Council that the height of a retaining wall is required to protect the development from flood damage.
- vi. High retaining walls, where permitted, should have a setback of at least 1 metre for every interval of a maximum 1.5 metres in height. The setback area should be planted with shrubs and creepers to provide relief to the visual height of the wall.

5.3 Landscaping may be used to supplement existing vegetation or to minimise visual impact of development on the floodplain landscape. In either case, the landscaping should be consistent with the species and density of natural vegetation occurring in the floodplain and should incorporate the environmentally significant areas wherever possible.

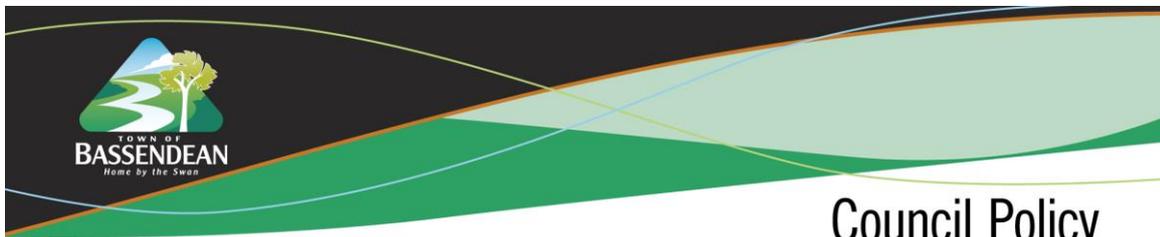
5.4 A landscaping plan for the development of sites may be required to be submitted with development applications showing the extent of clearing, the environmental areas and the proposed type and layout of landscaping. Council may require the landscaping plan to be prepared by a qualified landscape architect/planner.

5.5 Council may impose the following as conditions of development approval:

- a) the carrying out of landscaping according to a plan approved by Council;
- b) the rehabilitation of existing vegetation;
- c) the retention of areas which it considers to be of environmental significance; and
- d) the installation of reticulation in landscaped areas.

6. Requirements of the Swan River Trust

Much of the floodplain in Bassendean either falls within the Development Control Area (DCA) or adjoins the DCA of the Swan River Trust. In accordance with Clause 30A of the Metropolitan Region Scheme, all developments that are on land:



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- abutting other land in the Trust Development Control Area (DCA);
- abutting water in the DCA;
- partially in the DCA; or
- that may otherwise affect waters in the DCA

must be referred to the Trust for comment and will therefore be subject to the Trust's policies.

The Swan River Trust will assess any application against its own policies including:

Development Setback Requirements (SRT/D3):

- Development must be set back a minimum of 10 metres or 20 % the depth of the lot (whichever is the lesser) from the boundary of the Parks and Recreation reservation.
- Retaining walls in the development setback area must be located at least 5 metres from the boundary of the Parks and Recreation reserve and must not exceed an individual height of 1 metre and a total combined height of 3 metres.
- Depending on site circumstances, the Trust may allow the lower portion of a boundary fence to include a small solid retaining wall component, provided it is no higher than 1 metre and the entire fence height does not exceed 1.8 metres.