

Dams

Introduction

This is a Local Planning Policy prepared under Schedule 2 of the Planning and Development (Local Planning Schemes) Regulations 2015. This Policy may be cited as Local Planning Policy 25 – Dams an LPP.

Council receives numerous development applications for the construction of dams within the Shire. Concerns regarding environmental, hydrological and landscape impacts associated with dams, particularly those within defined creek lines, identified a need for a policy to properly assess the significance of potential impacts. The assessment of dams is also particularly important as water resources become scarcer.

This policy is designed with intention of providing guidance on the acceptable development of dams within Toodyay.

Objective

The objective of this policy is to provide guidance to Councillors, Shire staff and applicants with regard to proposals for the construction of dams. This policy applies to all applications for the construction of dams excluding those constructed for the purpose of urban drainage management. The policy will also:

- (a) ensure that dams do not have a significant negative impact on the environment;
- (b) ensure that dams are properly designed and constructed; and
- (c) ensure that dam sizes relate to the capability and catchment of the site and the intended use.

Scope

The Shire of Toodyay incorporates a variety of natural environmental features including areas of high conservation value, areas within public drinking water source areas and significant watercourses.

The Shire recognises the important role it plays in relation to protecting and enhancing our natural environment, by ensuring that development activities are conducted in a responsible manner. This Policy has been developed as a guide to landowners and as an aide to assessing development applications.

The Shire recognises that the appropriate siting, design and construction of dams is important from a safety, equitable water supply and sustainable catchment management perspective. This policy deals only with applications for approval to commence development required pursuant to the current Shire of Toodyay Local Planning Scheme.

Approval may also be required for the construction of a dam under the Rights in Water and Irrigation Act 1914, the Department of Water and Environmental Regulation should be contacted in this regard.

Definitions

Term	Definition
Catchment Dam	means a dam not located across a watercourse which receives rainfall runoff and/or groundwater seepage only.
Dam	means a man-made structure and/or excavation for the purposes of water storage.
Off Stream Dam	means a dam not located across a watercourse but into which water is fed from a watercourse.
On Stream Dam	means a dam located across a watercourse
Watercourse	means any river, stream or creek as depicted on a plan attached to or associated with the 'Interpretation of Watercourses Policy'.

Policy Statement

The Shire's policy with respect to the development of dams within the Shire of Toodyay is outlined as follows.

1. Purpose of Dam/s

- 1.1 The construction of dams will generally only be supported where there is a demonstrated need for water storage associated with an agricultural use or for domestic purposes.
- 1.2 Dams will generally not be supported where they are solely for aesthetic purposes or on lots with an area of less than 2 hectares, where the scale of rural activities does not normally warrant the provision of a dam.
- 1.3 Where an application is made for a new dam on a lot that contains an existing dam, consideration shall be given to whether the additional dam is justified in order to support the use of the land. Where the existing capacity or the combined capacity of the dams exceeds that necessary to support the existing or proposed land use, the proposed dam will not be supported as it does not reflect sustainable water management.

2. Environmental Considerations

- 2.1 The Shire recognises the potential negative environmental impacts associated with the siting and construction of dams.
- 2.2 Consideration should be given to natural flow patterns when designing a dam, dams should be designed so that natural flow patterns, particularly summer flows,

are not significantly diminished. Off-stream dams should only divert water from watercourses during peak flow periods.

- 2.3 Placement of a dam within a watercourse should be avoided if possible.
- 2.4 Dams should be located so as to reduce the potential risk of erosion associated with both the construction and ongoing operation of the dam. Erosion risk is determined by a combination of soil types, vegetation cover and topography.
- 2.5 Dams should be constructed in a manner which minimises the potential for erosion and rehabilitation of any exposed soils should be undertaken in a timely manner to minimise erosion risk.
- 2.6 The potential presence of acid sulphate soils should be considered when assessing an application for the construction of a dam.

3. Vegetation Management

- 3.1 Dams should be sited so as not to require the removal of remnant vegetation or to keep any such removal to a minimum.
- 3.2 Revegetation and/or additional planting of appropriate native species shall be required where a dam is considered to have a moderate to high impact or where a dam is visually prominent on the external landscape.
- 3.3 Topsoil is to be spread on any exposed batters and exposed soils are to be revegetated with perennial grasses and appropriate native species as soon as possible after construction.
- 3.4 Where landscaping is required, it should comprise local native species with consideration of shade planting to reduce water lost by evaporation and the planting of sedges and reeds to enhance the water quality and biodiversity. The vegetation, however, should not negatively impact upon the structural integrity of the dam.

4. Impact Assessment Criteria

- 4.1 The potential level of impact of a proposed dam is determined by estimating the potential environmental impact of each characteristic of a proposed dam. This is detailed in Table 1.
- 4.2 A scoring method is provided to assist in determining the potential overall environmental impact of a proposed dam.
- 4.3 The potential impact of a dam is classified as follows:
 - (a) High Impact – where the total score is greater than 10 points;
 - (b) Moderate Impact - where the total score is between 5 – 10 points;
 - (c) Low Impact - where the total score is less than 5 points.

5. Requirement for Supporting Information

- 5.1 The applicant is to supply detailed information in support of an application for a dam. The information required to be submitted is commensurate with the potential impact of the dam (as defined in Table 1 and is outlined in Table 2).

5.2 Notwithstanding the requirements detailed in Table 2, further information may be required where deemed necessary in order to address any of the issues raised in this policy.

6. Setback Requirements

6.1 Dams must be setback an appropriate distance to ensure that neighbouring landowners are not detrimentally affected by a dam, taking into consideration the standard setback requirements for the respective zone as specified in the current Shire of Toodyay Local Planning Scheme.

6.2 Under no circumstances should a dam be located so as to result in land being inundated outside the boundary of the lot on which the dam is to be located.

7. Dam Assessment

When assessing an application to construct or excavate a dam consideration shall be given to:

- (i) The potential level of impact of the dam, as determined in Table 1;
- (ii) the supporting information provided in accordance with Table 2;
- (iii) the setback requirements of the relevant zone as specified in the current Shire of Toodyay Local Planning Scheme;
- (iv) comments received from other government agencies (where applicable);
- (v) submissions received during the advertising process (where applicable); and any other matter deemed relevant by the Council.

8. Assessment Criteria

The following information is intended to guide applicants in their proposal for the development of dams within the Shire of Toodyay.

8.1 Siting Considerations

8.1.1 The positioning of dams is one of the most important considerations when minimising negative impacts on waterways. Dams built within a watercourse will impede the natural flow of water and may also have a tendency to cause erosion resulting in movement of sediment downstream.

8.1.2 On-stream dams may also cause disturbance to fringing vegetation and fauna habitat and potentially deprive downstream users of water. Dams constructed within watercourses impede natural base flows and capture out of season rain events.

8.1.3 For the reasons outlined above, dams should be constructed away from watercourses where impacts on the environment are more likely to be reduced.

8.1.4 Catchment dams are the most favourable form of dam, as they have minimal impacts on other water users and environmental impacts are reduced due to negligible impedance to natural flow patterns.

8.1.5 During construction of dam's earthworks may cause soil to be transported into a watercourse. Appropriate sediment and erosion control methods should be installed to protect riparian eco-systems and downstream users.

8.2 Cumulative Impact

8.2.1 As well as the direct impact that dams may have on the natural environment when they are constructed on a watercourse, dams also have a cumulative impact. A number of dams constructed on the same watercourse can limit the amount of water flow available for downstream users. The increased storage of water within certain areas and decreased flows in a watercourse, may also impact upon environmental attributes of riparian habitats.

8.2.2 Catchment dams located 'off-stream' can also have a cumulative impact upon a water catchment area due to reduced run-off to watercourses.

8.2.3 The capacity of proposed and existing dams located within the same water catchment area, should not negatively impact upon an adequate amount of water being able to reach the watercourses or recharge groundwater.

8.3 Design Considerations

8.3.1 The foundations of a dam must be structurally sound. The clay content, water holding capacity, wall design and spillway and summer flow bypass design are also important factors requiring consideration as part of dam construction proposals. An application for a large dam should be accompanied by a report from a suitably qualified professional demonstrating that the design considerations outlined in this policy have been properly addressed.

8.3.2 Dam design, safety and construction are the responsibility of the landowner. Once the dam is constructed the landowner may be required to submit a structural engineering certification undertaken by a suitably qualified engineer, certifying that the dam has been constructed to an acceptable standard.

8.3.3 On completion of the construction of a dam, an applicant may be required to provide confirmation by a surveyor that the capacity of the dam is consistent with that approved.

8.3.4 Dams should incorporate design features to ensure that natural flow patterns, particularly in summer are not compromised. A reduction in summer flows is likely to cause greater environmental stress downstream when compared to a minor reduction in peak flows during peak rainfall months.

9. Application requirements

The following is the base information required for a development application for a dam. Additional information may be required based on the impact of the dam or lake as assessed by this Policy:

- (a) A detailed description of the purpose of the dam or lake.
- (b) A detailed Geotechnical report detailing constraints of the site (if applicable).

(c) Application Specifics, including:

- Cross-sections;
- Location of the proposed dam and any upstream dams within 500m;
- Areas proposed to be landscaped;
- Capacity of the dam or lake;
- Materials to be used;
- Proposed usage of the material excavated; and
- Whether the dam will be lined or not and any materials to be used for lining.
- Location of watercourses.
- Engineering certification (if applicable).
- Additional information requirements as per Table 2.

10. Consultation

10.1 High & Moderate Impact Dams

10.1.1 Prior to determining an application for a dam, comments shall be sought from adjoining landowners for a period of 28 days. Advertising is to be in the form of letters to property owners located within 200 metres of the subject property boundary, through a notice in a newspaper circulating throughout the Shire of Toodyay and a sign on site.

10.1.2 As well as formal advertising being undertaken it is suggested that the applicant/landowner discuss their proposal, prior to lodging an application, with any potentially impacted neighbouring property owners.

10.1.3 In addition to the proposal being referred to nearby landowners, the Shire will refer the application to the local catchment group, Land Conservation District Committee or other relevant interest group.

10.1.4 Where a proposed dam is determined to have a potentially high impact, is located within a public drinking water source area, within a proclaimed surface water area, or is located within 200 metres of a Conservation Category Wetland, it shall be referred to the Department of Environment and Water Regulation and other relevant State Government agencies prior to consideration by Council.

10.2 Low Impact Dams

10.2.1 Consultation with neighbouring property owners will occur as detailed above for high and moderate impact dams, however consultation will not normally be required with the Department of Water and Environmental Regulation or other State Government agencies.

11. Appendix I: Table 1 - Dam Construction Assessment based on Potential Impact

DAM CHARACTERISTICS	POTENTIAL IMPACTS			
	HIGH (3 points each)	MODERATE (2 points each)	LOW (1 point each)	NEGLIGIBLE (0 points)
Dam Locations	On-stream, within a public water supply catchment, within a proclaimed surface water area, or within 200 metres of a conservation category wetland	Adjacent to a watercourse but outside of the seasonal flow path.	Greater than 50 metres distance from a watercourse	Greater than 100 metres from the watercourse
Dam Size	Storage capacity exceeding: <ul style="list-style-type: none"> • 500m³, within a watercourse; • 2,500m³, outside of a watercourse; • 5,000m³, greater than 100 metres from a watercourse; or • Greater than 25% of the catchment yield based on an average annual rainfall of 500mm. 	Dam storage capacity not exceeding that for specified for high but exceeding: <ul style="list-style-type: none"> • 150m³, within a watercourse; • 750m³, outside of a watercourse; or • 1,500m³, greater than 100 metres from a watercourse. 	Dams with storage capacity less than those specified for moderate.	Not applicable.

DAM CHARACTERISTICS	POTENTIAL IMPACTS			
	HIGH (3 points each)	MODERATE (2 points each)	LOW (1 point each)	NEGLIGIBLE (0 points)
Maintenance of Natural Flow	Watercourse dam (on-stream) with limited devices to maintain summer and winter flows downstream.	Watercourse dam with comprehensive measures to maintain summer and winter flows downstream.	Off-stream dam that only receives flow from a watercourse during a storm event.	Catchment dam which does not receive any water from the watercourse.
Cumulative Impact (upstream, downstream and catchment)	Greater than 25% of the catchment yield based on an average annual rainfall of 500mm.	Greater than 1 dam within a one-kilometre radius and within the same catchment.	1 dam within a one-kilometre radius of the proposed dam location.	No dams within a one-kilometre radius of the proposed dam location.
Vegetation Clearing	Requires extensive clearing of remnant trees, shrubs and sedges to construct the dam.	Requires some clearing of remnant vegetation.	Requires minimal clearing of remnant vegetation.	Does not require any vegetation clearing.

12. Appendix II: Table 2 - Supporting Information Required

Impact Significance	Supporting Information Required to Accompany an Application for a Dam
High	<ul style="list-style-type: none"> • A comprehensive hydrological report prepared by a suitably qualified hydrologist or engineer providing an assessment of how the structure will affect the summer and winter flow patterns and describe summer and winter flow management provisions; • A certified report on dam structure by a suitably qualified engineer; • A revegetation/landscaping plan; • Detailed plans including a cross-section, site feature survey and locality plan; • The maximum capacity of the dam; and • A report addressing issues outlined within this policy.
Moderate	<ul style="list-style-type: none"> • A brief report of hydrological and/or structural aspects; • A certified report on dam structure by a qualified engineer; • A revegetation/landscaping plan; • Detailed plans including a cross-section, site feature survey and locality plan; • The maximum capacity of the dam; and • A report addressing issues outlined within this policy.
Low	<ul style="list-style-type: none"> • Detailed plans including a cross-section, site feature survey and locality plan; • The maximum capacity of the dam; and • A report addressing issues outlined within this policy.

13. Appendix III: Checklist for Planning a Dam

When planning to construct a dam care should be taken to ensure that all of the following issues are assessed:

- (a) Examine alternative methods in which water demand could be met taking into consideration:
 - (i) reliability
 - (ii) cost
 - (iii) maintenance
- (b) Assess the size of the dam and the demand for water
- (c) Assess the soil types surrounding the dam site to ensure stability (engineering integrity)
- (d) Determine the level of creek flow and assess whether your dam may alter creek flow
- (e) What is the current water quality of the watercourse?
- (f) Will your dam affect water quality or will your dam impact on the creek system by:
 - (i) altering the local ecosystem
 - (ii) impacting on local vegetation
- (g) Will your dam affect other users of the watercourse through:
 - (i) –alteration of flow
 - (ii) –alteration of supply
 - (iii) –possible effects due to dam burst
- (h) What is the size of the catchment and is your dam suitable for the amount of water generated?
- (i) Have you planned for storm events and evaporation?
- (j) What measures do you propose to minimise sedimentation?
- (k) What measure do you propose to control mosquitoes?
- (l) Will your dam construction affect salinity levels?
- (m) What are the safety issues involved in constructing and maintaining a dam?
- (n) What are the local government requirements for building a dam in your area?
- (o) Is it in a stream protection area?
- (p) Is there a local catchment group in the area?
- (q) Is there a management plan covering the watercourse or catchment in your area?

Reference Information

Shire of Toodyay Local Planning Policies.

Legislation

[Planning and Development Act 2005](#)

[Planning and Development \(Local Planning Schemes\) Regulations 2015](#)

[Planning and Development Regulations 2009](#)

[Shire of Toodyay Local Planning Scheme No. 4](#)

[State Planning Policy 2.5 - Rural planning – December 2016](#)

[Shire of Toodyay Local Planning Strategy 2018](#)

[State Planning Strategy 2050](#)

Associated documents

[Planning guidelines - Rural planning – December 2016](#)

Draft State Planning Policy 2.9 Planning for Water Guidelines August 2021

Version control information

Version No.	Date Issued	Review position	Developed by	Approved by
V0	15/05/2012	Adopted new policy	Manager Planning and Development	Council
V1	18/09/2012	Reformatted	Manager Planning and Development	Council
V2	25/05/2022	Revised	Manager Development and Regulation	Council approved for advertising

Document control information	
Document Theme	Local Planning Policy
Document Category	Development and Regulation
Document Title	Dams
Document ID	LPP.25

25/05/2022 (42.2)

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***** This Document is not controlled once it has been printed *****

Document control information	
Document Owner (position title)	Manager Development and Regulation
Author (position title)	Manager Development and Regulation
Date of approval for advertising	25 May 2022 (CRN: OCM074/05/22)
Date of approval	
Approving authority	Council
Access restrictions	Nil
Date Published	1 June 2022
Date of last review	25 May 2022
Date of next review	13 July 2022
Archived antecedent documents and previous versions	<p>Adopted OCM 15 May 2012 (CRN: 256/09/12)</p> <p>Reviewed OCM 18 Sept 2012 (CRN: 256/09/12).</p>