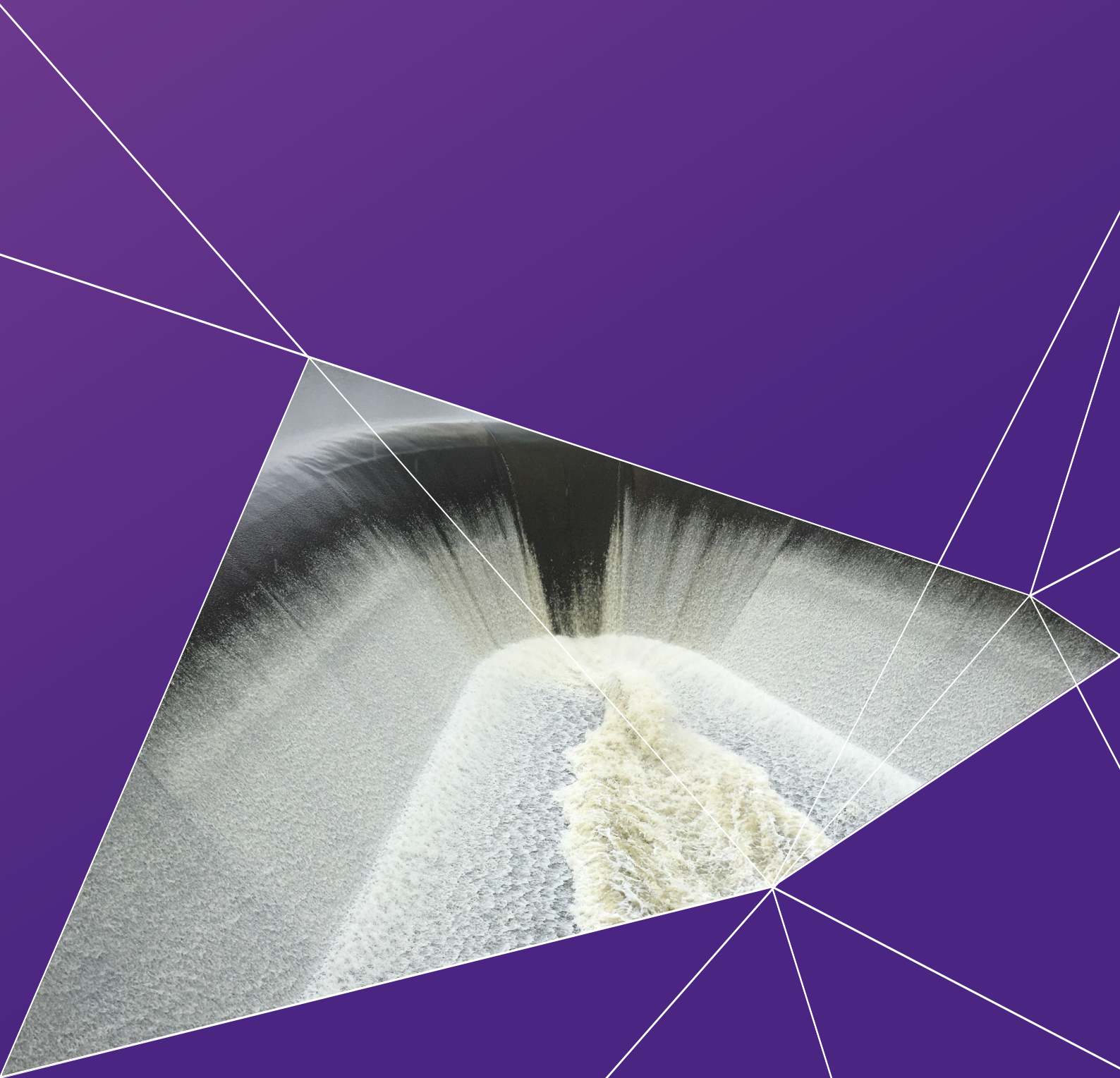




ACT
Government

DAM SAFETY CHECKLIST FOR DAM OWNERS

OCTOBER 2020



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Acknowledgment to Country

We wish to acknowledge the traditional custodians of the land we are meeting on, the Ngunnawal people. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

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A checklist for parties involved in the design, construction, commissioning and modification of registrable and listed dams in the ACT

INTRODUCTION

The Technical Regulator aims to protect the community through regulation of dams located in the Australian Capital Territory (ACT) by establishing regulations and regulatory authorities to ensure dam owners are taking appropriate actions in relation to dam safety. Regulation of parties involved in the design, construction, commissioning and modification of registrable dams in the ACT includes ensuring that all dam activity is completed by competent and experienced teams in accordance with the ACT Dam Safety Code, ANCOLD Guidelines and with good engineering practice.

This checklist systematically sets out the regulatory process a dam owner must follow in the design, construction, commissioning and modification of registrable dams in order to achieve compliance.

This checklist is to be used by parties who are planning to:

- 1) Build a new registrable dam; or
- 2) Modify an existing registrable dam, or one that will be registrable at completion.

PURPOSE OF THE CHECKLIST

The purpose of this checklist is to assist dam owners in understanding and complying with legislative requirements and processes regarding dams to ensure continuing dam safety in the ACT. This checklist is a regulatory tool which supports parties involved in the design, construction, commissioning and modification of registrable and listed dams in the ACT and outlines specific actions required of parties in order to comply with ACT regulatory requirements.

The Technical Regulator recommends dam owners are familiar with the ACT Dam Safety Code, [Utilities \(Technical Regulation\) Act 2014](#) (UTR Act) and current ANCOLD guidelines. This checklist has been developed in order to assist dam owners to comply with regulatory requirements for the design, construction, commissioning and modification of registrable and listed dams in the ACT.

PROCESS CHECKLIST OVERVIEW

STEP	ACTION	COMPLETE (TICK)
For Registrable Dams		
1	Registrable Dams and the Dams Register	<input type="checkbox"/>
2	Listed Dams	<input type="checkbox"/>
3	Operating Certificate Application for Unlicensed Dam Owners	<input type="checkbox"/>
For Listed Dams only		
4	Design Team and Peer Reviewer/s	<input type="checkbox"/>
5	Detailed Design	<input type="checkbox"/>
6	Construction Team	<input type="checkbox"/>
7	Construction	<input type="checkbox"/>
8	Commissioning	<input type="checkbox"/>
9	Modifications	<input type="checkbox"/>



KEY TERMS

TERM	DESCRIPTION
ANCOLD Guidelines	Australian National Committee on Large Dams guidelines
The Code	The ACT Dam Safety Code (the Code) is a technical code for listed dams made under Part 8 of the Utilities (Technical Regulation) Act 2014
Dam	An artificial barrier, and incidental or related works, constructed for the storage or control of water, other liquids, or other material within a liquid. Section 57 Utilities (Technical Regulation) Act 2014
Dam Owner	In relation to a dam or proposed dam, means a person who owns, leases, subleases or proposes to develop the dam. Section 57 Utilities (Technical Regulation) Act 2014
Dams Register	The Technical Regulator is required to keep a Dams Register, which is a list of registrable dams and is available to the public. Section 58 Utilities (Technical Regulation) Act 2014
Licensed Utility	A licensed utility is a regulated utility that holds a licence under the Utilities Act 2000 . For the purpose of this checklist, a licensed utility that owns a dam is referred to as a 'dam owner'.
Listed Dam	A listed dam is a registrable dam that the Technical Regulator determines would have a risk of causing significant adverse impacts on the community if it were to fail. Section 69 Utilities (Technical Regulation) Act 2014
Operating Certificate	Operating Certificates were introduced under Section 43 Utilities (Technical Regulation) Act 2014 to regulate the activities of unlicensed providers of regulated utilities services.
Proposed Dam	A dam is defined as a 'proposed dam' once development approval is obtained by a dam owner.
Registrable Dam	A dam, or proposed dam, which is greater than 5 metres in height and/or has a water storage capacity greater than 250 megalitres. Section 57 Utilities (Technical Regulation) Act 2014
Regulatory Plan	A Regulatory Plan is required with an application for an Operating Certificate.
Technical Regulator	The Director-General of the Environment, Planning and Sustainable Development Directorate is the Technical Regulator of utility services in the ACT. The role of the Technical Regulator is to ensure safe, reliable and efficient delivery of gas, electricity and water services to the ACT community. Specifically in relation to dams, the Technical Regulator ensures that regulated utilities properly discharge their responsibilities where a registrable dam could have a significant adverse impact on the community in the event of failure of the dam (i.e. where a registrable dam is listed under Section 69 Utilities (Technical Regulation) Act 2014).
Unlicensed Utility	A person who provides, or proposes to provide a regulated utility service under the Utilities (Technical Regulation) Act 2014 , but is not required to be licensed under the Utilities Act 2000 or is exempt from the requirements to be licensed under that Act. For the purpose of this checklist, an unlicensed utility that owns a dam is referred to as a 'dam owner'.
Utilities Technical Regulation	Utilities Technical Regulation (UTR) supports the Technical Regulator through administration of the Utilities (Technical Regulation) Act 2014

DETAILED PROCESS CHECKLIST

1. REGISTRABLE DAMS AND THE DAMS REGISTER

- A dam owner is required to provide advice to the Technical Regulator when planning to design and construct a new, or modify an existing, 'registrable dam'. Once the Technical Regulator receives advice of a registrable dam it will be registered on the Dams Register.
 - » Refer to Section 57 and Section 58 of the UTR Act.
 - » For licensed utilities refer to the flow chart on Page 8.
 - » For unlicensed utilities refer to the flow chart on Page 9.
 - » Refer to Section 4 of the Code for dam safety responsibilities.
 - » Refer to Schedule 1 of the Code for requirements for submission of information.
- The Technical Regulator determines whether a proposed registrable dam meets the classification criteria to be a 'listed dam'. If the Technical Regulator determines a registrable dam is not to be a 'listed dam', the dam owner will be notified and is required to comply with the provisions of the UTR Act, including applying for an Operating Certificate, and design and construction requirements of the ANCOLD Guidelines, however the dam owner is not required to comply with further provisions of the Code, other than Section 4 which notes that "The regulated utility is fully responsible for the safety of each registrable or listed dam that it owns, leases, subleases and proposes to develop". In order to meet this requirement all registrable dams must comply with the ANCOLD Guidelines.

2. LISTED DAMS

- The Technical Regulator determines whether a registrable dam meets the classification criteria to be a 'listed dam'. If the Technical Regulator determines a registrable dam to be a 'listed dam', it will be noted as 'listed' on the Dams Register and the dam owner will be notified and be required to comply with the provisions of the UTR Act, the Code and the ANCOLD Guidelines.
 - » Refer to Section 5 of the Code for Determination if a Registrable Dam is to be Listed.
 - » Refer to Section 58, Section 69 and Section 70 of the UTR Act.
 - » A registrable dam that meets the classification criteria of a 'listed dam' is one that has:
 1. The potential to cause loss of life in the event of dam failure; or
 2. A Consequence Category of 'significant' or greater as determined using the ANCOLD Guideline criteria: Guidelines on the Consequence Categories for Dams, 2012.

3. OPERATING CERTIFICATE APPLICATION FOR UNLICENSED DAM OWNERS

- An unlicensed dam owner is required to submit an application, including a Regulatory Plan, for a Design and Construct Operating Certificate to Utilities Technical Regulation (UTR) prior to commencing detailed design and construction of a proposed registrable dam. When satisfied, UTR refers the application to the Technical Regulator for acceptance.
 - » There is a guide for unlicensed dam owners available online: '[Operating Certificates – A Guide for providers of Unlicensed Regulated Utility services](#)' and dam owners are encouraged to speak with UTR regarding content required in the Operating Certificate.

- » Refer to Section 43 of the UTR Act.
- » A licensed dam owner is not required to obtain an Operating Certificate as dam ownership requirements are included in licences.
- Listed dams are required to have a Dam Safety Management Program (DSMP) implemented and maintained over the whole life cycle of each listed dam in accordance with the Code and ANCOLD guidelines. The requirement to prepare a DSMP is a deliverable of the Regulatory Plan.
 - » Refer to Section 7 of the Code.
- The Technical Regulator either requests additional information or approves the Regulatory Plan and grants the Design and Construct Operating Certificate once satisfied dam owners have met the criteria outlined under Section 46 of the Act.

Note: The remainder of this checklist, excluding step 9, is applicable only to dam owners of planned and existing listed dams. Owners of registrable dams that have been considered by the Technical Regulator, but have not been listed, do not need to comply with the requirements of the remainder of this checklist, however, are still required to comply with step 9.

4. DESIGN TEAM AND PEER REVIEWER/S

4.1 Procurement of Design Team

- A dam owner conducts a procurement process for the detailed design team. The design team must be independent of the peer reviewer/s and should be directly engaged by the dam owner. The dam owner identifies the preferred design team, which is subject to Technical Regulator acceptance before the procurement process concludes.
 - » Refer to Schedule 2, Phase 1 of the Code.
 - » ANCOLD guidelines define dam engineers as ‘a professional engineer who is suitably qualified and recognised by the engineering profession as experienced in the engineering of dams and its various subfields’. The guidelines recommend that dam engineers should be familiar with all the necessary basic principles and the existence of technical guidelines, memoranda, articles and manuals.

4.2 Procurement of Peer Reviewer/s

- A dam owner conducts a separate procurement process for the peer reviewer/s. The peer reviewer/s must be independent of both the design and construction teams. The dam owner identifies the preferred peer reviewer/s, which is subject to Technical Regulator acceptance before the procurement process concludes.
 - » Refer to Section 10 of the Code for Peer Reviews requirements.
 - » ANCOLD guidelines require peer review teams to consist of members with relevant, recognised, in-depth experience in the various fields of dam engineering.
 - » **Note:** The Technical Regulator prefers the peer reviewer/s for the design and construction phases to remain the same throughout the project.

4.3 Acceptance of Design Team and Peer Reviewer/s

- For ACT Government Dams** there are separate dam owners for the design and construction phase and the operating phase. Once a dam has been commissioned, the ownership is transferred to Transport Canberra and City Services (TCCS) for the operating phase. The Technical Regulator recommends that design and construction phase dam owners involve TCCS during the design and construction process, including with the selection of the design team and peer reviewer/s.
 - » TCCS contact: Assistant Director Program Development, Road Maintenance, City Services.
- All dam owners** are required to submit their nominated design team and peer reviewer/s to UTR for acceptance by the Technical Regulator. Nominations should be supported by CVs and other details in order to demonstrate previous experience of the design team and peer reviewer/s. When satisfied, UTR refers the design team and peer reviewer/s to the Technical Regulator for acceptance. The Technical Regulator either seeks additional information, requests changes or accepts the design team and peer reviewer/s prior to contracts being awarded by the dam owner and design commencing.
 - » **Note:** UTR and the Technical Regulator will look for design teams and peer reviewer/s that have previous experience in designing or reviewing similar successful dams.

5. DETAILED DESIGN

- The design team completes a detailed design of the proposed dam. The peer reviewer provides an independent review of the design.
- The dam owner submits the proposed detailed design, design report, separate signed peer reviewer's report and advice required in Table 2.2 of the Code to UTR. UTR refers the proposed detailed design, design report, signed peer reviewer's report and required advice to the Technical Regulator for acceptance. The Technical Regulator either seeks additional information from the dam owner or accepts the proposed detailed design, design report, signed peer reviewer's report and required advice prior to the commencement of dam construction or modification.
 - » Refer to Schedule 2, Phase 2 of the Code for detailed design requirements.
 - » UTR recommends that the peer reviewer/s be involved in regular design reviews.



6. CONSTRUCTION TEAM

6.1 Procurement of Construction Team

- A dam owner conducts a procurement process for the construction team. The construction team must be independent of the peer reviewer/s and should be directly engaged by the dam owner. The dam owner identifies a preferred construction team, which is subject to Technical Regulator acceptance before the procurement process concludes.
 - » Refer to Schedule 2, Phase 3 of the Code.
 - » **Note:** The peer reviewer/s remain the same for the design and construction phases.

6.2 Acceptance of Construction Team and Peer Reviewer/s

- For ACT Government Dams** there are separate dam owners for the design and construction phase and the operating phase. Once a dam has been commissioned, the ownership is transferred to Transport Canberra and City Services (TCCS) for the operating phase. The Technical Regulator recommends that design and construction phase dam owners involve TCCS during the design and construction process, including with the selection of the construction team and peer reviewer/s.
 - » TCCS contact: Assistant Director Program Development, Road Maintenance, City Services.
- All dam owners** are required to submit a construction phase Dam Safety Emergency Plan (DSEP) along with their nominated construction team and peer reviewer/s to UTR for acceptance by the Technical Regulator. Nominations should be supported by CVs and other details in order to demonstrate previous experience of the construction team and peer reviewer/s. When satisfied, UTR refers the construction team, peer reviewer/s and DSEP to the Technical Regulator for acceptance. The Technical Regulator either seeks additional information, requests changes or accepts the construction team, peer reviewer/s and DSEP prior to contracts being awarded by the dam owner and construction commencing.
 - » Refer to Section 15 of the Code for DSEP requirements.
 - » **Note:** UTR and the Technical Regulator will look for construction teams and peer reviewer/s that have previous experience constructing or reviewing similar successful dams.

7. CONSTRUCTION

- The construction team completes construction of the proposed dam in accordance with the accepted detailed design. The peer reviewer provides independent advice confirming that the construction is in accordance with the accepted detailed design and ANCOLD guidelines.
 - » UTR recommends that the peer reviewer/s attend the construction site periodically during construction.
 - » It is also recommended that UTR is invited to attend the construction site periodically when the peer reviewer visits the construction site.
- During the construction phase a dam owner is required to submit design variations that could affect dam safety along with peer reviewer/s endorsement to UTR. UTR will refer any variations along with the peer reviewer/s endorsement to the Technical Regulator. The Technical Regulator either seeks additional information or amendments from the dam owner or accepts the design variations following the peer reviewer/s endorsement. Once accepted, construction should proceed in accordance with the design variation accepted.
 - » Refer to Schedule 2, Phase 4 of the Code.

8. COMMISSIONING

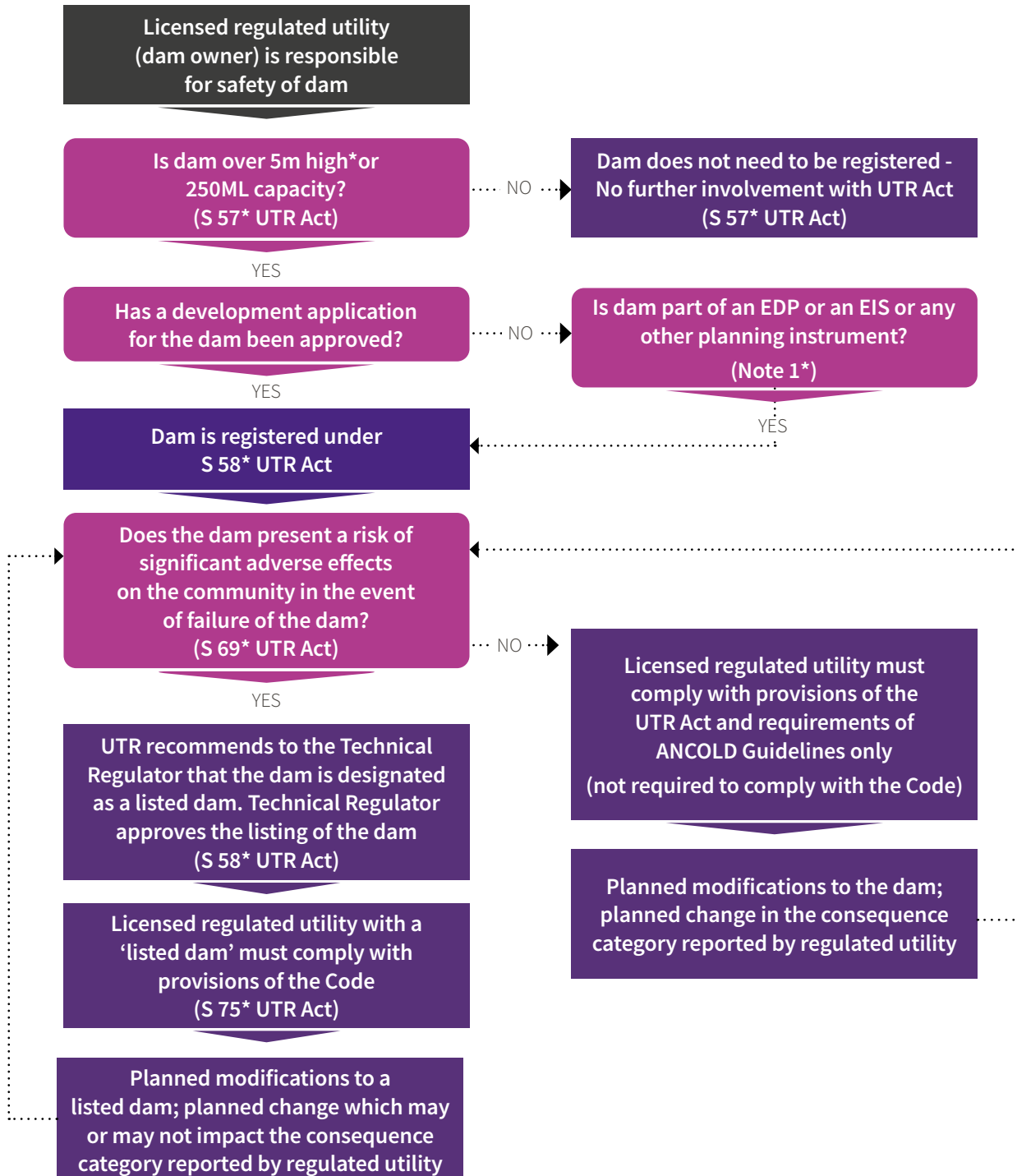
- A dam owner is required to submit a DSEP for a dam in service, dam construction report and peer reviewer/s separate report to UTR. UTR will refer the DSEP, dam construction report and peer reviewer/s separate report to the Technical Regulator for acceptance. The Technical Regulator either seeks additional information or amendments or accepts the DSEP, dam construction report and peer reviewer/s separate report prior to commissioning.
 - » Refer to Schedule 2, Phase 5 of the Code for commissioning requirements.
 - » Unlicensed dam owners are also required to submit an application for a Provision of Service Operating Certificate for the operating phase of the dam to UTR prior to operating the dam in service, which is referred to the Technical Regulator for acceptance.

9. MODIFICATIONS

- A dam owner planning to conduct modifications to an existing dam, which will meet the classification criteria of a registrable or listed dam, is required to repeat all the applicable steps of this checklist. A dam owner must receive acceptance from the Technical Regulator prior to commencement of modifications.
 - » Refer to Section 8 of the Code.
 - » Refer to Schedule 2 of the Code for detailed requirements.
 - » Dam modifications that require Technical Regulator acceptance can include:
 1. Any dam modifications requiring ACT Development Approval; or
 2. A change to crest level, crest length, spillway capacity, spillway arrangement, embankment profile or an increase in storage volume greater than 10% of the initial installed capacity; or
 3. Any modification to a dam that impacts dam safety.
 - » Dam activities that do not require Technical Regulator acceptance can include:
 1. Repairs and maintenance of dams to ensure that dam safety risk is maintained as low as reasonably practicable; or
 2. Replacement of existing equipment with equivalent new equipment; or
 3. Any modification that does not impact the structure of the dam or the consequence category for the dam; or
 4. Works that do not impact the community safety of the dam either during construction or following completion of the works; or
 5. Removal of trees and shrubs from dam embankments.

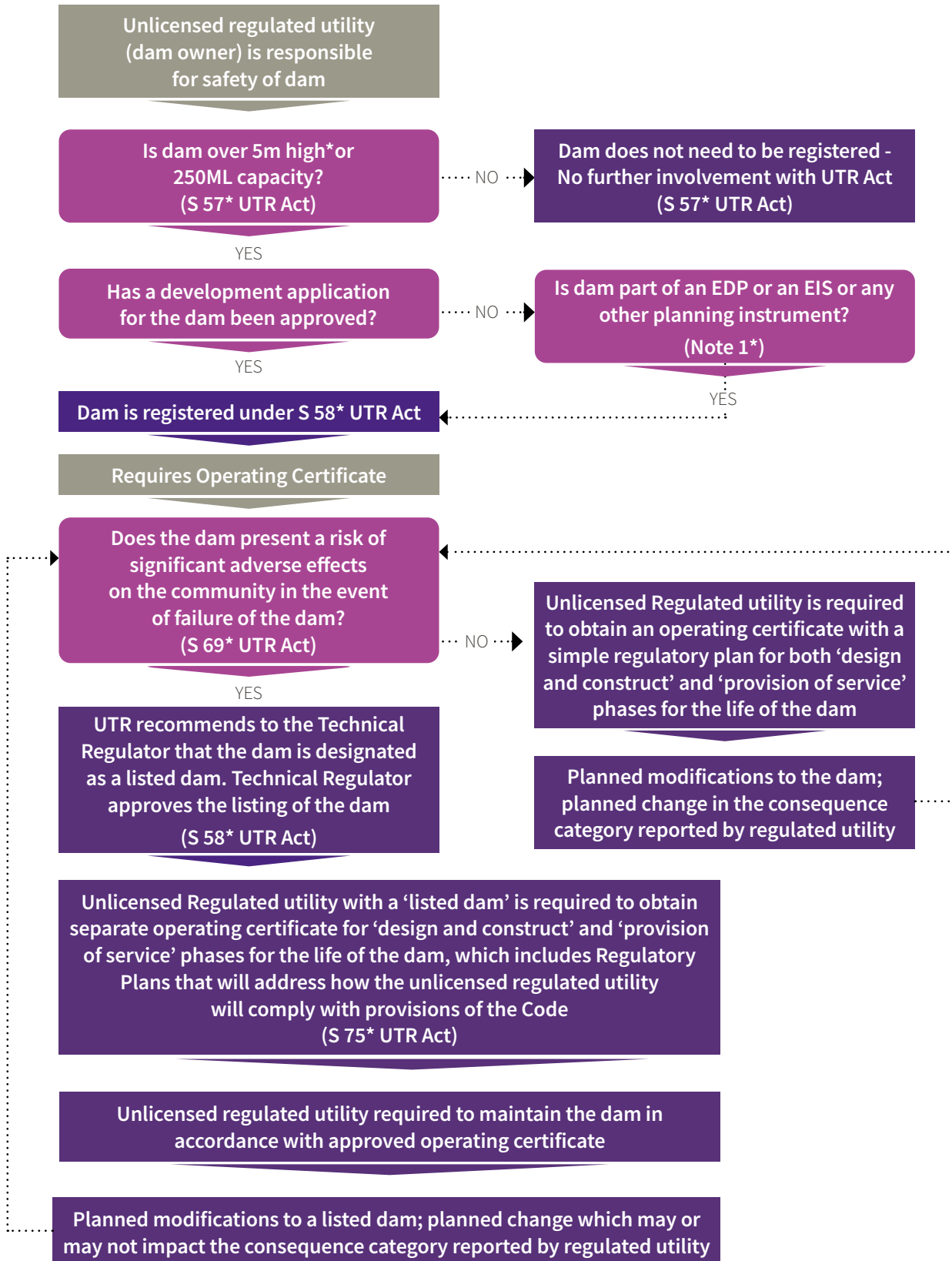
LICENSED REGULATED UTILITIES

Page 10 for definitions and further clarification



UNLICENSED REGULATED UTILITIES

Page 10 for definitions and further clarification



FLOW CHART DEFINITIONS AND RELEVANT SECTIONS FROM UTR ACT

DEFINITION

*Dam height means the difference in level between the natural bed of the watercourse at the downstream toe of the dam and the crest of the dam

*Utilities (Technical Regulation) Act 2014 (UTR Act)

*Note 1— Estate Development Plan (EDP) and Environmental Impact Statement (EIS)

SECTIONS FROM UTR ACT

*Section 57 registrable dam means—

- 1) a dam, or proposed dam, in the Territory that—
 - a. is more than 5m high; or
 - b. has a water storage capacity of more than 250ML; and
- 2) Googong dam.

*Section 58 Dams register

- 1) The technical regulator must keep a register of dams (the dams register).
- 2) The dams register—
 - a. must include the required information about registrable dams and owners of registrable dams; and
 - b. may also include anything else the technical regulator considers relevant.
- 3) The dams register may be—
 - a. kept in any form, including electronic form, that the technical regulator decides; and
 - b. made publicly available on the technical regulator's website either—
 - i. in full; or
 - ii. if the technical regulator believes on reasonable grounds that the information would be inappropriate to disclose—in part.

*Section 43 Operating certificate—application

- 1) An unlicensed regulated utility must apply to the technical regulator for an operating certificate.
- 2) An application must include information about the utility's—
 - a. capacity to ensure the safe, reliable and efficient delivery of regulated utility services; and
 - b. promotion of the long-term serviceability of regulated utility networks and regulated utility services; and
 - c. promotion of design integrity and functionality of regulated utility networks; and
 - d. capacity to ensure the safe and reliable operation and maintenance of regulated utility networks and regulated utility services to protect the following:
 - i. the public;
 - ii. people working on regulated utility networks and regulated utility services;
 - iii. property near regulated utility networks and regulated utility services;
 - iv. the environment.



*Section 69 Listing of certain dams

- 1) The technical regulator must—
 - a. consider the information and further information provided in relation to registrable dams under division 8.2 (Register of dams); and
 - a. consider the risk of significant adverse effects on the community if a registrable dam fails; and
 - a. determine a list of the dams that present a risk of significant adverse effects on the community in the event of the failure of the dam.
- 2) A determination is a disallowable instrument.

Note: A disallowable instrument must be notified, and presented to the Legislative Assembly, under the [Legislation Act 2001](#).

*Section 75 Offence—fail to comply with technical code for listed dam

The owner of a listed dam commits an offence if—

- 1) a technical code for listed dams applies to the owner; and
- 2) the owner fails to comply with the dams technical code; and
- 3) the owner is negligent about whether the owner complies with the dams technical code.

Maximum penalty: 2,000 penalty units.

