CHAPTER 1

Introduction

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1 Introduction

1.1 Project Overview

Six Mile Creek Dam (Lake Macdonald) Safety Upgrade Project, commonly referred to as Lake Macdonald, is located on the Sunshine Coast in Noosa Shire. It is one of two principal raw water sources that supply potable drinking water to the Sunshine Coast. Ownership of the dam was transferred from Noosa Council to Queensland Bulk Water Supply Authority (trading as Seqwater) on 1 July 2008.

The dam requires an upgrade to meet modern safety standards and the performance requirements of the Queensland dam safety regulations into the future (the Project). The upgrade will allow the dam to better manage severe weather and any possible earthquake events. This includes improving the spillway discharge capacity and earthquake stability while maintaining water supply security. Studies have considered a range of options including decommissioning of the dam, retrofitting of strengthening works and new build options.

The proposed upgrade of Six Mile Creek Dam does not change the footprint of the existing water impoundment. The dam's full supply level (FSL) will remain the same post-upgrade and the proposed dam infrastructure will largely occupy the existing footprint. The operation of the upgraded dam will effectively reinstate the existing situation, with improvements to the spillway and its ability to effectively pass large flood events.

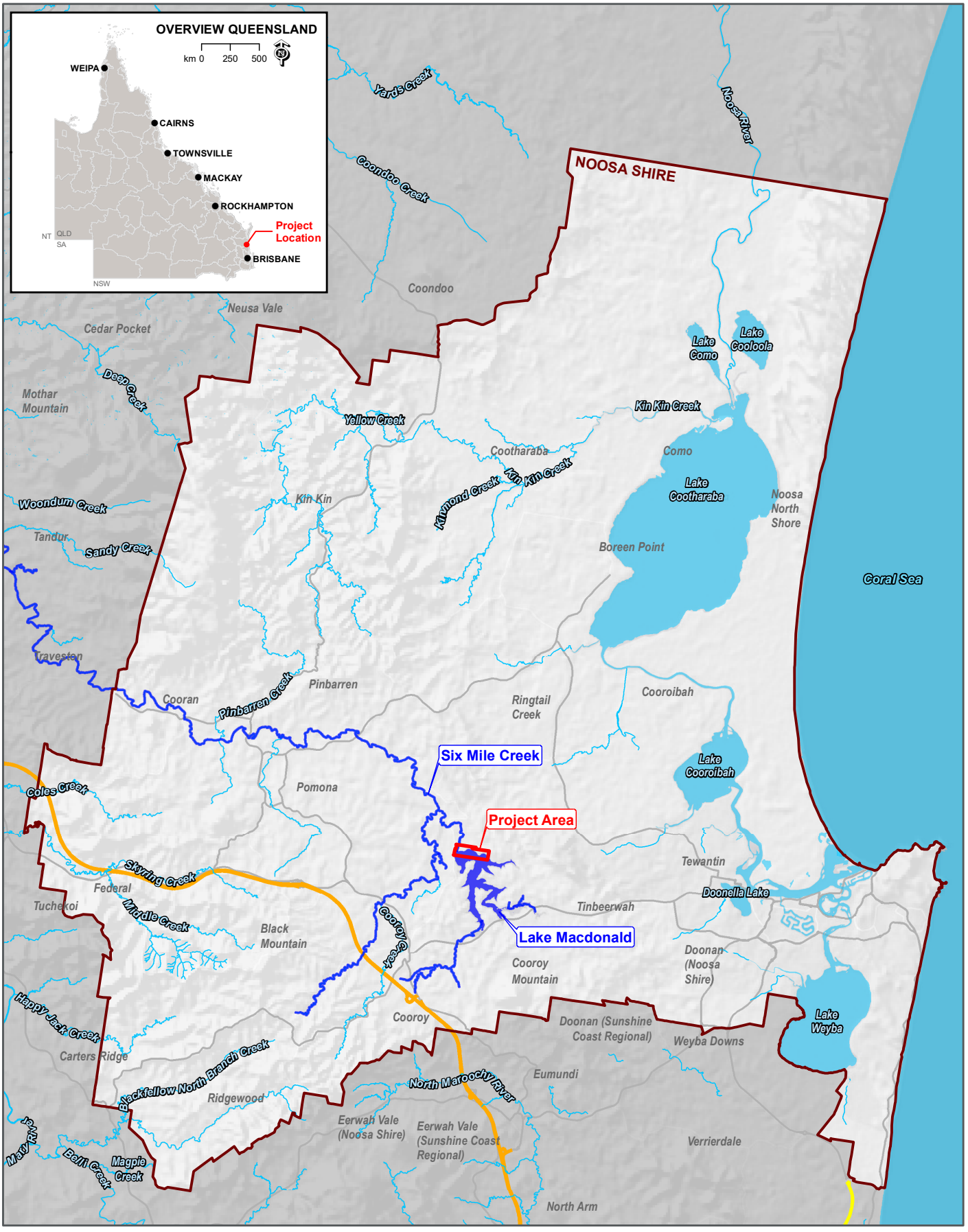
The regional Project area and Project area are shown in Figure 1-1 and Figure 1-2.

The final detailed design of the dam is currently being progressed and is not expected to differ significantly from that described in the Initial Advice Statement (2017). However, design updates in response to recent geotechnical findings, water security considerations, and construction methodology have led to two notable departures in design since the Initial Advice Statement was submitted to the Coordinator General for consideration in September 2017. In particular, the concept for a temporary construction coffer dam was reviewed and altered, and the design for the left embankment was updated. Minor design changes may be required as the Project progresses in the future, but will not alter the Project footprint.

Construction for the Project was previously scheduled to occur from August 2019 to December 2021 (which is reflected in the technical reports provided in the appendices), but will now commence in August 2020.

FIGURE 1-1: REGIONAL PROJECT AREA LOCATION

Six Mile Creek Dam Safety Upgrade Project



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VERSION: DRAFT A
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SOURCES:
1. Localities, Roads, LGA, Waterways, Waterbody © QLD Spatial Catalogue, State of Queensland (Department of Natural Resources, Mines and Energy) 2018
2. Basemap © Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

seqwater WATER FOR LIFE

LEGEND

- Bruce Highway
- Sunshine Motorway
- Secondary Road
- Watercourse
- Six Mile Creek and Upper Tributary
- Lake Macdonald
- Project Area
- Local Governmental Area

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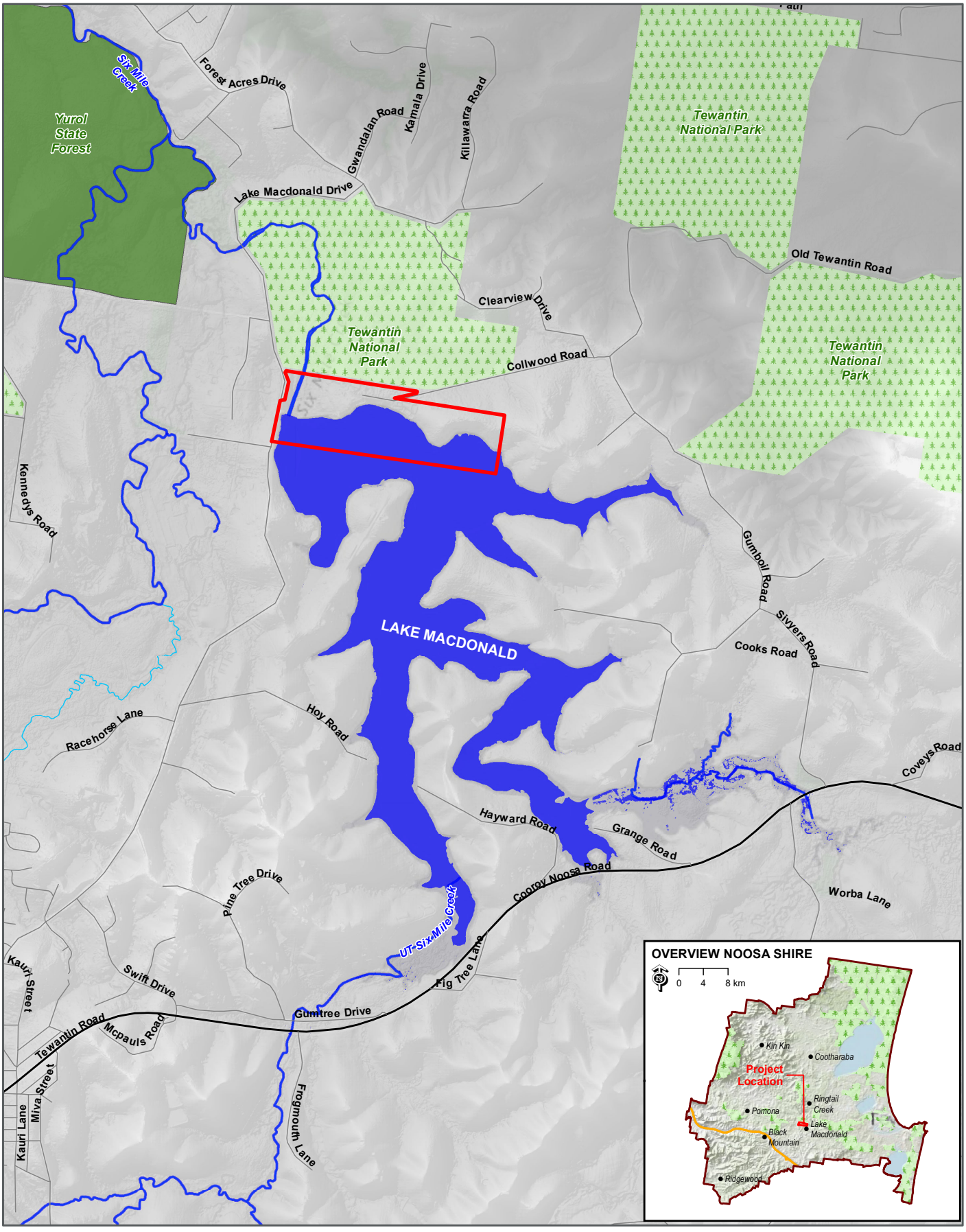
FIGURE 1-2: PROJECT AREA

Six Mile Creek Dam Safety Upgrade Project



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SOURCES:
1. Localities, Roads, LGA, Waterways, Protected Areas © State of QLD (DNRME) 2018
2. Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

seqwater WATER FOR LIFE

LEGEND

- Bruce Highway
- Secondary Road
- Local Roads
- Watercourse
- Six Mile Creek and Upper Tributary
- Lake Macdonald
- Project Area
- Local Governmental Area

Protected Areas

- National Parks
- State Forest

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1.2 Project Proponent

Seqwater is the proponent for the Six Mile Creek Dam (Lake Macdonald) Safety Upgrade Project. Seqwater is a statutory authority established under the *South East Queensland Water (Restructuring) Act 2007*.

Seqwater is one of Australia's largest water businesses, with the most geographically spread and diverse asset base of any Australian capital city water authority. Seqwater manages up to $11 billion of water supply assets and the natural catchments of the South East Queensland's major water supply sources, including dams, weirs, conventional water treatment plants, and climate resilient sources of water through the Gold Coast Desalination Plant and the Western Corridor Recycled Water Scheme. A 600 km reverse flow pipeline network allows drinking water to be transported to where it is needed most, from the Sunshine Coast to Greater Brisbane, to Redlands, and south to the Gold Coast.

Seqwater has an excellent environmental record, and is committed to ensuring environmental compliance and preventing environmental harm from its operations. This commitment is being met through the implementation of dedicated environmental resources and the decision to adopt AS/NZS ISO 14001: 2004 Environmental Management Systems (EMS) as the framework for guiding workplace environmental management practices and performance. The EMS is currently certified across several assets in the Seqwater operational portfolio (ten WTPs, two dam/catchments, head office locations and the bulk water distribution system).

The Project contact details for Seqwater are:

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Email: communications@seqwater.com.au
yourseqwater.com.au/lake-macdonald-dam-upgrade

1.3 Impact Assessment Requirements

1.3.1 Commonwealth

The Project was referred to the Commonwealth Minister for the Environment and Energy on 18 October 2017 in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Referral 2017/8078). The Minister decided the Project may have a significant impact on matters of national environmental significance and therefore the Project was listed as a 'controlled action' and would require an assessment and approval under the EPBC Act before it can proceed. The relevant controlling provision for the Project was the fact that the Project may have an impact on listed threatened species and communities (sections 18 and 18A EPBC Act), being as follows:

- Mary River cod (*Macculochella peeli mariensis)* – endangered
- Australian lungfish (*Neoceratodus forsteri)* – vulnerable
- Mary River turtle (*Elusor macrurus)* – endangered
- White-throated snapping turtle (*Elseya albagula)* – critically endangered
- Giant barred frog (*Mixophyes iterates*) – endangered
- Koala (*Phascolarctos cinereus*) – vulnerable
- Southern penda (*Xanthostemon oppositifolius*) – vulnerable

The Commonwealth Minister for the Department of Environment and Energy required the Project be assessed by an Impact Assessment Report (IAR) under the Bilateral Agreement with the Queensland Government.

Under the Bilateral Agreement with the Queensland Government, the IAR must describe:

(i) the proposed action
(ii) the likely relevant impacts of the action
(iii) to the extent practicable, any feasible alternatives to the proposed action that could avoid or reduce relevant impacts
(iv) possible mitigation measures.

1.3.2 State

Seqwater submitted an Initial Advice Statement to the Queensland Coordinator General on 15 September 2017 in accordance with the *State Development Public Works Organisation Act 1971* (section 27AB of SDPWO Act). On 22 December 2017, the Coordinator General declared the Project to be a 'coordinated project', for which an IAR is required, pursuant to section 26(1)(b) of SDPWO Act.

1.3.3 IAR Process

The IAR process may be used if the Coordinator General is satisfied that the environmental effects of the Project do not, having regard to their scale and extent, require assessment through the Environmental Impact Statement (EIS) process. The IAR process may be used for well-defined, low-medium risk projects where the likely impacts are highly predictable and the proponent's well-defined proposals to avoid, minimise, mitigate and/or offset those impacts are accepted best-practice in that industry.

The objective of an IAR is to demonstrate that a project can be delivered in accordance with sound environmental principles and practices, and that impacts, management and mitigation measures are widely practiced and understood. The IAR should:

- identify and assess, in accordance with the scale and impact of the Project, the likely environmental effects of the Project to the natural, social and economic environment
- identify and describe appropriate management measures to avoid or minimise adverse impacts.

The IAR focusses its assessment on:

- locations that may be subject to adverse impacts if not appropriately managed, and
- potential impacts that are either uncertain, or
- proposed mitigation measures that depart from accepted management practices or standard conditions for that industry.

Unlike an EIS, an IAR does not have a formal Terms of Reference.

An IAR requires public notification if subsequent statutory approvals would be required for the Project, or if the Coordinator General decides that notification is necessary. For the Six Mile Creek Dam Safety Upgrade Project, at least one subsequent statutory approval, in addition to the Commonwealth assessment process, requires public notification. As such, the IAR will be publicly released for review and comment.

At the end of the impact assessment process, the Coordinator General will draft and release an Assessment Report for the IAR, approving (with conditions) or rejecting the Project. If the Project is approved (with conditions), the information provided in the IAR will be used to support applications for the required development approvals.

The IAR and EPBC referral processes are outlined in Figure 1-3.

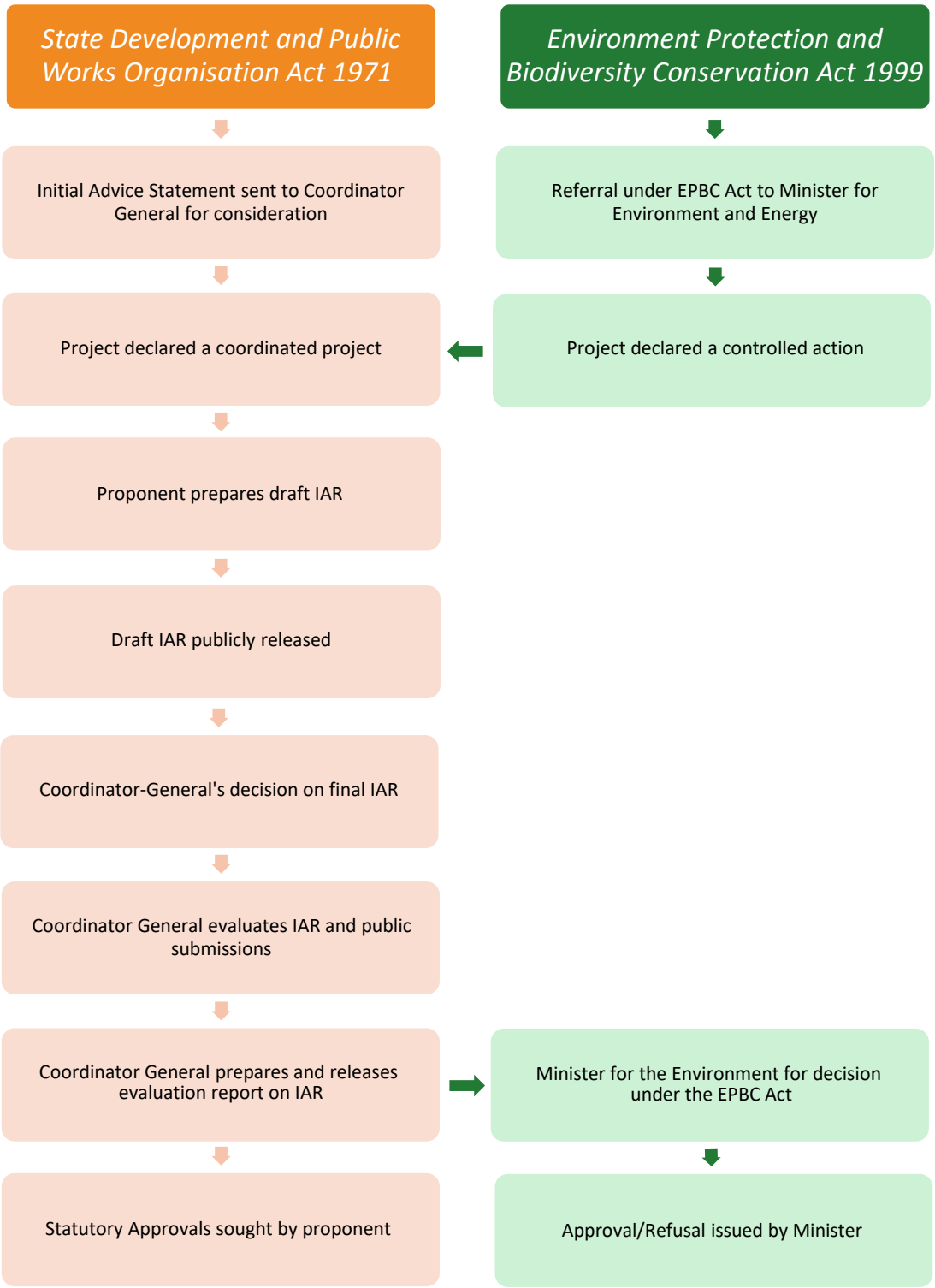

Figure 1-3: Impact assessment report and EPBC referral process

1.3.4 IAR Scope

The Bilateral Agreement with the Queensland Government requires that the Coordinator-General must issue to the proponent written guidelines for the preparation of an IAR that are designed to ensure that the IAR addresses the matters mentioned in Schedule 1 of the SDPWO Regulation 2010. The Bilateral Agreement also requires that the IAR:

- Provides enough information about the action and its relevant impacts to allow the Commonwealth Minister to make an informed decision whether or not to approve the action under Part 9 of the EPBC Act
- Addresses the matters mentioned in Division 5.2 of the *Environment Protection and Biodiversity Conservation Regulations 2000* for an EIS (with the matters in Division 5.2 being consistent with Schedule 1 of the SDPWO Regulation).

The IAR must include:

- Details of the Project and proponent
- Information about the likely environmental effects of the Project (i.e. impacts to the natural, social and economic environment)
- Proposed safeguards and mitigation measures to avoid or minimise adverse impacts
- A statement about whether or not any of the following notifiable approvals is required for the Project—
  - a development approval if the development application for the approval would, under the *Planning Act 2016*, require impact assessment
  - an environmental authority if the application for the authority would, under the *Environmental Protection Act 1994*, chapter 5, part 4, require public notification
  - another approval under an Act if—
    - the application for the approval requires, other than under the *Planning Act 2016* or the *Environmental Protection Act 1994*, chapter 5, an EIS or a similar statement to address the environmental effects of the approval, and
    - the application for, or the granting of, the approval requires public notification under the relevant Act
- Other approvals and conditions
- Proponent's environmental record
- Information sources.

Specific matters to be addressed in the IAR were identified as:

- Hazard and risk associated with the Project
- All necessary information to support approval requirements
- Focussed impact assessment for:
  - Terrestrial and aquatic ecosystems and protected species
  - Water resources
  - Aboriginal and Torres Strait Islander cultural heritage
- Potential impacts to other environmental matters predicted to be of lesser concern in the Project's Initial Advice Statement.

Other matters should also be addressed if a previously unidentified issue arises,new or amended legislation comes into effect, and/or the proponent amends the Project in a way that will result in a change to potential impacts.

1.3.5 Public Notification

The IAR requires public notification in accordance with section 34H of SDPWO Act, because a notifiable approval is required for the Project; being a Material Change of Use for the concrete batching plant under the Noosa Planning Scheme. Furthermore, public notification of the IAR is required under the Bilateral assessment process between the Commonwealth and the State of Queensland. The Bilateral Agreement requires the IAR to be made available to the public and released for public notification a period of at least 28 calendar days.

The public notification will be done in accordance with statutory requirements, but it is likely to be via:

- Local newspaper advertising
- Coordinator General's website

- Seqwater website.

1.3.6 IAR Structure

The IAR has been structured to respond to approval requirements of the Project. It incorporates an assessment of environmental impacts as well as supporting information required for all relevant approvals. The structure of the IAR is outlined in Table 1-1.

Table 1-1: IAR Structure

SECTION NUMBER	SECTION TITLE		CONTENT
	Executive summary		Overview of Project, important and preferred aspects and environmental management options.
	Glossary and Abbreviations		Definition of terms used in IAR.
01	Introduction		Describes the purpose of the IAR, proponent details, the IAR process, approvals requiring public notification and how the IAR informs the issue of required leases/licences /permits/consents.
02	Project Description		Describes the Project site and elements.
03	Regulatory Approvals and Planning		Overview of approvals and planning requirements.
03.1	Evaluation of controlled action under EPBC Act		Discussion of relevance of approval and cross reference table to supporting information.
03.2	Environmental Authority for Environmentally Relevant Activity 16 2(a)		Discussion of relevance of approval and cross reference table to supporting information.
03.3	Clearing permit – protected plants		Discussion of relevance of approval and cross reference table to supporting information.
03.4	Species management program for tampering with animal breeding places		Discussion of relevance of approval and cross reference table to supporting information.
03.5	Development permit – operational works for constructing or raising waterway barrier works		Discussion of relevance of approval and cross reference table to supporting information.
03.6	Development permit – operational works for clearing native vegetation		Discussion of relevance of approval and cross reference table to supporting information.

SECTION NUMBER	SECTION TITLE		CONTENT
03.7	Development permit – material change of use for concrete batching plant		Discussion of relevance of approval and cross reference table to supporting information.
03.8	Temporary road closure and permit to occupy		Discussion of relevance of approval and cross reference table to supporting information.
03.9	Riverine protection permit – interfering with the bed and banks of a watercourse		Discussion of relevance of approval and cross reference table to supporting information.
04	Hazard and Risk		Describes the potential hazards and risks to people and property.
05	Matters of National Environmental Significance		Describes the potential impacts to and mitigation measures for Matters of National Environmental significance.
06	Water Resources		Describes the potential impacts to and mitigation measures for hydrology.
07	Aquatic Ecology		Describes the potential impacts to and mitigation measures for aquatic ecology.
08	Terrestrial Ecology		Describes the potential impacts to and mitigation measures for terrestrial ecology.
09	Traffic and Transport		Describes the potential impacts to and mitigation measures for traffic.
10	Air Quality		Describes the potential impacts to and mitigation measures for air quality.
11	Nosie and Vibration		Describes the potential impacts to and mitigation measures for noise and vibration.
12	Social		Describes the potential impacts to and mitigation measures for social and economic issues.
13	Cultural Heritage		Describes the potential impacts to and mitigation measures for cultural heritage issues.
14	References		References cited throughout IAR.
Appendix A	Hydrology Graphs and Flooding Maps		Hydrology graphs and flooding maps referenced in Chapter 06.
Appendix B	Environmental Management Plan		Impact and mitigation measures for managing the project.
Appendix C	Lake Lowering Plan		Draft management plan outlining the impacts and mitigation measures for lowering Lake Macdonald
Appendix D	Concept Design Plans		Concept design of the labyrinth dam construction

SECTION NUMBER	SECTION TITLE		CONTENT
Appendix E	Species Management Plans		Species Management Plan for Species Listed Under the *Environment Protection and Biodiversity Conservation Act 1999* Species Management Plan for Species Listed Under the N*ature Conservation Act 1992*
Appendix F	Groundwater Study		Technical study of the groundwater values of Lake Macdonald
Appendix G	Aquatic Ecology report		Technical study of the aquatic values of Lake Macdonald and Six Mile Creek
Appendix H	Acid Sulphate Soil survey report		Technical study of soils at Lake Macdonald
Appendix I	Terrestrial Ecology survey report		Technical study of the terrestrial values of Lake Macdonald, Six Mile Creek and surrounds
Appendix J	Air Quality Impact Assessment report		Technical study of the impact of the project on the air quality values of Lake Macdonald and surrounds
Appendix K	Noise and Vibration Impact Assessment report		Technical study of the impact of the project on the noise and vibration values of Lake Macdonald and surrounds
Appendix L	Cultural Heritage (Aboriginal and Historical)		Technical study of the impact of the project on the cultural heritage values of Lake Macdonald and surrounds
Appendix M	Statutory Approval Applications		Supporting information for statutory approval applications
Appendix N	Stakeholder Engagement report		Report outlining the stakeholder engagement activities completed during the development of the IAR
Appendix O	Fish Passage assessment		Assessment of the impact of the project on fish passage