

2 The environmental assessment process

2.1 Overview

The preferred project is located in both NSW and the ACT, and impacts on Commonwealth owned land (refer to in Figure 2.1). As such, different approval processes apply to the parts of the preferred project located in the different jurisdictions.

NSW legislative requirements apply to the construction and operation of:

- Approximately 9.2 km of 1000 mm nominal diameter underground pipeline;
- The outlet structure discharging water into Burra Creek; and
- The mini-hydro power facility.

ACT legislative requirements apply to the construction and operation of:

- The intake/low lift pump station;
- The high lift pump station;
- Approximately 2.8 km of nominal diameter underground pipeline;
- A biodiversity conservation area (approximately 60 ha in area); and
- The power supply infrastructure.

In addition to these State and Territory requirements, there are Commonwealth legislative requirements that apply to the preferred project:

- Indirect impacts on Commonwealth land from run-off river flows along Burra Creek; and
- Potential impacts of the whole preferred project on matters of National Environmental Significance.

This section outlines the relevant legislation applying in each jurisdiction, with a focus on the principal planning approval requirements, and defines the environmental assessment process. It also provides an outline of the methodology undertaken in the preparation of this assessment.

2.2 NSW statutory framework and approval process

2.2.1 Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* forms the statutory framework for planning approval and environmental assessment in NSW. Implementation of the NSW *Environmental Planning and Assessment Act 1979* is the responsibility of the Minister for Planning, statutory authorities and local councils.

The NSW *Environmental Planning and Assessment Act 1979* contains three schemes that impose requirements for planning approval:

- Part 3A provides for control of 'major projects' that require approval from the Minister for Planning;
- Part 4 provides for control of 'local development' that requires development consent from the local council; and
- Part 5 provides for control of 'activities' that do not require approval or development consent under Part 3A or Part 4.

The need or otherwise for development consent is set out in environmental planning instruments – State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs) or Local Environmental Plans (LEPs).

Permissibility of the preferred project

In NSW, the preferred project is located in the Palerang and Cooma Monaro local government areas. The *Yarrowlumla Local Environmental Plan 2002* applies to the area of the local government area in which the preferred project is located, and the preferred project is located within the following zones:

- Zone No 1(a) – General Rural Zone;
- Zone No 1(d) – Rural Residential Zone;
- Zone No 5(a) – Water Catchment Zone; and
- Zone No 6(a) – Recreation Zone.

The zoning is shown in Figure 2.1.

Clause 11 of *Yarrowlumla Local Environmental Plan 2002* specifies what development is allowed or prohibited in each zone.

The preferred project is considered to meet the definition of a ‘public utility undertaking’ as provided in the dictionary to *Yarrowlumla Local Environmental Plan 2002*:

‘public utility undertaking means a building, work or undertaking carried out under the authority of any Government agency or other public authority (including the Council), or in pursuance of any Commonwealth or State Act for the purpose of:

(a) railways or roads, or

(b) railway, road, water or air transport, or wharf or river undertakings, or

(c) the provision of sewerage or drainage services, or

(d) the supply of water, hydraulic power, electricity or gas, or

(e) telecommunications facilities.’

The preferred project is considered to meet this definition as it is being undertaken for the supply of water in pursuance of the Commonwealth *Canberra Water Supply (Googong Dam) Act 1974*.

According to clause 11 of *Yarrowlumla Local Environmental Plan 2002*, public utility undertakings are permissible with development consent in each of the zones in which the preferred project will be located.

Application of Part 3A of the NSW Environmental Planning and Assessment Act 1979

Part 3A of the *NSW Environmental Planning and Assessment Act 1979* establishes an assessment and approval regime for development that is declared to be a Part 3A project by either a State Environmental Planning Policy or Ministerial Order (section 75B).

According to section 75D(1) the Minister for Planning is responsible for approving Part 3A projects.

The proponent is seeking preferred project approval from the Minister for Planning for the preferred project under Part 3A of the *NSW Environmental Planning and Assessment Act 1979*. Part 3A applies because the preferred project meets the definitions of a Part 3A project included within Schedule 1 of the *State Environmental Planning Policy (Major Projects) 2005* (the Major Projects SEPP).

The following Part 3A project definition is included in Schedule 1, clause 26A of the Major Projects SEPP:

‘26A Pipelines

Development for the purposes of a pipeline in respect of which:

(a) a licence is required under the Pipelines Act 1967, or

(b) an application for a licence is made under that Act on or after the commencement of this clause, or

(c) a licence was granted under that Act before the commencement of this clause.’

The preferred project meets this definition as the proponent made an application for a licence under the NSW *Pipelines Act 1967* on 5 February 2009.

Section 75B(3) of the NSW *Environmental Planning and Assessment Act 1979* states:

'If part of any development is a project to which this Part applies, the other parts of the development are (subject to subsection (4)) taken to be a project to which this Part applies.'

This means that Part 3A applies to all those aspects of the preferred project located in NSW.

The application of Part 3A was confirmed by a Minister's clause 6 opinion provided by the Director General of the NSW Department of Planning. The preferred project has also been declared as 'critical infrastructure' under section 75C(1) of the NSW *Environmental Planning and Assessment Act 1979*, as it essential to the State for economic and social reasons, particularly in providing a secure water supply for the people of ACT and surrounding region.

The application of Part 3A and the critical infrastructure status were confirmed by the Director General of the NSW Department of Planning on 14 August 2008 and 10 July 2009, respectively. Copies of the declarations are provided in Appendix A.

2.2.2 Approval process and requirements

The approval process is summarised below and illustrated in Figure 2.2.

Agency consultation and the planning focus meeting

For some projects, the NSW Department of Planning convenes a planning focus meeting with relevant government authorities. The meeting provides a forum for participants to obtain information on the project, and discuss key issues and potential environmental impacts. Following the meeting, the Department seeks written comments from agencies on issues that should be addressed in the environmental assessment.

A planning focus meeting was held for the preferred project on 4 September 2008. The meeting was attended by the proponent and the following organisations:

- NSW Department of Planning;
- Commonwealth Department of the Environment, Water, Heritage and the Arts;
- NSW Department of Environment and Climate Change;
- NSW Department of Water and Energy;
- Queanbeyan City Council;
- Palerang Shire Council;
- ActewAGL.

Further details of the consultation process are outlined in Chapter 4.

Addressing the Director General's requirements

Under clause 75F of the NSW *Environmental Planning and Assessment Act 1979*, the Director-General is required to prepare and issue the proponent with requirements for undertaking the environmental assessment. These identify key issues to be addressed and the level of assessment required.

The proponent was notified of the requirements for the environmental assessment of the preferred project (the Director-General's Requirements) on 7 October 2008. A copy of the requirements is included in Appendix A, along with a summary of the assessment requirements which outline the section of this document that addresses these requirements.

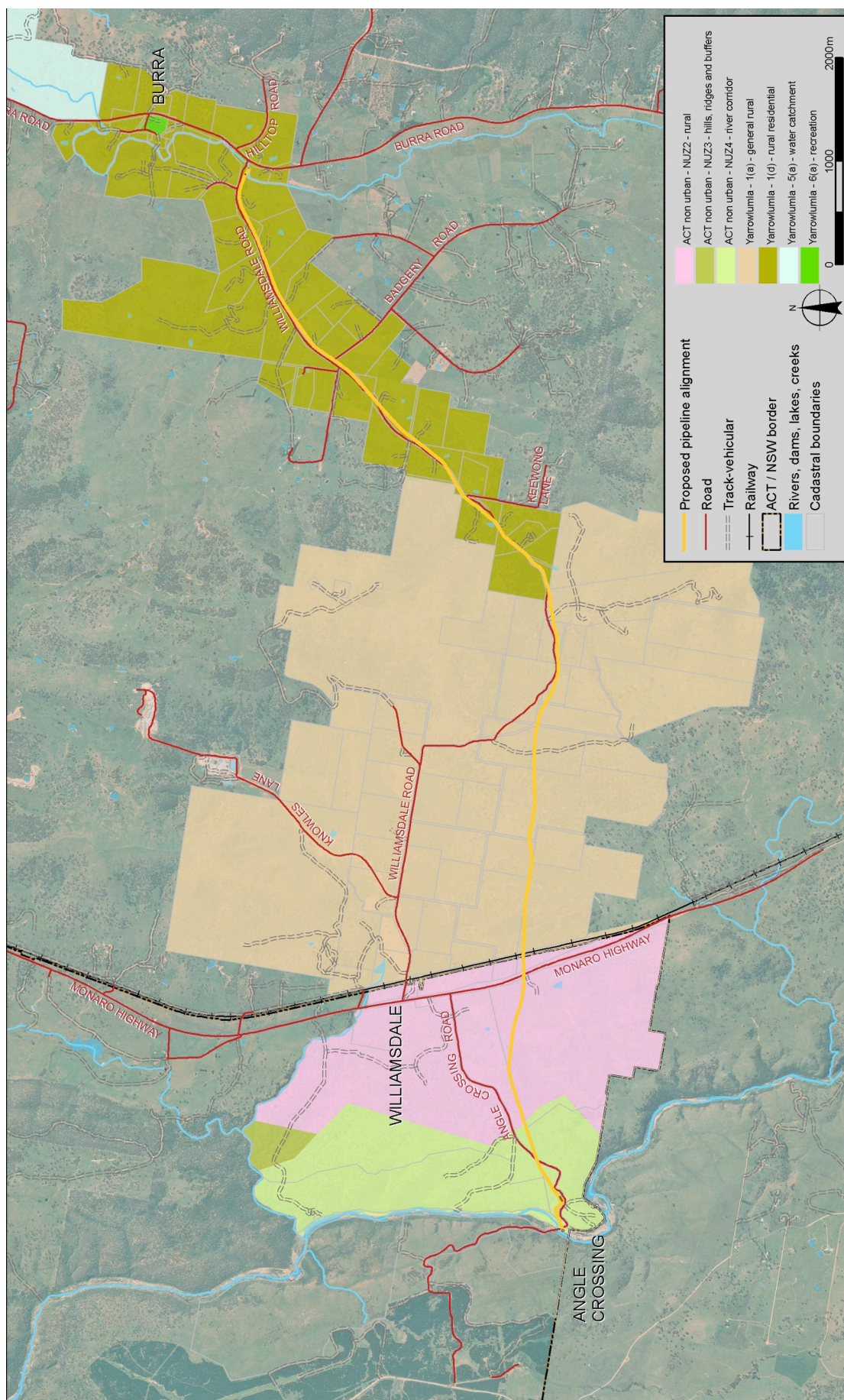


Figure 2.1 Zoning for the preferred project

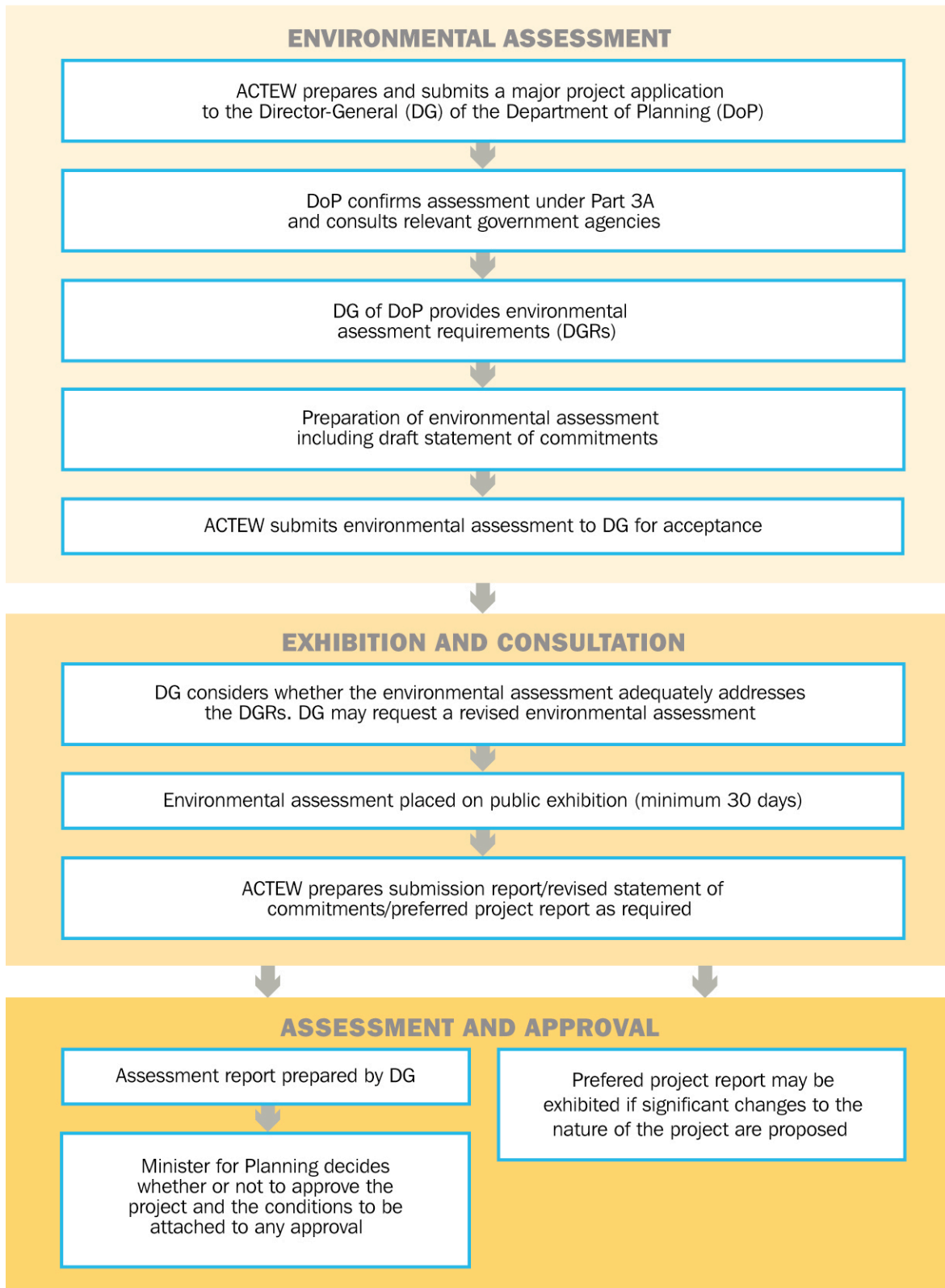


Figure 2.2 NSW approval process

Exhibition

If the environmental assessment is considered to meet the Director-General's requirements, the NSW Department of Planning will place it on public exhibition for at least 30 days. During the exhibition period, submissions are invited from relevant agencies and members of the community. The exhibition period for the preferred project was from 14 August 2009 to 18 September 2009 with NSW indicating it will accept late submissions until the 2 October 2009.

The NSW Department of Planning will provide the proponent with a copy of the submissions. The proponent is then required to respond to the issues and may modify the project and the draft Statement of Commitments to minimise impacts on the environment, if required.

If the preferred project or statement of commitments are modified in response to issues raised, a preferred project report will be prepared to describe the scope of the revised project (refer to Chapter 6). The Director-General will make this report public.

Assessment and determination

Following the exhibition period, the NSW Department of Planning would, on behalf of the Minister, review the environmental assessment, any preferred project report, and submissions received. Once the Department has completed its assessment, a draft assessment report will be prepared for the Director-General, which may include recommended conditions of approval.

The recommended conditions will refer to the Statement of Commitments and may modify them and/or add additional provisions.

The assessment report will then be submitted to the Minister for determination. The Minister may refuse the preferred project, or approve it with any conditions considered appropriate.

The Minister's determination and the Director-General's report will be published on the NSW Department of Planning's web site immediately following determination.

2.2.3 Other relevant environmental legislation

In addition to the NSW *Environmental Planning and Assessment Act 1979*, there are a number of relevant NSW environmental legislative requirements, as discussed below.

Relationship to the NSW Environmental Planning and Assessment Act 1979

Section 75U(1) of the NSW *Environmental Planning and Assessment Act 1979* identifies the approvals and licences under other NSW legislation that are not required for an 'approved project' under Part 3A:

- '(a) the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of the Act,*
- (b) a permit under section 201, 205 or 219 of the Fisheries Management Act 1994,*
- (c) an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977,*
- (d) a permit under section 87 or a consent under section 90 of the National Parks and Wildlife Act 1974,*
- (e) an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation or State protected land,*
- (f) a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948,*
- (g) a bush fire safety authority under section 100B of the Rural Fires Act 1997,*
- (h) a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.'*

Section 75U (2) of the Act also states that:

'Division 8 of Part 6 of the Heritage Act 1977 does not apply to prevent or interfere with the carrying out of an approved project.'

Section 75A defines 'approved project' as '*a project to the extent that it is approved by the Minister under this Part, but does not include a project for which only approval for a concept plan has been given*'. Consequently, if the Minister grants project approval to carry out the project under Part 3A, the approvals identified by section 75U(1) will not be required.

Section 75V of the NSW *Environmental Planning and Assessment Act 1979* stipulates approvals and legislation that must be applied consistently to the approval of a project under Part 3A:

'(1) An authorisation of the following kind cannot be refused if it is necessary for carrying out an approved project and is to be substantially consistent with the approval under this Part:

- (a) an aquaculture permit under section 144 of the Fisheries Management Act 1994,*
- (b) an approval under section 15 of the Mine Subsidence Compensation Act 1961,*
- (c) a mining lease under the Mining Act 1992,*
- (d) a production lease under the Petroleum (Onshore) Act 1991,*
- (e) an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act),*
- (f) a consent under section 138 of the Roads Act 1993,*
- (g) a licence under the Pipelines Act 1967.'*

Water Management Act 2000 and Water Act 1912

The NSW *Water Management Act 2000* and NSW *Water Act 1912* control the extraction of water, the use of water, the construction of works such as dams and weirs and the carrying out of activities in or near water sources in NSW. The provisions of the *Water Management Act 2000* are being progressively implemented to replace the *Water Act 1912*. Since 1 July 2004 the new licensing and approvals system has been in effect in those areas of NSW covered by operational water sharing plans – these areas cover most of the State's major regulated river systems and therefore the largest areas of water extraction. As water sharing plans are finalised and commenced for the rest of the state, the licensing provisions of the *Water Management Act* are introduced extending the benefits for the environment of defined environmental rules and for licence holders of perpetual water licences and greater opportunities for water trading.

The preferred project involves the discharge of raw water into Burra Creek within NSW. There is currently no water sharing plan for Burra Creek. As such, the *Water Management Act* will not apply to the preferred project and the provisions of the *Water Act 1912* would apply. These provisions are discussed below.

The purpose of the *Water Act 1912* primarily relates to the control of water extraction from streams, and the return of effluent (that is, potentially polluted water) to waterways. As the initial extraction of water will not occur within NSW and raw water, as opposed to effluent, will be discharged into Burra Creek, neither a licence nor permit will be required for the preferred project in accordance with the provisions of the *Water Act 1912*.

Furthermore, the NSW Department of Water and Energy has confirmed that there are currently no licensed water diverters on Burra Creek. Hence, there is no short term risk of licensed loss of water discharged to Burra Creek as part of the preferred project. If an occupier were to submit a licence application for water extraction and/or diversion in the future, the Department of Water and Energy would consider special arrangements for this lower section of Burra Creek.

The NSW Department of Water and Energy has indicated that water licences may be required under Part 5 of the *Water Act 1912* should groundwater be intercepted during construction in a volume that would necessitate dewatering. Due to the imposition of the NSW Inland Water Shortage Orders No.1 and 2-2008, early consideration of this issue should be undertaken to avoid delays in obtaining any necessary approval.

As identified above, the preferred project is exempt from requiring authorisations under the *Water Management Act 2000* and *Water Act 1912* (except if a licence is required for dewatering during

construction). Nonetheless, the objectives of these Acts are considered relevant to the preferred project and have been duly taken into consideration. Furthermore, the Department of Water and Energy has been consulted about the preferred project and was represented at the planning focus meeting for the preferred project held on 4 September 2008. The issues raised by the Department of Water and Energy at the planning focus meeting are addressed by this environmental assessment.

Protection of the Environment Operations Act 1997

The NSW *Protection of the Environment Operations Act 1997* regulates water, air, and noise pollution in NSW. The NSW Minister for the Environment administers the *Protection of the Environment Operations Act 1997*. Chapter 3 of the *Protection of the Environment Operations Act 1997* covers the issue of environment protection licences, with section 43 setting out the purposes for which licences can be issued. Environment protection licences are generally issued for scheduled activities or scheduled development work.

The preferred project involves the discharge of raw water into NSW waters. This does not constitute a scheduled activity in accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997*. Furthermore, the preferred project does not constitute 'scheduled development work', which is defined as:

'work at any premises at which scheduled activities are not carried on that is designed to enable scheduled activities to be carried on at the premises'

as well as anything that is specified by the regulations as such.

As the preferred project is neither a scheduled activity nor scheduled work as defined by the *Protection of the Environment Operations Act 1997*, it is considered that no licence will be required for the preferred project under the *Protection of the Environment Operations Act 1997*.

Pipelines Act 1967

Section 11 of the NSW *Pipelines Act 1967* outlines the licensing requirements for pipelines as follows:

'(1) A person shall not:

(a) commence, or continue, the construction of a pipeline, or

(b) alter or reconstruct a pipeline,

....unless the person is, or is acting on behalf of, the registered holder of a licence and the activity is in pursuance of the licence.

(2) A person shall not operate a pipeline:

(a) unless the person is, or is acting on behalf of, the registered holder of a licence and the operation is in pursuance of the licence, and

(b) unless he or she has obtained the consent of the Minister under section 25 to the commencement or resumption, as the case may be, of the operations and commences or resumes the operations and thereafter operates the pipeline in accordance with the conditions, if any, to which the instrument of consent is for the time being subject.'

Section 5 of the NSW *Pipelines Act 1967* identifies those pipelines that do not require a licence under the *Pipelines Act 1967*. This includes 5(1)(d):

'a pipeline constructed or to be constructed for the purpose of the supply of water (including for irrigation), the drainage of land or the conveyance of waste water, mine water, aqueous slurries of minerals, mineral concentrates or mineral tailings.'

As the preferred project will be constructed for the purpose of supplying water, a licence will not be required for the pipeline under the NSW *Pipelines Act 1967*.

However, section 5(1) goes on to state that:

‘...nothing in this section prevents a person from making any application under this Act in respect of any such pipeline or apparatus or works or from being granted and holding a licence in respect of the construction or operation of such a pipeline.’

Section 12 states that:

‘Any person who proposes to construct a pipeline may apply to the Minister for a licence.’

There is a need to acquire easements or land for the construction and ongoing operations and maintenance of the preferred project.

In order to facilitate this process, an application was made to the NSW Department of Water and Energy for a pipeline licence for the preferred project on 5 February 2009. If the preferred project is approved by the Minister for Planning under Part 3A, then the pipeline licence cannot be refused.

Roads Act 1993

Section 138 of the NSW *Roads Act 1993* states:

‘(1) A person must not:

- (a) erect a structure or carry out a work in, on or over a public road, or*
- (b) dig up or disturb the surface of a public road, or*
- (c) remove or interfere with a structure, work or tree on a public road, or*
- (d) pump water into a public road from any land adjoining the road, or*
- (e) connect a road (whether public or private) to a classified road,*

otherwise than with the consent of the appropriate roads authority.’

Sections of the preferred project will be constructed within a number of public road reserves in NSW.

Section 138(5) of the *Roads Act 1993* states that section 138 applies:

‘despite the provisions of any other Act or law to the contrary, but does not apply to anything done under the provisions of the Pipelines Act 1967...’

As such, consent under section 138 of the *Roads Act 1993* would not be required for the preferred project provided a pipeline licence is granted.

2.3 ACT statutory framework and approval process

There are two Acts that contain the core legislation relating to planning and development activities that are undertaken in the ACT. These are the Commonwealth *Australian Capital Territory (Planning and Land Management) Act 1988* and the ACT *Planning and Development Act 2007*.

The *Australian Capital Territory (Planning and Land Management) Act 1988* is Commonwealth legislation that establishes the National Capital Authority as the Commonwealth government agency with responsibility to prepare and administer a National Capital Plan. This plan sets out designated areas within the ACT, within which the National Capital Authority is responsible for approval of any development. The *Australian Capital Territory (Planning and Land Management) Act 1988* is discussed in section 2.4.

The ACT *Planning and Development Act 2007* is ACT legislation that applies to development proposals within the remainder of the ACT that is not within the *Australian Capital Territory (Planning and Land Management) Act 1988* designated areas. This Act and other relevant ACT legislation is discussed below.

2.3.1 Planning and Development Act 2007

The ACT *Planning and Development Act 2007* came into effect on 31 March 2008 and reformed the planning system within the ACT. The reforms to the planning system included:

- A restructured Territory Plan;
- An updated development assessment process; and
- Replacement of preliminary assessments with an EIS process.

In accordance with the ACT *Planning and Development Act 2007*, the ACT Planning and Land Authority (ACTPLA) administers the Territory Plan. This is the primary statutory planning document against which development proposals are assessed.

The Territory Plan identifies land zoning in all areas of the territory. The nature of the approval process depends on the nature of the preferred project and the zoning of the land that the preferred project will affect.

Development applications, as required under the ACT *Planning and Development Act 2007*, are assessed in one of three tracks of increasing complexity reflecting the nature of the proposal. The three tracks are code, merit and impact.

The Territory Plan

The Territory Plan is the key statutory planning document in the ACT, providing the policy framework for the administration of planning in the ACT. The Territory Plan includes a map (the Territory Plan Map) which sets out zones and precincts in the ACT, and development tables applying to each zone which identify the assessment track applicable to particular types of development within the zone.

Under the definitions of the Territory Plan, the preferred project will be classified as a 'major utility installation', as the preferred project meets the definitions of a 'major pump station' and 'major service conduits'. A major pump station includes any water supply pump station with a capacity of greater than 500 litres per second. A major service conduit includes bulk water supply mains with a diameter of 675 mm or greater.

The preferred project is located on lands within the River Corridor Zone (NUZ4) and the Rural Zone (NUZ2), as identified by the Territory Plan Map. The development tables for both zones identify that the merit assessment track applies to development for the purposes of a major utility installation in these zones.

Impact track assessment

Notwithstanding that the Territory Plan identifies that the merit assessment track applies, any proposed development may be escalated to the impact assessment track for reasons outlined in the *Planning and Development Act 2007* and Territory Plan. The impact track applies to proposals that:

- Are listed in a development table in the Territory Plan as requiring impact assessment;
- Would trigger an EIS (Schedule 4 of the ACT *Planning and Development Act 2007*);
- Are not foreseen in the development table;
- Are declared by the Planning Minister or the Minister for Public Health to be subject to impact track assessment; or
- Are declared by the Commonwealth Minister responsible for the *Environmental Protection and Biodiversity Conservation Act 1999* to be controlled actions under that Act but that may be assessed under the ACT *Planning and Development Act 2007*.

Schedule 4 of the ACT *Planning and Development Act 2007* identifies activities and processes that require an EIS. It includes a number of likely 'triggers' associated with the preferred project including:

- '1 A proposal that is likely to adversely impact on the conservation status of—
- (a) a species or ecological community that is endangered; or
 - (b) a species that is vulnerable; or

(c) a species that is protected; or

(d) a species with special protection status; or

(e) a species or ecological community if the flora and fauna committee has specified criteria for assessing whether the committee should recommend the making of a declaration under the Nature Conservation Act 1980, section 38 (Declaration of species, community or process) in relation to the species or ecological community; or

Note Criteria are specified under the Nature Conservation Act 1980, s 35. An instrument under that Act, s 35 is a disallowable instrument and must be notified, and presented to the Legislative Assembly, under the Legislation Act.

(f) an endangered species, an endangered population, an endangered ecological community, a critically endangered species, a critically endangered ecological community or presumed extinct under the Threatened Species Conservation Act 1995 (NSW), if the potential impact of the proposal will be on the species or community in New South Wales

2 *proposal that is likely to contribute to a threatening process in relation to a species or an ecological community*

3 *proposal involving—*

(a) the clearing of more than 0.5ha of native vegetation; or

(b) the clearing of native vegetation if the clearing could have a significant impact on land identified in a nature conservation strategy, or action plan, under the Nature Conservation Act 1980 or a biodiversity corridor...

4 *proposal with the potential to have a significant impact on—*

(a) a domestic water supply catchment; or

(b) a water use purpose mentioned in the territory plan (water use and catchment general code); or

(c) a prescribed environmental value mentioned in the territory plan, (water use catchment general code) of a natural waterway or aquifer

5 *proposal that is likely to result in environmentally significant water extraction or consumption, other than a proposal for the use of a stormwater system or other wastewater reuse scheme that is part of a residential subdivision and is a water sensitive urban design.'*

It is considered that the preferred project would trigger items 3, 5 and 6, and has the potential to impact on significant species (as per items 1 and 2). As a result, it would fall within the impact assessment track.

All projects assessed under the impact track require an EIS (ACT *Planning and Development Act 2007* section 127), unless specifically exempted by the Minister. The proponent has not sought and the Minister has not granted exemption for this project.

2.3.2 Approval process and requirements

The process for the preparation of an EIS (as described in the Act and Regulation) is described below:

- The proponent lodges a description of the proposal and requests an EIS scoping document from the planning authority (the Act, s. 212);
- ACTPLA prepares scoping documentation and circulates the documentation to those entities defined in section 51 of the Regulation;
- In this circulation, ACTPLA seeks input from agencies and stakeholders, and identifies potentially significant environmental impacts that must be addressed in the EIS;

- ACTPLA issues an EIS Scoping Document which forms the basis of the EIS to be prepared. It specifies all the matters to be addressed in the EIS (s.54 of the Regulation). The purpose of scoping is to ensure that the EIS is focused on those matters with the potential to cause a significant environmental impact;
- The proponent prepares a draft EIS to address the requirements outlined in the scoping document and lodges it with ACTPLA;
- The draft EIS is put on public display by ACTPLA with agencies, stakeholders and the wider community given the opportunity to comment on the preferred project, the possible impacts and the proposed environmental controls;
- The proponent prepares a final EIS and a consultation report that responds to all of the issues raised during public display; and
- The EIS is considered by ACTPLA and the Minister. There are opportunities for the authority to seek responses to outstanding matters, or for the Minister to call for an inquiry.

The EIS is completed when any of the following events occur:

- The Minister gives ACTPLA a notice of no action in relation to the EIS;
- The Minister decides not to establish a panel to conduct an inquiry about the EIS;
- The Minister has established an inquiry panel for the EIS and the panel has reported the results of the inquiry; or
- The time for reporting (section 230) has ended.

Once the EIS is deemed complete, the proponent may lodge a Development Application for the preferred project with the completed EIS as supporting documentation.

The development application will be placed on public display by ACTPLA (notified) for a minimum period of 15 days giving the community the opportunity to comment on the final EIS incorporating outcomes and responses to previous community consultation. The time for deciding a Development Application in the Impact Track is 30 working days (after the day that the application is made) if no representations are made, or 45 working days in any other case.

The Development Application will then be assessed, having regard to the following statutory requirements:

- The relevant Code of the Territory Plan;
- Suitability of the land for the development;
- All representations;
- Referral entity advice;
- A plan of management for any public land;
- Probable impact of the development, including environmental impact;
- Completed EIS for the proposal; and
- Conclusions of any inquiry about an EIS for the proposal.

The approval of the Development Application provides the proponent with the planning consent to construct the proposed works. The Notice of Decision of an approval may include any conditions that ACTPLA consider important to be fulfilled in acting on the decision. Conditions often relate to matters to be finalised immediately (within a set timeframe e.g. 28 days), prior to construction commencing and/or prior to construction being completed.

The Minister may 'call in' the Development Application at any time, in which case the Minister makes the determination on the application.

This process is depicted in Figure 2.3.

The proponent was notified of the requirements for the EIS for the preferred project (the Scoping Document) on 16 December 2008. A copy of the Scoping Document is included in Appendix A, along with a summary of the assessment requirements which outlines the section of this document that addresses those requirements.

2.3.3 Other relevant environmental legislation

In addition to the ACT *Planning and Development Act 2007*, there are a number of relevant ACT environmental legislative requirements, as discussed below.

Water Resources Act 2007

The ACT *Water Resources Act 2007* has two relevant requirements. Firstly, the *Water Resources Act 2007* sets out the licensing requirements to take water in the ACT and secondly, require specific permission to be sought before undertaking works in a waterway.

The *Water Resources Act 2007* prescribes which activities must be licensed for water use and where a license to take water is required. The proponent already holds licences to take water for drinking water purposes in the ACT. Any amendment required to ACTEW's current licences will be subject to a separate process.

The *Water Resources Regulation 2007* provides that application may be made for exemption from a licence to take water for construction purposes. An exemption will be sought to use water from the Murrumbidgee River at Angle Crossing for construction purposes.

It is anticipated that the construction of the intake facility will require a waterway work licence under the *Water Resources Act 2007*.

This approval will be sought once the design is resolved. While there is no statutory timeframe for obtaining such an approval, the typical turnaround is relatively short and will be undertaken while the Development Application is being assessed.

Environment Protection Act 1997

The ACT *Environment Protection Act 1997* provides the regulatory framework to protect the environment from pollution and its effects in the ACT. The Act establishes the ACT Environment Protection Authority (EPA) as the statutory decision maker for environmental regulation and policy. The EPA administers legislation covering air and water quality, waste, contaminated land, noise control and hazardous chemicals.

Under the *Environment Protection Act 1997* there is a general environmental duty to take steps that are practicable and reasonable to prevent or minimise environmental harm or environmental nuisance. Causing pollution of water, significant erosion or loss of soil, contaminating soil and groundwater could be considered to cause environmental harm or environmental nuisance.

Under the *Environment Protection Act 1997*, an Environmental Authorisation is needed to undertake certain activities (Class A activities). An Environmental Protection Agreement or an Environmental Authorisation is needed to undertake other activities (Class B activities). The extraction of material (other than water) from a waterway is a Class A activity and therefore an Environmental Authorisation is required. The placement of more than 100 m³ of soil on land in the ACT is also a Class A activity and also require authorisation. The EPA may also require an Environmental Protection Agreement to be entered into for undertaking activities associated with the preferred project that are not Class A or Class B activities.

The necessary authorisation can be acquired in parallel with the development approval.

Building Act 2004

The ACT *Building Act 2004* applies to building work (including basic and specialist building work), site works and non-structural work. The *Building Act 2004* sets out requirements relating to building matters including building approvals, commencement, undertaking and completion of building work, building occupancy and building certification, building work administration (building work inspection), building codes and recognised standards and liability.

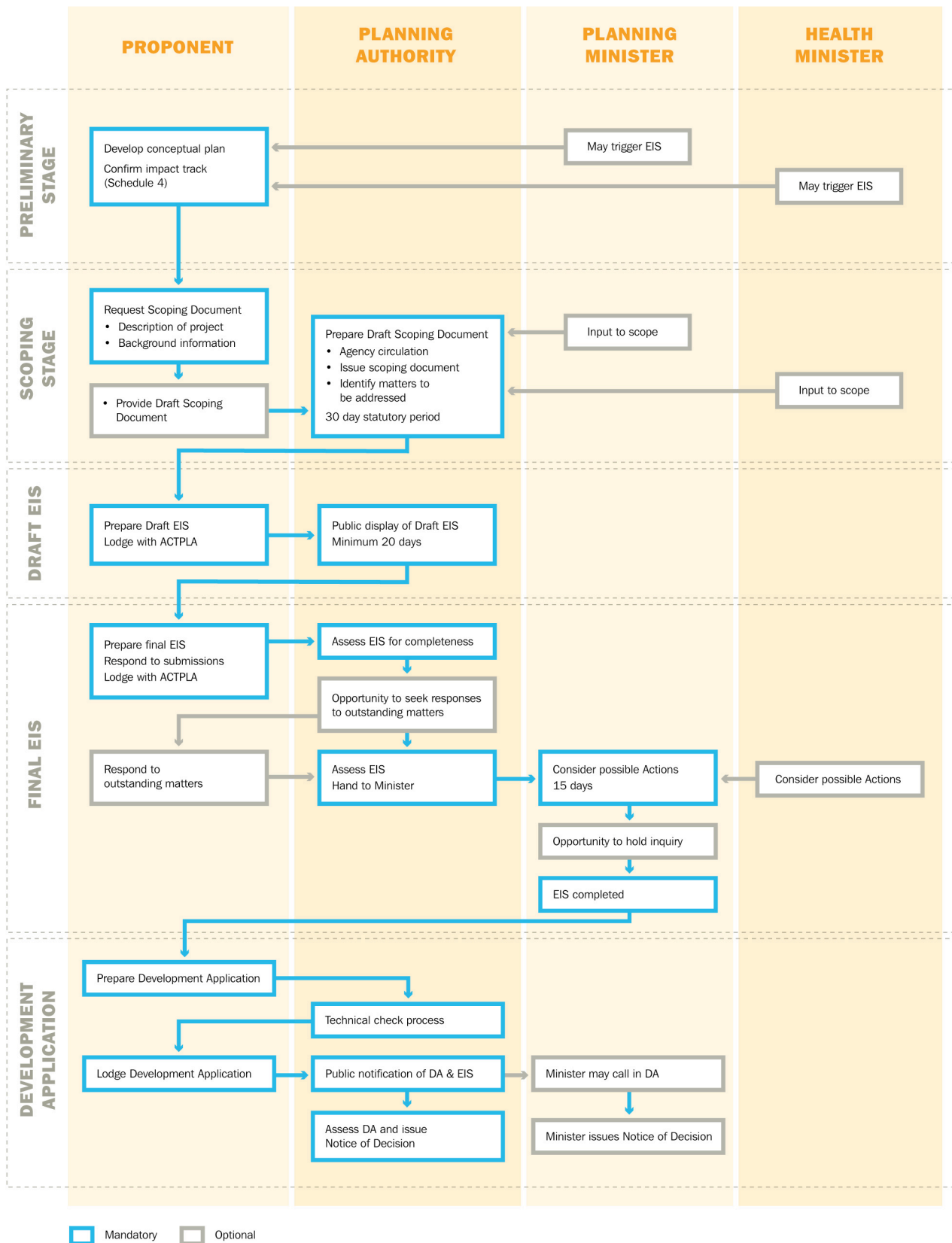


Figure 2.3 Flow chart for impact track approvals in the ACT

The High Level Pumping Station will require building approval under the *Building Act 2004*.

Heritage Act 2004

The ACT *Heritage Act 2004* protects heritage items, Aboriginal places and objects and makes it an offence to diminish or damage their significance without authorisation. A description of the heritage items in and around the preferred project area, their significance and the provisions of the *Heritage Act 2004* requirements associated with these artefacts and places are presented in Chapters 14 (Indigenous heritage) and 15 (Non-Indigenous heritage).

Nature Conservation Act 1980

The ACT *Nature Conservation Act 1980* provides for the protection of native flora and fauna. It also provides for the listing of species for protected status and the creation of reserve areas. A licence is required for any disturbance to flora and fauna that is protected by the *Nature Conservation Act 1980*, or for impacts on a nature reserve. The Angle Crossing area is a nature reserve under the *Nature Conservation Act 1980*, so a licence will be required for the impact on the reserve.

Utilities Act 2000

Section 3 of the ACT *Utilities Act 2000* outlines the objectives under this Act. These include:

- '(a) To encourage the provision of safe, reliable, efficient and high quality utility services at reasonable prices.*
- (d) To encourage long term investment, growth and employment in utility service industries.*
- (e) To promote ecologically sustainable development in the provision of utility services.*
- (h) To ensure the Government's programs about the provision of utility services are properly addressed.'*

The *Utilities Act 2000* states in section 11 that the collection of water is a water service and that the infrastructure associated the collection of water (from the Murrumbidgee River) is part of the water network.

Part 4 of the Act makes provision for the establishment of industry codes that may set out '*practices, standards and other matters about the provision of a utility service*'. Section 64 provides for the establishment of technical codes (requirements) for a number of purposes including, '*to ensure ... that a network facility (infrastructure) has particular design features, or meets performance requirements stated in a relevant industry code*', and also '*protecting private and public property and the environment*'.

The proponent is not aware of the existence of any adopted industry and/or technical codes that apply to these works within the ACT.

Given the requirement for a full impact track assessment under the ACT *Planning and Development Act 2007*, it is considered that the requirement for protection of the environment in the design, construction and operation of the proposed infrastructure under the *Utilities Act 2000* will be met once other planning and related approvals are met.

The *Utilities Act 2000* provides powers to the Territory to enter and carry out work on land that is necessary for the installation of territory network facilities. These powers include conducting surveys, taking soil and other samples or investigations, removal of vegetation, construction and operation of plant and machinery, earthworks, road construction and the like. These powers are subject to either the Executive having an interest in the land or the owner/custodian agreeing to the action.

It is important to note that notwithstanding the provisions of the *Utilities Act 2000*, all requirements of other legislation (including the Environment Protection Act and ACT *Planning and Development Act 2007*) apply.

The *Utilities Act 2000* (section 104) states that a utility may compulsorily acquire land (including an interest in land) for the purpose of exercising functions under the *Utilities Act 2000*. The acquisition must be in accordance with the *Land Acquisitions Act 1994*.

Fisheries Act 2000

The objects of the ACT *Fisheries Act 2000* are to conserve native fish species and their habitats; manage sustainably the fisheries of the ACT, provide high quality and viable recreational fishing; and to cooperate with other Australian jurisdictions in sustaining fisheries and protecting native fish species.

The *Fisheries Act 2000* emphasises protection of ACT native fish species through the introduction of recreational angling rules on size and bag limits, fishing gear restrictions, fishing closures and for several species, a closed season. The *Fisheries Act 2000* also makes ACT legislation consistent with the corresponding fisheries legislation in NSW, thus minimising potential confusion when anglers cross the State/Territory border.

Under section 13 of the *Fisheries Act 2000* Prohibited Waters are declared to protect vulnerable populations of fish or significant fish habitats. These declared areas include the Murrumbidgee River downstream of Angle Crossing to the junction with the Gudgenby River, and are specifically closed to fishing to protect threatened fish species such as Macquarie Perch and Trout Cod. The preferred project does not impact on the provisions included within this *Fisheries Act 2000*.

2.4 Commonwealth statutory framework and approval process

2.4.1 Australian Capital Territory (Planning and Land Management) Act 1988

The *Australian Capital Territory (Planning and Land Management) Act 1988* is Commonwealth legislation that establishes the National Capital Authority as the Commonwealth government agency with responsibility to prepare and administer a National Capital Plan.

National Capital Plan

The National Capital Plan sets out designated areas within the ACT within which the National Capital Authority is responsible for approval of any development. The designated areas include the central national area, the inner hills and the main avenues and approach routes. The only designated area within the pipeline corridor is the Monaro Highway Corridor, which will be intersected by the pipeline route. Approval for work within this area is therefore required from the National Capital Authority.

The National Capital Plan identifies land use categories and policies for all land within the Territory. These policies provide a framework for land use and development within which the territory operates. The relevant land use policies for the preferred project are the river corridors and rural policies. The river corridor policy is a subset of the National Capital Open Space System policy. The National Capital Plan specifically refers to the Murrumbidgee River Corridor at Appendix F. In its assessment of the EIS, ACTPLA will be required to confirm that the preferred project is consistent with the National Capital Plan and associated policies.

The National Capital Plan also identifies special requirements for some areas within the Territory, which are not designated areas. Where special requirements have been identified, development approval is the responsibility of ACTPLA. In these circumstances, ACTPLA must ensure that any approval granted is consistent with the special requirements of the National Capital Plan. Special requirements primarily relate to the visual impact of the works. Those applicable to the pipeline corridor include those that flank the Monaro Highway (outside the road reserve but within 200 m of the road centreline), and those for the Murrumbidgee River Corridor.

2.4.2 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas and species, populations and communities, and heritage items. The *Environment Protection and Biodiversity Conservation Act 1999* applies to all land, waters, seabed and airspace in, under or above Australia.

Approval under the *Environment Protection and Biodiversity Conservation Act 1999* is required for:

- An action which has, will have or is likely to have a significant impact on 'matters of national environmental significance';
- An action by the Commonwealth or a Commonwealth agency which has, will have or is likely to have a significant impact on the environment;
- An action on Commonwealth land which has, will have or is likely to have a significant impact on the environment; or
- An action, which has, will have, or is likely to have, a significant impact on the environment on Commonwealth land, no matter where it is to be carried out.

Where the proponent considers that an action will have or is likely to have a significant impact on matters of national environmental significance, or on Commonwealth land, a referral is made to the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA). The proponent may also, but is not required to, make a referral where they consider that the action will not have or is not likely to have a significant impact.

If it is determined through the referral process by DEWHA that a preferred project is likely to have a significant impact on a matter of national environmental significance, or on Commonwealth land, then the preferred project is a controlled action and approval from the Commonwealth Minister for the Environment, Heritage and the Arts will be required.

Matters of National Environmental Significance

Matters of national environmental significance include:

- The World Heritage values of a declared World Heritage property;
- The National Heritage values of a listed National Heritage place;
- The ecological character of a declared Ramsar wetland;
- Listed threatened species and ecological communities;
- Listed migratory species;
- The Commonwealth marine environment; and
- Nuclear actions.

Further information on the application of the *Environment Protection and Biodiversity Conservation Act 1999* is provided in section 26.3.

An assessment of the potential ecology issues undertaken by the aquatic and terrestrial ecological impact assessments has determined that, providing the mitigation measures contained in this environmental assessment are implemented, it is unlikely that the preferred project will have a significant impact on aquatic and terrestrial threatened species or ecological communities, or heritage matters of national environmental significance. Nevertheless, a referral was submitted to the DEWHA on 9 October 2009 for further consideration of the predicted impacts to high quality Box Gum Grassy Woodland Endangered Ecological Community, Pink-tailed Worm Lizard habitat, Trout Cod and Macquarie Perch habitat.

The proponent received advice from DEWHA on 20 November 2009 that the proposed action was considered a controlled action under section 75 and section 87 of the *Environment Protection and Biodiversity Conservation Act 1999*. The preferred project will be assessed by Public Environment Report. Guidelines were received from DEWHA in December 2009 outlining the format and issues to be addressed in the preparation of the Public Environment Report.

Commonwealth land – Googong Foreshores

As discussed previously, the preferred project will have indirect impacts on Commonwealth land, being Googong Foreshores, from run-of river flows along Burra Creek.

Under the terms of the sublease of the Googong Dam, the proponent is required to refer any proposed action, including any enlargement, expansion or intensification of a permitted use, which may have an impact on the environment, even where it is considered that there will not be a significant impact. Although there will be no direct impacts on Commonwealth land from permanent preferred project structures, or construction activity, the indirect impact to Commonwealth land will also be considered.

Further information on the application of the *Environment Protection and Biodiversity Conservation Act 1999* is provided in section 26.4.

2.4.3 Other relevant environmental legislation

Water Act 2007 (Commonwealth)

On 3 March 2008 the Commonwealth's *Water Act 2007* came into effect. This legislation was enacted to make provision for the management of water resources in the Murray-Darling Basin.

In this context it is important to address the *Water Act 2007*, even though its implications for the preferred project are indirect and relatively limited compared to other legislation described.

The relevant objects of the *Water Act 2007* with respect to the Murray-Darling Basin (paraphrased below) are:

- To enable the Commonwealth, in conjunction with the Basin States, to manage the Basin water resources in the national interest;
- To give effect to relevant international agreements which may address the threats to the Basin's water resources;
- To provide for matters of national interest in relation to water resources, while optimising environmental, economic and social outcomes;
- To ensure the return to environmentally sustainable levels of extraction for water resources that are over-allocated or overused;
- To protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin; and
- To maximise the net economic returns to the Australian community from the use and management of the Basin's water resources.

To ensure that these objects are implemented, the *Water Act 2007* and recent amendments have provided for the creation of an independent Murray-Darling Basin Authority with the functions and powers needed to ensure that Basin's water resources are managed in an integrated and sustainable way. In December 2008 the Authority replaced and absorbed all the functions of the former Murray-Darling Basin Commission.

For the Authority to carry out its functions, the *Water Act 2007* requires it to prepare a strategic plan for the integrated and sustainable management of water resources in the Basin. This plan is referred to as the *Basin Plan*, and the *Water Act 2007* stipulates that its contents must include:

- Limits on the amount of water that can be taken from the Basin;
- Management of surface and ground water resources on a sustainable basis;
- Identification of risks to basin water resources;
- An environmental watering plan to optimise environmental outcomes for the Basin; and
- A water quality and salinity management plan and rules about trading of water rights in relation to Basin water resources.

In March 2008 the Commonwealth and Basin States, including the ACT, agreed to a *Memorandum of Understanding* in order to implement co-operative, efficient and effective governance arrangements in the Murray-Darling Basin. Participants later signed an *Intergovernmental Agreement on Murray-Darling Basin Reform* to give effect to the *Memorandum of Understanding*. Under the *Intergovernmental Agreement*, governments committed to a new culture and practice of basin-wide management and planning, through new structures and partnerships.

Given that the preferred project will be operated under the water take allowance as per the agreed cap it is considered that the preferred project is unlikely to impact upon the objects of the *Water Act 2007* or Basin Plan, or contradict terms of the *Intergovernmental Agreement*. It can therefore be concluded that the implications of the *Water Act 2007* for the preferred project are relatively limited (compared to the other legislation described above).

Under the Murray Darling Basin Agreement, the ACT adheres to a Water Abstraction Cap of 42 GL/year net. The preferred project will not result in any exceedance of the current Cap.

Canberra Water Supply (Googong Dam) Act 1974

The pipeline corridor traverses Commonwealth owned land, comprising part of the Googong Foreshores. The Googong Foreshores is an area encompassing 5,089 ha, surrounding and including the Googong Dam and part of its tributaries to the south. The Googong Foreshores lie within NSW state boundaries, to the southeast of the ACT. The land represents that defined in the *Canberra Water Supply (Googong Dam) Act 1974* as the Googong Dam area. The Commonwealth acquired this land from NSW in 1973 for the purpose of constructing the Googong Dam.

The ACT Government has vested responsibility for the management of the Googong Foreshores area and ACTEW is responsible for the water resource it contains. Specifically, the '*operation, maintenance, upgrading and augmentation of water supply and treatment infrastructure within the Googong Dam area*'. The responsibility for dam operation is vested in ACTEW via a written instrument by the ACT Executive (dated 13 August 2003), which appoints ACTEW as an authorised person for the purposes of the *Canberra Water Supply (Googong Dam) Act 1974* (permitted under section 7 of the Act). Both the ACT Government and ACTEW conduct their respective responsibilities for management of the Googong Foreshores on behalf of the ACT Executive. There are no approval requirements for this preferred project under the *Canberra Water Supply (Googong Dam) Act 1974* since the intended outcomes are in line with the functions outlined in the Act.

As land acquired by the Commonwealth, the Googong Foreshores remain part of NSW (unlike a 'territory'). As such, NSW laws apply to this section of the pipeline corridor where they are capable of operating concurrently with the *Canberra Water Supply (Googong Dam) Act 1974* (as stated in section 27). In the event of contradiction of law, Commonwealth legislation takes precedence over any other.

This interpretation of this legislative framework is mirrored in *Cross Border Water Supply between the ACT and NSW* (Government of NSW, Government of Australian Capital Territory and Government of Australia, 2006), which states that the ACT has overall management responsibility for water supply and land management with the Googong Dam area, and the power to carry out works in NSW necessary for Territory water supply.

Development within the Googong Foreshores, where consistent with the Commonwealth's *Canberra Water Supply (Googong Dam) Act 1974*, is controlled mainly under the provisions of the NSW *Environmental Planning and Assessment Act 1979*, as discussed in section 2.2.1.

2.5 Summary of approvals required

Table 2.1 provides a summary of the environmental approvals required to enable the preferred project to be carried out.

Table 2.1 Summary of approvals required

Approval	Legislation	Authority
NSW		
Part 3A Major Project Approval	<i>Environmental Planning and Assessment Act 1979</i>	Minister for Planning
Pipeline Licence	<i>Pipelines Act 1967</i>	Department of Water and Energy
Construction Certificate	<i>Environmental Planning and Assessment Act 1979</i>	Principal Certifying Authority
ACT		
Development Approval	<i>Planning and Development Act 2007</i>	ACT Planning and Land Authority
Water access entitlement to extract water from Angle Crossing	<i>Water Resources Act 2007</i>	Environment Protection Authority
Amendment to licence to take water for drinking water purposes (if required)	<i>Water Resources Act 2007</i>	Environment Protection Authority
Application for exemption to take water for construction purposes	<i>Water Resources Regulation 2007</i>	Environment Protection Authority
Waterway work licence	<i>Water Resources Act 2007</i>	Environment Protection Authority
Environmental Authorisation	<i>Environment Protection Act 1997</i>	Environment Protection Authority
Building Approval	<i>Buildings Act 2004</i>	ACT Building Certifier
Licence to impact on a nature reserve	<i>Nature Conservation Act 1980</i>	Department of the Environment, Climate Change, Energy and Water
Commonwealth		
Works Approval	<i>Australian Capital Territory (Planning and Land Management) Act 1988</i>	National Capital Authority
Approval under the EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Department of Environment, Water, Heritage and the Arts

2.6 Methodology for this assessment

2.6.1 General

This environmental impact assessment has been prepared to address the NSW Director General's requirements and the ACT Scoping Document.

These documents have identified potential key issues or general issues requiring assessment and consideration in the environmental impact assessment. A number of specialist studies were undertaken to assist with this assessment of impacts. The methodologies for the individual specialist assessments are summarised at the beginning of each assessment Chapter in Part C.

Determining significance of impact

A description of existing conditions relevant to the surrounding environment was undertaken for each issue requiring assessment. This provided a baseline for the assessment.

An assessment of the level of change, as a result of the preferred project, was then undertaken. Consideration was given to short term impacts (which were generally related to construction) or long term impacts (which were generally related to the ongoing operation) associated with the preferred project. Where the uncontrolled impact is judged to be significant the proponent will adopt mitigating measures in order to reduce impact to moderate or minor levels. Even at lower levels of uncontrolled impact the proponent proposes to implement further controls for impact reduction. Consideration of relevant guidelines, standards and applicable legislation was then applied to determine the level of significance of the change.

Table 8.4 provides a summary of the potentially significant impacts and where these are addressed in the EIS. A quantification of the potential residual risk of the impacts based on the assessment and mitigation measures/commitments being implemented is discussed in section 27.2.

Some impacts are difficult to quantify, as the impact may depend on the quantities of transfer of water and how the ecosystem will react to this. There could be beneficial as well as negative impacts. An ongoing monitoring and an adaptive management approach be adopted for the preferred project. Adaptive management is a process whereby the results of environmental monitoring are continually assessed and modifications or additional safeguards adopted if necessary. Environmental monitoring and management is addressed further in Chapter 27.

2.6.2 Specialist studies

Previous studies

The proponent has investigated the options for securing the ACT and surrounding region's water supplies as part of the Future Water Options program completed in 2005 and the Water Security Program in 2007. This preferred project was included as part of these investigations.

These investigations resulted in the preparation of a wide range of technical and other reports that describe ACTEW's preferred supply options as well as the potential environmental impacts associated with each option. The total body of work includes a suite of more than 30 titles relating to the proposed water supply options for the ACT and region. Of particular interest when considering the preferred project are the following reports describing the preferred project as well as the likely environmental impacts that should be considered:

Future Water Options/Water Security Project

- Options for the next ACT Water Source, ACTEW Corporation, ActewAGL Water Division, 2004;
- Future Water Options for the ACT and Region Implementation Plan – recommended strategy to increase the ACT's water supply, ACTEW, 2005;
- Sustainable Framework and Assessment Plan, Institute for Sustainable Futures and CEE, 2005;
- Greenhouse Gas Emissions, Atech, 2005;
- Future Water Options Risk Assessment, URS, 2005;

- Economic Benefit – Cost Analysis of new water supply options for the ACT, Centre for International Economics, 2005;
- Future Water Options Review, Water Security Program, ACTEW Corporation, ActewAGL, 2007; and
- Water Security for the ACT and Region, Recommendations to ACT Government, ACTEW Corporation, 2007.

Murrumbidgee to Googong Water Transfer

- Future Water Options, Options for extraction of water from the Murrumbidgee River, A comparison of Angle Crossing and ECGBT, ACTEW Corporation, 2006;
- Angle Crossing Option, ACTEW Corporation, 2007; and
- Murrumbidgee to Googong Water Transfer preliminary design study - pipeline corridor selection report, ACTEW Corporation, 2008.

Previous environmental studies associated with the preferred project

- Terrestrial flora, fauna and vegetation study – A preliminary flora, fauna and vegetation assessment for new water source options for the ACT, Biosis Research Pty Ltd, 2005;
- Ecological Risk Assessment of ACT Water Source Options, CRC for Freshwater Ecology, 2004;
- Murrumbidgee to Googong Water Transfer Preliminary Design – Approvals Process and Risk Review (Planning and Environment), CBRE and Manidis Roberts, 2008;
- Draft Overview of Ecological constraints for the Murrumbidgee River to Googong Dam Raw Water Transfer – Preliminary Design Project, Biosis Research Pty Ltd, 2007;
- Murrumbidgee to Googong pipeline; Interim Aquatic Advice, Biosis Research Pty Ltd, 2008;
- Aquatic Ecology Assessment of Burra Creek NSW, Biosis Research Pty Ltd, 2007;
- Murrumbidgee to Googong Raw Water Transfer Preliminary Design Project – Desktop Cultural Heritage Assessment of Shortlisted Options, Navin Officer Heritage Consultants, 2008;
- Murrumbidgee to Googong Raw Water Transfer – Assessment of Alternate Route S3 (Part), Navin Officer Heritage Consultants, 2008;
- An evaluation of potential geomorphic and biophysical impacts on discharges to Burra Creek, Barry Star, 2005; and
- Stage 1 Social Impact Assessment, Tania Parkes Consulting and Ernst and Young, 2005.

Studies undertaken for this assessment

The following studies have been undertaken as part of preparation of this assessment. A summary of results has been provided throughout Part C. Full copies of the reports including associated addendums are provided in Volumes 2 and 3:

- Impact of the M2G on Flow in the Murrumbidgee River and Burra Creek, ActewAGL, 2009 (chapters 9 and 10);
- Fluvial Geomorphic Assessment, Bulk Water Alliance, 2009 (Chapters 9 and 10);
- Potential implications for the London Bridge natural arch and karst, Optimal Karst Management, 2009 (Chapter 10);
- Water Quality Data, ActewAGL, 2009 (Chapter 11);
- Aquatic Impact Assessment, Biosis Research Pty Ltd, 2009 (Chapter 12);
- Terrestrial Flora and Fauna Impact Assessment, Pty Ltd Research, 2009 (Chapter 13);
- Cultural Heritage Assessment, Navin Officer Heritage Consultants, 2009 (chapters 14 and 15);

- Soils, Contamination and Groundwater Assessment, Bulk Water Alliance, 2009 (Chapter 16);
- Landscape and Visual Impact Assessment Report, Bulk Water Alliance, 2009 (Chapter 18);
- Noise and Vibration Assessment, Bulk Water Alliance, 2009 (Chapter 20);
- Climate Change Risk Assessment, Bulk Water Alliance, 2009 (Chapter 21);
- Greenhouse Gas Assessment, Bulk Water Alliance, 2009 (Chapter 22);
- Social Impact Assessment, Bulk Water Alliance, 2009 (Chapter 23);
- Quantitative Risk Assessment for Drinking Water, Future Water Options, 2009 (Chapter 24); and
- Construction Traffic Impact Assessment, Bulk Water Alliance, 2009 (Chapter 25).

