

# 17 Conclusion

The environmental assessment (EA) must include a **conclusion justifying the Project** taking into consideration the environmental, social and economic impacts of the Project, the suitability of the site, and the public interest.

This chapter summarises the key findings of the environmental assessment (EA) for the Project in its entirety, and for Stage 1 of the Project.

Overall, the EA finds that the Project can be justified on a number of grounds. In particular:

- The site is suitable for development of the Project.
- The Project would have low environmental, social and economic impacts. This would be due to the environmentally sensitive design, construction and operational outcomes.
- The Project would provide a substantial net public benefit.

These conclusions are presented in more detail below.

## 17.1 Suitability of the site

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The location and boundaries of the Googong township have been determined after a comprehensive local environmental study that justified zoning of the site for urban development purposes. This process set aside substantial areas deemed to have environmental value, and restricted urban development to areas with low environmental value (these areas were extensively grazed over a long period). This process is described in Chapter 2 of this EA.

As a result, the overall Project, including Stage 1, would be on land already determined to have generally low environmental values. Under the new *Queanbeyan Local Environment Plan (Googong) 2009*, the development activities that make up the Project are permissible, as they would allow for the provision of essential services to the planned Googong township community.

Importantly, the entire Googong township area, and all Project elements, would be located outside the Googong Dam catchment. As such, the Project would not present any risks to the functioning of Googong Dam as a potable water supply.

The suitability of the site is discussed further in Section 17.2, with a focus on how the proponent would be able to mitigate any significant environmental or social impacts related to the Project either through design or with well understood environmental and risk management practices.

## 17.2 Summary of impacts of the Project

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### 17.2.1 Construction impacts

The primary impacts of the proposal during construction are associated with clearing and earthworks required to construct the water cycle infrastructure. However, potential impacts are not considered to be significant. This is because:

- Potential impacts on two threatened species – the Pink-tailed Legless Lizard and the Hoary Sunray (a plant) – have been avoided through the careful placement of infrastructure and through the implementation of appropriate management measures.
- The site has lost many environmental values due to extensive grazing, so other potential impacts would be minimal and able to be managed as part of the detailed design and construction process.
- Potential impacts on heritage items would be avoided during detailed design of infrastructure, or managed during the pre-construction phase in accordance with appropriate protocols and in consultation with relevant stakeholders already identified.
- Potential impacts on recreational users of Googong Foreshores would be minimal as works would be located outside any recreational areas of the Foreshores.
- Potential impacts on personnel who use Googong Dam Road for work purposes would be minimal as traffic management measures would be implemented along Googong Dam Road.

The Project proponent, CIC Australia, would implement a best practice construction environmental management plan (CEMP) and other management plans to ensure that construction impacts are minimised. Chapter 18 details the statement of commitments by the proponent. These commitments are anticipated to become conditions of consent for the overall Project and Stage 1 of the Project.

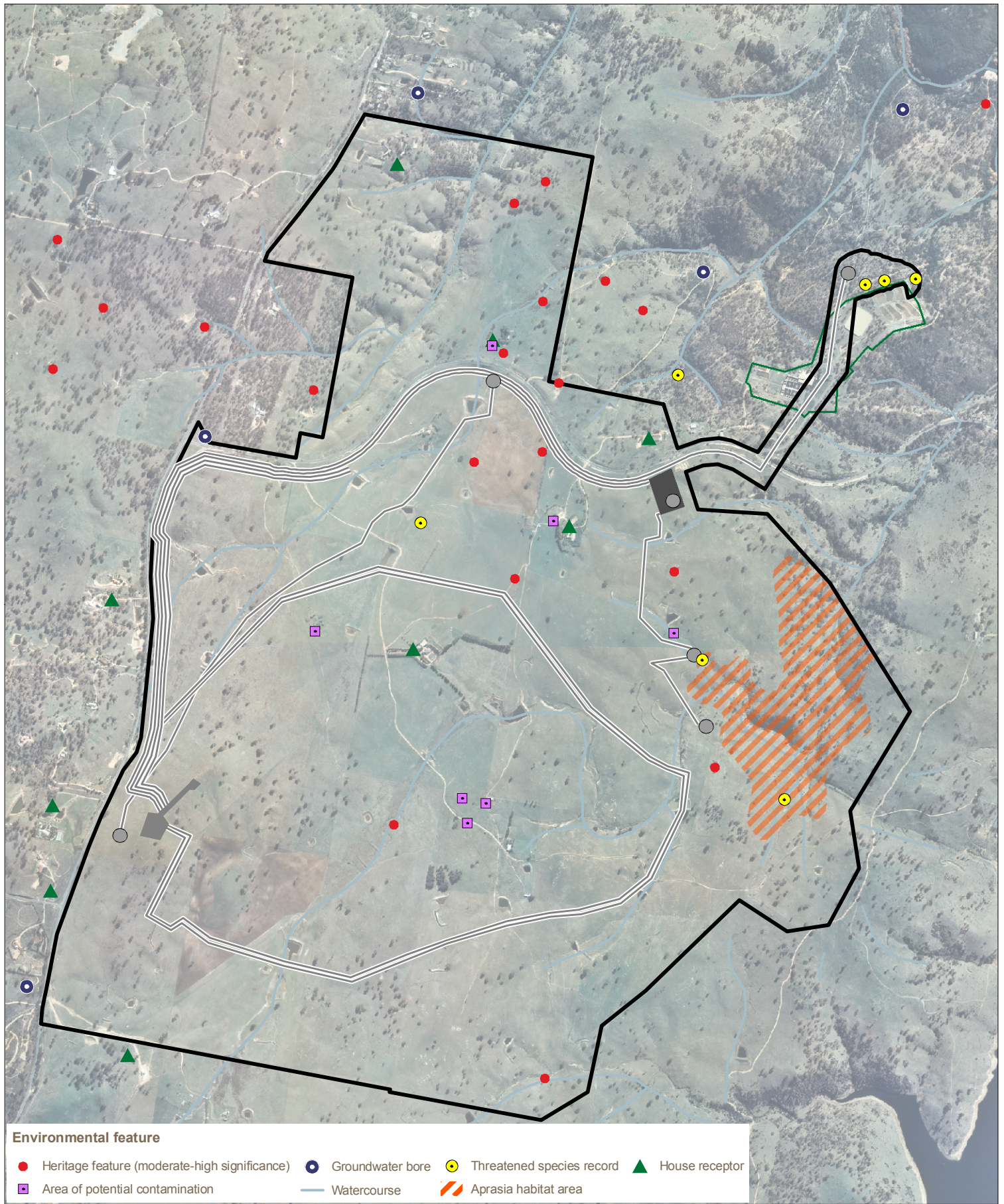
### 17.2.2 Operational impacts

Potential operational impacts identified in this EA include:

- Potential negative impacts on downstream water quality, flows and ecologies from discharge of excess recycled water.
- Risks associated with recycled water application throughout the Googong township, such as salinity impacts on soil and groundwater systems.
- Typical environmental and human health impacts associated with management of sewerage system headworks.
- Odour, noise, visual and other human amenity issues associated with operation of the system and placement of the built infrastructure, particularly the water recycling plant and reservoirs.

These impacts are familiar potential impacts for the operation of water and wastewater schemes. The Project, and Stage 1 of the Project, addresses these potential impacts through the early identification and inclusion of mitigation outcomes in the Project objectives. A summary of how the Project meets each of these objectives is provided in Section 17.3.

Figure 17.1 shows an overview of the various environmental aspects of the site and the surrounding area that have been identified throughout this report. It summarises how the infrastructure that is part of the Project avoids environmentally sensitive areas.



**Environmental feature**

- Heritage feature (moderate-high significance)
- Groundwater bore
- Threatened species record
- ▲ House receptor
- Area of potential contamination
- Watercourse
- ▨ Aprasia habitat area

**Googong Environmental Assessment**

**Proponent** CIC Australia

**Date** 4 November 2010

**Drawing no.** 08003g\_ea\_fig17-1

**Source** Brown Consulting, MWH

**Proposed infrastructure**

- Pumping station
- Mains pipework
- Reservoir area
- Water recycling plant

- Existing ACTEW Googong water treatment plant site
- Study area

Indicative only, subject to detailed design

1:20,000

0 150 300 450 600m



**Figure 17.1** Environmental constraints analysis

The potential operational impacts would be managed and mitigated by:

- Design specifications – These have been based on the fundamental need to mitigate environmental impacts and risks. Setting of early effluent quality standards to allow urban recycling and discharge to the local environment without negative impacts were fundamental in designing the water recycling plant. In addition, the final design of the discharge location and system (in combination with stormwater management system) present an innovative approach to managing environmental risks. Overall, the selection of an integrated water cycle management system, including a recycled water scheme, has been determined as the best option to deliver the essential services required in a way that conserves water and manages environmental impacts most proficiently.
- Sensitive siting of elements – The requirement for potable and recycled reservoirs would create some visual impacts due to the need to locate this infrastructure on elevated sites. These impacts would be alleviated to the maximum extent possible by locating the reservoirs in the lowest impact positions, and by landscaping.
- Operating practices – These would be designed to ensure continuance of necessary human health and environmental management plans. Operation would be regulated by the Department of Environment, Climate Change and Water (DECCW) and Queanbeyan City Council by way of operating licences and regular compliance reporting requirements.
- Monitoring and continual improvement processes, – CIC Australia proposes that a rigorous monitoring regime be put in place to track important potential environmental impacts from the Project. Elements to be monitored would include water quality (within Googong township and at the Queanbeyan River) soil and groundwater quality, and air quality across the site. Results of the monitoring would lead to a continual improvement practice guiding operating guidelines.

As a result of these measures, the total environmental and community impacts expected from the Project would be minimal and could be managed through the management plans committed to by the proponent in the statement of commitments (refer to Chapter 18).

### 17.3 The Project would mitigate environmental impacts and provide essential services

The Project would mitigate environmental impacts and provide essential services. These outcomes are reflected in the Project objectives (refer to Section 2.5). Table 17.1 shows how the Project objectives would be achieved.

**Table 17.1** How the Project objectives would be achieved

Project objective	How the objective would be achieved
<b>Concept plan for the Project</b>	
To provide an integrated water cycle system for the Googong township that reduces potable water consumption by at least 60 per cent, when compared with traditional developments.	The Project would provide an integrated water cycle system that reduces potable water consumption by more than 60 per cent (MWH 2009).
To treat all wastewater from the Googong township and produce high quality recycled water suitable for irrigation, household use and discharge to the environment.	The Project includes a sewerage system that would treat all wastewater within a water recycling plant. The high quality recycled water would be suitable for irrigation, household use and discharge to the environment.

Project objective	How the objective would be achieved
To ensure that construction and operation environmental and human health risks are adequately managed.	Construction and operation, environmental and human health risks would be adequately managed in accordance with the measures proposed in this EA and in management plans, including: <ul style="list-style-type: none"> <li>• A construction environmental management plan.</li> <li>• An operational environmental management plan.</li> <li>• A recycled water risk management plan (to ensure that human health risks are managed).</li> </ul>
To protect the Googong Dam and Foreshores area.	The Project would protect the Googong Dam and Foreshores area by: <ul style="list-style-type: none"> <li>• Avoiding any construction within the dam catchment.</li> <li>• Avoiding the use of recycled water within the dam catchment.</li> <li>• Avoiding any material groundwater impacts on the dam.</li> <li>• Managing potential environmental impacts during construction of water cycle elements within the Googong Foreshores area.</li> </ul>
To gain endorsement from relevant stakeholders.	In principle endorsement of the concept design for the Project has been received from: <ul style="list-style-type: none"> <li>• Queanbeyan City Council.</li> <li>• NSW government agencies.</li> <li>• ACT government agencies.</li> <li>• Commonwealth government agencies.</li> </ul>
To allow delivery and operation as an economically feasible system.	The concept design has undergone a value management and staging analysis that allows for feasible economic delivery.
<b>Stage 1 of the Project</b>	
To provide an integrated water cycle system for NH1A of the Googong township that reduces potable water consumption by at least 60 per cent.	Stage 1 of the Project would provide an integrated water cycle system for NH1A that reduces potable water consumption by at least 60 per cent – consistent with the Project concept.
To treat all wastewater from NH1A and produce high quality recycled water suitable for irrigation, household use and discharge to the environment.	Stage 1 of the Project includes a sewerage system that would treat all wastewater from NH1A within a staged water recycling plant. The high quality recycled water would be suitable for irrigation, household use and discharge to the environment.  A start-up phase is proposed in which the first influent flows would be transported by tanker for off-site treatment.
To provide specific avoidance, management and mitigation measures to reduce the potential environmental and human health impacts associated with Stage 1 of the Project.	Environmental and human health risks during construction and operation would be adequately managed in accordance with the measures proposed in this EA and in management plans, including: <ul style="list-style-type: none"> <li>• A construction environmental management plan.</li> <li>• An operational environmental management plan.</li> <li>• A recycled water risk management plan.</li> </ul> Each of these plans would be developed before construction begins.

Project objective	How the objective would be achieved
To implement monitoring to inform an adaptive management process to ensure that construction and operation environmental and human health risks are best managed as future stages of the Project are developed.	A detailed monitoring program for certain environmental parameters is proposed. This would commence prior to construction of Stage 1 of the Project.
To protect the Googong Dam and Foreshores area.	Stage 1 of the Project would protect the Googong Dam and Foreshores area by: <ul style="list-style-type: none"> <li>• Avoiding any construction or use of recycled water within the dam catchment.</li> <li>• Avoiding any groundwater impacts.</li> <li>• Managing potential environmental impacts during construction of Stage 1 water cycle elements within the Googong Foreshores area.</li> </ul>
To gain endorsement from relevant stakeholders.	In principle endorsement of the staging of the design for the Project has been received from relevant stakeholders.
To allow delivery and operation of the first stage of the Project in an economically feasible way.	Stage 1 of the Project has undergone a value management process and would be staged to ensure an economically feasible system that can be progressively developed as the population of the township grows.

## 17.4 Summary of public benefits of the Project

The Project would provide the Googong township with necessary water and wastewater services. However, the benefits of the Project extend beyond mere necessity, as it would provide these essential services in a manner that conserves potable water and re-uses water for the benefit of the community, thereby increasing the water security of the region. Key benefits of the Project are outlined below.

### 17.4.1 Project benefits

The Project would:

- Create a water cycle system that uses at least 60 per cent less potable water, compared with a traditional development. It is estimated that the township of about 16,000 people would use only as much water as that which traditionally is used by about 6,000 people. Further water saving initiatives are being investigated as the design stages progress, with a possible additional increase in water efficiency, achieving up to 68 per cent less potable water use.
- Treat all the wastewater produced by the Googong township to produce high quality recycled water. About 62 per cent of the recycled water would be re-used within the Googong township, to irrigate open spaces and recreational areas, and for landscaping. The remainder of the recycled water would be discharged to the environment through the stormwater management system.
- Boost the regional economy by directly creating around 300 jobs during construction and having a capital construction cost of over \$80 million.
- Increase the water security of the Sydney–Canberra corridor region through diversity of supply, and create a smaller burden on the existing water infrastructure than would normally be anticipated by traditional developments.

In addition, by providing essential water and sewerage infrastructure, the Project would facilitate the creation of a new township (Googong), which would:

- Meet the future population demands of the region by providing approximately 5,500 new houses and accommodating approximately 16,000 people. This is about 22 per cent of the additional population expected to live in the Sydney–Canberra corridor region by 2031 and about 55 per cent of the total new dwellings projected for greater Queanbeyan by 2031.
- Provide a direct \$1.6 billion boost to the regional economy, stimulating economic activity and employment.
- Create an average of 560 full-time construction jobs each year over 25 years. It is estimated that a further 2,370 jobs would be created once the township is complete.
- Provide recreational and community facilities for the region, such as schools, sporting fields, indoor recreation centres, libraries, community spaces and parks. The township would also include public transport, walking and cycling facilities.
- Demonstrate that a truly water-efficient, ecologically sustainable town can be developed, and serve as an Australian benchmark for future communities and developments.

#### 17.4.2 Regional strategies and State legislation

The Project would satisfy regional strategies and State legislative objects. In particular, it would:

- Satisfy important regional urban development strategies aimed at providing balanced and beneficial outcomes for the public (refer to Chapter 2). These include: *Sydney–Canberra Corridor Regional Strategy 2006–31*, *Queanbeyan Residential and Economic Strategy 2031*, and *Memoranda of Understanding on water supply and settlement between the Commonwealth, NSW and ACT governments*.
- Satisfy the objects of the EP&A Act designed to ensure that development activities meet the needs for a sustainable environment and are in the public interest. Table 17.2 summarises the Project outcomes against each object of the EP&A Act.

**Table 17.2** How the Project addresses the objects of the EP&A Act

Object	Comment
Encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	The Project encourages the conservation of natural resources through the water cycle system and water-sensitive urban design. The Project promotes social and economic welfare by promoting water savings. A range of management and mitigation measures are proposed to address potential environmental impacts.
Encourage the promotion and coordination of the orderly and economic use and development of land.	The Project is assisting with the orderly and economic use and development of the land through extensive planning of the water cycle system in relation to the layout of the Googong township. The benefits that would result from the Project have economic value.
The protection, provision and coordination of communication and utility services.	The Project has been designed to coordinate with communication and utility services.

Object	Comment
Encourage the provision of land for public purposes.	The Project assists in the establishment of public spaces, including the Googong Common through the implementation of the irrigation system.
Encourage the provision of coordinated community services and facilities.	The Project would establish a water cycle system that the Googong township community would rely on.
Protect and conserve native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The potential impacts of the Project on threatened species, populations, endangered ecological communities and their habitats are reviewed in Chapter 11.
Ecologically sustainable development.	The principle of ecologically sustainable development has driven the design of the Project.
Provide and maintain affordable housing.	While the Project would not involve the provision or maintenance of affordable housing, the provision of a recycled water system would improve the efficiency and affordability of water within individual households.
Share the responsibility for environmental planning between the different levels of government in the State.	The responsibility for environmental planning and approval in relation to the project rests with the NSW Government. Consultation has, however, occurred across all levels of government.
Provide increased opportunity for public involvement and participation in environmental planning and assessment.	The Project development process has involved extensive consultation with relevant parties. (The consultation process is outlined in Chapter 16.)

## 17.5 Clarification of approvals sought

The proponent, CIC Australia, is seeking the Minister's approval for the following:

- Concept approval for the Project – that is, the entirety of the water cycle infrastructure required for the Googong township.
- Project approval for Stage 1 of the Project – that is, the water cycle infrastructure required for the first subdivision areas of the Googong township development (known as Neighbourhood 1A).

Table 17.2 summarises the approvals sought for the different components of the Project.

**Table 17.3** Summary of approvals sought

Component	Concept approval	Figure reference	Project approval for Stage 1 of the Project	Figure reference
Water recycling plant.	Entire water recycling plant.	Fig. 5.1 Fig. 5.12	Stage 1 of the water recycling plant.	Fig. 5.3 Fig. 5.12
Bulk water pumping station.	Entire bulk water pumping station.	Fig. 5.1 Fig. 5.5	Stage 1 of the bulk water pumping station.	Fig. 5.3 Fig. 5.5
Potable and recycled water reservoirs.	Five reservoirs and associated infrastructure (three main reservoirs and two small high-level reservoirs).	Fig. 5.1 Fig. 5.9	Four interim reservoirs and associated infrastructure (two main reservoirs and two small elevated reservoirs).	Fig. 5.3 Fig. 5.8



Component	Concept approval	Figure reference	Project approval for Stage 1 of the Project	Figure reference
Sewage pumping stations.	Four sewage pumping stations.	Fig. 5.1	Sewage pumping stations 1 and 2.	Fig. 5.3
Sewage, potable and recycled water mains pipework.	<p>Mains pipework to service the entire Googong township:</p> <ul style="list-style-type: none"> <li>• Sewage, recycled water and potable water rising mains.</li> <li>• Distribution mains connecting the recycled water and potable water reservoirs to the township.</li> </ul>	Fig. 5.1	<p>Mains pipework required to service Neighbourhood 1A:</p> <ul style="list-style-type: none"> <li>• Sewage, recycled water and potable water rising mains.</li> <li>• Distribution mains connecting the interim recycled water and potable water reservoirs to the edge of NH1A.</li> </ul>	Fig. 5.3

The draft statement of commitments (refer to Chapter 18) relates to the concept (the Project) and Stage 1 of the Project. Additional or revised commitments for those components for which further assessment is proposed would be developed during that further assessment.

## 17.6 Conclusion

The Googong township forms part of the Sydney–Canberra corridor region and the greater Queanbeyan city area. The NSW Government has recently rezoned the land to enable the Googong township to be developed. The Googong township will be home to 22 per cent of the population expected to live in the Sydney–Canberra corridor region over the next 25 years.

The proposed water cycle project for the Googong township is a major advancement in developing new urban areas in a more sustainable way. The Project would significantly reduce potable water consumption through water recycling and other water conservation measures, facilitating the development of the Googong township that uses at least 60 per cent less water than a typical residential development.

The Project would provide the necessary water and wastewater services for the Googong township, achieving outstanding environmental outcomes. It is economically feasible and would deliver long-term social benefits.

Stage 1 of the Project would provide a first stage inclusive of the broad benefits highlighted for the Project so that benefits can be realised early in the Project timeframe.

This environmental assessment finds that the Project would have no significant impacts, provided the mitigation measures identified are implemented. A draft statement of commitments has been prepared (refer to Chapter 18). It incorporates a comprehensive suite of measures to mitigate any potentially significant impacts arising from the Project. Detailed construction and operational environmental management plans would be prepared to implement these measures.

Accordingly, CIC Australia seeks the Minister's concept approval for the concept plan for the Project, and project approval for Stage 1 of the Project.