

Appendix B

Cross references to NSW Director General's
Requirements and ACT Scoping Document

Environmental impact statement

Attachment 1: Director-General's requirements

Issue category	Requirement (summary)	Document reference
General requirements	Executive summary	Executive summary
	Detailed description of the project	Chapter 6
	Assessment of the environmental impacts of the project	Part C
	Justification for the project	Chapter 29
	Draft statement of commitments	Chapter 28
	Certification of the Environmental Assessment	Front of document
Key assessment requirements	<p><i>Strategic and Project Justification</i></p> <ul style="list-style-type: none"> • Strategic context • Need for and objectives of the project • Alternatives considered • Justification for the project 	<p>Section 5.2</p> <p>Sections 5.3, 5.4</p> <p>Chapter 7</p> <p>Section 29.1</p>
	<p><i>Water Quality and Hydrology</i></p> <ul style="list-style-type: none"> • Impacts of construction – risk of laying pipelines • Impacts of operation – quality of transferred water 	<p>Sections 9.4, 10.4, 11.3</p> <p>Section 11.3</p>
	<p><i>Flora and Fauna</i></p> <ul style="list-style-type: none"> • Flora and fauna impact assessment • Justification for clearing • Potential impacts on waterways, aquatic ecosystems or riparian corridors • Potential for weed infestation • Impacts to fish passage • Provision of any compensatory habitat/offsets 	<p>Sections 12.3 and 13.3</p> <p>Section 29.1</p> <p>Section 12.3</p> <p>Section 13.3</p> <p>Section 12.3</p> <p>Section 13.4</p>
	<p><i>Indigenous and Non-indigenous Cultural Heritage Impacts</i></p> <ul style="list-style-type: none"> • Assessment of values and investigations undertaken 	<p>Chapters 14, 15</p>
	<p><i>Traffic and Transport</i></p> <ul style="list-style-type: none"> • Impacts to local and regional road network and intersections during construction • Access restrictions to property during construction • Nature/mode of traffic generated, transport routes and traffic volumes • Impact on railway infrastructure 	<p>Section 25.3</p> <p>Section 25.3</p> <p>Section 25.3</p> <p>Section 25.3</p>
	<p><i>Noise and Vibration</i></p>	

Issue category	Requirement (summary)	Document reference
	<ul style="list-style-type: none"> Assessment of impacts during construction and operation 	Section 20.4
	<p><i>Spoil Management</i></p> <ul style="list-style-type: none"> Estimates of likely spoil generation Potential contamination issues Options for spoil management, reuse and/or disposal 	Section 19.2 Chapters 16, 19 Chapter 19
	<p><i>Soils and Groundwater</i></p> <ul style="list-style-type: none"> Impacts of trenching and other underground work on soils, groundwater and subsurface flows 	Chapter 16, Chapter 19
	<p><i>General Environmental Risk Analysis</i></p> <ul style="list-style-type: none"> The environmental assessment shall include an environmental risk analysis 	Chapter 8
Consultation requirements	Consultation with nominated agencies, stakeholders and the community	Chapter 4

Attachment 2: ACT Scoping Document requirements

Heading	Requirement (summary)	Where addressed
2. Non-technical summary	-	Executive summary
3. Purpose and structure	Overview of the structure and purpose	Chapter 1
	Statutory approvals required	Chapter 2
4. The environmental impact statement process 4.1 Baseline studies	Description of baseline information	Existing environment sections of Part C chapters
	Identify studies/surveys undertaken	Section 2.6, Part C
4.2 Methodology of the EIS	Description of the EIS process.	Chapter 2
	Separate section for each of the potential environmental impacts	Part C
	Timing and decisions to be made for relevant stages	Section 6.11
	Criteria used for assessing significance	Section 2.8, Chapter 8
	Standard(s) against which performance determined.	Relevant standards applicable to the impact assessment are discussed in individual chapters in Part C.
4.3 Information quality	Sources of information, how background studies were undertaken, reliability testing, and uncertainties.	Methodology sections of Part C chapters
4.4 Consultation during preparation of the EIS	Consultation undertaken, agencies consulted	Chapter 4
5. Project description	Construction, operation, maintenance and decommissioning	Chapter 6
	Consistency with existing plans, legislation etc	Chapter 2
5.1 Overview	Compatibility with the principles for environmental sustainability	Section 6.17
	Summary of elements of the environment likely to be impacted	Section 8.4

Heading	Requirement (summary)	Where addressed
	How the project fits into the regional context	Section 3.1
	Summary of key issues and their relative significance	Chapter 8, impact assessment sections of Part C chapters
	Level of certainty about the impacts	Chapter 8, impact assessment sections of Part C chapters
	Justification for the project, reference to principles of sustainable development	Chapter 29
	Residual environmental impacts	Chapter 27.2
5.2 Location	Provide maps/plans showing the precise location	Chapter 3
5.3 Details of the lease for the land	Lease, ownership or management arrangements for the land	Section 3.3
	Details of any joint venture partners	Section 1.2.1
5.4 Project objectives and scope	Objectives of the project	Section 5.4
	Predicted timescale for full implementation, and project life	Section 6.11 and 6.16
	Other projects already undertaken by the Proponent or other persons/entities within the Project area.	Section 26.2
	Describe the receiving environment	Section 3.4
5.5 Alternatives to the development proposal	Alternatives considered	Chapter 7
	Consequences of not proceeding	Section 7.2
	Interdependence of the project	Section 5.3
	Reasons provided in support of preferred options	Chapter 7
5.6 Construction and operations	Project's construction phase	Section 6.11
	Nature, sources, location and quantities of all materials to be handled	Chapter 19
6. Infrastructure		
6.1 General	Indicate locations of all gas and water pipelines, power lines and any other easements.	Chapter 6
6.2 Transport	How the road network will be affected	Section 25.3
6.3 Energy	Energy requirements for construction and operation	Section 6.7, 6.8 and Appendix N
	Any use of renewable energy sources	Sections 6.7 and 22.1

Heading	Requirement (summary)	Where addressed
	Energy efficiency measures	Sections 22.4 and 6.14
6.4 Water supply and storage	Information on water usage during construction and operation	Section 6.9
	Proposed water conservation and management measures	Sections 5.3 and 6.9 as well as Chapters 7 and 11
6.5 Stormwater and drainage	Erosion/sediment control and stormwater management	Sections 6.9, 9.6, 10.5 and 16.5
6.6 Sewerage	Sewage disposal	Sections 6.10, 19.2 and 19.3
6.7 Telecommunications	Impacts on existing telecommunications infrastructure	Section 6.11
7. Material Use and Waste	Use of recycled material	Chapter 19
7.1 Material use		
7.2 Character and quantities of waste materials	Impact of the project's wastes	Section 19.2
	Methods to deal with wastes	Section 19.4
7.3 Waste Management	Proposals for waste avoidance, reuse, recycling, treatment and disposal	Chapter 19
7.4 Toxic and Hazardous materials	Environmental values and assets with the potential to be affected, procedures to prevent spillages	Chapter 24
8. Land Values and Impacts	Existing land values that may be affected	Existing environment section of Part C chapters as well as Chapter 17
	Practical measures for protecting or enhancing environmental values	Chapters 27 and 28
8.1 Land values		
8.2 Topography / geomorphology	Topography of the Project area	Section 16.2
8.3 Geology	Description of geological properties	Section 16.2
8.4 Land disturbance	Strategy to minimise land disturbance	Section 17.5 and Chapter 27
	Topsoil management	Section 16.5
8.5 Soils and	Soil survey	Section 16.2

Heading	Requirement (summary)	Where addressed
soil erosion	Methods proposed to prevent or control erosion	Sections 6.9, 9.6, 10.5 and 16.5
8.6 Land contamination	Potential contamination of land from aspects of the Project	Section 16.2
8.7 Land use	Map and statement identifying the location of residences, and zoning of all affected lands	Chapter 17
	Identify 'sensitive receptors'	Section 17.2
8.8 Landscape character and visual amenity	Existing character of the landscape	Section 18.2
	Provide information	Section 18.2
	Details of measures to mitigate or avoid identified impacts.	Section 18.6
9. Water Resources Values and Impacts 9.1 Water resource values and assets	Environmental values of the surface waterways	Chapters 9, 10 and 11
9.2 Surface waterways	Describe surface watercourses	Chapters 9, 10 and 11
	Hydrological impacts	Sections 9.4 and 10.3
	Present and potential downstream water uses affected	Chapters 9, 10 and 11
9.3 Flood studies	History of flooding	Sections 9.3 and 10.2
	Details of how the project will affect or be affected by flooding	Chapters 9 and 10
	Changes in the operation that might result under climate change	Chapter 21
9.4 Groundwater	Impacts on groundwater resources	Section 16.3
9.5 Water quality	Water quality of the out take and receiving waters	Chapter 11
	Impacts on environmental flow requirements	Chapters 6 and 11
	Risk assessment for uncontrolled emissions to water and impacts to human health	Chapters 11 and 24
	Monitoring programs	Section 11.5 and Chapter 27
10. Climate/Air	Existing environmental values of the area	Chapter 21

Heading	Requirement (summary)	Where addressed
Values and impacts		
10.1 Climate and air values	Potentially significant impacts should be described in sufficient detail	Chapter 21
10.2 Climate	Vulnerability of the area to natural or induced hazards	Section 21.2
10.3 Climate change adaptation	Vulnerabilities to climate change and possible adaptation strategies	Section 21.2
	Potential for premature retirement or un-programmed upgrades	Section 21.2
10.4 Greenhouse gas abatement	Greenhouse gas abatement measures	Chapter 22
10.5 Air quality	Air emissions during construction and operation	Section 21.1
	Mitigation of impacts on air quality.	Section 21.1
10.6 Lighting	Management of lighting	Sections 6.11 and Chapter 18
10.7 Noise and vibration	Noise and vibration during construction and operation	Section 20.4
	Potential environmental harm of noise and vibration	Section 20.4
	Address off-site noise and vibration impacts due to increased road use/vehicular traffic	Section 20.4
	Details on any blasting	Sections 20.3 and 20.4
	Impacts of noise and vibration on terrestrial animals and avifauna, and aquatic biology	Chapter 20
	Timing schedules to minimise impacts	Sections 6.11 and 20.6
11. Biodiversity and Nature Conservation Values, Assets and Impacts	Nature conservation values of areas likely to be affected by the project	Chapter 3 as well as, Sections 12.2, 13.2 and 17.2
11.1 Biodiversity values	Describe biodiversity values and potential impacts on threatened flora, fauna and ecological communities	Chapters 12 and 13
11.2 Environmentally sensitive areas	Proximity of proposal to environmentally sensitive areas	Section 17.2 as well as Chapters 12 and 13
	Identify whether environmentally sensitive areas could be affected, directly and indirectly, by the proposal	Section 17.2 as well as Chapters 12 and 13
11.3 Threatened species and	Strategies for protecting rare or threatened species	Sections 12.5 and 13.5

Heading	Requirement (summary)	Where addressed
communities		
	Map and describe the significance of rare threatened flora and ecological communities	Sections 12.2 and 13.2
	Describe threatened terrestrial and riparian fauna occurring in the areas affected by the project	Sections 12.2 and 13.2
11.4 Native vegetation	Potential impacts (short and long term) of the removal of vegetation	Section 13.3
	Indirect impacts of removal of vegetation	Section 13.3
	Mitigation/offsets of impacts on threatened species and communities	Section 13.5
11.5 Invasive species	Describe occurrence of pest plants and animals in proposed development site	Sections 12.2 and 13.2
	Weed management strategies	Section 13.5
11.6 Aquatic biology	Assessment of the aquatic and riparian environment	Chapters 9, 10, 11 and 12
	Potential impacts to aquatic ecosystems	Section 12.3
	Describe the aquatic flora and fauna occurring in the areas affected by the proposal	Section 12.2
	Investigate and describe issues relating to Burra Creek and Googong reservoir and their habitats	Sections 12.2 and 12.3
	Alien species transfer or provision of additional habitat	Sections 12.2 and 12.3
	Water quality and pathogen transfer	Sections 12.3.5 and 12.3.9
	Mitigation methods	Section 12.5
12. Heritage values and Impacts 12.1 Heritage values	Describe existing cultural heritage values and assets that may be affected by the project	Sections 14. 2 and 15.2
	Cultural heritage study	Chapters 14 and 15
	Potential for further surface and subsurface deposits	Section 14.2
	Survey the study area	Sections 14.2 and 15.2
	Appendix with results of archaeological investigation	Appendix I
12.2 Heritage impacts	Impact of project on heritage sites	Sections 14.3 and 15.3
	Measures for protecting or enhancing cultural heritage values	Sections 14.5 and 15.5

Heading	Requirement (summary)	Where addressed
13. Social impacts 13.1 Social values	Describe existing social values affected by the project	Sections 14.2 (Indigenous) and 23.2
13.2 Social impacts	Measures for protecting or enhancing social values	Section 23.5
	Impacts on amenity	Chapters 18 and 23
	Overall net community benefit	Sections 5.4 and 23.3
14. Health impacts 14.1 Hazard and risk	Measures for protecting people and places from hazards and risk associated with the project	Section 24.3
	Integrated risk management plan	Section 24.5
	Mitigation strategies to protect values of sensitive areas and high conservation value ecosystems	Sections 12.5 and 13.5
15. Economic values and impacts 15.1 Economic impacts and benefits	Estimates of the opportunity cost of the project	Section 23.3
	Value of ecosystem services to be removed	Sections 12.2 and 13.2
	Economic benefits from project	Section 23.3
16. Environmental Protection and Biodiversity Conservation Act 1999 16.1 Matters of NES	Identify potential impacts on any matters of NES	Section 26.4
	16.2 Impacts on matters of NES	
17. Management of unavoidable impacts 17.1 Management strategies	Separate discussions that address issues relevant to any matters of NES	Section 26.4
	Details of any proceedings against the Proponent	Section 26.4
	Proponent's environmental policy and planning framework	Section 1.2
17.2 Monitoring programs	Describe strategies to be used to ensure environmental protection objectives are achieved and control strategies implemented	Chapter 27
	Environmental management commitments to assist in DA assessment and conditions of approval	Chapter 28
17.3 Auditing programs	Describe monitoring parameters, monitoring points, Frequency, data interpretation and reporting proposals	Section 27.4
	Describe how progress towards achievement of the environmental protection objectives will be measured	Section 27.3

Heading	Requirement (summary)	Where addressed
18. Recommendations	Summary of recommendations	Chapter 28
19. Other relevant information	Issues outside the scope of the EIS	n.a.

Attachment 3: Potentially significant impacts to be addressed

1.1 Overview

The need to prepare an EA and EIS for the project was identified during the initial ACTEW Future Water Options assessment and confirmed in the ACTEW Planning Approvals – Water Security Program report, prepared in 2007.

The advice from preliminary environmental studies (see section 2.6.2 for a list of previous environmental studies undertaken, and studies undertaken for this assessment) was used in the preparation of an initial risk assessment that considered the likely potential impacts associated with this proposal.

ACTEW consulted with ACTPLA during 2007/08 on the preparation of the Request for Scoping of EIS documentation for the project. The proponent included a risk assessment in the Request for Scoping documentation to assist ACTPLA in scoping the assessment requirements for the draft ACT EIS.

The methodology for the risk assessment has been provided in chapter 8.

Below is a copy of the full risk assessment that was submitted with the request for scoping document.

Murrumbidgee to Googong Raw Water Transfer Proposal EIS

Information provided to ACTPLA as
part of Request for Scoping

December 2009

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1 Project Description used for Risk Assessment in preparation of EIS Scoping Request

ACTEW Corporation (ACTEW) are proposing to construct a raw water transfer scheme to abstract up to 100 Megalitres/day (ML/d) of water from the Murrumbidgee River for transfer into Burra Creek for 'run of river' flow to the Googong Reservoir (Referred to as the M2G project).

The proposal triggers the requirement for an EIS¹ under Section 4 Part 4.3 of the Planning and Development Act 2007 (the Act).

Schedule 4 Part 4.3 states a project that:

- 1 ...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
 - 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 ...is likely to contribute to a threatening process in relation to a species or an ecological community;
- 3 ...a 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...; and
- 5 ...proposal that is likely to result in environmentally significant water extraction or consumption..."

...require the preparation of an EIS.

Accordingly, ACTEW (the proponent) has applied to the ACT Planning and Land Authority (ACTPLA) for an EIS scoping document.

In response ACTPLA is obliged to:

- identify the matters that are to be addressed by an EIS in relation to the development proposal; and
- prepare a written notice (the scoping document) of the matters (the Act s212).

This document is the Final Scoping of the EIS for the proposed M2G project.

Section 213 of the Act indicates that a proponent for a development proposal must include the minimum content as outlined in the Scoping Document in the required EIS.

This scoping document has been prepared as per the requirements set out in the Planning and Development Regulations 2008 (The Regulations).

¹ An EIS is an environmental impact statement prepared as prescribed by regulation. (the Act s208)

2 Background to Environmental Impact Assessments

An Environmental Impact Assessment (EIA) is the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant impacts of development proposals prior to major decisions being taken and commitments made (IAIA 1999). The aim of the assessment is to ensure that decision-makers (including the ACTPLA) consider environmental impacts before deciding whether to proceed with, modify or abandon a development proposal.

An Environmental Impact Statement (EIS) is a report that documents the information required to evaluate the impact of a project. It informs both decision makers and the public of the measures, or reasonable alternatives, that would avoid or minimise adverse impacts or enhance the quality of the environment or provide benefits to the community.

The purpose of undertaking the EIA process and documenting it in an EIS is to:

- Identify and assess the impacts of a proposed activity;
- Consider feasible alternative ways to carry out the project;
- Assess the adequacy of proposed measures to avoid or minimise those impacts and develop additional measures, as necessary;
- Assess the potential adverse and beneficial impacts of the project;
- Obtain input from the community and stakeholders about the project impacts and management;
- Assess management, monitoring, planning and other measures proposed to avoid, minimise, mitigate or offset any adverse environmental impacts of the project; and
- Inform approval (or not) of a development application.

At a minimum the EIS should inform the decision maker about:

- Whether the project is consistent with relevant legislation and policies;
- Whether the project will meet relevant environmental protection performance standards;
- How judgments about the significance of impacts have been made, including:
 - Performance against thresholds, standards or comparative projects;
 - The adequacy and certainty of the information on which the assessment has been based;
- How the project will avoid, minimise, mitigate, offset or manage significant impacts;
- How acceptable the residual impacts or risks will be.

3 Purpose of Scoping an Environmental Impact Statement

A Scoping Document is required to establish the breadth, or scope of the assessment based upon the particular circumstances and attributes, of a proposed development.

The scope sets out the requirements for the assessment of the level of impact and the requirements to address ways to minimise or mitigate impacts. It documents the complexity of the assessment, identifies key stakeholders to be consulted during the assessment process, and guides the proponent as to the requirements for documenting the assessment.

The purpose of scoping is to ensure that the EIS is focussed on those matters likely to cause a significant environmental impact.

4 Stakeholders to consult during preparation of the EIS

In accordance with the Regulation (s54.1.c) ACTPLA must provide a list of stakeholders that must be consulted in the preparation of the EIS. This may include specific requirements for groups with particular communication needs (Reg. s54.2).

ACTEW propose that ACTPLA consider a requirement that the following entities must be consulted in the preparation of the EIS:

- Traditional Owners of the Land
- TAMS sections including:
 - Roads ACT
 - Environment Protection Authority
 - Environment ACT
 - Parks Conservation and Lands
 - Heritage
- ACTPLA sections including:
 - Development Services
 - Planning Services
- Chief Minister's Department
- National Capital Authority
- ACT Health
- Commonwealth Department of Environment Water Heritage and the Arts (DEWHA)
- ACT Emergency Services
- ACT Policing
- ACT Rural Fire Service
- Conservation Council of South East Region and Canberra
- Upper Murrumbidgee Catchment Management Coordinating Committee
- Molongolo Catchment Committee
- Queanbeyan City Council

5 Likely impacts resulting from construction and operation

ACTEW, in preparing the Request for Scoping documentation, prepared a risk assessment based on early investigation and assessments prepared during the Future Water Options Assessments. This was provided to ACTPLA to assist them in identifying those impacts that may result from the construction and operation of the proposal. Where these impacts are not significant it is proposed that they should be addressed through design, management procedures or in some other way and can be prepared for assessment during the Development Assessment (DA) process.

Where items on this list are identified as presenting a risk of High or above, they have been duplicated in the list of potentially significant impacts in Section 6. All the potentially significant impacts are proposed be addressed in the EIS. Below is a table that lists all the risks identified by the proponent in relation to the project.

Transport and Road Infrastructure	Likelihood	Consequence	Risk
1. Transport – damage to road infrastructure by construction vehicles.	Unlikely	Minor	Very Low
2. Traffic – increased traffic from construction traffic (workforce and materials), delays and road safety issues – Locally and regionally	Possible	Minor	Low
3. Road network – Requirement for road closures/changes to the existing network to facilitate construction. Option A Option B	Possible Unlikely	Minor Minor	Low Very Low
4. Traffic – increased traffic from ongoing operation and maintenance activities impacting on road, causing change in road character, delays and road safety issues – road requiring upgrading.	Remote	Minimal	Negligible

Civil and Engineering Infrastructure		Likelihood	Consequence	Risk
5.	Construction of infrastructure significant impacts on existing services infrastructure (existing power lines)	Unlikely	Minimal	Negligible
6.	Water – consumption during construction result in significant adverse impacts on Murrumbidgee River flows	Unlikely	Major	Medium
7.	Energy – demand for energy during construction and operation adversely impact on community power supply	Unlikely	Major	Medium
8.	Stormwater – unacceptable impact on river from sediment/erosion impacts from construction sites and inadequate flood contingency arrangements	Unlikely	Major	Medium
9.	Sewerage – inappropriate management of onsite facilities during construction results in unacceptable impacts on river/surrounding uses	Unlikely	Moderate	Low
10.	Electricity – lack of availability of adequate infrastructure to service pumping operations	Unlikely	Minimal	Negligible
11.	Energy – excessive demand for energy during operation of infrastructure	Unlikely	Minor	Very Low
12.	Telecommunications - requirements for expanding the network to remote location adversely impacts on existing network and/or amenity of the area	Possible	Minimal	Very Low
13.	Pipeline failing due to design or materials problem has significant adverse impacts on public and private land	Remote	Moderate	Very Low

Material Use and Waste	Likelihood	Consequence	Risk
14. Material use – consumption of raw materials for construction substantially in excess of design requirements	Remote	Minimal	Negligible
15. Excessive water used for construction processed causes significant adverse impacts on Murrumbidgee River or other source selected	Unlikely	Minimal	Negligible
16. Waste management – inappropriate generation, reuse and disposal of waste streams (including spoil from excavation) resulting during construction activities	Unlikely	Minor	Very Low
17. Toxic and hazardous materials – inappropriate handling during construction leading to pollution event (including impacts of materials/substances used for tunnelling activities, fuels and chemicals etc)	Unlikely	Major	Medium

Land Values and Impacts	Likelihood	Consequence	Risk
18. Topography – unsuitable terrain to facilitate construction of intake with low lift pump station, high lift pump station and pipe infrastructure	Remote	Moderate	Very Low
19. Geology – unsuitable sub-terrain to facilitate construction of intake, pump station and pipe infrastructure (both options) leads to major departure in design parameters/construction techniques used	Unlikely	Moderate	Medium
20. Land disturbance – substantial/unacceptable loss of vegetation and topsoil resources during construction of the project	Unlikely	Minor	Very Low
21. Contamination – potential for contamination of land from aspects of the proposal including construction and construction techniques and waste management practices and spills from chemical and fuel storage (as applicable)	Unlikely	Major	Medium

Land Values and Impacts	Likelihood	Consequence	Risk
22. Landscape character – significant adverse impacts to the visual and general amenity from vantage points and recreational facilities Option A Option B	Likely Unlikely	Moderate Moderate	High Low
23. Soils and erosion – poor understanding of soil quality leading to unacceptable erosion events	Unlikely	Moderate	Low
24. Soils and erosion – unsuccessful management/rehabilitation practices leading to unacceptable erosion events	Remote	Moderate	Very Low
25. Land use – proposal results in land use conflicts between itself and current and future uses adjacent Option A: Option B:	Possible Unlikely	Moderate Minor	Medium Very Low
26. Siting and operation of the infrastructure results in a reduced availability and/or unacceptable impact on land for recreation use. Option A: Option B:	Likely Unlikely	Moderate Minor	High Very Low
27. Future Land-use – significant limitations on the future use of the area for alternative land use.	Possible	Moderate	Medium

Water Resource Values and Impacts	Likelihood	Consequence	Risk
28. Groundwater – construction impacts on availability and quality of regional groundwater (including contamination through construction processes).	Unlikely	Moderate	Low
29. Water quantity – construction processes significantly impact on quantity of water downstream in the Murrumbidgee River (including abstraction of water for construction processes, reduced river flows(Murrumbidgee))	Unlikely	Major	Medium
30. Water quality – construction processes significantly impact on quality of water downstream in the river (including abstraction of water for construction processes, reduced river flows)	Unlikely	Major	Medium
31. Floods – natural flood events adversely impact on the construction and operation of the infrastructure.	Unlikely	Moderate	Medium
32. Surface water – operation impacts on river locally including drainage pattern, availability and quality of water resulting in significant adverse impact on Murrumbidgee River	Unlikely	Major	Medium
33. Groundwater – operation impacts on availability and quality of regional groundwater	Unlikely	Minor	Very Low
34. Water quantity and quality – operation of infrastructure adversely impact on the quantity and quality of water downstream in the Murrumbidgee River	Unlikely	Major	Medium
35. Floods – natural flood events adversely impacts on the operation of the infrastructure.	Remote	Minor	Negligible
36. Floods – proposal results in increased flood impacts downstream associated with possible change in Murrumbidgee River flow/water level.	Remote	Minimal	Negligible

Climate and Air Quality	Likelihood	Consequence	Risk
37. Greenhouse gas emissions – project contribution to greenhouse gas emissions is excessive.	Unlikely	Moderate	Low
38. Greenhouse gas abatement –excessive long term GGA strategies are required to render proposal sustainable	Unlikely	Moderate	Low
39. Climate change – Impact of climate change will significantly impact on operation of the infrastructure and viability of the project threatening the reliability of supply	Possible	Major	High
40. Air quality – emissions of dust or odour during construction of infrastructure.	Unlikely	Minimal	Low
41. Lighting – unacceptable impacts on environment due to lighting from construction activities (mainly fauna and recreation amenity)	Unlikely	Minor	Low
42. Operation air quality – emissions of dust or odour during operation of infrastructure.	Remote	Minimal	Negligible
43. Noise and vibration – Adverse impacts of construction activity on amenity and local fauna. Option A Option B	Possible Unlikely	Minor Minor	Low Very Low
44. Blasting – adverse impacts of blasting activities during construction or activity on amenity and local fauna. Option A Option B	Possible Possible	Moderate Minor	Medium Low
45. Operational Lighting – unacceptable/significant adverse impacts on environment due to lighting of pump stations during operation (mainly fauna and recreation amenity) Low Lift Pump Stations (No Lighting Proposed) High Lift Pump Stations	Remote Unlikely	Minimal Minor	Negligible Very Low

Climate and Air Quality	Likelihood	Consequence	Risk
46. Noise and Vibration – impacts of operation activity on amenity Option A Option B	Possible Unlikely	Moderate Moderate	Medium Low
47. Infrastructure’s vulnerability to natural or induced hazards including flooding and bushfires leads to unacceptable environmental impacts.	Remote	Minimal	Negligible

Biodiversity and Nature Conservation	Likelihood	Consequence	Risk
48. Clearance of native vegetation – The proposal will result in the clearance of more than 0.5ha of moderate-high quality native vegetation.	Likely	Moderate	High
49. Environmentally sensitive areas – disturbance of protected or sensitive areas (including both terrestrial and aquatic areas)	Possible	Major	High
50. Threatened species and communities – introducing threats to the viability of known threatened species or communities (including impacts from significant abstraction of water resulting in reduced river flows, transferring of fish eggs)	Likely	Moderate	High
51. Native vegetation – significant adverse impacts on residual native vegetation	Possible	Moderate	Medium
52. Invasive species – introducing or encouraging the presence of invasive flora or fauna River (abstraction/transfer of fish eggs etc.) Pipeline (weeds)	Possible Possible	Moderate Moderate	Medium Medium
53. Introduction of pests or pathogens into the Googong Reservoir from Murrumbidgee Water.	Possible	Moderate	Medium
54. Impacts of expanded populations of alien fish species. (unsuccessful screening leads to introduction of e.g. carp into Googong Reservoir)	Possible	Moderate	Medium

Biodiversity and Nature Conservation	Likelihood	Consequence	Risk
55. Aquatic biology – operation of infrastructure causing change in the aquatic biology in Murrumbidgee River downstream from the intake point	Possible	Moderate	Medium
56. Impacts on endangered fish species due to operational regime impacting on Murrumbidgee River.	Possible	Major	High

Heritage	Likelihood	Consequence	Risk
57. Impacts on known cultural heritage places or objects from construction activities (Indigenous and European)	Possible	Major	High
58. Impacts on unknown cultural heritage places or objects from construction activities (Indigenous and European)	Possible	Major	High
59. Impacts on known cultural heritage places or objects from operational activities (Indigenous and European)	Remote	Major	Low
60. Impacts on unknown cultural heritage places or objects from operational activities (Indigenous and European)	Remote	Major	Low

Social	Likelihood	Consequence	Risk
<p>61. Recreational opportunities – significant adverse impacts on recreation facilities (Angle Crossing and surrounds) in terms of:</p> <p>Option A: Visual impacts</p> <ul style="list-style-type: none"> Amenity Accessibility Usability <p>Option B: Visual impacts</p> <ul style="list-style-type: none"> Amenity Accessibility Usability 	<p>Likely</p> <p>Likely</p> <p>Unlikely</p> <p>Unlikely</p> <p>Likely</p> <p>Unlikely</p> <p>Unlikely</p> <p>Unlikely</p>	<p>Moderate</p> <p>Moderate</p> <p>Moderate</p> <p>Moderate</p> <p>Moderate</p> <p>Moderate</p> <p>Moderate</p> <p>Moderate</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>
62. Community consultation – poorly managed community interface – not meeting community expectation for consultation	Unlikely	Moderate	Low
63. Level of interest – interest from community not catered for in development of the proposal	Unlikely	Minor	Very Low
64. Educational opportunities – missed opportunities for education	Possible	Minor	Low
65. Equity – community believes that equitable supply is undermined	Unlikely	Moderate	Low
66. Expectations – misunderstanding about impacts on water supply and the need for future restrictions or projects	Possible	Moderate	Medium
67. Significant adverse impacts on sensitive receivers from construction and operation activities.	Unlikely	Moderate	Low
68. Workforce – adverse impacts on ACT workforce due to sourcing of human resources for this project.	Unlikely	Moderate	Low

Health and Safety	Likelihood	Consequence	Risk
69. Contamination of Googong Reservoir by transferring water from the Murrumbidgee River including transferral of sediment, pathogens, acute hazards (spills) impacts on potable water supply. Option A Option B	Unlikely Unlikely	Major Major	Medium Medium
70. Water supply reliability – reduced reliability of water supply due to Murrumbidgee water impacting on the Googong Reservoir water resource	Unlikely	Major	Medium
71. Water supply quality – proposal results in a reduced quality of water supply from Googong Dam	Unlikely	Major	Medium
72. Public safety – increased risk to public safety associated with pipeline construction resulting in serious injury	Unlikely	Moderate	Low
73. Public safety – increased risk to the public safety associated with design and location of intake structure/low lift pumping station resulting in serious injury (structure accessible by public) Option A Option B	Possible Unlikely	Moderate Moderate	Medium Low
74. Public safety – increased risk to public safety associated with operation of intake structure/low lift pumping station resulting in serious injury (both options)	Unlikely	Moderate	Low
75. Public safety – increased risk to public safety associated with high lift pumping station resulting in serious injury (both options)	Unlikely	Moderate	Low
76. Public safety – increased risk to public safety associated with pipeline operation resulting in serious injury	Remote	Moderate	Very low

Economic Impacts	Likelihood	Consequence	Risk
77. Water pricing policy – proposal results in a significant impact on economy/individuals due to changes in the price of water.	Unlikely	Minor	Very Low
78. Cost benefit analysis – project returns a negative value.	Unlikely	Moderate	Low
79. Cost benefit analysis – economic input required to off-set adverse social, health and environmental impacts renders project unviable.	Remote	Major	Low
80. Urban Economy - adverse impacts of the project on the economic viability of surrounding uses	Unlikely	Moderate	Low
81. Failure of pipeline significantly impacting on the economic operation of water infrastructure.	Remote	Moderate	Very Low

Matters of National Significance	Likelihood	Consequence	Risk
82. National environmental significance (NES) – Project creates unacceptable impacts on matters of NES that cannot be adequately mitigated.	Possible	Major	High
Cumulative risks	Likelihood	Consequence	Risk
83. Unavoidable compounding impacts – several of the risks listed above compounding into larger risks that cannot be adequately mitigated.	Unlikely	Major	Medium

6 Potentially significant impacts

The following potentially significant environmental impacts have been identified for assessment in the EIS.

6.1 Significant impacts identified

Potentially significant risks have been identified during the preparation of the Request for Scoping document. These impacts have been derived from the background material and options studies provided by ACTEW and discussions with agencies during the preparation of this scoping document. The risks associated with each impact have been assessed using the risk assessment methodology described above.

Impact Description	Likelihood	Consequence	Risk
1. Landscape character – significant adverse impacts to the visual and general amenity from vantage points and recreational facilities. Option A	Likely	Moderate	High
2. Siting of and operation of the infrastructure results in a reduced availability and/or unacceptable impact on land for recreation use. Option A:	Likely	Moderate	High
3. Climate Change – impact of climate change will significantly impact on operation of the infrastructure and viability of the project threatening the reliability of supply	Possible	Major	High
4. Clearance of native vegetation – the proposal will result in the clearance of more than 0.5ha of moderate-high quality native vegetation.	Likely	Moderate	High
5. Environmentally sensitive areas – disturbance of protected or sensitive areas (including both terrestrial and aquatic areas)	Possible	Major	High
6. Threatened species and communities – introducing threats to the viability of known threatened species or communities (including impacts from significant abstraction of water resulting in reduced river flows, transferring of fish eggs)	Likely	Moderate	High

Impact Description	Likelihood	Consequence	Risk
7. Recreational opportunities – significant adverse impacts on recreation facilities (Angle Crossing and surrounds) in terms of: Option A: Visual impacts Amenity	Likely Likely	Moderate Moderate	High High
8. National environmental significance (NES) – Project creates unacceptable impacts on matters of NES that cannot be adequately mitigated.	Possible	Major	High
9. Impacts on endangered fish species due to operational regime impacting on Murrumbidgee River.	Possible	Major	High
10. Impacts on known cultural heritage places or objects from construction activities (Indigenous and European)	Possible	Major	High
11. Impacts on unknown cultural heritage places or objects from construction activities (Indigenous and European)	Possible	Major	High

The EIS will have to confirm that mitigation or management measures will be implemented and maintained to reduce the residual risks to acceptable levels.

7 Rationale for excluding any matters from the scope of the EIS

It is important to note that the scope of this project is limited to the Murrumbidgee to Googong Water Transfer project and associated infrastructure. The other water security projects recommended by the ACT Government are stand alone projects and will be addressed through separate development approval applications.