

## CONTENTS

<b>7.</b>	<b>LAND USE AND INFRASTRUCTURE</b>	<b>7-1</b>
7.1.	Description of environmental values	7-1
7.1.1.	Methodology	7-1
7.1.2.	Dam and surrounds	7-4
7.1.3.	Pipeline	7-17
7.1.4.	Associated infrastructure	7-27
7.2.	Potential impacts and mitigation measures	7-28
7.2.1.	Dam and surrounds	7-28
7.2.2.	Pipeline	7-32
7.2.3.	Associated infrastructure	7-35
7.2.4.	Impact assessment and residual risks	7-37
7.2.5.	Cumulative risk	7-40
7.3.	Summary	7-40

## TABLES

Table 7-1 SPP1/03 Outcomes	7-5
Table 7-2 WHAM integrated regional goals and strategies	7-6
Table 7-3 Broadsound Plan - Desired Environmental Outcomes	7-10
Table 7-4 Area classifications	7-11
Table 7-5 Former Nebo Shire - Desired Environmental Outcomes	7-18
Table 7-6 Zones - Nebo Shire Plan	7-19
Table 7-7 Town of Moranbah and Environs Transitional Planning Scheme – Strategic Plan	7-19
Table 7-8 Draft Belyando Shire Planning Scheme - Desired Environmental Outcomes	7-20
Table 7-9 Zones – Draft Belyando Shire Planning Scheme	7-22
Table 7-10 Area classification	7-22
Table 7-11 Affected properties – dam and surrounds	7-28
Table 7-12 Unmitigated consequence and likelihood ratings	7-39
Table 7-13 Risk Assessment Results	7-39



## FIGURES

Figure 7-1 Land use and infrastructure - dam and surrounds	7-2
Figure 7-2 Existing land uses – pipeline	7-3
Figure 7-3 Regional and local government boundaries	7-8
Figure 7-4 Area classifications - dam and surrounds	7-12
Figure 7-5 Land tenure - dam and surrounds	7-16
Figure 7-6 Area Classifications – pipeline	7-21
Figure 7-7 Land tenure - pipeline	7-26

## 7. LAND USE AND INFRASTRUCTURE

This section addresses Section 3.2.5 of the TOR. It describes the relevant State, regional and local planning frameworks, land use, tenure and infrastructure within the Project area and assesses the impacts and benefits of the construction and operation of the Project in relation to these matters. **Section 1** of the EIS provides further details of the planning context of the Project.

### 7.1. Description of environmental values

This section describes the existing environmental values in regard to State, regional and local planning frameworks, land use, tenure and infrastructure in the Project area.

#### 7.1.1. Methodology

The description of land use, planning, tenure and infrastructure is based on:

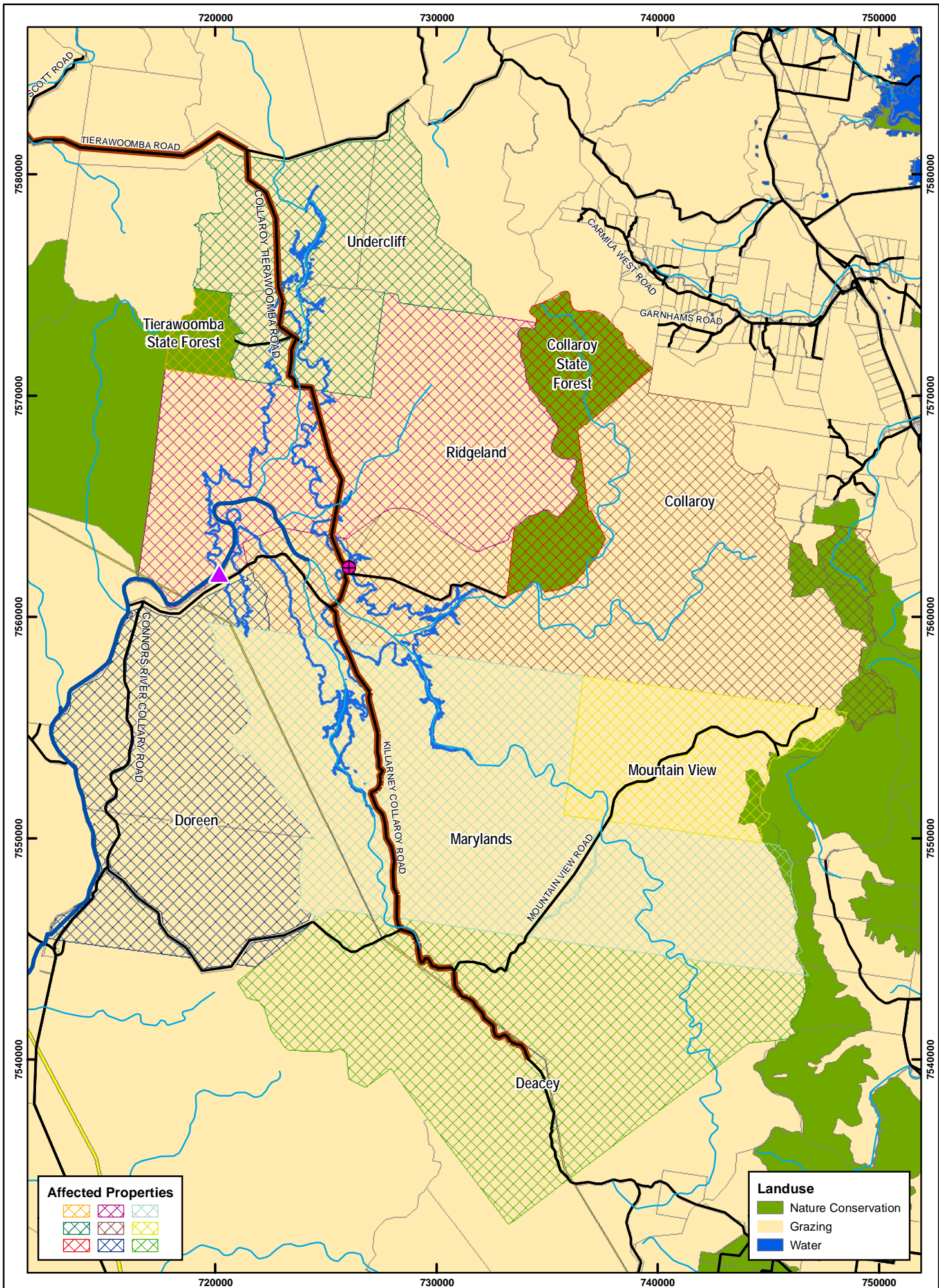
- a desktop assessment of relevant legislation and State, regional and local planning instruments;
- a desktop assessment and site inspection to determine existing land uses and identify existing infrastructure;
- a desktop assessment of land tenure; and
- discussion with Isaac Regional Council and government agencies where relevant.

##### 7.1.1.1. Land use

The Australian Land Use and Management (ALUM) system (2006) is used to describe land use in this section. The ALUM system is nationally recognised and is used for collecting and presenting land use information. It identifies 32 land use categories with sub-categories. The ALUM data used to create mapping within this section was from 1997-2005, and therefore changes to land uses may have occurred since that time. Observations from the site inspection have been used to confirm and update this data to the extent possible. Land use mapping has been included in **Figure 7-1** and **Figure 7-2** based on the ALUM data and the site inspection. The nature conservation areas to the east and west of the proposed water storage are Collaroy and Tierawoomba State Forests respectively. Mining leases are shown on **Figure 7-2**.

##### 7.1.1.2. Land tenure

Land tenure is described in this section using the Digital Cadastral Data Base (DCDB) Tenure Codes held by the Department of Environment and Resource Management (DERM). This database identifies the tenure of properties. In Queensland, land tenure includes the two broad tenure types of freehold and non-freehold. In general terms, freehold land refers to land purchased from the State and affords the titleholder the highest level of independence in terms of land use and possession. Non-freehold land is controlled by the State of Queensland and may be subject to a lease, licence or reserved for a particular purpose such as a community use or road. Non-freehold land may also have no tenure.



**Affected Properties**


**Landuse**

- Nature Conservation
- Grazing
- Water

**LEGEND**

	Connors River Dam Site		Major River		Utilities
	Telecommunication Tower		Major Stream		Cadastre
	Main Road		Full Supply Level (169.1m AHD)		Full Supply Level (169.1m AHD)
	Bicentennial Trail				

Projection: GDA 1994 - Zone 55  
**Figure 7-1**  
  
 Scale 1:220,000 (A4)

Making Water Work  
**CONNORS RIVER DAM AND PIPELINES**  
**Land Use and Infrastructure - Dam and Surrounds**



### 7.1.2. Dam and surrounds

This section provides a description of the dam and surrounds in regard to the planning frameworks, land uses, tenure and infrastructure.

#### 7.1.2.1. State Planning Framework

The provisions of the *Integrated Planning Act 1997* (IPA) enable the State Government to prepare and adopt State Planning Policies (SPPs). The SPPs are statutory instruments and have effect throughout the State, except where specified, and establish the State Government's position in regard to planning and development matters of State significance.

Generally, SPPs are applicable in assessing development applications, the designation of community infrastructure and making and amending planning schemes. Some elements of the Project may require a development application under Schedule 8 of IPA and the nature of works involved in these applications may trigger the consideration of one or more SPPs.

The SPPs potentially relevant to the Project are:

- State Coastal Management Plan;
- SPP 1/92 Development and the Conservation of Agricultural Land; and
- SPP 1/03 Mitigation and Adverse Impacts of Flood, Bushfire and Landslide.

#### State Coastal Management Plan

Under the *Coastal Protection and Management Act 1995*, the State Coastal Management Plan (State Coastal Plan) has the status of an SPP for the purpose of making and amending planning schemes and assessing development applications. The State Coastal Plan provides a vision and direction for management of the coastal zone of Queensland which, at its broadest interpretation, includes all coastal catchments. The Connors River Dam site is located within the Fitzroy River catchment which drains to the coast near Rockhampton.

The State Coastal Plan includes policies regarding sediment transport from catchments and water quality. However due to the length of the river to the existing downstream waterway barrier of the Fitzroy River Barrage, which is a distance of 562 km downstream of the dam, the relevance of these policies is considered to be negligible. The other policies of the State Coastal Plan relate to coastal processes, resources and values which are not relevant to catchment areas so far from estuarine and coastal areas.

#### SPP 1/92: Development and the Conservation of Agricultural Land

The key objective of State Planning Policy 1/92: Development and the Conservation of Agricultural Land (SPP 1/92) is the protection of Good Quality Agricultural Land (GQAL) which is capable of sustainable use for agriculture (i.e. land used for crop or animal production excluding intensive animal uses and plant nurseries) without causing degradation of land or other natural resources.

'Guideline 1 for SPP 1/92: The Identification of GOAL' describes the four tier classification system used to identify those areas considered to be GOAL. Further discussion of GOAL is provided and the impacts assessed in **Section 6**.

□ **SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide**

This SPP aims to mitigate the adverse impacts of flood, bushfire and landslide when making decisions about development. It is supported by 'Guidelines for SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide', which provides advice on interpreting and implementing SPP 1/03 in development assessment and when making and amending planning schemes.

The SPP applies to development in the bushfire, flood hazard and landslide natural hazard management areas identified under the SPP or a natural hazard area under a local government planning scheme. Further details regarding SPPs are provided in **Section 3** and **Section 26**. The purpose of the SPP is to protect life and property from these hazards. The Project has been considered against the applicable outcomes of the SPP, with comments provided in **Table 7-1**.

**Table 7-1 SPP1/03 Outcomes**

State Planning Policy Outcome	Comment
<p>Outcome 1: Within the natural hazard management areas, development to which this SPP applies is compatible with the nature of the natural hazard, except where:</p> <ul style="list-style-type: none"> <li>■ the development proposal is a development commitment; or</li> <li>■ there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal.</li> </ul>	<p>In relation to the dam and surrounds the Project involves the construction and operation of a dam, whereas this SPP seeks to manage developments which may introduce people and property into a hazard area.</p> <p>The Project is identified in the Central Queensland Regional Water Supply Strategy 2006 to supply water to the Isaac-Connors Sub-region for mainly mining purposes. In addition, the Project has been granted significant project status under the <i>State Development and Public Works Organisation Act 1971</i> and the Project is defined as community infrastructure under the IPA.</p>
<p>Outcome 2: Development that is not compatible with the nature of the natural hazard but is otherwise consistent with Outcome 1 is minimised as far as practicable from adverse impacts from natural hazards, and does not result in an unacceptable risk to people or property.</p>	<p>The Project's susceptibility to natural hazards is addressed in <b>Sections 3, 6</b> and <b>26</b>. The Project is designed and will be operated to ensure that the surrounding and downstream communities are not exposed to additional risk of natural hazards.</p>
<p>Outcome 3: Wherever practicable, community infrastructure to which this applies is located and designed to function effectively during and immediately after natural hazard events commensurate with a specified level of risk.</p>	<p><b>Section 2</b> states that the Project will comply with Queensland Dam Safety Management Guidelines which outlines best practice in dam safety and embraces the philosophies of the Australian Committee on Large Dams Guidelines. Whilst this guideline is primarily advisory in nature, permit conditions imposed on dams under the provisions of the <i>Water Act 2000</i> and IPA may reference relevant sections of the Queensland Dam Safety Management Guidelines.</p> <p>The operation phases of the Project will adopt measures to account for climate variability and weather or weather-related extremes. These measures include:</p> <ul style="list-style-type: none"> <li>■ design the spillway to pass probable maximum flood for the site;</li> <li>■ provide for rapid draw-down of the storage in the event of a dam safety emergency;</li> <li>■ prepare flood management plans for operation;</li> <li>■ prepare storm management plans;</li> <li>■ prepare fire management plans for operation; and</li> <li>■ brief all personnel on safety during extreme weather events and fires.</li> </ul>

Hazards and risks associated with the Project are discussed in **Sections 3, 6 and 26**.

### 7.1.2.2. Regional planning framework

The IPA provides for the development of regional plans by the State Government to provide region-wide guidance for planning schemes and development. The Whitsunday Hinterland and Mackay (WHAM) Regional Plan was released in early 2005 and covers the Project area. The WHAM Regional Plan is a non-statutory document that establishes a strategic framework for guiding growth and development in the region over the next 20 years. It was prepared to provide a clear vision for sustainable growth and development and to ensure that the economic strengths that underpin the region are managed for the growing community. The WHAM Regional Plan identifies the need for the timely provision of regional infrastructure to support the existing and future population in the region.

The Isaac Regional Council local government area, within which the Project sits, is covered by the WHAM Regional Plan. **Figure 7-3** shows the Project area in the context of the local government boundaries.

#### □ Regional goals and strategies

Regional goals and strategies provide an overarching policy and planning framework through which the WHAM Regional Plan can be achieved. The policies relate to regional identity, leadership and management, environment and natural resources, economic development, social infrastructure, settlement patterns, infrastructure and transport.

The following regional policies are of particular relevance to the Project:

- Environment and Natural Resources;
- Economic Development;
- Social Infrastructure; and
- Infrastructure.

**Table 7-2** identifies and comments on the relevant regional goals and strategies in regard to the Project.

**Table 7-2 WHAM integrated regional goals and strategies**

Regional groupings	Goal	Comment
Environment and Natural Resource Management	To adopt a coordinated approach by all stakeholders to sustainably manage the region's natural resources and environment.	SunWater is consulting with all relevant regional and local stakeholders in regard to the Project as well as the provision of water to support the management of the region's natural environment.
	To conserve and enhance the biological diversity and ecological integrity of the region's terrestrial freshwater, estuarine and marine environments.	The dam is located along a waterway and areas of biological diversity. The ecological values of the area are addressed in <b>Sections 9 to 13</b> . The hydrological values of the area are addressed in <b>Section 14</b> .
	To manage the region's waterways and wetlands for the protection, enhancement and maintenance of coastal and riparian ecosystems.	The dam is located along a waterway. The ecological values of the area are addressed in <b>Sections 9 to 13</b> .
	To meet the water needs of the community, industry, agriculture	The water from the Project will be principally used for mining purposes though may also be used for urban, industrial and

Regional groupings	Goal	Comment
	and the environment on an equitable and sustainable basis.	agriculture purposes. Environmental flows will be maintained.
	To use and manage the region's land and mineral resources on a sustainable and productive basis.	The Project will utilise resources from within the water storage area through the extraction of quarry material, clay and aggregates and will utilise sand extracted from regional waterways. The water from the dam will support mining operations and agriculture in the region. GOAL, soils and geology are addressed in <b>Section 6</b> .
Economic Development	To establish a stable, cost competitive and sustainable climate for business and investments that facilitates economic growth and employment in the region.	The region consists of a large number of mining operations as well as farming and grazing operations that inject money into the local economy. The Project will support the mining industry in the area by the provision of a dedicated water supply. Water may also be supplied to agricultural uses and urban areas. Economic benefits and impacts are discussed in <b>Section 25</b> .
	To support and enhance the region's mining and manufacturing industry by maximising economic benefits while managing social and environmental impacts.	The Project will assist the region's mining industry, and potentially other industries, by providing a sustainable water supply ( <b>Sections 24 and 25</b> ).
Social Infrastructure	To develop and enhance a community voice in the future planning and development of the region.	Stakeholders and the community are provided with opportunities to be involved in and influence the decision-making about the dam ( <b>Section 1</b> ).
	To meet the current and future needs of regional communities through coordination and timely planning and provision of social infrastructure service and facilities.	Recreational opportunities have been proposed to be provided by the dam ( <b>Section 24</b> ).
	To ensure that the social impact of development and change throughout the region is managed effectively.	<b>Section 24</b> addresses the social benefits and impacts of the Project. The provision of the water supply will provide employment and recreational opportunities.
Settlement patterns	To provide efficient, functional form and structure to the region's existing and future urban areas that utilises and manages natural resources effectively and maintains a high level of urban amenity.	The provision of the water supply will support the planned growth of urban areas in the region by supporting the growth and operation of the mining industry. The water supply will also be used for agricultural and possibly urban purposes. The Project will ensure that water resources are managed effectively.
Infrastructure	To provide future water infrastructure in a cost efficient, timely environmentally, culturally and socially acceptable manner, to meet the needs of the region's industries and communities.	The water supply will satisfy the needs of the mining industry and potentially other industries and communities.



### 7.1.2.3. Local planning framework

Recent local government amalgamations across Queensland have merged many local government areas into larger regional local governments with the Project located within the newly formed Isaac Regional Council local government area. The new Isaac Regional Council comprises a merger of the former Broadsound, Nebo and Belyando local government areas. **Figure 7-3** shows the Isaac Regional Council area and the former local government areas.

The IPA requires local governments to prepare planning schemes (statutory instruments) to manage growth and development. Given the recent timing of the local government amalgamations, the local planning framework is still based on the planning schemes for the former local government areas. In the future, the Isaac Regional Council will prepare a planning scheme for the newly formed local government area. However this is unlikely to occur prior to the construction of the dam.

The dam and surrounds is wholly located within the former Broadsound local government area.

#### Former Broadsound Shire Council

The Broadsound Plan was gazetted 30 September 2005 and establishes a framework for managing development throughout the former Broadsound local government area in a way that advances the purpose of the IPA. This section identifies the relevant Desired Environmental Outcomes (DEOs) and Area Classifications (zones) of the Broadsound Plan.

#### Desired Environmental Outcomes

The Broadsound Plan aims to achieve its DEOs to the extent practicable having regard to each of the other DEOs. Broad sustainable outcomes are reflected in the DEOs, which are grouped under topics reflecting the three strands of ecological sustainability identified in the IPA. The broad DEO categories are:

- Ecological Processes and Natural Systems;
- Economic Development; and
- Maintenance of Cultural, Economic, Physical and Social Well-being of People and Communities.

The detailed planning requirements and standards included in the planning scheme support the achievement of the DEOs. Development must not compromise the achievement of the DEOs. The DEOs relevant to the Project are listed in **Table 7-3**.

Under the DEO for Economic Development, GOAL is required to be protected from incompatible development and retained for the purposes of farming and grazing. The GOAL is shown on a map within the Broadsound Plan, though the mapping identifies that GOAL is not prevalent within the dam and surrounds, further assessment of GOAL in **Section 6** identifies that the area within the water storage is all Class C land.

The Broadsound Plan identifies overall outcomes for development within the former Broadsound local government area in regard to SPP 1/03. Under the DEO for Maintenance of Community Well-being, development is required to be designed to manage exposure to natural hazards by avoiding places subject to bushfires, erosion flood or landslide.

Areas of bushfire hazard are identified under the Natural Hazard Management Areas map within the planning scheme (Section 3).

**Table 7-3 Broadsound Plan - Desired Environmental Outcomes**

Desired Environmental Outcome	Comment
<p>Adverse effects on the qualities and life supporting functions of Broadsound's natural systems are minimised. Air and water quality, soil, biological diversity and ecosystems are protected and enhanced.</p> <p>The effects of development on the multiple attributes of the nearby Great Barrier Reef World Heritage Area, coastal and other wetlands and foreshores are minimised.</p> <p>Broadsound has a diverse, prosperous local economy with farming and grazing and mining the most prominent activities in the rural area and industry and business primary in towns and villages. Tourism, rural and mining based business and industries are established in locations throughout the Shire where there is strong nexus to the resources upon which they rely.</p>	<p>The impacts of the Project on the dam and surrounds on the identified matters are assessed in <b>Sections 6, 9 to 13, 16 and 17</b>.</p> <p>The impacts of the Project on the identified matters are assessed in <b>Sections 9 to 13, and 16</b>. Impacts on the Great Barrier Reef are assessed in <b>Section 27</b>.</p> <p>The Project area contains land used for a range of agricultural purposes. Impact on land used for these purposes are examined in this section and mitigation measures are recommended to prevent or minimise impacts on activities that contribute to the economic wellbeing of the area. The impacts on economic development have been assessed in conjunction with the Project need and justification (<b>Section 1</b>) which reinforces the need for additional water infrastructure to service the region's mining water supply needs.</p>
<p>High standard of public health and safety are maintained, avoiding or minimising adverse effects associated with the natural and built environments, including erosion, flood, storm tide inundation, fire and traffic hazards, together with safe domestic water supply and responsible waste disposal practices.</p> <p>Areas and places of special aesthetic, architectural, cultural, historic, scientific, social or spiritual significance and their values are conserved or enhanced.</p> <p>Residents have access to integrated networks of pleasant and safe public areas for aesthetic enjoyment and cultural, recreational and social interaction, including beaches and natural bushland.</p> <p>Adverse effects for scenic values in coastal areas, bushland and the rural countryside are minimised.</p>	<p>The impacts of the Project on the identified matters are assessed in <b>Sections 3, 6 and 26</b>.</p> <p><b>Sections 22, 23 and 24</b> examine these matters in relation to the Project.</p> <p>The impacts of the Project on the identified matters are assessed in <b>Section 24</b>. Mitigation measures are recommended for implementation to prevent and minimise impacts associated with the Project.</p> <p>Scenic Values impacted by the Project are discussed in <b>Section 5</b>. Where possible, mitigation measures have been recommended to prevent or minimise the impacts of the Project on these values.</p>
<p>A sense of community and community harmony is maintained and reinforced, including minimising conflict between proposed building and works and the design, height and external appearance of existing buildings and works in Broadsound's town and villages or with the rural landscape</p>	<p>The social and community impacts of the Project are assessed in <b>Section 24</b>.</p>

### Area classification

The Broadsound Plan delineates the preferred land use pattern through inclusion of land in area classifications and associated development controls, including levels of assessment for particular uses. Importantly, area classifications and actual land use can differ.

The relevant area classifications are shown in **Figure 7-4** for the dam and surrounds and description of each are provided in **Table 7-4**. The area within the dam and surrounds is included predominantly within the rural area classification with large tracts of land to the north-west and to the east included in the Conservation area classification. A portion of land north of the conservation area is included in the Special Purpose area classification.

**Table 7-4 Area classifications**

Area classification	Description
Rural	Consistent uses include farming and grazing, aquaculture (minor and major), industry (extractive), telecommunication facility and utility (local and public).
Nature Conservation	Adverse effects on areas of ecological significance, areas important to natural processes and areas with significant natural values are minimised including adverse effects from loss of natural vegetation, land degradation and water pollution arising from and not limited to: <ul style="list-style-type: none"> <li>■ disturbance to the land, and</li> <li>■ loss of habitat linkages with other habitats.</li> </ul>
Special Purpose	A use of premises for a public or similar purpose the nature of which would be expected to give rise to adverse effects, including public risk, noise emissions, after hour operations, odour emissions, traffic generation, visual impact and the like. The terms include: <ul style="list-style-type: none"> <li>■ a crematorium;</li> <li>■ emergency service facility;</li> <li>■ a police station;</li> <li>■ a depot or workshop facility;</li> <li>■ a correctional facility;</li> <li>■ an institution for the mentally ill;</li> <li>■ a sewage or effluent treatment facility; and</li> <li>■ a waste management facility.</li> </ul>



#### *7.1.2.4. Existing land uses*

Existing land use within the dam and surrounds is shown in **Figure 7-1** and is predominately grazing with an area of around 28 ha previously used for irrigated pastures and currently used as grazing surrounding the Marylands property, south of Connors River Collaroy Road on Killarney Collaroy Road. The topography of the area limits the extent of potential grazing. There are areas of relatively unmodified vegetation on slopes that are not viable areas for grazing. Land to the north-west and west are areas of land dedicated to State Forest and these are described as nature conservation within ALUM.

The dam and surrounds consist of five properties varying in size, all with a number of dwellings, sheds and associated infrastructure. The locations of the dwellings are identified in **Figure 7-1**.

A number of roads, easements, electrical and communication facilities exist within the dam surrounds and these are identified in **Figure 7-1**. Ergon energy powerlines service the existing dwellings. The road network consists of a small number of gazetted roads as well as an un-gazetted road which runs between Tierawoomba Road and Connors River Collaroy Road.

A section of the pipeline route also occurs within the former Broadsound Shire Council area. Details of the pipeline route are provided in **Section 7.1.3**.

#### **7.1.2.5. Land tenure**

This section describes the existing tenure of land within the dam and surrounds.

Land tenure in the dam and surrounds is largely leasehold. The Undercliff and Doreen properties are held under freehold tenure. Two parcels of land to the east and west of the water storage area are dedicated State Forest. Land tenure is shown in **Figure 7-5**.

Other tenures that exist within the dam and surrounds are:

- road reserves;
- an easement which contains powerlines near the junction of the Killarney Collaroy and Collaroy Road running north-south to where the easement then deviates north-west from the dam;
- an easement which contains powerlines adjacent to the Marlborough Sarina Road; and
- Unallocated State land along the waterways.

#### **Native Title**

At the time of writing this EIS:

- SunWater had undertaken an assessment of the native title extinguishment status of the lands the subject of the dam and surrounds; and
- SunWater was undertaking an assessment of the appropriate native title future act compliance measures where applicable.

The relevant Native Title Representative Body for the dam and surrounds is Queensland South Native Title Services. No formal native title discussions had been entered into with any native title claimant at the time of writing. Barada Barna People QC08/11 are the registered native title claimants for the dam and surrounds. It is SunWater's understanding that native title has been extinguished over all lots within the inundation area except for Lot 4974 on PH1462. SunWater intends to negotiate an ILUA for the extinguishment of native title over that property.

#### **7.1.2.6. Infrastructure**

The Australian Bicentennial Trail (Bicentennial Trail) is a non-motorised, self reliant, multi-use trekking route, stretching 5,330 km from Cooktown in North Queensland to Healesville in Victoria. The Bicentennial Trail runs directly through the dam and surrounds from north to south and is situated within horse trails, private roads and road reserves. The Bicentennial Trail is shown on **Figure 7-1**.

Other infrastructure within the dam and surrounds include:

- a telecommunications tower located near Collaroy Homestead;
- low voltage Ergon powerlines;

- gazetted roads such as Connors River Collaroy Road, Killarney Collaroy Road and Collaroy Tierawoomba Road (Section 21);
- private roads and tracks;
- bridges and culverts; and
- rural property infrastructure such as a house, fences, gates, cattle grids and stockyards.



### 7.1.3. Pipeline

The existing environment of the area surrounding the pipeline route between the dam and Moranbah is discussed in this section.

#### 7.1.3.1. State Planning Framework

The State planning framework is discussed in **Section 7.1.2.1**.

#### 7.1.3.2. Regional Planning Framework

The regional planning framework is discussed in **Section 7.1.2.2**.

#### 7.1.3.3. Local Planning Framework

The pipeline route is situated within the former local government areas of Broadsound, Nebo and Belyando. The relevant pipeline components include the same attributes of the planning scheme for the former Broadsound Shire Council as described in **Section 7.1.2.3**. This section describes the planning scheme which currently is in effect for the former Nebo and Belyando local government areas.

#### Former Nebo Shire Council

Development within the former Nebo local government area is regulated by the Nebo Shire Plan, which was gazetted 18 February 2008. The Nebo Shire Plan comprises a Planning Scheme Strategy, which sets out a broad planning framework and DEOs, land use designations and associated development codes.

### Desired Environmental Outcome

The DEOs relate to a broad range of issues that contribute to ecological sustainability which are grouped under topics reflecting the three strands of ecological sustainability identified in the IPA. These are:

- Ecological Processes and Natural Systems;
- Economic Development; and
- Maintenance of Cultural, Economic, Physical and Social Well-being of People and Communities.

The DEOs for Economic Development require that GOAL and other rural lands capable of supporting primary production activities, are protected as a significant economic resource. The GOAL is shown on a map identifying areas suitable for grazing and for cropping purposes. Further assessment of GOAL is in **Section 6**.

In addressing SPP 1/03, the Nebo Shire Plan provides for the safety of the community by prohibiting development in areas prone to bushfires, flood and/or landslides. These areas are identified on a map within the planning scheme.

The key DEOs relevant to the Project are identified in **Table 7-5**.

**Table 7-5 Former Nebo Shire - Desired Environmental Outcomes**

Desired Environmental Outcome	Comment
The Shire's rivers and creek systems, and associated catchment areas, are protected from adverse impacts and incompatible development.	In relation to the pipeline the impacts of the Project on the identified matters are assessed in <b>Section 14</b> .
Remnant vegetation and, in particular, riparian corridors are protected maintained and enhanced to maximise biodiversity and areas of flora and fauna habitat.	<b>Sections 9 to 13</b> discuss the remnant vegetation, flora and fauna of the Project area and assess the impacts of the Project.
The open space network, including the Bicentennial Trail and Mackay Highlands Great Walk, provides a range of accessible and useable recreational opportunities.	The impacts of the Project on the identified matters are assessed in this section and <b>Section 24</b> .
Areas displaying significant landscape values in the Shire are protected from encroachment by incompatible development.	Impacts on landscape values are assessed in <b>Section 5</b> . Mitigation measures are recommended where appropriate.
Good Quality Agricultural Land (GOAL) and other rural lands capable of supporting primary production activities are protected as a significant economic resource.	Assessment of the impacts of the Project considers the loss of GOAL and impact and activities contributing to the Shire's economy. Assessment of GOAL is in <b>Section 6</b> . Mitigation measures are recommended where appropriate.
Necessary infrastructure, which is protected from incompatible development, is provided in a timely and cost effective manner to support the ongoing development and future establishment of beef production, agricultural farming and coal mining uses to ensure continued economic development within the Shire	The Project will provide water supply infrastructure that is acknowledged under the Central Queensland Regional Water Supply Strategy 2006 as being essential to meeting the water supply needs of mining and associated urban growth in the Bowen Basin and northern Surat coalfields. Assessment of the impacts of the Project considers the loss of GOAL and impacts to the Shire's economy ( <b>Section 6</b> ). Mitigation measures are recommended where appropriate.
The values or areas or places of cultural heritage significance are protected, maintained and enhanced.	The impacts of the Project on the identified matters are assessed in <b>Sections 22 and 23</b> . Mitigation measures are recommended for implementation in association with this Project to prevent and manage impacts on these matters.
The provision and safe operation of necessary infrastructure, including water and sewerage systems, roads, electricity supply networks and transmission grid, telecommunication systems, cane tramways and rail networks, in accordance with the differing needs of the urban and rural localities of the Shire.	The dam and pipeline will be designed appropriately and where infrastructure is affected it will be replaced/relocated as required.
The safety of the communities is maintained by ensuring development does not occur in areas prone to bushfires, flood and/or landslides.	Assessment of the impacts of the Project considers the impacts on areas prone to bushfires, flooding and landslide ( <b>Sections 3, 6 and 26</b> ). Mitigation measures are recommended where appropriate.

### Preferred dominant land uses

The Nebo planning scheme delineates the preferred land use pattern through inclusion of land in localities and associated development controls, including levels of assessment for particular uses. **Figure 7-6** shows the preferred dominant land use pattern within the Project area. The majority of the pipeline route is situated on land included in the rural locality with small areas included in the Special Purpose locality and an area within the Dipperu National Park included in the Open Space locality. The key elements of the localities that relate to the pipeline are identified in **Table 7-6**.

**Table 7-6 Zones - Nebo Shire Plan**

Zones	Key elements
Rural	Rural areas accommodate a range of traditional, new and emerging agricultural and primary industry activities together with areas of natural and/or landscape significance.
Urban Expansion	Primary focus for the administrative, civic, cultural commercial and industrial activities in the shire.
Commercial Purpose	Multi-purpose, community places serving a variety of retail, commercial service and community functions.
Industrial	Industrial uses are located and designed and managed to be compatible with other uses and works.
Community Purpose	That community uses do not adversely impact on adjoining residential uses, are timely and cost effective and are located, managed and designed to be compatible with other uses and works.

**Former Shire of Belyando**

Development within the former Belyando Shire local government area is regulated by separate town planning schemes, whilst a draft Planning Scheme, which was released for community review and comment in mid-2007, includes the whole of the local government area. The Town of Moranbah and Environs Transitional Planning Scheme, gazetted in September 1993 is the current planning instrument for the Town of Moranbah whilst the draft Belyando Planning Scheme has been lodged with the State government will direct the potential future outcomes prior to the coming into effect of the Isaac Regional Council Planning Scheme.

The Town of Moranbah and Environs Transitional Planning Scheme provides strategic direction for the future development of the urban centre and the rural land surrounding the Town of Moranbah (Table 7-7).

**Table 7-7 Town of Moranbah and Environs Transitional Planning Scheme – Strategic Plan**

Preferred Dominant Land Uses	Description
Rural – to protect and encourage beef production and agriculture in the planned area and to provide for the needs of people supported by Primary Industry.	The impacts of the Project on the identified matters are assessed in this section and <b>Section 25</b> .
Major Public Open Space – to provide a diverse range of open space for all community and regional needs.	The impacts of the Project on the identified matters are assessed in this section and <b>Section 5</b> .
Urban – to enhance and safeguard the amenity of the existing and future residential areas while at the same time promoting the orderly development of commercial, industrial and other enterprises to serve the community.	The impacts of the Project on the identified matters are assessed in this section and <b>Section 25</b> .

**Draft Belyando Planning Scheme**

The Draft Belyando Planning Scheme includes a Strategic Direction and DEOs which form the basis of development provisions. The DEOs are sought to be achieved to the extent practicable whilst having regard to the other DEOs.

## Desired Environmental Outcomes and Strategies

The DEOs relate to a broad range of development issues that contribute to ecological sustainability and cover broad elements including:

- The Natural Environment and Cultural Heritage;
- Economic Development; and
- Community and Well-being.

The DEO for Economic Development requires that productive rural lands including GOAL are protected. The GOAL is shown on a map within the draft Belyando Plan. Assessment of GOAL is in **Section 6**. The draft Belyando Plan includes codes for development that address SPP 1/03. This ensures development is designed and located appropriately in regard to flood and landslides events. Each of the DEOs is supported by strategies to achieve the relevant DEO. The key DEOs relevant to the Pipeline within the Project are listed in **Table 7-8** and the potential impact of the Project on achievement of these DEOs is discussed.

**Table 7-8 Draft Belyando Shire Planning Scheme - Desired Environmental Outcomes**

Desired Environmental Outcome	Comment
In Belyando Shire, ecological systems, the natural environment (including natural features and unique habitats such as Peak Range Forest National Park, Wilandspey Conservation Park, Narrien Range National Park, Epping Forest National Park, Doongmabulla Springs Important Wetlands and the declared catchment), and items and places of cultural and heritage significance are protected such that biodiversity, cultural heritage values and existing or intended landscape character are maintained.	The impacts of the Project on the identified matters are assessed in this section and <b>Sections 5, 22 and 23</b> .
The economy of Belyando Shire is enhanced and diversified in a manner that supports the intended land use structure and character of the urban centres in Clermont and Moranbah and the rural parts of the Shire. This occurs through:— a) diversified economic activities in urban areas; b) the sustainable use of natural resources (including land, water and mineral resources).	The impacts of the Project on the identified matters are assessed in <b>Section 25</b> .
Moranbah and Clermont provide a wide range of government and community services and employment opportunities for their communities and those in surrounding areas. In addition Moranbah has a significant role as the primary service centre for the northern Bowen Basin mining industry.	The impacts of the Project on the identified matters are assessed in <b>Section 24</b> .



### Preferred dominant land uses

The draft Belyando Shire Planning Scheme map indicates broad preferred dominant land uses for the whole of the former Belyando local government area. **Figure 7-6** shows the preferred dominant land use pattern in relation to the pipeline route. The preferred dominant land use categories are described in **Table 7-9**. The area classifications of the draft Belyando Shire Planning Scheme that relate to the pipeline route are in **Table 7-10**. The majority of the pipeline route is included in the rural preferred dominant land use category.

**Table 7-9 Zones – Draft Belyando Shire Planning Scheme**

Zones	Key Elements
Rural	Is to retain its viability as an area of primary production. Rural activities are appropriately located within the Rural Zone, land are not prejudiced by inappropriate development.
Urban	Accommodates a range of residential activities that meet community needs.
Commercial	A range of 'commercial activities', 'community orientated activities', and 'indoor recreational', is accommodated within the Commercial zone.
Industry	Accommodates a wide range of industrial activities and public utilities.
Open Space and Recreation	The Open Space and Recreation "Zone" ensures the continued conservation of protected areas; and areas remain for the provision of recreational facilities.

**Table 7-10 Area classification**

Area classification	Description
Rural	The use of a premise for agriculture, aquaculture, farming and grazing, animal husbandry, forest plantation, intensive animal husbandry, kennels, produce sales, rural business, stable and stock sale yard (Nebo).
Extractive industry	Premises used for mining or an industrial activity involving; the extraction of sand, gravel, clay, soil, rock, stone or any similar substance from land, whether or not any overburden is also extracted; the rehabilitation of the land, and the treatment including crushing or screening of that substance on, or on land abutting, the land from which that substance is extracted.
Outdoor Recreation	Premises used for any sporting or recreational activities where such "use" is primarily outdoors and includes the sale of food or refreshment, but does not include a "park".
Park	an area of land and associated "buildings" or "structures" used solely for passive recreation, picnic areas or gardens, which are open without charge to the public.
Public Utility	Premises used for a waste landfill or transfer site, the supply of water, hydraulic power, electricity or gas, or provision of telephone, sewerage, postal or drainage services or the provision or maintenance of roads or traffic controls or railways or railway controls.

#### 7.1.3.4. Existing land use

Existing land use along the pipeline route is shown in **Figure 7-2**. The pipeline will be located largely within or adjacent to existing easements through mostly grazing properties and areas used for industry (extractive industry) and rural residential purposes.

The predominant existing land uses include:

- mining tenements – which are common within the Isaac Regional Council area. The current mining leases are identified in **Figure 7-2** and discussed in **Section 6**;
- major roads, including the Peak Downs Highway, Marlborough Sarina Road and the Fitzroy Development Road;
- railway lines and loops;
- grazing - the majority of the pipeline route; and
- easements which contain powerlines, water or gas pipelines.

In the former Broadsound Shire local government area, the existing land use along the pipeline route is predominately grazing. A number of roads, the rail lines, easements and pipelines occur within close proximity to the pipeline route. The road network consists of major roads such as Peak Downs Highway, Valkyrie Isaacs River Road and Fitzroy Development Road, and minor unsealed roads which provide access to the Peak Downs Highway. A number of service easements including powerlines, road, rail, gas and water are adjacent to or parallel to the Marlborough Sarina Road and the Peak Downs Highway.

Mining tenements occur along the pipeline route including along the Peak Downs Highway near Coppabella. These mining tenements are supported by rail, road, communication infrastructure and utilities. The railway provides connection between the mines and the port at Mackay. The railway and the Peak Downs Highway are the major transport links between the mining towns and Mackay. Dipperu National Park is located south of the Peak Downs Highway and borders Cockenzie Road.

A small area of residential development is located within Coppabella on the Peak Downs Highway. A new workers accommodation village has been constructed within the vicinity of Coppabella to service the surrounding mines.

### 7.1.3.5. Land tenure

Land tenure along the pipeline route is shown in **Figure 7-7** and comprises freehold, leasehold, reserve, road reserve and State Forests. The pipeline route will be co-located within, partly within, or adjacent to electricity transmission, water or gas pipeline easements, road reserves, freehold, leasehold and Unallocated State Land tenures.

The road and rail reserves are generally surrounded by leasehold and freehold land. A number of reserves exist along the road, with State land and easements located along the rail lines and rail loops to the mining tenements.

#### Mining tenure

Exploration permits for both mining and petroleum occur throughout the pipeline route and includes active mining leases. The *Mineral Resources Act 1989* provides the legislative framework for exploration, development and mining tenure in the State. This regulates the types of mining activities that are approved including prospecting permits, exploration permits, mineral development leases, mining claims and mining leases. A number of different mining tenures occur along pipeline corridors, with granted and pending applications for exploration permits, mining leases, petroleum leases and mineral development licences. Mining leases are identified in **Figure 7-2**.

#### Native Title

At the time of writing this EIS, SunWater was undertaking an assessment of:

- the native title extinguishment status of the lands the subject of the pipeline route; and
- the appropriate native title future act compliance measures where applicable.

The relevant Native Title Representative Bodies for the pipeline route are Queensland South Native Title Services and the North Queensland Land Council.

Barada Barna People QC08/11 are the registered native title claimants for the pipeline area.

### 7.1.3.6. Infrastructure

Infrastructure adjacent to the pipeline route includes:

- State controlled roads and local government roads such as Peak Downs Highway, Cockenzie Road, Valkyrie Access Road, Fitzroy Development Road, Daunia Road, Annadale Road, Poitrel Road and Broadlea Road;
- the Goonyella Branch rail line that runs parallel with the Peak Downs Highway and follows the Oxford Downs Sarina Road, and rail loops for Norwich Park Branch, Wotonga Blair Athol Mine Branch and Burton Mine Balloon Loop that service the mines off the Goonyella Branch;
- mining infrastructure such as haul roads and stockpiles of spoil and coal;
- private roads and tracks;
- Ergon and Powerlink electricity infrastructure;
- gazetted stock routes and watering points;

- quarries;
- bridges and culverts;
- rural property infrastructure such as fences, gates, cattle grids and stockyards; and
- existing pipelines of the Eungella water extension, telecommunications and other pipeline licences including Arrows recent gas pipeline.



#### 7.1.4. Associated infrastructure

The associated infrastructure required for the water storage component of the dam and surrounds comprises:

- upgrading 20 km of the Connors River Collaroy Road from the Marlborough Sarina Road to the dam site;
- closing sections of the Connors River Collaroy Road, Collaroy Tierawoomba Road and Killarney Collaroy Road;
- establishing a rock quarry, sand extraction and road base extraction area near the dam or water storage area;
- provision of a temporary construction camp near the dam site;
- removal of existing low voltage electrical transmission infrastructure;
- relocation of a telecommunications tower;
- construction of new 66kV supply lines (conceptually from the Nebo substation) to the dam. The location of this supply line will be determined by energy providers;
- installation of telephone and data services for construction camp accommodation, dam site office and permanent dam facilities;
- installation of new gauging stations at headwater and tailwater of the new dam and at major tributaries upstream of the dam; and
- provision of a recreation area at the dam.

For the pipeline component the associated infrastructure includes:

- providing a permanent, very low level causeway crossing of the Connors River approximately 6 km below the dam to service pipeline construction and on-going pipeline maintenance vehicles;
- providing temporary pipeline construction crossings of Funnel Creek and Denison Creek;
- establishing new shallow water bores and associated turkeys nest storages at a number of pipeline watercourse crossings for the purpose of small volumes of construction water;
- establishing one or more sand extraction areas in or adjacent to watercourses crossed by the pipeline;
- construction of 66kV powerline (conceptually from the Nebo substation) to the second pipeline pump station; and
- provision of two temporary construction camps on the pipeline route.

The existing environment relevant to the associated infrastructure for the Project is the same as for the dam and surrounds or the pipeline.

## 7.2. Potential impacts and mitigation measures

This section identifies the potential impacts of the construction and operation of the Project on current land uses, infrastructure, tenures and the compliance with relevant planning scheme provisions as identified in **Section 7.1**. It also identifies measures to avoid or minimise any potential adverse impacts.

### 7.2.1. Dam and surrounds

#### 7.2.1.1. Planning

The outcomes sought by the State, regional and local planning framework would be affected by the loss of GOAL and rural designated land within the dam construction and water storage area. This loss of 5,850 ha affects the achievement of the DEO's of the Broadsound Plan which supports the rural activities and is further discussed on **Section 6**. However, the loss of GOAL would be offset by the creation of a water supply which would support the mining industry, downstream agriculture and other potential uses (e.g. recreation or other actions). The dam would comply with the DEO in relation to strategies for mining growth. From a regional perspective, the loss of GOAL and rural designated land would be minor and is adequately offset by the benefits for the noted users.

The dam and water storage area and the recreation area should be reflected in the local planning scheme through a future planning scheme amendment or a new planning scheme preparation process. The planning outcomes would relate to the protection of water quality and the provision of recreational opportunities. SunWater propose that the recreation area be managed by Isaac Regional Council.

#### 7.2.1.2. Land uses

The affected properties in the area of the dam and surrounds are listed in **Table 7-11**. Five grazing properties as well as three small lots held by the State, Isaac Regional Council and Telstra are directly affected by the construction and operation of the dam, water storage area and recreation areas. In addition, two properties, Mountain View and Deacey, are affected as a result of access and powerline severance. Assessments have shown it is not economical to provide access appropriate to heavy transport vehicles (i.e. cattle crates) to these isolated properties. While not directly impacted by water storage area or works, these properties have therefore been included in the acquisition program. Impacts vary across the properties and include a loss of grazing area, loss of dwellings and farming infrastructure, and loss of viability of the property. The current sole access to Collaroy State Forest is also severed as is the most easterly of three access points to Tierawoomba State Forest.

**Table 7-11 Affected properties – dam and surrounds**

Land Description	Address	Description of Current Use/ infrastructure	Potential Impacts
Lot 6 KL194, Lot 1 KL155 (freehold) 9,945 ha Special lease on Lot 7 K190	Undercliff	Dwelling and large areas of cleared land used for grazing, supported by infrastructure including fences and cattle yards. The special lease is for grazing purposes in Tierawoomba State Forest	High impact as water storage area would occupy 683.5 ha of the property. Would affect the agricultural activities and future rural use as movement within property is restricted at FSL. Access to property from the south would be severed by dam although it would still be readily accessible from Collaroy Tierawoomba Road. Native

Land Description	Address	Description of Current Use/ infrastructure	Potential Impacts
			title claim QC08/11.
Lot 4974 PH1462 (freehold) 15,600 ha	Ridgeland	Dwelling and large areas of cleared land used for grazing, supported by infrastructure including fences and cattle yards. An area south of the dwelling has been used for irrigated agriculture.	High impact as the water storage area would split the property into two. A significant proportion of the water storage area would occur within this property. Inundated area comprises more productive grazing land and river access. Dwelling and associated infrastructure would be inundated. A large portion of land is still available albeit not as productive areas. Access to dwelling would be lost. Potential establishment and construction of quarry on property. Native title claim QC08/11.
Lot 10 SP112044 (leasehold) 21,200 ha Special lease on Lot 11 K196 and Lot 28 on FTY313	Collaroy	Dwelling and number of associated infrastructure and buildings. There are large areas of cleared land used for grazing supported by infrastructure including fences and cattle yards. An area of land has been used to grow irrigated crops. The special lease is for grazing purposes in Collaroy State Forest	High impact with partial loss of land within water storage area and separation of land parcels. A significant proportion of the water storage area would occur within this property. Inundated area comprises of more productive grazing land and river access. Potential major access issues as access via Connors River Collaroy Road would cease to exist. Native title claim QC08/11.
Lot 4 KL209 (leasehold) 21,500 ha	Marylands	Dwelling and large areas of cleared land used for agricultural activities and grazing supported by infrastructure including fences and cattle yards. An area of land has been used to grow crops next to Collaroy Creek.	Low to moderate impact on property, with 3.4% inundated though this is the more productive land. Water level at FSL restricts movement within property. Access to the property would be an issue, as access via Connors River Collaroy Road would cease to exist. Access options to the south are poor by comparison. Improved water availability to the property. Potential establishment of construction quarry on property. Native title claim QC08/11.
Lot 1 KL 163 (leasehold) 7,567 ha	Doreen	Dwelling and large areas of cleared land used for grazing, supported by infrastructure including fences and cattle yards.	Low impacts to the property are anticipated. No access issues, only minor land loss. Potential reduction in water flowing in The Connors River downstream of dam through the Doreen Property. Potential impacts due to increased traffic during construction and operation including visitors to the recreational area east of the dam. Potential establishment and construction of quarry on property. Native title claim QC08/11.
Lot 3 on KL 6	Mountain View	Remote largely naturally vegetated grazing land. Improvements include dwelling, sheds, yards and fences.	Access and powerline severance. Native title claim QC08/11.

Land Description	Address	Description of Current Use/ infrastructure	Potential Impacts
Lot 4261 on PH2268	Deacey	Remote largely naturally vegetated grazing land. Improvements include dwelling, sheds, yards and fences.	Access and powerline severance. Native title claim QC08/11.
Lot 1 on SP112044		Telstra Repeater Tower	Inundation. Native title claim QC08/11.
Lot 12 on KL204		Isaac Council Reserve	Inundation. Native title claim QC08/11.
Lot 8 on KL 1		Unallocated State Land	Inundation. Native title claim QC08/11.

As identified in **Table 7-11**, a number of grazing properties will be affected, with access issues, loss of land and infrastructure impacting on the use of the properties. DERM is managing the land acquisition process associated with the dam and water storage area and will develop the final purchasing strategy for the voluntary acquisition phase of the Project (currently underway). The decision as to full or partial acquisition is based on the degree of impact due to the Project and negotiations between DERM and the landholder.

As noted in **Section 2**, SunWater's preference is that ownership of land which is either inundated, within the flood margin, or in the construction footprint is transferred to SunWater along with the offset consideration on areas above these margins where a secure form of tenure can be agreed with DERM. If such an arrangement is concluded, access and power will not be restored to any of the wholly purchased properties. Portions of land could potentially be leased back where they are still viable and with road access severance issues considered (e.g. Undercliff). SunWater has no objection to grazing continuing in viable parts of the catchment but leaseback arrangements would need to be cognisant of the overriding requirement to protect water quality in the storage and maintenance of the environmental offset benefit attributable to the land. Approximately 80,000 ha above the FSL which may be purchased as part of the Project, will be managed largely for vegetation and biodiversity offsets and other environmental purposes.

As there will be no road access for cattle trucks (except Undercliff which retains good access to the north), the management of cattle would likely preclude large vehicle use and may entirely exclude grazing as a practical and viable land use. The economic viability of the properties after acquisition is discussed in **Section 25**.

The existing land uses within the dam and surrounds include a number of waterway Unallocated State Land parcels including Connors River (as well as a small parcel of land within Collaroy being Lot 8 on KL 1). The construction of the dam and the creation of the water storage area will result in a loss of these natural waterways.

#### **Bicentennial Trail**

The impact on this section of the Bicentennial Trail will be significant, with the water storage area closing the current trail route. Currently the Bicentennial Trail runs through the centre of the water storage area from north to south utilising the road reserves and un-gazetted roads associated with the Collaroy Tierawoomba Road. A section of the trail will be permanently closed during construction and operation thus requiring an alternative route. Consultation with the National Bicentennial Trail organisation will be conducted to discuss the potential location of a new route. The new route will potentially affect a number of landowners and stakeholders if private land is utilised.

#### Roads

A number of gazetted and un-gazetted roads in the area will be inundated. Impacts regarding roads are discussed in Section 21.

#### Flood margin

At the completion of construction, a flood margin will be established above FSL. The flood margin will be owned and managed by SunWater to protect water quality and environmental offsets. Such protection will include exclusion of development within close proximity of the water storage area and the potential re-vegetation of drainage lines.

It will be recommended that the Isaac Regional Council incorporate within the planning scheme the water storage and protection of the catchment of the storage from inappropriate development such as intensive agriculture.

#### *7.2.1.3. Tenure*

The dam and water storage area will impact a number of different land tenures. Freehold, leasehold, Unallocated State Land, road reserves and easements are present within the water storage area. Construction of the dam and subsequent water storage will change the use of the land requiring a change in tenure (e.g. public utility/reserve).

Some reconfiguration of land parcels is possible and the upgrade of the access road and new communication and power infrastructure will require changes in tenure (e.g. reserves and easements).

Native title rights and interests are further discussed in the Section 23.

#### *7.2.1.4. Infrastructure*

The water storage area will sever access to a number of properties within the surrounding area. It is expected that most of the affected properties will be acquired in full, eliminating future access needs although access for land management will be required. .

The dwellings on the Collaroy and Ridgeland properties, including associated infrastructure, will be inundated or significantly affected by water storage (**Figure 7-1**) (for example the dwelling on the Collaroy property will sit on an island within the storage area). Boundary alignments and fencing for all impacted properties will be affected.

A telecommunications tower within the water storage area near the Collaroy residence will need to be relocated (**Figure 7-1**) and initial consultation with Telstra suggests a preferred location on a high area near the recreation area. The existing radio repeater type technology associated with the existing telecommunications tower may be upgraded to mobiles technology. Telstra (and SunWater) are obligated to provide levels of service to customers who remain serviced by the relocated facility as mandated under Telstra's Universal Service Obligations.

Ergon Energy power infrastructure will also be inundated and need to be removed. However the replacement of this infrastructure will not be required for the inundated properties that are no longer viable. Under any circumstance whereby an existing Ergon customer is impacted by the Project and cannot be reasonably re-connected to Ergon's local supply network, conversion to an Ergon remote area power supply system would likely be facilitated by SunWater. However, as noted, this is not envisaged as likely given the preferred land purchase and management strategy.

### **7.2.1.5. Mitigation measures**

The acquisition of affected properties will involve compensation to landholders. For the remaining properties, primarily Undercliff and Doreen, replacement infrastructure will be provided where necessary (new fences and gates, culverts or signage) to mitigate the impacts. SunWater's preferred acquisition and land management strategy eliminates the need for replacement road access and electricity supply infrastructure to those properties severed by the water storage area and ensures that adequate environmental offsets are available.

In order to protect the water quality within the storage, development within the flood margin will be limited. This is to ensure that water entering the water storage area does not detrimentally affect water quality but also so that backwater floods do not impact on infrastructure. In areas which are no longer viable this will occur naturally but in areas where current land uses are likely to continue, such as Undercliff, prescribed restrictions will be necessary. Consultation will be undertaken with the Isaac Regional Council regarding the implementation of water quality protection measures for the catchment area and future development restrictions in the flood margin of the storage as part of future planning scheme amendments.

The impact on roads, the Bicentennial Trail, powerlines and the telecommunications tower will be mitigated through the relocation or removal of infrastructure as dictated by the future need. Inundated roads will be closed and only the dam access road will be upgraded. An alternative route for the Bicentennial Trail will be provided as necessary and this will be done in consultation with the Bicentennial National Trail Organisation.

The Ergon low voltage powerlines impacted by the water storage or severance will be decommissioned and removed from the water storage. Ergon have suggested that these redundant resources could be recovered by them under a commercial agreement with SunWater.

Specific mitigation measures in relation to the construction impacts on adjoining land uses, (e.g. dust and noise nuisances and amenity issues) are addressed in **Section 5, 17 and 19**.

## **7.2.2. Pipeline**

This section identifies the potential impacts of the construction and operation of the pipeline on current land uses, tenures and the outcomes sought by planning instruments. It also identifies measures to avoid or minimise the potential adverse impacts.

### **7.2.2.1. Planning**

The pipeline satisfies the aims of the WHAM Regional Plan and the DEOs and strategic direction of the Broadsound, Nebo, and Belyando planning schemes in regard to the provision of water to support the mining industry and agriculture (via downstream release) and potentially urban areas. This would support continued economic development within the area.

The regional economy is generally based on coal mining and agriculture (**Section 25**). The planning schemes reflect the need to support and enhance these activities, which the pipeline would do by providing a secure water supply.

The change of use of the land acquired to accommodate the associated pipeline infrastructure may need to be reflected in the planning schemes, in particular the 30 ha requirement for the 600 ML pipeline balancing storage and smaller areas

including pumping stations and 5 ML balancing storage. This would occur through a future planning scheme amendment or through the preparation of a new planning scheme.

#### **7.2.2.2. Land uses**

The pipeline will affect a number of properties, existing easements and roads. The pipeline will be located largely adjacent to or partly within existing easements (power, water, gas and rail), freehold land and formed and unformed road reserves from the dam to Moranbah. For the location and description of the pipeline route refer to **Section 2**.

A section of pipe to the west of the dam will require a new easement through freehold and leasehold land. This land is currently used for grazing. Use of this land will be affected temporarily during construction, and in areas where the pipe is above ground it will impact access and cattle movement. It is intended that the location and detailed design of pipeline crossings be discussed with this single landholder to achieve a mutually agreeable design of the above ground pipeline sections.

After the easement through freehold and leasehold land the pipeline will be co-located within or contiguous with existing easements and installed underground. During construction, the pipeline will be located within a maximum 30 m wide temporary construction easement, though in many sections of the alignment this is reduced to 25 m or less as a result of easement sharing with existing linear infrastructure easements. During operation this easement width is reduced to approximately 15 m of permanent access easement. The co-location of the pipeline with existing infrastructure may affect future infrastructure development. However the pipeline is generally located outside the Peak Downs Highway reserve as each piece of existing linear infrastructure has obtained an easement/permit to occupy of sufficient width to cater for long term development.

Impacts to property access will occur during construction within road corridors resulting in temporary access changes. These will be very short term, usually only a few days, and alternative access will be provided by the construction contractor.

The pipeline route deviates into two options approximately 12 km west of the town of Coppabella. The major consideration, yet to be fully assessed, is the impact of future long wall coal mining activities in the vicinity of the balancing storage on the preferred southern route. If suitable long-term access for construction of this large balancing storage on the southern route cannot be obtained, the northern route will be the preferred option.

#### **Northern route into Moranbah**

The northern route follows existing easements (power, BMA water, SunWater water) to its final destination north of Moranbah. The location of the pipeline is in close proximity to active mining tenements, rail lines and rail loops which may limit the future expansion of the rail and line and loops or duplication of the rail line though rail lines tend to remain in place for long periods of time. The location of the pipeline in or adjacent to existing easements will reduce the impact on the surrounding land uses.

#### **Southern route into Moranbah**

The southern route continues adjacent to the Peak Downs highway before it deviates in a north-westerly direction approximately 10 km from the Moranbah Access Road within an existing easement. The pipeline is located within an

unformed road reserve and adjacent to the Millennium Pipeline before crossing the Isaac River and skirting around the northern residential outskirts of the town of Moranbah to its final destination. Land use impacts are minor with the pipeline residing within or adjacent to existing easements. The pipeline may reduce the availability of that easement for other services.

The pipeline is supported by above ground infrastructure including surge tanks, balancing tanks, scour outlets and control valves. This infrastructure will be located over or next to the pipeline and is usually fenced to protect it from damage by farm vehicles, maintenance vehicles if in a shared easement, or stock. As there is some flexibility in the exact placement of this infrastructure, the detailed design will take account of issues such as potential interference with line-of-sight on a roadway or similar detailed and safety review design factors.

### **7.2.2.3. Tenure**

The land tenure affected by the location of the pipeline is identified in **Section 2**. The pipeline will be located within or be contiguous with existing easements, road reserves, State land and some freehold and leasehold land. The pipeline route through freehold and leasehold land would require the creation of a new easement. The location of pipeline associated infrastructure may occur outside of the easements in potentially freehold or leasehold land. The tenure in these circumstances will need to be changed following acquisition from freehold/leasehold to easements. Consultation will need to occur with landholders and relevant agencies in regards to permits to occupy, leasing agreements and ownership of land.

SunWater will acquire the tenure for the balancing tanks and pumping stations. These parcels of land are in addition to the pipeline corridor and will impact on the existing land uses, which are predominately grazing. Consultation will need to occur with the affected landholder to determine acquisition and compensation.

#### **Northern and southern route into Moranbah**

Tenure impacts from the location of the northern and southern route will be minor with the pipeline located within or adjacent to existing easements and road reserves. Consultation with the existing service provider or easement user will continue to ensure there are no potential conflicts as a result of co-locating services.

### **7.2.2.4. Mitigation measures**

The co-location of services will be managed through continuing consultation with the infrastructure providers that will potentially be impacted (i.e. Queensland Rail, Department of Transport and Main Roads, Powerlink, Ergon, Arrow Energy as well as affected freehold and leasehold landholders). This will further reduce the impact on the existing uses, infrastructure and tenures. SunWater currently holds similar agreements in this region and elsewhere in the State.

During construction, the impact on access roads to properties will be mitigated through consultation with the affected landholders. The construction impact will be temporary, with an alternative access provided, generally within 50 – 100 m of the affected area.

Specific mitigation measures in relation to the construction impacts on adjoining land uses, (e.g. dust and noise nuisances and amenity issues) are addressed in **Sections 5, 17 and 19**.

### 7.2.3. Associated infrastructure

#### 7.2.3.1. Planning

The impacts relevant to the associated infrastructure are consistent with the assessment for the dam and surrounds or for the pipeline due to the location of the majority of the works.

#### 7.2.3.2. Land uses

Land use impacts as a result of associated infrastructure will occur through the creation of construction camps, recreational areas, quarries and sand extraction sites within the dam and surrounds and in close proximity to the pipeline, and telecommunications tower relocation.

##### Dam and surrounds

Potential locations for construction camps have been identified on the Connors River Collaroy Road approximately 10 km downstream of the dam site and at two locations along the pipeline route. The impact of the construction camps on the land use will be temporary (during the construction period) and minor, particularly given appropriate rehabilitation upon cessation of works. The selection of the final locations will aim to minimise any impacts on existing vegetation or land use in the vicinity (for example not locating the camp near cattle yards). The location will obviously require input from the construction contractor and be negotiated with the respective landholders.

A possible sand extraction site upstream of the dam will be inundated during operation, therefore having no impact on future land uses. In the event that the upstream sand extraction site is not suitable in terms of quality and yield, it is possible that sand may be required to be transported from sand extraction sites nominated west of the water storage (**Section 2**) to the dam site.

A number of potential rock quarries and possible sand extraction sites within and surrounding the water storage area are being investigated. The Right Abutment rock quarry is in a difficult location to allow post dam use. The Mt Bridget rock quarry will be situated outside and downstream of the water storage area. The impact on existing and future land uses will be limited given the rural nature of the area and limited accessibility. Marylands rock quarry is located some distance away from adequate roads for transportation and has limited accessibility. It is intended that only one of these rock quarries will be developed, based on the results of on-going engineering assessment. The selected quarry will be temporary and require the construction of haul roads to haul rock (and other manufactured product) to the dam and batch plants. The required haul road will also largely be inundated by the dam storage (except the Mt Bridget option) with the remainder serving no useful purpose as it would not connect to the remaining road network. The selected quarry will likely therefore not be of use after dam construction. The exception to this would be the establishment of the Mt Bridget rock quarry option which would potentially allow for future use after completion of the Project. Planning scheme amendments will potentially be required if Council (or other Party) was to use this quarry as a long term quarry material source.

A recreation area to be constructed abutting the FSL of the water storage area. The land use will change from rural use to public utility/reserve and it will likely require a flood easement if it is within the dam flood margin.

Access to the dam for construction and operation is to be via Connors River Collaroy Road off the Marlborough Sarina Road. The Connors River Collaroy Road will be upgraded to the dam construction site and a road will extend to the recreation area.

Other associated infrastructure works within the dam and surrounds include the decommissioning of existing low voltage powerlines (**Section 7.2.1.2**) and the provision of telephone and data services to the permanent dam facilities. The provision of these facilities will require permanent infrastructure. The location of powerlines from existing sub-stations to the dam facilities will require the creation of at least some new easements. The lines are likely to utilise existing power easements, the pipeline easement or the Connors River Collaroy Road as this will facilitate a lower impact. Impacts are likely to be minor given the rural nature of the area.

The construction of gauging stations will be required at the headwater and tailwater of the dam (the existing Mt Bridget gauging station will be considered for retention in liaison with DERM) and at major tributaries upstream of the dam. Minor impacts to existing land uses will occur with the construction of the gauging stations and access tracks.

#### Pipeline

The possible new bores and turkeys nest storages associated with pipeline construction activities will either be positioned near the sand extraction areas or near the watercourse crossings adjacent to the pipeline easement. These can either be dismantled upon cessation of the construction phase or left in place for use by the landholder if such use is in accordance with the requirements of DERM for groundwater use in this area. Stock and domestic alluvial bores in this region do not require a licence but their existence and various statistics should be provided to DERM for inclusion in the bores database. A moratorium on new bores currently exists in the area but Projects of State Significance can obtain an exemption.

The access tracks required to link the pipeline easement or balancing storage to the nearest roadway will either be existing farm tracks or new tracks. They will have a minor impact on land use. The maintenance track alongside the pipeline will be of farm track standard so will limit grass growth to an extent though the rest of the easement will be grassed as part of rehabilitation and will be suitable for on-going grazing. Sharing of maintenance tracks with other linear infrastructure operators within the shared easements will reduce the total impact.

The temporary pipe lay down areas, construction camps and sand extraction sites will lead to short term land use impacts. Consultation with landholders regarding the most suitable locations will be undertaken and appropriate compensation will be agreed.

While the impacts on the land use are likely to be minor, it will be necessary that sites are rehabilitated in a manner that supports the long term land use.

Naturally sourced sand is the preferred bedding material required for construction of the pipeline and a number of potential sand extraction sites are proposed and are shown in **Section 2**. Sand will be extracted from creek beds which are Unallocated State Land. The footprint of these sites on land outside the bed and banks will be small and temporary and they will be fully rehabilitated upon cessation of works so impacts are expected to be minimal. Erosion control and re-establishment of stable landforms and grass cover are items of most importance to ongoing grazing land use.

### **7.2.3.3. Tenure**

Impacts to land tenure from associated infrastructure will be consistent with the assessment for the dam and surrounds. Tenure changes would be required for the gauging stations, the recreation area and the rock quarry (if selected quarry is outside the water storage area). However the gauging stations may be included within the tenure of the dam.

The Right Abutment, Mt Bridget and Marylands rock quarry options are located on leasehold land outside of the water storage area and flood margin. Potential impacts may arise from the leasehold grazing conditions not allowing the carrying out of quarrying or extraction. If so, a change in tenure arrangements will be required and would occur when ownership was transferred to SunWater.

The Connors River Collaroy Road is not always physically within the gazetted road reserve over some sections of the existing alignment and the required upgrades such as realigning the approaches to creek crossings, will also take it outside the reserve. Similarly, as the pipeline is proposed to run between the road and the river until it reaches the river crossing point at the new causeway, it would be advantageous to share easements as far as reasonably practicable. The former road reserve will be rehabilitated with native vegetation.

The final location of the communication tower will need to have an appropriate tenure (e.g. easement) depending on the existing tenure.

Potential tenure impacts may arise from the establishment of sand extraction sites for the pipeline route on leasehold land as the grazing lease may not allow for extractive industry to occur. This will be resolved as part of the Project approvals process.

### **7.2.3.4. Mitigation measures**

The creation and management of new uses such as the recreation areas should be included as part of local planning scheme provisions and tenure arrangements. There will be a need to amend the local planning scheme to reflect the change in land use at the recreation areas. The amendment of the planning scheme may need to include the quarries and sand extraction sites if the use of any of these areas is to be made permanent by Council. Due to the temporary nature of the construction camps, quarries and sand extraction sites, and the general isolation of the sites, mitigation measures are limited. Rehabilitation plans will be developed and the areas rehabilitated after cessation of work.

The new easements for associated service infrastructure will need to be located outside of the water storage area and flood margin.

The acquisition or lease of portions of properties to accommodate the above ground pipeline infrastructure will need to be appropriately managed in consultation with the affected landholders along with appropriate compensation. This will include the 30 ha of land for the 600 ML balancing storage on the southern pipeline route option into Moranbah. Access to the pipeline is planned to be by existing easements and access tracks wherever possible which is appropriate to reduce impacts on existing land uses.

## **7.2.4. Impact assessment and residual risks**

The methodology used for risk assessment and management is discussed in **Section 1.8**.

This section assesses the risks relevant to land use and infrastructure and summarises the mitigation measures proposed to minimise those risks.

Unmitigated consequence and likelihood ratings for the identified hazards are shown with explanatory notes in **Table 7-12**. The risk assessment is of the Project as described in **Section 2**, in which SunWater has already incorporated a range of risk reduction and mitigation measures.

**Table 7-13** presents the assessment of residual risks after mitigation.

Based on this assessment, the following conclusions can be made:

- while there will be a loss of GOAL within the water storage area and the pipeline route, in the overall context of the region, the loss of GOAL is minor.
- the opportunities for the pipeline to co-locate with others services may restrict those existing services' potential to expand. Consultation with service providers as to the location of the pipeline will reduce the risk to Low.
- changes in landforms and loss of rural land through the creation of a quarry will be offset by allowing other uses to be carried out such as extractive industries.
- based on this risk assessment, the impacts relevant to land use and infrastructure can be effectively managed and the residual risks are acceptable.

**Table 7-12 Unmitigated consequence and likelihood ratings**

Hazard	Consequence	Comments	Likelihood	Comments
Loss of GOAL in the water storage area and on pipeline route.	Minor	Large areas of QGAL will be lost within the Project area through inundation.	Almost Certain	While the loss of GOAL is unavoidable, the area of GOAL lost is minimal in a regional context.
Opportunities for co-locating of services	Minor	The co-location of the pipeline with other services in easement will limit the ability of services to expand in the future.	Possible	The co-location of services in existing easements has been discussed with the relevant service providers to reduce future impacts.
Landform changes	Minor	The quarry will change the existing use of the land.	Possible	The rehabilitation of the quarry may allow the site to be used for other activities after completion of works.

**Table 7-13 Risk Assessment Results**

Hazard	Factors	Impacts	Initial Risk	Mitigation Measures	Mitigation Effectiveness	Residual Risk	As low as reasonably practical?
Loss of GOAL in the water storage area and on pipeline route.	Inundation of the current GOAL	Loss of GOAL land	Minor X Almost Certain = Medium	Compensation and acquisition of land.	Significant	Low	Yes
Opportunities for co-locating of services	Limits future expansion of co-located services in the easement	Future expansion of infrastructure	Minor X Possible = Medium	Consultation with service providers to located the pipeline away from conflicting services	Moderate	Low	Yes
Landform changes	Creation of quarries and sand extraction sites.	Reduced rural land and future land use impacts	Minor X Possible = Medium	Rehabilitation	Moderate	Low	Yes

### 7.2.5. Cumulative risk

The combined footprint of the dam, water storage area, pipeline and associated infrastructure affects a large area of rural land as well as existing service easements and road and rail reserves. Through the planning and design process, these impacts have been minimised to the extent possible whilst maintaining a high level of co-location with other services to reduce overall impact.

### 7.3. Summary

The dam and water storage area will impact on existing rural land uses, tenures and infrastructure during the construction and operational phases. Land inundated within the affected properties results in a loss of rural land and the most productive areas of the properties. These affected properties will be acquired, generally in full. Furthermore, a number of roads and part of the Bicentennial Trail within the dam and surrounds will be inundated, impacting on access. These impacts are mitigated by the properties being acquired and consultation with the Bicentennial National Trail Organisation.

The pipeline will be located within or contiguous with a number of existing easements, roads and rail corridors minimising the potential impact on land uses, and the need for new or full width easements. In those limited sections where the pipeline resides within existing infrastructure corridors, impacts surrounding the future expansion of these facilities will be limited. The impact is likely to be minimal with the pipeline underground for most of its length, although the land use above the pipeline may be limited and a change in tenure may be required.

The provision of water to service the needs of mining operations would support mining within the area, and support development of existing towns. This is consistent with the WHAM Regional Plan and the local planning schemes which support the mining industry, infrastructure and growth of the local towns of Nebo and Moranbah.