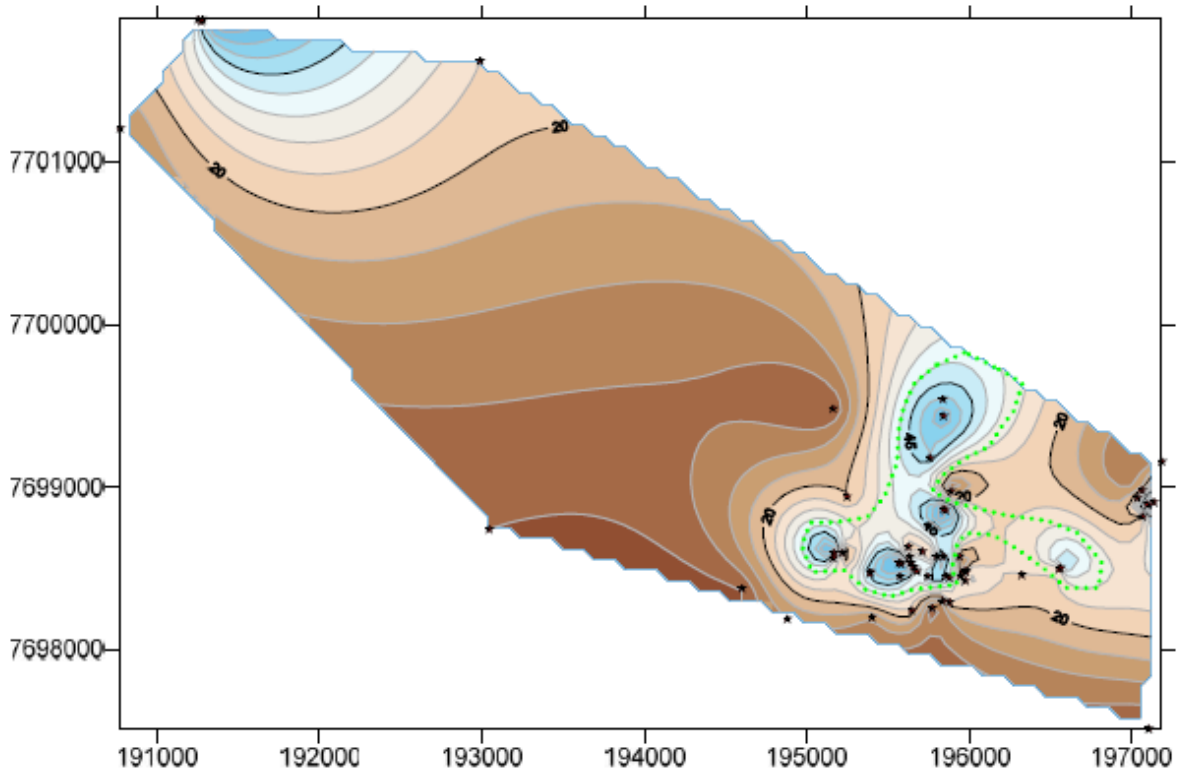
State code 10: Taking or interfering with water

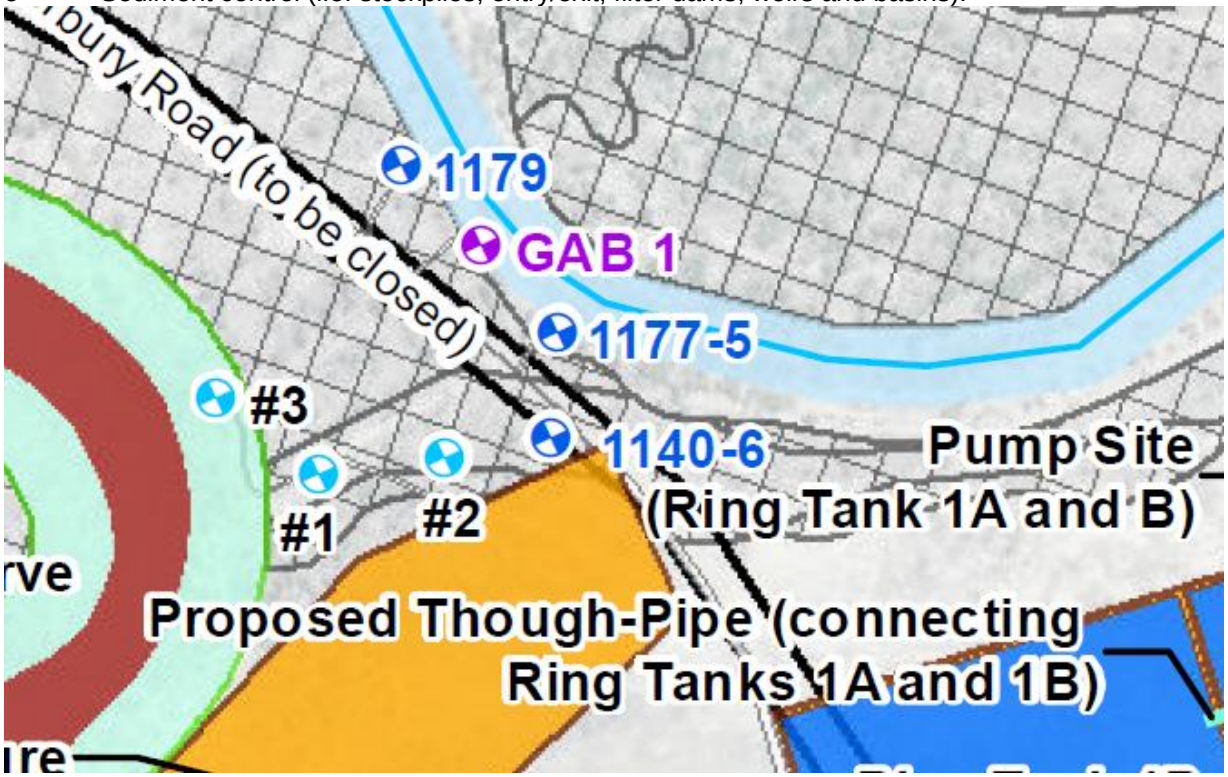
Table 10.2.2: Operational works

Performance outcomes	Acceptable outcomes	Response
General		
PO1 Works do not adversely impact on the natural riverine ecosystem.	No acceptable outcome is prescribed.	**Complies** Groundwater *Flinders River Alluvium (Bores: RN163723 / #1, RN175331 / #2, RN175333 / #3)* Bores in relation to the Flinders River Alluvium are located both within 1km and beyond 1km of the Flinders River. Three existing bores are located within 1km of the Flinders River for which Council hold an existing water licence to take water (#609134) for abstraction of 450 ML/yr (development approval is not required for these works). The remaining 3 bores located beyond 1km of Flinders River do not require a licence to take water but will require approval as per the submission of this State Code 10. The wells have been previously construction under exemptions for the investigation of aquifer properties and as such, only approval to operate the bores is required. Long-term, safe annual yield from these production bores is 1,038 ML/yr. Drilling programs have been completed for the Flinders River Alluvium with results summarised in RLA (2017 and 2018) which includes the design and location of the works and hydrogeological properties of the target aquifer. The reports are provided at Appendix A to the IAR and shall be read in conjunction with this State code. *Great Artesian Basin (Bores: Great Artesian Basin (GAB) Bore 1* A water licence is required for the take of underground water from the Great Artesian Basin with Council having made an application for an entitlement of 1,020 ML/yr. DNRME have advised that their current groundwater impact assessments required as part of the fixed price sale indicate a sustainable allocation of 720 ML/yr from the Hutton formation (within consideration to minimum separation distances and cumulative drawdowns). Council have accepted the terms of sale for this allocation. In accordance with the *Great Artesian Basin and Other Regional Aquifers Water Management Protocol* (the Protocol) and associated Water Licence conditions, a meter which complies with the standards approved by DNRME will be used to measure the volume of water taken. DNRME will monitor, assess and report on the sustainable use of Great Artesian Basin water. Wells will be constructed in accordance with DNRME's *Minimum standards for the construction and recondition of water bores that intersect the sediment of artesian basins in Queensland.*

Performance outcomes	Acceptable outcomes	Response
		<u>Surface water and overland flow water</u> As outlined within section 6 of the IAR, the project does not involve assessable development for the take of overland flow. <u>Summary</u> Based on the information outlined within the IAR and associated technical reports, the works will not adversely impact on natural riverine ecosystems. In summary, the extent of the Flinders River alluvium is generally confined to the 15 Mile site 10-18 mbgl, the mapped wetlands adjacent to the bores within the defined aquifer extent (i.e. oxbow lake) has been heavily modified and retains water due to an earthen bund constructed for the purposes of historical use for stock watering, mapped drainage features through the site are ephemeral and experience flow only following rain events, sustainable pumping schedules for production bores (i.e. sustainable pumping rates and 10-hour pumping, 14-hour recovery schedule) will be implemented, monitoring will include monthly water levels at adjacent monitoring bores and automatic water level loggers installed to production bores undertaken to confirm that there are no impacts to the groundwater aquifer and associated ecosystems, regular reviews of monitoring data will be completed to confirm groundwater predictions and refine pumping schedules. With respect to GAB bores, DNRME will only allocate a water licence in accordance with the Protocol which provides for minimum separation distances, cumulative drawdowns and groundwater dependent ecosystems. The potential for impacts to natural riverine ecosystems is therefore inherent in the GAB Water Licence process.
PO2 Works do not adversely impact other users' ability to access the resource.	No acceptable outcome is prescribed.	**<u>Complies</u>** Refer PO1. Based on the information outlined within the IAR and associated technical reports, the works will not adversely impact on other users ability to access the resource. In summary, the extent of the Flinders River alluvium is confined to the 15 Mile site 10-18 mbgl, and is not accessible to external parties for use (refer below RLA (21018) figure). With respect to GAB bores, the DNRME will only allocate a water licence in accordance with the Protocol which provides for minimum separation distances, cumulative drawdowns and groundwater dependent ecosystems. The potential for impacts to other users' ability to access the resources is therefore inherent in the GAB Water Licence process.

Performance outcomes	Acceptable outcomes	Response
		 **Figure 1: Re-defined Extent** **15 Mile Reserve High Permeability Alluvial Aquifer** **Test holes shown by a star symbol,** **Potentially productive aquifer boundary shown as a dashed green line** **Figure – RLA (2018) Flinders River High Permeability Alluvial Aquifer: Redefined extent.**
PO3 Works do not adversely impact on the physical integrity of the watercourse.	No acceptable outcome is prescribed.	**Complies** Refer PO1.

Performance outcomes	Acceptable outcomes	Response
		Based on the information outlined within the IAR and associated technical reports, the works will not adversely impact on the physical integrity of any watercourse. In summary, the extent of the Flinders River alluvium is confined to the 15 Mile site 10-18 mbgl, the mapped wetlands adjacent to the bores within the defined aquifer extent (i.e. oxbow lake) has been heavily modified and retains water due to an earthen bund constructed for the purposes of historical use for stock watering, mapped drainage features through the site are ephemeral and experience flow only following rain events, sustainable pumping schedules for production bores (i.e. sustainable pumping rates and 10-hour pumping, 14-hour recovery schedule) will be implemented, monitoring will include monthly water levels at adjacent monitoring bores and automatic water level loggers installed to production bores undertaken to confirm that there are no impacts to the groundwater aquifer and associated ecosystems, regular reviews of monitoring data will be completed to confirm groundwater predictions and refine pumping schedules. The Flinders River alluvium bores (requiring development approval) are existing infrastructure are located outside of environmental buffers to the Flinders River. Only Bore #3 is located within an environmental buffer area however as outlined above is existing infrastructure and will require limited disturbance which is not within the physical extent of the mapped wetland (refer below figure). With respect to the GAB 1 bore, it is located within an environmental buffer area however this is limited to a mapped drainage feature (i.e. not the Flinders River) (refer below figure). In addition to this, all works will be managed in accordance with the International Erosion Control Association Best Practice Erosion & Sediment Control Guidelines and Catchment & Creeks Construction Site Managers Field Guide and Builders Field Guide, Environmental Protection (Water) Policy 2009 (EPP Water) and any other relevant approval and statutory requirement. These include requirements for: o Vegetation management o Soil management o Site rehabilitation o Drainage control (i.e. catch drains, diversion banks chutes, etc.) o Erosion control (i.e. mulching dust suppression, geo-fabrics and cellular confinement systems)

Performance outcomes	Acceptable outcomes	Response
		o Sediment control (i.e. stockpiles, entry/exit, filter dams, weirs and basins).  **Figure – IAR master plan showing bore locations relative to environmental buffers.**

<table>
<tr>
<td>PO4 Works are consistent with any of the following, to the extent they are relevant to the proposed development:
1. a water plan
2. a water management protocol
3. a moratorium notice issued under the Water Act 2000.

Note: Moratorium notices are published on the Department of Natural Resources and Mines website.
An example of a requirement in a water plan is a prescribed setback distance for new water bores from other existing water bores. These requirements will be different for each water plan.</td>
<td>No acceptable outcome is prescribed.</td>
<td><u>Complies</u>

Refer Section 6 of the IAR for a detailed assessment of applicable water related legislation, plans and guidelines and summarised here.

<table>
<tr><th><u>Authority</u>
Legislation</th><th><u>Aspect of development</u>
Trigger</th><th><u>Applicability and role</u>
Level of assessment & assessment benchmark</th></tr>
<tr><td><u>DNRME (via SARA)</u>
Water Act 2000 (Water Act) and Water Regulation 2016 (Water Regulation)</td><td><u>GAB Bore 1</u>
Planning Regulation Schedule 10, Part 19, Division 1, Subdivision 3, Table 1.
Operational work for:</td><td><u>Applicable (Assessable Development) – Assessment Manager</u>
Applications are made to the State Assessment and Referral Agency (SARA) for operational work involving taking or interfering with water. Development will require assessment against the applicable requirements of State code 10: Taking or interfering with water.</td></tr>
<tr><td rowspan="2">Water Plan (Gulf) 2007 (Gulf Water Plan)
Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017 (GABORA Plan)
Planning Act and Planning Regulation</td><td>• Taking or interfering with water.</td><td>DNRME State Development Assessment Provisions guidance material: State code 10: taking or interfering with water outlines the supporting documents and level of detail required in reports, plans or other documentation to suitably assess certain types of development.
An assessment of the project against State code 10: Taking or interfering with water is provided at section 8.2.1 and Appendix E of this IAR.
Required DA Forms (refer Appendix C):
• DA Form 1: Development application details.
• Template 1: Taking or interfering with artesian or subartesian water.</td></tr>
<tr><td><u>Flinders Alluvium Bores < 1 km from Flinders River and Flinders River water</u>
Planning Regulation Schedule 10, Part 19, Division 1, Subdivision 3, Table 1.
Planning Regulation Schedule 7, Part 3, Item 5.
Operational work for:
• Taking or interfering with water</td><td><u>Applicable (Accepted Development)</u>
The proposed development is located within the Water Plan (Gulf) 2007 (Gulf Water Plan). The Gulf Water Plan regulates surface water (being water in a watercourse and overland flow) and underground water that is not Great Artesian Basin water. As per section 8(1) of the Gulf Water Plan, groundwater in an aquifer under a prescribed watercourse, or under land within 1 km of a prescribed watercourse, is declared to be water in the watercourse. As per section 8(4) (f) of the Gulf Water Plan, the Flinders River is a prescribed watercourse.
Council hold existing water entitlements associated with Lot 168 on SP262319 as follows:
• Water licence 609134 for the take of 450 ML from the Flinders River on or adjacent to Lot 168 on SP262319, Lot 167 on SP262319, Lot 22 on DG137 and Lot 60 on DG209.
• Water licence 618019 for the take of 5,000 ML from the Flinders River on or adjacent to Lot 168 on SP262319, limited to when the flow of water in the Flinders River at GS915008A exceeds 1,500 ML per day. This water licence also authorises the taking of overland flow water on land described as Lot 168 on SP262319.</td></tr>
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				Under Schedule 7 of the Planning Regulation, works that take water from a watercourse (i.e. Flinders River) is considered accepted development when: • Works involve the installation of a pump to take water that is authorised under a water entitlement. • The entitlement states the rate at which water may be taken. The proposed Flinders Alluvium Bores < 1 km from Flinders River and infrastructure for take of Flinders River water is accepted development.
			Flinders Alluvium Bores > 1 km from Flinders River Planning Regulation Schedule 10, Part 19, Division 1, Subdivision 3, Table 1. Planning Regulation Schedule 7, Part 3, Item 5. Water Regulation, Schedule 9, Part 2 Operational work for: • Taking or interfering with water.	**Applicable (Assessable Development) – Assessment Manager** For the purposes of the Gulf Water Plan, Schedule 9 of the Water Regulation prescribes works for installation of a bore as works that are not assessable development where the works are: • For an exempt bore or • Located more than: o 200 m from a property boundary and o More than 400 m from another water bore and o In an area to which water licence transfer rules under water sharing rules do not apply. Schedule 19 of the Water Regulation defines exempt bore as including (but not limited to) (b) for taking or interfering with water that is not Great Artesian Basin plan related water the water bore is used for testing the water production capacity, water production quality or hydraulic properties of an aquifer. Existing Flinders Alluvium Bores > 1 km from Flinders River as considered to be works that are not assessable development. However, the ongoing use of the bores as production bores for the provision irrigation water does not comply with the exempt bore definition, nor do the existing bores comply with the critical distances prescribed (i.e. bores are greater than 200 m from property boundary (including proposed lot reconfiguration) however, are within 400 m of each other).

				There is no requirement for a water entitlement (i.e. Licence) for the take of water from the Flinders River Alluvium > 1 km from the Flinders River. DNRME *State Development Assessment Provisions guidance material: State code 10: taking or interfering with water* outlines the supporting documents and level of detail required in reports, plans or other documentation to suitably assess certain types of development. Although Operational Works approvals are not included under section 37 of SDPWO Act and the Coordinator-General's report will not be taken to be the concurrence agency response for these aspects of the development, an assessment of the project against *State code 10: Taking or interfering with water* is provided at section 8.2.1 and Appendix E of this IAR. This assessment has been completed to demonstrate that potential environmental impacts associated with project are appropriately mitigated in line with regulatory best practice, given access to water is critical to successful delivery of the project. Formal application to the SARA will be required following the Coordinator General's assessment of this IAR. Formal application will be need to include the following DA Forms: • DA Form 1: Development application details. • Template 1: Taking or interfering with artesian or subartesian water.
			Overland Flow Storage Dam Planning Regulation Schedule 10, Part 19, Division 1, Subdivision 3, Table 1. Planning Regulation Schedule 7, Part 3, Item 5. Water Regulation, Schedule 9, Part 1 Operational work for:	**Applicable (Accepted Development)** For the purposes of the Gulf Water Plan, Schedule 9 of the Water Regulation prescribes works for taking overland flow as works that are accepted development where they comply with the *Code for self-assessable development for taking overland flow water using limited capacity works.* The proposed overland flow dam will not exceed the limitation on storage volume (250 ML) and will be designed to meet the performance outcomes and acceptable outcomes with respect to minimising physical impacts of overland flow works on neighbouring properties and as such will be considered accepted development.

			• Taking or interfering with water.	
		DNRME (via SARA) *Water Supply (Safety and Reliability) Act 2008* (Water Supply Act) Planning Act and Planning Regulation	**Hillside Dam, Ring Tank 1 and 2** Planning Regulation Schedule 10, Part 19, Division 3, Subdivision 3, Table 1. Water Supply Act Chapter 4, Part 1, Division 2, Section 243. Water Supply Act Chapter 4, Part 1, Division 2, Section 242A. Operational works for: • Referrable dams.	**Not applicable – Confirmation of DNRME's intention under Section 242A of the Water Supply Act** Section 343 of the Water Supply Act, a proposed or existing dam will need to be failure impact assessed if the dam is more than 10 metres in height and has either: • A storage capacity of more than 1,500 ML; or • A storage capacity of more than 750 ML and a catchment area that is more than 3 times its maximum surface area at full supply level. The proposed ring tanks are not anticipated to meet these criteria and as such are considered not assessable development. However, section 242A of the Water Supply Act includes provisions for the executive of DNRME to give notice to the owner of any existing dam or dam being constructed to have the dam failure impact assessed if there is reasonable belief that the existing dam, or the dam after construction, would have a category 1 or category 2 failure impact rating. Dams determined to have a category 1 or category 2 failure impact rating are considered referable dams and require development approval under the Planning Act and associated regulation. Note: the definition of population at risk for a dam failure excludes people at workplaces on which the dam is situated. Council will make individual proponents aware of their obligations under the *Work Health and Safety Act 2011* in relation the site facilities in relation to the failure impact path of storage dams.
Underground water				
PO5 Works maintain the natural ecosystem processes of the underground water system.	No acceptable outcome is prescribed.	**Complies** Refer PO1. Based on the information outlined within the IAR and associated technical reports, the works will not adversely impact on natural ecosystem processes of the underground system. In summary, the extent of the Flinders River alluvium is confined to the 15 Mile site 10-18 mbgl, the mapped wetlands adjacent to the bores within the defined aquifer extent (i.e. oxbow lake) has been heavily modified and retains water due to an earthen bund constructed for the purposes of historical use for stock watering, mapped drainage features through the site are ephemeral and experience flow only following rain events, sustainable pumping schedules for production bores (i.e. sustainable pumping rates and 10-hour pumping, 14-hour recovery schedule) will be implemented, monitoring will include monthly water levels at adjacent monitoring bores and automatic water level loggers installed to production bores undertaken to confirm that there are no impacts to the groundwater aquifer and associated ecosystems, regular reviews of monitoring data will be completed to confirm groundwater predictions and refine pumping schedules.		

		With respect to GAB bore 1, DNRME will only allocate a water licence in accordance with the Protocol which provides for minimum separation distances, cumulative drawdowns and groundwater dependent ecosystems. The potential for impacts to natural ecosystems process of the underground water system is therefore inherent in the GAB Water Licence process. In addition to this, the development will implement best practice water management techniques (i.e. soil moisture testing, trickle irrigation, leak detection, etc.) with Council developing a Water Management/Efficiency Plan inclusive of water inventory for end users as they come online and monitoring actual usage against forecasts. The Water Management/Efficiency Plan will outline the guiding principles to be adopted by all third party investors/growers within the precinct. Refer PO 22 for Salinity and sodicity issues. Groundwater quality monitoring shall be implemented on a regular basis for key indicators (i.e. pH, electrical conductivity and ionic balance).
PO6 Works minimise impacts on connectivity between underground water and water in a watercourse, lake or spring.	No acceptable outcome is prescribed.	**Complies** Refer PO1. Based on the information outlined within the IAR and associated technical reports, the works will not adversely impact on connectivity between underground water and water in a watercourse, lake or spring. In summary, the extent of the Flinders River alluvium is generally confined to the 15 Mile site 10-18 mbgl, the mapped wetlands adjacent to the bores within the defined aquifer extent (i.e. oxbow lake) has been heavily modified and retains water due to an earthen bund constructed for the purposes of historical use for stock watering, mapped drainage features through the site are ephemeral and experience flow only following rain events, sustainable pumping schedules for production bores (i.e. sustainable pumping rates and 10-hour pumping, 14-hour recovery schedule) will be implemented, monitoring will include monthly water levels at adjacent monitoring bores and automatic water level loggers installed to production bores undertaken to confirm that there are no impacts to the groundwater aquifer and associated ecosystems. Regular reviews of monitoring data will also be completed to confirm groundwater predictions and refine pumping schedules. RLA (2017 and 2018) determined that the Flinders River is not a significant contributor to groundwater within the 15 Mile site. This was determined based on groundwater flow direction being towards the Flinders River (slight gradient of 0.008 tending North). As a result, Flinders River flows have little influence on recharge to the aquifer with aquifer recharge predominantly by rainfall. The slight gradient apparent within the Flinders Alluvium has raised concerns regarding increased discharge to Flinders River. However, mitigation measures will be implemented via best practice water management techniques (i.e. soil moisture testing, trickle irrigation, leak detection, etc.) as discussed in PO5 along

		with sustainable pumping schedules for production bores (i.e. sustainable pumping rates and 10-hour pumping, 14-hour recovery schedule) including those taking from the Flinders River (i.e. surface water). With respect to GAB bores, DNRME will only allocate a water licence in accordance with the Protocol which provides for minimum separation distances, cumulative drawdowns and groundwater dependent ecosystems. The potential for impacts on connectivity between underground water and water in a watercourse, lake or spring is therefore inherent in the GAB Water Licence process.