

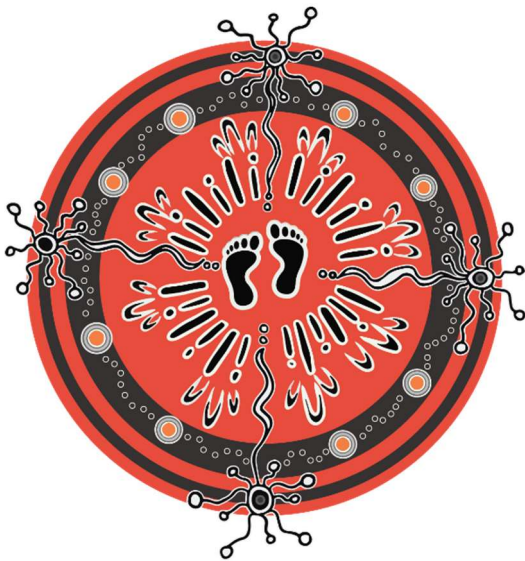
Billabong Creek Regulators

Request for additional information

September 2025



Acknowledgement of Country



Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Billabong Creek Regulators

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Appendix A – Updated mitigation measures

Appendix B – Aboriginal Cultural Heritage Assessment Report - updated

Glossary of terms and abbreviations

Term	Description
Cumulative impacts	The combined impacts of the project on a matter with other relevant future projects (see the Department's Cumulative Impact Assessment Guidelines for State Significant Projects).
Determination	A decision by an approval authority for an SSI application to either approve the application subject to modifications or conditions or refuse the application.
Environmental impact statement (EIS)	An environmental impact statement prepared by the proponent to support a SSI application.
Mitigation	Actions or measures to reduce the impacts of the project.
Operations plan	The plan that outlines the operating requirements for regulating structure with the Yanco Creek system. The new operations plan is part of the NSW SDLAM program funded by the Australian Government.
Proponent	The proponent seeking approval for an SSI application or modification request.
Proposal	A proposed project that is not yet the subject of an approved SSI application.
Proposal footprint / proposal site	The proposal footprint (also known as the disturbance area) includes all locations, terrestrial and in-stream, where the proposal directly impacts the land surface or water body. This includes clearing areas, construction activity zones, access tracks and power supply routes.
State significant infrastructure (SSI)	Infrastructure that is declared to be State significant infrastructure under section 5.12 of the EP&A Act.
Submission	A written response from an individual or organisation, which is submitted to DPHI during the public exhibition of an EIS, amendment report or modification report for SSI.
Submissions report	A report prepared by the proponent to respond to the issues raised in submissions (see the State Significant Infrastructure Guidelines – Preparing a Submissions Report).

Abbreviations	Definitions
ACHA (R)	Aboriginal Cultural Heritage Assessment (Report)
AHIMS	Aboriginal Heritage Information Management System
AS	Australian Standard
AWD	Available Water Determination The volume of water licensed users can have, known as an allocation or available water determination, varies from year to year based on the licence category and size of their individual entitlement. This allocation is dependent on a range of factors including dam storage levels, river flows and catchment conditions.
CEMP	Construction Environment Management Plan
Cth DCCEEW	Department of Climate Change, Energy, the Environment and Water, Commonwealth (Cth)
Cth	Commonwealth

Abbreviations	Definitions
DP	Deposited Plan
DPE	NSW Department of Planning and Environment, now renamed as Department of Planning, Housing and Infrastructure
DPHI	NSW Department of Planning, Housing and Infrastructure
DPI	NSW Department of Primary Industries
DPIRD	NSW Department of Primary Industries Regional Development
DPIE	NSW Department of Planning, Industry and the Environment
EIS	Environmental impact statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EWR	Environmental Water Requirement
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
GL	Gigalitre
km	kilometre
LGA	Local government area
L/s	Litres per second
m	metre
mm	millimetre
ML	Megalitre
ML/d	Megalitre per day
NSW	New South Wales
NSW DCCEEW	New South Wales Department of Climate Change, Energy, the Environment and Water formerly Water Infrastructure NSW
NSW EPA	NSW Environment Protection Authority
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal Party
SCADA	Supervisory control and data acquisition (a control system for supervision of machines and processes)
SDLAM	Sustainable diversion limit adjustment mechanism
SEARs	Secretary's environmental assessment requirements
SEPP	State Environmental Planning Policy. A type of planning instrument.
SES	NSW State Emergency Service
SSI	State Significant Infrastructure
TfNSW	Transport for NSW

Abbreviations	Definitions
WSP	Water Sharing Plan

1 Introduction and background

1.1 Proponent

New South Wales Department of Climate Change, Energy, the Environment and Water

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150

ABN: 27 578 976 844

1.2 Introduction

New South Wales Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) is proposing to replace two existing weirs along Billabong Creek with new regulators (the proposal). The two existing weirs to be replaced are Hartwood Weir and Wanganella Weir, both built in the early 20th century and currently in states of declining condition and functionality. Billabong Creek is within the Yanco Creek system in south-west New South Wales as shown on Figure 1.1.

It is intended that WaterNSW would own and operate the new regulators once constructed.

The proposal is subject to environmental and planning approvals under Part 5 Division 5.2 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). An Environmental Impact Statement (EIS) has been prepared to support the application for approval and address the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning, Housing and Infrastructure (DPHI) on 17 October 2024. The EIS (NSW DCCEEW, 2024) was exhibited by DPHI from 1 November 2024 to 28 November 2024.

On 5 December 2024 DPHI requested NSW DCCEEW to submit a response to the issues raised in submissions to the EIS in accordance with section 5.17(6)(a) of the EP&A Act. A Submissions Report (NSW DCCEEW, 2025) was prepared and provided to DPHI in June 2025. This Request for Additional Information Report identifies and responds to the issues raised by NSW Agencies and local council, to the Submissions Report.

The proposal is not subject to approval under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). A referral was submitted to Commonwealth DCCEEW in 2024, and they determined that the impacts on Matters of Environmental Significance were not significant and hence the proposal was not a controlled action and did not require approval under the Act.

1.3 Overview of the proposal

The proposal described and assessed in the EIS and Submissions Report involves replacing two existing weirs along Billabong Creek with new regulators immediately downstream of the existing weirs. The proposal is situated in rural south-west NSW at two principal locations within Edward

River Local Government Area (LGA). The location of the proposal is shown on Figure 1.1 and comprise:

- Hartwood (about 10 kilometres east of Conargo village)
- Wanganella (one kilometre southwest of Wanganella village).

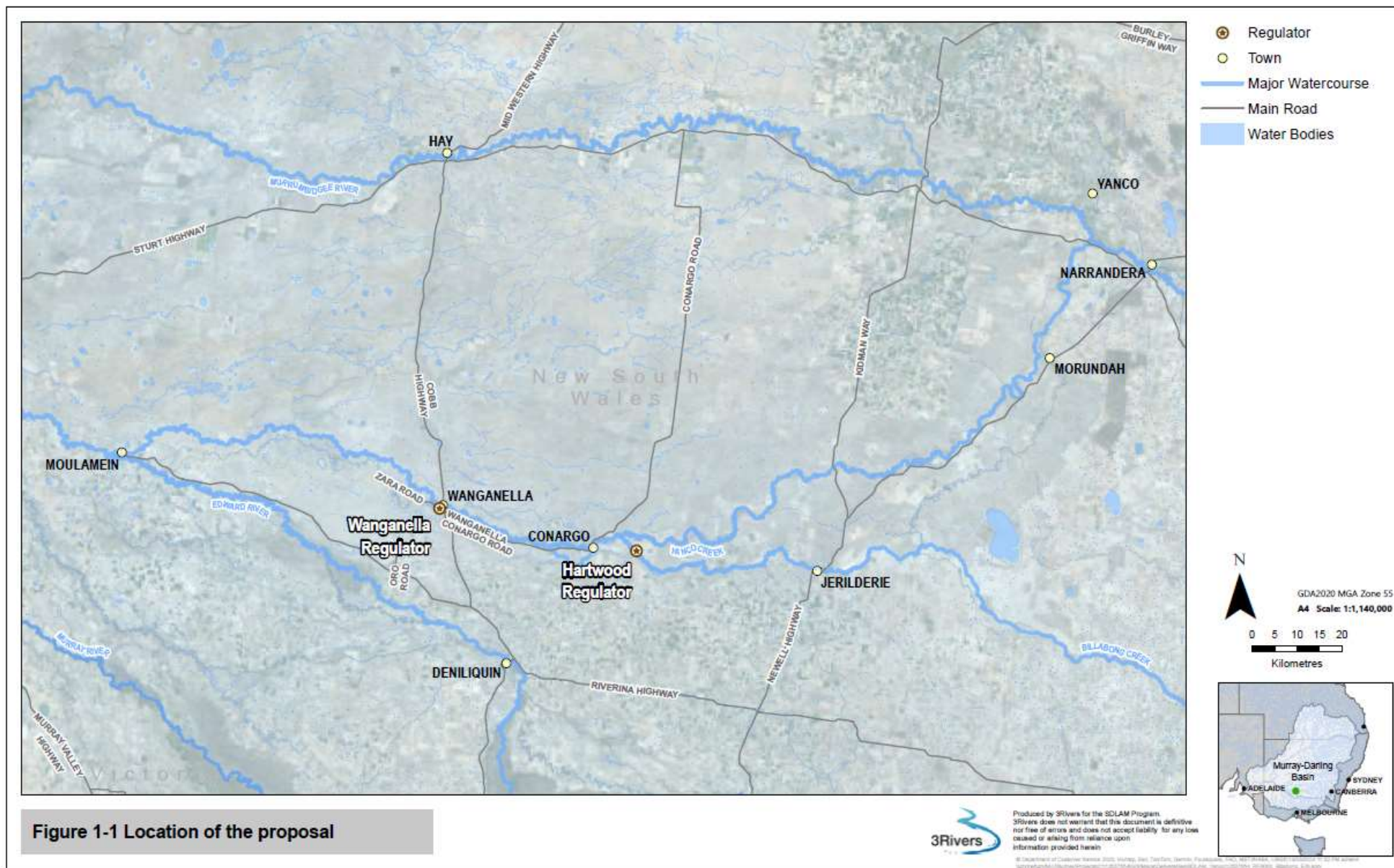


Figure 1.1: Location of the proposal

The core structure of the two regulators is similar and would include:

- a regulator structure including concrete piers with maintenance bulkhead slots, concrete apron downstream of the structure concrete wingwalls upstream and downstream of the structure, fixed concrete crests and automated layflat gates across the crest of the structure to assist with flow management
- a fishway comprising a low turbulence ‘keyhole’ type vertical slot fishway with allowances for variable headwater to provide upstream fish passage and automated sidewinder gates within the vertical slot fishway to allow for variable headwater conditions
- regulator access from a trafficable deck (Hartwood Regulator only) and a pedestrian walkway access part way across Wanganella Regulator structure for maintenance
- regulator automated controls comprising an electrical control house and Supervisory Control and Data Acquisition (SCADA) control system
- fencing of the structures to prevent public access
- crushed rock maintenance pads, access and turnaround areas adjacent to the structure
- rock beaching upstream and downstream of structure for erosion protection.

An indicative layout of a regulator is shown in Figure 1.2. This example is of a five-gate regulator with a fish passage (on the left) and trafficable deck for maintenance vehicles.



Figure 1.2: Indicative layout of a regulator

The proposal would also involve the following elements:

- Power supply to the regulators would be provided by a mix of underground and overhead electricity cables connecting the structures to the grid.
- Access to the regulators would require permanent tracks for maintenance and some additional tracks to support construction only. Track upgrades include a new drainage culvert at Hartwood.
- The existing Forest Creek block bank, associated with the Hartwood Regulator, is in a degraded condition. This will be replaced with a similar earthen structure in the same location.
- The Wanganella flood bypass channel would be constructed to reduce potential upstream flooding impacts from the Wanganella Regulator. The channel would enable flood waters to drain between the billabongs in the Wanganella Reserve during large flood events.
- An existing privately owned borrow pit on lot 56 / DP756322 near Hartwood Weir would be extended to provide material for the construction of Hartwood Regulator and Forest Creek block bank.

1.4 Purpose and structure of this report

NSW DCCEEW has prepared this report to address DPHI's request for additional information in response to the Submissions Report exhibited in June 2025.

This report lists the requests made by NSW Government Agencies in response to the information provided in the Submission Report and the proposal in general and provides a response to these. It includes additional assessment to support and respond to these requests.

The structure of the report is outlined below:

- Chapter 1 – Introduction and background to the proposal
- Chapter 2 – Response to agency responses
- Chapter 3 – Additional information and assessment
- Chapter 4 – Conclusion and justification.

Additional and/or modified environmental mitigation and management measures to those presented in the Submissions Report (NSW DCCEEW, 2025) are provided in Appendix A. An updated Aboriginal Cultural Heritage Assessment (ACHA) Report (Austral, 2025) is provided in Appendix B.

2 Response to agency requests

2.1 List of Agencies

Table 2.1 provides a list of Council and Agencies which have provided a response to the Billabong Creek Regulators Submissions Report (NSW DCCEEW, 2025). The agencies which have requested additional information are noted with the section where their queries are responded to.

Table 2.1: List of submitters

Submitter	Where discussed in this report
DPHI	Section 0
WaterNSW	Section 2.3
NSW DCCEEW – Water Group	Section 2.4
Heritage NSW – ACH	Section 2.5
Edward River Council	No information requested
NSW National Parks and Wildlife Service	No information requested
NSW DCCEEW – Regional Delivery Division (RD) (formerly Biodiversity, Conservation and Science Group)	No information requested
NSW EPA	No information requested
Department of Planning, Housing and Infrastructure – Crown Lands	No information requested
Transport for NSW	No information requested
NSW State Emergency Service	No information requested
Department of Primary Industries and Regional Development – Fisheries	No information requested
Department of Primary Industries and Regional Development	No information requested

2.2 DPHI

2.2.1 Issue description: outside the scope of the proposal

Clearly explain why each issue noted in section 4.3.4 of the Submissions Report is considered outside of the scope for the SSI approval.

Response

As detailed in the Response to Submissions Report, these comments relate to the draft Yanco Creek Operations Plan (the Operations Plan – Appendix U of the EIS), which includes the operation of all water regulating structures in the Yanco Creek System, not just the proposed Billabong Creek Regulators. The proposed regulators are only a small component of the overall Yanco Creek System operations. While the proposed regulators are important for the delivery of environmental and other ordered water immediately downstream, they do not have a significant influence upstream or on other tributaries of the Yanco Creek system.

The draft Operations Plan was used as the basis of future conditions for water management and delivery in Yanco Creek System. A comparable example would be undertaking future traffic modelling for a road upgrade where changes in the surrounding road network and future traffic generating developments would be included in the model.

As discussed in Section 2.3.2, the water management measures in draft Operations Plan would instead be implemented by amendments to the Water Sharing Plan (WSP) and operational procedures - which would provide greater surety of achieving water management objectives of the draft Operations Plan and is the preferred option for WaterNSW.

Developing and finalising amendments to the WSP and operating procedures would take six to nine months. The current WSP is due to expire on 1 July 2026 and the Minister for Water with concurrence from the Minister for the Environment will be required to renew the WSP. At the same time as renewing the WSP, amendments can be made to the WSP, and this would be an appropriate time to target for the inclusion of the project amendments.

The project amendments would be conditioned to not come into force until 1 July 2027, the beginning of the new water year and after the new regulators have been constructed and commissioned. Before the project amendments come into force on 1 July 2027, the regulators would be operated to mimic existing conditions or in another agreed manner with DPIRD-Fisheries (eg. water height behind the regulators is maintained at a level to have the fishways operational).

Also, concern has been expressed by a number of agencies that any changes to water management criteria of the draft Operations Plan may result in environmental impacts that have not been identified and quantified in the EIS. This not the case for a number of reasons, including:

- The regulators have variable height gates that can be operated to duplicate the existing weir heights. Therefore, in the worst-case scenario the existing water management practices and existing weir heights could be adopted so there is no change from the existing conditions. This is unlike a situation where a fixed crest weir is being proposed which “locks in” a weir height.
- Any future negative changes to the water management criteria (e.g. if environmental flow diversions from the Murrumbidgee River to the Yanco Creek system were only to occur when 20 per cent General Security allocation is reached rather than the currently proposed 15 per cent) to those that were proposed in the draft Operations Plan would erode the benefits of the draft Operations Plan. These benefits are the water efficiency savings which are largely returned to

the environment as increased environmental flow reserves - and the small improvements in some Environmental Watering Requirements, particularly for fish nesting. Any changes would not result in greater impacts than the existing conditions.

- The primary compliance measures of all Sustainable Diversion Limit Adjustment Mechanism (SDLAM) projects is that they cannot impact on the long-term average reliability of water user allocations and cannot have a negative environmental impact. Compliance with these measures is assessed by the Murray-Darling Basin Authority at various stages of the proposal development and delivery. This process would ensure that whatever operations are adopted, no water users or the environment would be worse off.
- A review of the changed water management practices in the Yanco Creek system would be undertaken by NSW DCCEEW after five years as was proposed in the operations plan and include assessing the predictions made in the EIS

The hydrology modelling and associated environmental impact assessment has been based upon about 126 years of data which include drought periods. What has not been modelled is periods when the WSP may be suspended and/or modified due to extreme drought conditions. Generally, water is prioritised for critical human needs and the environment in these periods. This is undertaken at the discretion of the Minister for Water and the length of suspension and/or the form of the modifications to WSP are impossible to predict. The Murrumbidgee WSP has been suspended once since the Water Management Act 2000 has been in place.

Additional responses to WaterNSW Submissions

DPHI requested that DCCEEW provided additional responses to issues raised in WaterNSW submission on the EIS. WaterNSW submission was addressed in Section 4.3.4 of the Submissions Report and the individual issues raised by WaterNSW are presented in italics below. It should be noted that with inclusion of the draft Operations Plan into the WSP and related as operating procedures, many of these issues would be addressed.

Issue

Issue 51: Publishing of the Annual Compliance Report on the WaterNSW website would represent a new precedent, as this practice has not been implemented in other valleys, including in the Murrumbidgee Valley.

Response

This relates to the operation of all structures and other aspects such as hydrology and water delivery at specific locations in the whole of the Yanco Creek system. This is a reporting issue which would set a precedent in NSW and is not related directly to the operation of proposed Billabong Creek Regulators.

Issue

Issue 52: Unregulated flow operations: It is recommended to include an additional note to clarify that during smaller supplementary events, the proposed flow splits of nine per cent and 91 per cent may not always apply. Variations can occur due to differing system demands and the equitable distribution of supplementary flows. For instance, higher water demands downstream of the Yanco offtake compared to those within the Yanco system could lead to a deviation from the suggested flow splits. The actual allocation of flows is guided by forecasted demands and the necessity to equitably share of water between systems.

Response

This relates to the management of water delivered from the Murrumbidgee River system into the Yanco Creek system and is requesting an explanatory note to be included in the Operations Plan for smaller supplementary events when more flexible water management practices may be implemented. It is not related directly to the operation of the proposed Billabong Creek Regulators.

Issue

Issue 53: The reference to general security allocations requiring above 15 per cent Available Water Determination (AWD) is inconsistent with other rules which specify AWD and carryover water. To ensure alignment, this plan should be revised to include carryover water in addition to AWD.

Response

This issue relates to the trigger for the commencement of environmental flow provisions to the Yanco Creek system – which is currently proposed when general security allocations on 1 March exceed 15 percent (p43-47 – draft Operations Report – Appendix U of the EIS). It also requests clarification around how carryover water (water that is not used during one water year and is credited to next water year's allocation) would be considered in calculating any trigger. These issues are being addressed in ongoing discussions between WaterNSW and DCCEW and are further discussed in Section 2.3.3.

This issue relates to the management of water and water accounting and allocation from the Murrumbidgee River system into the Yanco Creek system and is not related directly to the operation of the proposed Billabong Creek Regulators.

Issue

Issue 54: Environmental baseflow provisions: Meeting base flow rules is challenging due to limitations with system wide control across the Yanco Creek system. Performance measures used to assess compliance with the rules need to consider these issues including take by customers that does not comply with orders.

Response

This issue relates to environmental flow provisions across the Yanco Creek system and any wording of performance measures to assess compliance. While the new Billabong Creek Regulators will significantly improve water management flexibility – their influence is limited to downstream of one creek in a multiple creek system. While other water management infrastructure is also being upgraded in the Yanco Creek system – there still would remain issues in the management and control of particularly older infrastructure. Also, in some cases environmental water may not be delivered as required due to unauthorised extraction by a water user. WaterNSW requested that these issues be considered in setting the base flow rules.

While the proposed Billabong Creek Regulators would assist in meeting environmental baseflow provisions downstream – their small size limits their ability to directly met these. For example, the new Wanganella Regulator at the Fully Supply Level could only meet the minimum flow requirements of 50 ML/day at Darlot for about 12 days with no upstream inflows and no other water user orders. The Darlot minimum flow requirement is only one of many environmental flow provisions in the Yanco Creek system.

Consequently, how the performance and compliance measures for environmental base flow rules would be derived and assessed is a system-wide issue and not specifically relevant to proposed Billabong Creek Regulators.

Issue

Issue 55: Native fish environmental flow provisions: The rates of rise and fall specified at both Yanco Offtake and Darlot are difficult to achieve due to infrastructure limitations. Without the appropriate tools or control systems, meeting these obligations are not feasible. It is recommended to remove or revise this rule to align with current operational capabilities.

Response

This issue relates to native fish environmental flow provisions across the Yanco Creek system and any wording of performance measures to assess compliance. While the proposed Billabong Creek Regulators would assist in meeting native fish environmental baseflow provisions downstream – how the performance and compliance measures would be derived and assessed is not specifically relevant to proposed Billabong Creek Regulators, because it is a whole of Yanco Creek system issue.

Issue

Issue 55: Additional environmental provisions: These provisions necessitate setting aside additional water in the resource assessment. Further consultation with the Department's Allocations team is required to address this matter adequately.

Response

WaterNSW has modelled a number of different flow scenarios – and in some scenarios additional water may need to be allocated to the environment in the Murrumbidgee River system to meet the Yanco Creek environmental flow provisions. This could be a specific environmental water reserve in the system for example. As noted in Section 2.3.3 further modelling and consultation between WaterNSW and DCCEEW is ongoing to resolve issues such as environmental water reserves.

As this relates to the management of water and water accounting and allocation from the Murrumbidgee River system into the Yanco Creek System and is not specifically related directly to the operation of the proposed Billabong Creek Regulators.

Issue

Issue 56: Unregulated flow operations: The feasibility of achieving flow splits may be limited. Performance measures used to assess compliance with the rules need to consider these issues.

Response

This issue relates to the proposed long-term average split of unregulated flow events between the Yanco Creek system (9 percent) and the Murrumbidgee River (91 percent) in the draft Operations Plan (p33) – and consideration of WaterNSW ability and the existing infrastructure to meet this split in the development of performance measures.

This relates to the management of water delivered from the Murrumbidgee River into the Yanco Creek System and is not specifically related directly to the operation of the proposed Billabong Creek Regulators.

Issue

Issue 57: These rules should ensure consistency with existing rules at other regulators. References to water levels should be changed to refer to flows. Requirements for rates of rise and fall need to consider the practicalities involved with achieving them. Performance measures used to assess compliance with the rules need to consider these issues.

Response

This issue relates to the proposed maximum rates of rise (300mm/day) and fall (100mm/day) in the water level behind the regulator. This rate of rise and fall in water level was proposed to minimise geomorphological risks from rapid changes in water levels in the upstream regulator pools during operations. WaterNSW wants the rule for changes in water height to be based on flow rates rather than changes in water levels. At some other regulators flow rates are used as a substitute for water height.

This relates directly to the operation of the Billabong Creek Regulators and was addressed in the Response to Submission Report (Section 4.3.5 p19). Further information is provided in Section 2.2.2.

Issue

Issue 58: Clarification is required regarding the wording ‘the officer responsible for environmental water management’. Recommend specifying whether this refers to a state, federal, or departmental role to eliminate ambiguity.

Response

The issue relates to wording and the nomination of responsible entity for planned environmental water releases in the draft Operations Plan and related to an earlier version of the draft Operations Plan. In the version of the draft Operations Plan in the EIS this had been clarified to nominated NSW DCCEEW as the responsible agency.

2.2.2 Issue description: operations plan – rise and fall rates

Confirm the rates of rise and fall for both regulators including the use of flow volumes as surrogate for rates of rise and fall. Further detail the environmental impacts of rise and fall.

Response

NSW DCCEEW-Water Group does not support the surrogate use of flow volumes (i.e. daily changes in upstream weir pool storage volume) as an alternate for daily level rates of rise and fall within both the Hartwood and Wanganella weir pools. While the flow approach is used by WaterNSW at some other weir pools, and that for convenience WaterNSW would prefer to adopt similar arrangements at Hartwood and Wanganella regulators, NSW DCCEEW’s view is that it would not deliver the performance outcomes intended by the current Draft Yanco Creek System Operations Plan and would likely compromise the potential water delivery efficiency gains of the proposed new regulators.

The profile width of Billabong Creek progressively widens from the bottom to the top of banks at both Wanganella and Hartwood regulators. This results in more water being stored in a defined depth in the top of the weir pool compared to the same depth of water in the bottom of the weir pool.

In Figure 2.1, the two orange highlighted sections of the channel profile in the Billabong Creek upstream of the existing Wanganella Regulator represent the top and bottom 100 millimetres (mm) depth (Volume A and Volume B) of the regulator’s normal operating range.

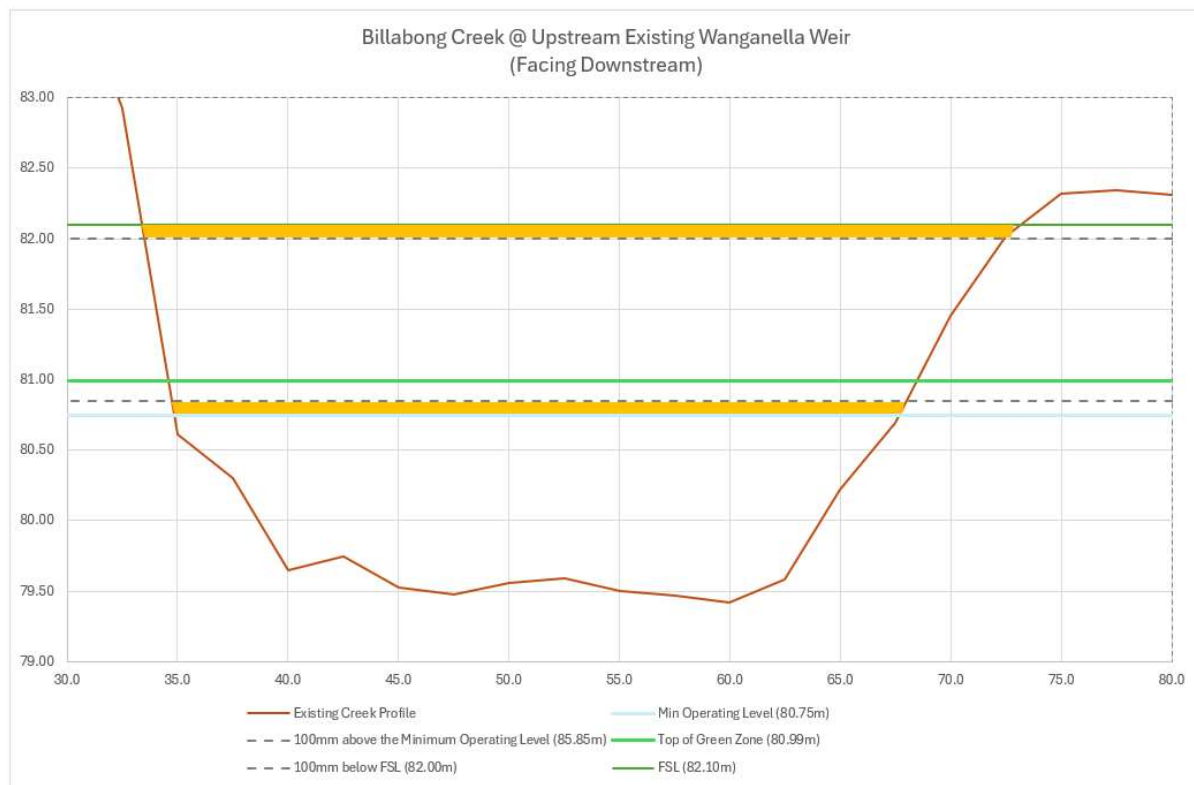


Figure 2.1 Top and bottom of the 100mm depth of the regulator's normal operating range.

Based on volumetric estimates determined from the Wanganella Regulator Storage Capacity Table, the top 100mm of the weir pool holds about 59 megalitres (ML) in storage volume (**Volume A**) compared to the bottom 100mm that only stores about 21ML (**Volume B**).

In addition, although the differences in the bottom and top of the weir pool at the Hartwood Regulator are less extreme than at Wanganella Regulator, the same principles and issues apply.

- Hartwood Regulator **Volume A** = 67ML
- Hartwood Regulator **Volume B** = 47ML.

Hypothetically, if a constant daily storage volume reduction of 40ML/day was adopted ($59 + 21 / 2 = 40$) this would result in about a 170mm daily rate of fall in the bottom of the weir pool and less than a 40mm daily rate of fall in the top of the weir pool. The potential implications of this might include:

- Likely lack of support for the proposal from local landholders and community (who are WaterNSW customers) that strongly advocated for a maximum rate of fall of 100mm/day. This was largely due to stock management implications (e.g. risk of sheep getting bogged in the wet creek banks).
- Depending on the variable slope of the Billabong Creek banks, potentially a greater risk of erosion in the bottom sections of the banks within the influence of the weir pool compared to the top sections due to the higher daily rate of fall.
- If a storage volume rate of rise and fall was adopted, subject to the magnitude and methodology used, this would significantly increase the period of time that the weir pool is operated in the Yellow Zone (i.e. the higher levels) that the Draft Yanco Creek System Operations Plan strategically aims to minimise to reduce the potential risk of adverse outcomes to native fish and vegetation.
- Less operational flexibility to change regulated flows downstream of the regulator due to changes in water delivery requirements (e.g. changes to water order delivery requests). Active (i.e. usable) water storage volumes in weir pools are complex due to a dependence on the

upstream height of the weir pool at the regulator and the magnitude of the flows in transit passing through the weir pool at the time. This means daily storage volume changes are often a poor and unreliable approximation of level changes within an actively flowing weir pool.

Although NSW DCCEEW would have preferred a much larger rate of fall within the weir pools for greater operational flexibility and efficiency (e.g. 150mm/day compared to 100mm/day), it was clear there was not key stakeholder support for this. Listening to key stakeholder advice was consistent with a key principle of genuinely balancing social, environmental, economic and cultural outcomes for the proposal.

That said, if DPHI wants to adopt rates of rise and fall as planning approval conditions, NSW DCCEEW strongly supports WaterNSW views about the need for operational tolerances as described in section 4.3.5 of the Response to Submissions – Main Report.

As the regulators will be fully automated and able to be controlled remotely, WaterNSW has the technology to readily comply with daily rates of fall and rise using a SCADA feature called upstream priority. This means that:

- When the regulator is being operated in downstream control mode it will maintain a constant flow rate downstream of the regulator until the upstream water level gets to a defined water level trigger.
- When the upstream water level trigger is met the regulator automatically switches from downstream to upstream control mode to maintain an upstream level (i.e. limiting the daily rate of fall to a maximum of 100mm/day)

Although this response focuses on rates of fall, similar principles apply to rates of rise however the magnitude of these rates of rise is far less sensitive to key stakeholders than rates of fall. It also should be noted that the regulators would have water level sensors so information on the height of the weir pools would be readily available.

2.2.3 Issue description: cumulative social impacts

As noted by Edward River Council, the project may contribute to cumulative social impacts in the context of other projects in the area, including impacts related to an influx of skilled workers to the region. Provide an analysis of the cumulative social impacts considering other projects in the vicinity including their construction schedules, in accordance with the Social Impact Assessment Guideline and the Cumulative Impact Assessment Guidelines for State Significant Projects. The analysis should also detail proposed mitigation measures.

Response

Further information and assessment are provided in Section 3.1.

2.2.4 Issue description: bushfire risk

The Planning Portal Hazard – Bushfire Prone Vegetation Mapping Tool categorises the regulator sites and surrounding areas as Vegetation Category 1 (highest risk for bush fire) and Vegetation Category 3 (medium bushfire risk). Confirm vegetation categories around the regulator sites and provide detail on how bushfire risk will be considered during detailed design, in accordance with Planning for Bushfire Protection 2019 (NSW RFS) and Australian Standard AS 3959:2018 Construction of buildings in bushfire prone areas.

Response

Further information and assessment is provided in Section 3.2.

2.2.5 Issue description: inconsistencies between ACHA mitigation measures and Submissions Report mitigation measures

There is inconsistency between the ACHA and the Updated Mitigation measures provided in Appendix A. The ACHA states that Forest Creek Block Bank Scarred Tree 4/#54-3-0057 will require removal of trimming and branches, however the mitigation measures state that the tree will be removed. Similarly, the ACHA states that Wanganella Weir Scarred Tree 3/# 54-2- 0264 will be removed however the mitigation measures suggest it will be trimmed.

Response

The mitigation measures in the Submissions Report were not updated to reflect changes in impacts in the ACHA due to further design development. The mitigation measures and the impacts in the ACHA are correct.

2.2.6 Issue description: further justification of no additional impacts on Aboriginal heritage during operations

The EIS states that “Impacts on Aboriginal heritage would be limited to the construction stage. No additional impacts are anticipated on the areas of archaeological potential or cultural values during operation.” Can you provide the justification or reasoning for this statement.

Response

The only potential impact from operations would be from the slightly increased frequency of higher water levels in the weir pools. However, these higher water levels would be contained within the existing banks of the creek where there are very unlikely to be any Aboriginal heritage sites due the erosive forces from periodic large unregulated flow events. Also rates of rises and falls in the weir pool water levels have been specified to mitigate against geomorphological impacts which may impact Aboriginal sites if they were present.

2.3 WaterNSW

2.3.1 Issue description: property rights

Outside of flood operations, WaterNSW is not empowered to operate the system to cause deliberate inundation. Therefore, an authorising environment is required to empower WaterNSW to release environmental flows with the purpose of over bank inundation and to mitigate associated liability risks.

Should the proponent be able to provide WaterNSW confidence that any inundation will be minor having regard to risk to life and property, WaterNSW considers flood inundation easements for affected properties would be sufficient to address these issues. WaterNSW is unable to hold flood inundation easements and as such the proponent must secure all necessary easements, on terms satisfactory to WaterNSW, prior to testing or commissioning.

Response

The new regulators or the Operations Plan do not propose environmental flows that would cause deliberate inundation of land. Any inundation of land would be due to large unregulated flow events and would occur during flood operations. Consequently, flow inundation easements would not be required.

As discussed in the EIS and Submissions Report, both the existing weir and new regulator at Wanganella result in minor flooding of the backyards of a number of properties. With the new regulators there would be a small increase in flooding of the backyards of these properties for unregulated flow events that result in water heights lower than the base of the flood bypass channel. For larger unregulated flow events that result in water levels higher than the base of the flood bypass channel (ie the flood bypass channel becomes operational), there would be a reduction in the flooding of the backyards of these properties. DCCEEW has committed to investigating additional options to reduce the flooding of the properties for the smaller unregulated events and would continue to consult with WaterNSW on an appropriate solution for this issue.

2.3.2 Issue description: Draft Yanco Creek System Operations Plan roles and responsibilities and governance

The proposed roles and responsibilities and governance contemplated in the draft Operations Plan do not align with the roles of water management agencies in NSW where:

- The NSW DCCEEW – Water is responsible for planning, policy development, and regulatory frameworks for regional water in NSW. It develops, assesses and recommends changes to NSW’s water legislation, water sharing/water resource plans, regional water strategies and water management rules and is also responsible for applying and reviewing water supply work approval conditions for WaterNSW works; and
- WaterNSW is responsible for supplying the state’s bulk water needs, operating the state’s river systems and the bulk water supply system in accordance with the policy and regulatory framework. It does not have a conferred function to set conditions for its own water supply work approvals, as that would be a conflict of interest.

The draft Operations Plan is inconsistent with the above as it sets detailed and prescriptive operating rules that are effectively policy settings and requires WaterNSW to undertake reviews of these policy settings and its own work approval conditions.

WaterNSW considers this inconsistency may be an unintended outcome of the parallel regulatory frameworks of the EP&A Act and WM Act for State Significant water infrastructure projects. Consequently, the Draft Operations Plan appears to capture all aspects which the proponent believe are required to be conditioned. While we acknowledge that the EP&A Act provides an exemption for obtaining a water supply work approval for the construction or use of works delivered as State Significant infrastructure, we do not consider that this precludes the ongoing management of this infrastructure being brought under the WM Act post-construction and an approval being issued to enable appropriate conditioning on WaterNSW under Water Sharing Plan (WSP) provisions (i.e. the WM Act framework).

To resolve this, an alternative approach to the extensive and prescriptive Draft Operations Plan, is for a Condition of Approval for the Proposal could require that the Water Sharing Plan for the Murrumbidgee Regulated River Water Source (Murrumbidgee WSP) is amended to include agreed environmental provisions, such as targeted and minimum flow requirements, and system operation requirements where these are policy settings. WaterNSW understands there are provisions in the Murrumbidgee WSP to allow for amendments to give effect to the Sustainable Diversion Limit

Adjustment Mechanism (SDLAM) Program (the Program). The WSP is also due for review and replacement from 2026, which could afford an opportunity to include any new provisions required.

This would then provide for NSW DCCEEW-Water to amend the relevant WaterNSW water supply work approval(s) to require WaterNSW to apply specific provisions in the plan, and / or to develop and implement an Operations Procedure which would guide how WaterNSW would operate the Yanco Creek system to best achieve the Proposal and Program's policy outcomes (as represented in the WSP).

This would establish accountability in accordance with the roles of water management agencies in NSW and provide for:

- policy settings (such as environmental flows), system operation requirements and trading rules to be set under the established water management regulatory framework. This is appropriate as these measures can impact other water users in the Murrumbidgee system and allows for appropriate transparency and governance over time. These provisions would then become a regulatory obligation on WaterNSW when adopted as mandatory conditions in a water supply work approval that are purely operational (e.g. reporting requirements) to be established by WaterNSW in an Operations Procedure; and
- NSW DCCEEW-Water to undertake reviews of the effectiveness of the Proposal and Program, noting WaterNSW would contribute to the review by providing data, performance and opportunities for improvement based on the Operations Procedure.

Should the above approach be adopted it would allow for the Draft Operations Plan to be revised to a short document setting out the Proposal's Operations Procedure, which has no policy settings in it. The environmental objectives, intended outcomes, guiding principles and policy settings would be in the WSP or potentially a Regional Water Strategy and would guide the Operations Procedure.

WaterNSW would prepare an Operations Procedure which would guide how WaterNSW would operate the Yanco Creek assets/system to best achieve the Proposal's policy outcomes. Relevant operational provisions of the current Draft Operations Plan could be used as the basis for the Operations Procedure.

Response

It should be noted that this issue is not directly related to the operations of the regulators – but rather the water management of whole Yanco Creek System.

NSW DCCEEW agrees with WaterNSW position that water management in the Yanco Creek System should be through the Water Management Act 2000, rather than through a SSI approval.

There has been further consideration by NSW DCCEEW's licensing, water planning and allocation teams on alternative mechanisms under the Water Management Act 2000 to deliver the water management outcomes of the draft Operations Plan. NSW DCCEEW has informally reached a similar conclusion to WaterNSW proposal in that the most appropriate way to codify the draft Operations Plan is to include various aspects of it into the WSP in the form of operating procedures.

NSW DCCEEW would work with WaterNSW to develop amendments to WSP and develop appropriate operating procedures. This would likely take six to nine months to develop the agreed wording and the WSP would be modified before the regulators are commissioned. The new rules would not come into effect until 1 July 2027 as this is the start of the water year.

It should be noted that this process would also require consultation with key stakeholders within the Murrumbidgee Valley.

As water management in the Yanco Creek System would be through the WSP, NSW DCCEEW would be responsible for the review of the effectiveness of the water management measures in the Yanco Creek system, rather than WaterNSW.

2.3.3 Issue description: Draft Yanco Creek System Operations Plan – operating rules

There is uncertainty of the Proposal's requirement for water as set out in the Draft Operations Plan. Separate to the matter that the underlying principle for the SDLAM Program is that they must achieve equivalent environmental outcomes with less water, and as owner and operator WaterNSW requires certainty that either:

- the Proposal will not require additional water to achieve its outcomes; or
- if additional water is required, DCCEEW-Water confirm they will secure the required additional water through the WSP and associated updates to Available Water Determination calculations.

In the absence of either of the above, WaterNSW is concerned that it will be the owner and operator of the Proposal that will not be capable of achieving its intended outcomes. This would create reputational issues for DCCEEW-Water (and by association WaterNSW) as well as potential compliance and future funding issues for WaterNSW.

As the system operator, WaterNSW would be pleased to provide additional information and data to DCCEEW-Water and the Murray-Darling Basin Authority to enable further validation and reconciliation of the modelling assessments to improve confidence on this matter.

Response

Further modelling and assessment of water management and allocations options are and would continue to be undertaken to ensure that the water savings required under the SDLAM Program would be achieved. This would include consultation with both WaterNSW and Murray-Darling Basin Authority. If required, any measures to meet water management objectives (e.g. a reserve) would be included in the WSP.

2.4 NSW DCCEEW – Water Group

2.4.1 Issue description: Water supply, take and licensing

Request the proponent to identify the proposed water extraction points on Billabong Creek and provide an impact assessment on the water users and water source of extraction from each point to meet the projects water demands.

The proponent must identify the number of water supply works, their approximate location and provide an impact assessment of their construction and operation to meet the exclusion from the requirement for a water supply work approval in section 5.23 of the EP&A Act 1979. Should this information not be provided, a water supply work approval may need to be applied for and the outcome of which cannot be guaranteed, which may pose a risk to the project.

Response

Two water extraction points would be required at each of the regulator sites during construction, however only one extraction point at each site would be operational at any time. As the regulators are being constructed in two halves, an extraction point would be required on the bank from which the section of the regulator is being constructed from.

The extraction points would be located adjacent to the coffer dams and consist of 150mm (six inch) pumps on temporary concrete pads and associated pipework with a capacity of extracting up to three ML/day. This capacity is required to initially dewater the coffer dams and if they flooded subsequently. Water from dewatering the coffer dams would be returned to the waterway and therefore there would be no impact on water users.

There would be also water extracted for construction purposes with would include:

- Dust suppression
- Compaction of earthworks.

The water requirements for both activities would be low as the construction areas are small, and the earthworks are not significant. It is estimated that about 10 ML would be required at each construction site over the 15-month construction period. As the average annual flow at Hartwood Regulator is about 150 GL/year and at Wanganella Regulator is about 224 GL/year, the 20ML construction water requirement would not impact on other water users.

There are a number of exemptions in the *Water Management (General) Regulation 2018* to obtaining a water access licence for the works including Schedule 4 clause 3 (4) (f) which relates to essential infrastructure (water supply works) and clause 5 which relates to dust suppression.

2.4.2 Issue description: reliability of water sources

Requests the proponent to demonstrate the viability and reliability of sourcing water from Council and nearby dams as potential water supply options.

Response

Water would not be sourced from farm dams for construction. Only potable water would be potentially sourced from the Council water supply system, and this would be used to for drinking water and other human uses. The amount of potable water required over the construction period would be low (<0.25 ML) and well within the capacity of the existing water supply system.

2.4.3 Issue description: Water access licence

Requests the proponent to ensure sufficient entitlement is held in a water access licence (WAL) to account for the maximum predicted water take for each water source prior to take occurring unless an exemption applies under the *Water Management (General) Regulation 2018*.

The proponent has provided reference to multiple possible exemptions from the requirement to hold a WAL which may apply to water take for various parts of the project. In considering the use of these exemptions the proponent needs to be aware that some have a reporting requirement to be eligible for use.

The proponent may also consider the exemption in Schedule 4 Clause 3 of the *Water Management (General) Regulation 2018* which is for the construction of essential infrastructure by public authorities to determine if this may apply to the project.

Any water take that does not meet an exemption must be accounted for with a WAL with sufficient entitlement

Response

It is noted that there are reporting requirements around water take for exemptions and these would be included in the CEMP. As noted in the previous section the exemption from obtaining a WAL for the construction of essential infrastructure would be used for both dewatering the coffer dam and for the small amount of water required for construction. The dust suppression exemption would also apply for water used for dust suppression.

2.4.4 Issue description: Water impact assessment and management

Requests the proponent to provide a water related impact assessment of the proposed borrow pit expansion during construction and post-construction. This assessment needs to include quantifying water take, assessing impacts on water users and the water source and relevant licensing requirements. The impact assessment would need to include a review against the requirements of the NSW Aquifer Interference Policy (DPE 2022).

The RTS refers to the Borrow Pit being assessed for terrestrial biodiversity, aboriginal cultural heritage, land use and traffic, however an assessment against water issues could not be identified. Of note is that it is unclear if the expansion of the borrow pit will cause groundwater inflows or if it would capture clean surface water.

The proponent should quantify any potential water take, assess the impacts on other users and identify licensing arrangements including potential exemptions.

It is also noted there appears to be an error in the RTS in the Lot/DP details for the borrow pit. The provided location is over 10km from the Hartwood Regulator which is inconsistent with the included description of 200m west of the regulator.

Response

The groundwater assessment provided as Appendix I of the EIS found that groundwater levels are below the base of the creek and generally at least 5 metres below surface level. The borrow pit would not be excavated to this depth and therefore no groundwater inflow is expected. Also the borrow pit has targeted clay material and any groundwater seepage through the clay material would be minimal. Consequently, an aquifer interference approval would not be required.

The amount of material required from the borrow pit has yet to be fully quantified and further design and geotechnical assessment is required before quantities and the extraction plan for the borrow pit can be determined. However, while the borrow pit is in use, overland flows from the surrounding catchment would be diverted away from the borrow pit as this would affect the usability of the material (ie it would be too wet). The borrow pit does not intersect any drainage lines or Strahler order waterways.

The landowner would be consulted on the final form of the borrow pit – with the potential options including re-filling the borrow pit with unsuitable clean fill from the construction works, converting the borrow pit to a farm dam or bunding the borrow pit so it does not collect overland flow. The extraction plan would also consider measures to ensure that the borrow pit does not collect overland flow if the landowner does not want to convert the borrow pit to a farm dam.

Once the final form and function of the borrow pit is known an assessment against relevant Water Management Act approval requirements and policies would be undertaken including the

2.5 Heritage NSW

2.5.1 Issue description: proposed works

The updated Aboriginal Cultural Heritage Assessment (ACHA) does not capture the entirety of the revised proposal footprint presented in Figure 3.1 of the Submissions Report. Please review and update the ACHA to include the entirety of the proposed works area.

Response

The mapping and assessment have been updated to reflect the revised footprint in Figure 3.1 of the Submissions Report.

The updated ACHA is provided as Appendix B to this report.

2.5.2 Issue description: consultation

Section 2.4.1 of the ACHA states that concerns were raised by Registered Aboriginal Parties (RAPs) regarding the proposed survey methodology but does not detail what these concerns were or how they were resolved. Please provide additional detail regarding consultation on the survey methodology, including relevant consultation documentation. Noting that some comments and responses may be considered confidential, these can be provided directly to Heritage NSW where relevant.

Response

The proposed survey methodology was provided to all RAP's, and they were provided with a 28-day review period. Face-to-face meetings with RAPs were held in Narrandera (on March 7th, 2022) and Deniliquin (on March 9th, 2022) to discuss the proposal and the proposed cultural heritage assessment method – and no updates were made to survey methodology in response to feedback.

The concerns were not about the proposed survey methodology per se, but about the RAPs selected to undertake the site surveys. Appendix A7 of the Revised ACHAR prepared for the Submissions Report contained correspondence relating to this issue.

2.5.3 Issue description: archaeological assessment

Figure 7.58 of the ACHA includes survey tracks from both Austral Archaeology and the previous consultant on the project. It is noted that these records do not demonstrate that the access track to the east of the proposed Hartwood Weir Regulator has been surveyed. Please:

- a. Provide additional information to show that this access track has been subject to archaeological assessment, justification for the lack of need to assess this area or undertake additional survey to assess this area.
- b. Update the ACHA to include assessment of, and management measures for, Aboriginal Heritage Information Management System (AHIMS) sites# 54-3-0026 and# 54-3-0029, both of which are mapped in close proximity to this access track in Figure 10.1 of the ACHA.

Response

The track east of Hartwood Weir is an existing access track that would be used to access the eastern side of Billabong Creek. Archaeological survey has been undertaken of this track, and no Aboriginal heritage sites were located. This was undertaken by Jacobs in 2023 however, the tracking logs for this section had become corrupted and were not included.

Additional management measures for the two sites near the access track have been included.

2.5.4 Issue description: existing disturbance

As previously requested, please include mapping that outlines the existing disturbance within each of the study areas

Response

Mapping within the ACHA has been updated to included existing disturbance of study area – which are predominately the access tracks. It should be noted that the area around the weirs is likely to be disturbed from past weir construction and agricultural activities, but this is difficult to quantify.

2.5.5 Issue description: archaeological sensitivity mapping

Figures 8.1 to 8.5 of the ACHA provide archaeological sensitivity mapping for the study area, identifying areas of low and high sensitivity, while Section 9.3 of the assessment states that the Hartwood Weir, Forest Creek Block Bank, and Wanganella Weir study areas are considered to have moderate archaeological potential. It is unclear how these assessments relate to each other or to the potential for subsurface deposits to be present in the vicinity of these areas and the potential depth of any deposit. Please update the ACHA to:

- a. Include a clear assessment of subsurface archaeological potential for the entirety of the study area, including mapping of the extent of any areas containing Potential Archaeological Deposit (PAD), and explanation of how PAD boundaries were defined (i.e., landform, soil landscape). This should include consideration of PAD associated with sites recorded in close proximity to the study area as noted below.
- b. Ensure that any areas of PAD are reflected in the impact assessment and proposed mitigation measures in sections 9 and 10, and exclusion zones and salvage areas provided in Figures 10.1 and 10.2, noting that
 - i. Areas of archaeological sensitivity for some sites recorded within the study area (such as Hartwood Hearth/ AHIMS # 54-3-0061) do not appear to match proposed exclusion zones and salvage areas.
 - ii. Proposed exclusion zones and salvage areas for sites recorded outside of the study area (such as Hartwood Weir Earth Mound 2 / AHIMS # 54-3-0056 and Forest Creek Block Bank Earth Mound 1 / AHIMS # 54-3-0058) extend into the study area which, along with the recorded dimensions of each site, suggests that PAD associated with these sites may extend into the study area.
- c. Define the area of archaeological potential associated with Hartwood Weir Scarred Tree and PAD/ AHIMS # 54-3-0055.

Please note that commentary from Heritage NSW on the EIS regarding test excavations remains relevant.

Response

This wording in the ACHA has been updated to reflect that the study areas have moderate archaeological significance. This is a combination of scientific, historic, social and aesthetic gradings described in Section 9 of the ACHA. This assessment has determined that, although there are some areas of high archaeological potential and sensitivity within the study areas, they hold in their entirety a moderate archaeological significance grading due to large amounts of low sensitivity and archaeological potential.

There is no subsurface archaeological potential for the study areas, apart from Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055) [page 116 of the ACHA], where this has been discussed in Table 9.3 and is not to be impacted by the proposed works.

The area of PAD identified in this assessment (Hartwood Weir Scarred Tree and PAD / AHIMS # 54-3-0055) is the only area of PAD identified for subsurface archaeological potential and will not be impacted by the proposed works. This has been discussed in the impact assessment and mitigation measures:

- i. Areas of archaeological sensitivity have been defined by their observed site extents, while the proposed exclusion zones and salvage areas are buffers surrounding the site extents where needed (i.e. AHIMS # 54-3-0056) at Hartwood Weir). Where archaeological sensitivity and exclusion zones/salvage areas are the same, a larger buffer is not needed as the site extent are clearly defined in its surface context.
- ii. There is no PAD associated with these sites. The site extents for sites like these are outside of the proposed development, however, their buffers/exclusion zones extend into the study area to ensure their protection from the proposed development.

The area of archaeological potential for with Hartwood Weir Scarred Tree and PAD / AHIMS #54-3-0055 has been added to Map 8.1 and 10.1 of the ACHA

2.5.6 Issue description: heath sites

Section 7.1 of the ACHA provides additional information on the determination of a previously recorded hearth site within the Hartwood Weir access track and culvert survey area as being of non-Aboriginal origin but does not include similar discussion for two previously identified hearth sites in the Wanganella Weir southern access track survey area. As previously requested, please update the assessment to include additional information on the assessment of these two sites.

Response

Assessment information for the two previously identified hearths at the Wanganella Weir has been added to Section 7.1 of the ACHA.

2.5.7 Issue description: AHIMS register

Based on a review of the updated mapping provided in the ACHA, it appears that a number of sites may be recorded more than once on the AHIMS register. Where this has occurred, please:

- a. Update sections 9 and 10 of the assessment to clearly identify which sites have duplicate recordings, with any relevant AHIMS site numbers included, to ensure that there is clarity regarding the impacts of the proposed works.
- b. Update AHIMS site cards as relevant to identify any duplicate site recordings.

Response

Two sites have been recorded and have duplicates on AHIMS. The report has been updated to reflect:

- W scar tree 1 (AHIMS # 54-2-0252) was initially recorded during a survey undertaken by Jacobs. It has since been reclassified as Wanganella Weir Scarred Tree 1 (AHIMS # 54-2-0263).
- W scar tree 3 (AHIMS # 54-2-0259) was initially recorded during a survey undertaken by Jacobs. It has since been reclassified as Wanganella Weir Scarred Tree 3 (AHIMS # 54-2-0264).

An email has been sent to Heritage NSW outlining the sites that have been duplicated and require adjustment on AHIMS to reflect this.

2.5.8 Issue description: assessment of sites in close proximity to the study area

Update the assessment to include a clear and consistent approach to sites identified in close proximity to the study area. For example, it is noted that Forest Creek Block Bank Scarred Tree 3/ AHIMS # 54-3-0034 is identified and assessed in sections 9 and 10 of the assessment, but that AHIMS # 54-3-0026, AHIMS # 54-3-0029, AHIMS # 54-2-0251, and AHIMS # 54-2-0252 are not included in this assessment, despite being in similar proximity to the study area.

Response

AHIMS # 54-3-0026, AHIMS # 54-3-0029 and AHIMS # 54-3-0251 have been included throughout the ACHA.

Please note that AHIMS # 54-2-0252 has been discussed in the ACHA as a duplicate of AHIMS # 54-2-0263 and is discussed under this new AHIMS number.

2.5.9 Issue description: mapping updates

Please update mapping in Section 10 of the ACHA to differentiate between proposed exclusion zones and proposed salvage areas.

Response

Mapping in Section 10 of the ACHA has been updated as requested.

2.5.10 Issue description: mitigation measures

The Updated Mitigation Measures provided in Appendix A of the Submissions Report do not match the recommendations of the ACHA regarding the management of Forest Creek Block Bank Scarred Tree 4 (AHIMS # 54-3-0057) and Wanganella Weir Scarred Tree 3 (AHIMS # 54-2- 0264). Please review and update these mitigation measures to ensure consistency in the project documentation.

Response

The mitigation measures in the Submissions Report were not updated to reflect changes in impacts in the ACHA due to further design development. The mitigation measures and the impacts in the ACHA are correct.

The final mitigation measures have been updated and are replicated in Appendix A of this report.

3 Additional information and assessment

3.1 Cumulative impact – Social impacts

3.1.1 Methodology and existing environment

A methodology for the cumulative impact assessment was provided in Chapter 23 of the EIS (October 2024), with additional detail within the technical appendices (Appendices G to T) of the EIS, where relevant.

Further cumulative assessment has been requested in relation to the anticipated use of regional staff and the need for accommodation during construction of the proposal. This assessment has reviewed the potential cumulative projects identified in the EIS, if there are new project to consider since completion of the EIS, and if some elements of this assessment are able to be updated.

Nine projects were identified in the EIS as potentially having a significant cumulative impact due to location or timing of the project. A summary of these projects is provided in Table 3.1 with updated details provided where this is available. Detailed assessment of these projects is provided in section 3.1.2.

Table 3.1 Cumulative impact – projects assessed

Project	Approx. distance to proposal (km)	Definition	Project status as of October 2024	Project status updates as of Aug 2025
Yanco Creek Modernisation Project Part 1b: Wanganella Swamp Upgrades and construction of a series of structures that would act to raise and control inundation of the swamp to facilitate more successful bird breeding events and other environmental outcomes.	4 km to Wanganella Regulator	Related to the proposal	Construction anticipated to commence in 2025.	Construction anticipated to commence November 2025. Six to nine months to complete. Three to 10 construction workers required.
Yanco Creek Modernisation Project Part 3: Wilsons Anabranh Upgrade and construction of a structure that would act to facilitate more successful bird breeding events and other environmental outcomes.	21 km to Hartwood Regulator	Related to the proposal	Construction anticipated to commence in mid 2025. Two months to complete.	Construction anticipated to commence September 2025. Two months to complete. Three to 10 construction workers required.

Project	Approx. distance to proposal (km)	Definition	Project status as of October 2024	Project status updates as of Aug 2025
Yanco Creek Modernisation Project Part 4: Forest Creek Return Flows via Piccaninny Creek. Upgrade the existing Piccaninny Creek Block Bank in the connecting channel and install a new regulator so that excess Forest Creek flows can be diverted to Billabong Creek via Piccaninny Creek.	15 km to Hartwood Regulator	Related to the proposal	Construction anticipated to commence in mid-2025. Two months to complete.	Construction anticipated to commence September 2025. Two months to complete. Three to 10 construction workers required.
Yanco Creek Modernisation Project Part 5b: Cheverells Creek Offtake Remove the existing pipe culvert and construct a new pipe offtake and flow rate control works at the existing Cheverells Creek Offtake location with a Layflat gate regulator, including remote flow control, level and flow monitoring capability.	101 km to Hartwood Regulator	Related to the proposal	Construction anticipated to commence in mid-2025. Take three months to complete.	Construction anticipated to commence September 2025. Three months to complete. Three to 10 construction workers required.
Reconnecting River Country Program The program focuses on relaxing or removing some of the constraints or physical barriers impacting the delivery of water for the environment. The program area includes the Murrumbidgee River.	Not known	Not known	No specific timeline, projects or locations were available at the time of assessment. These could be located throughout the Murrumbidgee River area	Construction for early works is anticipated to commence December 2025 for around 12 months. Up to 30 construction workers will be required at the peak of works. The location of the works would be close to Wagga Wagga around 200km from the proposal

Project	Approx. distance to proposal (km)	Definition	Project status as of October 2024	Project status updates as of Aug 2025
Yanco Delta Wind Farm SSD-41743746 Construction and operation of a 210-turbine wind farm 10 north-west of Jerilderie in NSW.	39 km to Hartwood Regulator	Project under assessment	Construction of the project is targeted to begin in late-2024 subject to planning approval, with an expected duration of 36 months. Operation is expected to begin in 2025 with an operation life of at least 30 years.	Construction anticipated to commence mid-2026. The project will include a workers accommodation camp.
Yanco Solar Farm SSD-9515 Construction and operation of a ground-mounted photovoltaic solar array generating around 60 megawatts alternating current.	129 km to Hartwood Regulator	Approved project	Construction phase of the project is expected to begin in 2023 and take approximately 10 months. Facility would be expected to operate for around 30 years.	Construction timeline is unknown. 10 months to complete. Approx. 120 construction workers during peak of works. It is anticipated that most workers would be local. Non-resident staff would use existing accommodation within the local area such as Yanco, Leeton, Narrandera and Griffith.
SDLAM program Murrumbidgee and Murray National Park Project	120 km to Wanganella Regulator	Approved project	Construction of the project is targeted to begin in late-2025 subject to planning approval.	Construction anticipated to commence August 2025
Bullawah Wind Farm SSD-50505215 Installation, operation, maintenance and decommissioning of up to 170 wind turbines, Battery Energy Storage System (BESS) facilities and ancillary infrastructure	55 km to Wanganella Regulator	Project under assessment	Construction phase of the project is expected to begin in mid to late 2025 and take approximately 24 months.	Construction timeline is unknown. 35 months to complete. 380 construction workers during peak period. Worker's accommodation camp included in project.

An updated search of the NSW Government Major Projects website was conducted on 5 August 2025. This checked for additional projects being developed close to the proposal, since the original cumulative assessment was completed. A number of additional projects close to the proposal sites were identified and are listed in Table 3.2.

Table 3.2 Cumulative impact – Additional projects assessed

Project	Approx. distance to proposal (km)	Definition	Project status
West Nyangay Solar Farm SSD-74990235 Development of an 800MW solar farm with energy storage and associated infrastructure	50 km to Wanganella Regulator	Project under assessment	Preparing EIS. No details available on construction program.
South Coree Battery Energy Storage System SSD-77238990 Development of battery energy storage system with a capacity of 100MW/400MWh and ancillary infrastructure.	10 km to Hartwood Regulator	Project under assessment	Preparing EIS. No details available on construction program.
South Coree Battery Energy Storage System SSD-77238990 Development of a battery energy storage system (BESS) with a capacity of 100MW/400MWh and ancillary infrastructure.	30 km to Hartwood Regulator	Project under assessment	Preparing EIS. No details available on construction program.
The Plains Solar Farm SSD-51219280 Development of a 400 MW solar farm with energy storage and associated infrastructure.	60 km to Wanganella Regulator	Project under assessment	Preparing Submission Report. Construction anticipated to commence late 2026 with main works commencing mid-2027. 18 months to complete. 150 construction workers during peak period. Local accommodation will used.
Tocumwal Magazine Storage Upgrade SSD-64923965 Development of four new 250t high explosive magazines and a new detonator magazine storage building	30 km to Hartwood Regulator	Project under assessment	Preparing Submission Report. Construction identified to commence late 2024 to 2028 (presumed to be delayed). 10 construction workers during peak period.
Finley Battery Energy Storage System SSD-72430958 Development of a battery energy storage system with a capacity of 100MW/200MWh and associated infrastructure.	50 km to Hartwood Regulator	Project under assessment	Preparing Submission Report. Construction anticipated to commence mid to late 2026. 11 months to complete. 55 construction workers during peak period. Local accommodation will used likely in Finley, Tocumwal, Berrigan, Jerilderie, and Deniliquin.

3.1.2 Impact assessment

A social impact assessment (SIA) was carried out and provided as Appendix R to the EIS. This assessment was carried out in accordance with relevant guidelines including Technical Supplement - Social Impact Assessment Guideline for State Significant Projects (Department of Planning and Environment 2023) and Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE 2022).

A potential negative impact on local housing and accommodation was identified due to the proposal. This related to the potential for reduced availability of short-term accommodation for non-resident workers in nearby towns. The impact assessment for this issue is summarised in Table 3.3.

This issue was identified as a potential cumulative impact due to a number of other projects being developed close to the proposal which may also need accommodation facilities.

Table 3.3 Social impact assessment – Housing and accommodation

Housing and accommodation	Social impact assessment
Potential impact description	Potential for reduced availability of short term accommodation for non-resident workers in nearby towns.
Stakeholders affected	Accommodation facilities and tourism industry in the regional study area.
Proposal phase	Construction
SIA Guideline social impact category	Livelihoods
Magnitude	Minor
Likelihood	Possible
Pre mitigation significance	Negative Medium
Mitigation measures	Consult with local accommodation providers
Magnitude	Minor
Likelihood	Unlikely
Residual significance	Negative Low
Potential cumulative impact	This could result in more roles being filled by non-residents, leading to increased demand for housing and accommodation in the region. As an existing issue, competition for skilled labour can be challenging to manage for individual proponents. However, it is expected that demand for accommodation can be managed through early consultation with local accommodation providers.

Construction of the proposal is anticipated to start in late 2025, and be completed by 2026, once all required approvals for the proposal have been obtained. The construction period is anticipated to be around 18 months.

The construction period for the majority of the projects listed in Table 3.1 and Table 3.2 is not predicted to coincide with the timeline for the proposal, based upon the projects progress and the publicly available information. Therefore, there would be no overlap of non- resident workers within the area needing local accommodation.

There is a potential overlap of the construction periods for the following projects listed in Table 3.4. This table provides a summary of the activities which could contribute to cumulative impacts and a summary of the potential impacts.

Table 3.4 Potential cumulative impact - Housing and accommodation

Project	Potential cumulative activities	Review of potential impacts
Yanco Creek Modernisation Project Part 1b: Wanganella Swamp	This project is anticipated to commence at a similar time as the proposal. This project estimates relatively small numbers of workers and therefore accommodation needs would be low.	Cumulative impacts from non-resident workers would be minor as neither this project or the proposal would have large numbers at any one time. As the proponent is the same for this project and the proposal, NSW DCCEEW will be able to work with the contractor to manage cumulative impacts on local accommodation providers, if needed.
Yanco Creek Modernisation Project • Part 3: Wilsons Anabranck • Part 4: Forest Creek Return Flows via Piccaninny Creek. • Part 5b: Cheverells Creek Offtake	The overlap in construction period would be minor as these projects would be under completion at the time the proposal would commence. An overlap of peak worker periods is not anticipated. This project estimates relatively small numbers of workers and therefore accommodation needs would be low.	Cumulative impacts from non-resident workers would be minor and for a few weeks only. As the proponent is the same for this project and the proposal, NSW DCCEEW will be able to work with the contractor to manage cumulative impacts on local accommodation providers, if needed.
Reconnecting River Country Program	This project is anticipated to commence at a similar time as the proposal. The project is a substantial distance from the proposal (around 200km) and is likely to source accommodation for workers from different locations ie Wagga Wagga.	There are unlikely to be cumulative impacts from non-resident workers accommodation requirements. This is due to the distance of the project from the proposal site and the anticipated use of other towns as source for accommodation.
Yanco Delta Wind Farm SSD-41743746	This project will include a workers accommodation camp.	There would be no cumulative impact with the proposal as this project would not be using local accommodation.
Yanco Solar Farm SSD-9515	Current construction program is not publicly available. There is potential construction occurs during the same period as the proposal. The project is a substantial distance from the proposal (129km) and identifies different towns as the likely source for worker accommodation.	There is potential for a cumulative impact from non-resident workers, coinciding with the proposal. This may lead to cumulative pressure on regional accommodation providers. The cumulative impact with the proposal is expected to be minor as due to the distance between the two locations, it is unlikely they will compete for the same accommodation providers.

Project	Potential cumulative activities	Review of potential impacts
SDLAM program Murrumbidgee and Murray National Park Project	The overlap in construction period would be minor as this project would be under completion when the proposal commences. An overlap of peak worker periods is not anticipated. This project estimates relatively small numbers of workers and therefore accommodation needs would be low. The distance from the proposal means it is likely workers would be accommodated in different towns to the proposal.	Cumulative impacts from non-resident workers would be minor as neither this project nor the proposal would have large numbers at any one time. Due to the distance between the projects, it is unlikely they will compete for the same accommodation providers. As the proponent is the same for this project and the proposal, DCCEEW will be able to work with the contractor to manage cumulative impacts on local accommodation providers, if needed.
Bullawah Wind Farm SSD-50505215	This project will include a workers accommodation camp.	There would be no cumulative impact with the proposal as this project would not be using local accommodation.
The Plains Solar Farm SSD-51219280	There is anticipated to be an overlap in construction period with the proposal. It is likely that the proposal will have completed its peak period of construction works and would be nearing completion at the time this project commences. The project is close to the proposal so is likely to use accommodation providers from the same towns.	There are likely to be cumulative impacts from non-resident workers accommodation requirements. This is expected to be minor as the proposal will be ending as this project commences.
Tocumwal Magazine Storage Upgrade SSD- 64923965	There is anticipated to be an overlap in construction period with the proposal. The project is close to the proposal so is likely to use accommodation providers from the same towns. This project estimates relatively small numbers of workers and therefore accommodation needs would be low.	There are likely to be cumulative impacts from non-resident workers accommodation requirements. This is expected to be minor as the project is relatively small and therefore accommodation needs would be low.
Finley Battery Energy Storage System SSD- 72430958	There is anticipated to be an overlap in construction period with the proposal. It is likely that the proposal will have completed its peak period of construction works and would be nearing completion at this time this project commences. The project is close to the proposal so is likely to use accommodation providers from the same towns.	There are likely to be cumulative impacts from non-resident workers accommodation requirements. This is expected to be minor as the project is anticipated to commence as the proposal is past its peak construction phases.

3.1.3 Management and Mitigation measures

Accommodation needs for non-resident workers can be effectively managed to provide benefits to accommodation providers in the region while minimising cumulative impacts.

Mitigation measure S5 provided in the EIS and Submissions Report (shown Table 3.5) and replicated in Appendix A of this report, seeks to develop early engagement with accommodation providers to enable business planning. In addition, where NSW DCCEEW is also the proponent for other local projects, NSW DCCEEW will be able to work with the contractor to manage cumulative impacts on local businesses and accommodation providers, if needed.

NSW DCCEEW is currently progressing the tender process for the construction of the regulators and the short-listed tenderers need to provide detailed information on workforce numbers and an accommodation strategy. Based on initial feedback from tenderers these strategies are different as there is a mix of tenderers from inside and outside the region. Demonstration of a realistic and verifiable accommodation strategy is a key assessment criterion in the selection of the preferred tenderer given that works will commence very soon after approval.

Table 3.5 Existing mitigation measures

ID	Impact	Environmental safeguards	Responsibility	Timing
Social				
S5	Non-resident workforce accommodation requirements	The construction contractor will share information with local accommodation providers about any non-resident workforce accommodation requirements in a timely manner.	Contractor	Pre-construction, construction

3.2 Bushfire risk

3.2.1 Methodology and existing environment

The Planning Portal Hazard – Bushfire Prone Vegetation Mapping Tool categorises bushfire prone land by the vegetation type within the area. A review of the location of the proposal sites and surrounding areas was conducted. The vegetation categories within and adjacent to the site include Vegetation Category 1 (highest risk for bush fire) and Vegetation Category 3 (medium bushfire risk). Figure 3.1 and Figure 3.2 show the location of the vegetation categories in relation to the proposal sites.

A review of the following bushfire guidance and design standards has been carried out to confirm relevance and requirements in relation to the proposal:

- Australian Standard AS 3959:2018 Construction of buildings in bushfire prone areas
- Planning for Bushfire Protection 2019 (NSW RFS)
- WaterNSW Electrical Works Design and Installation Standard.

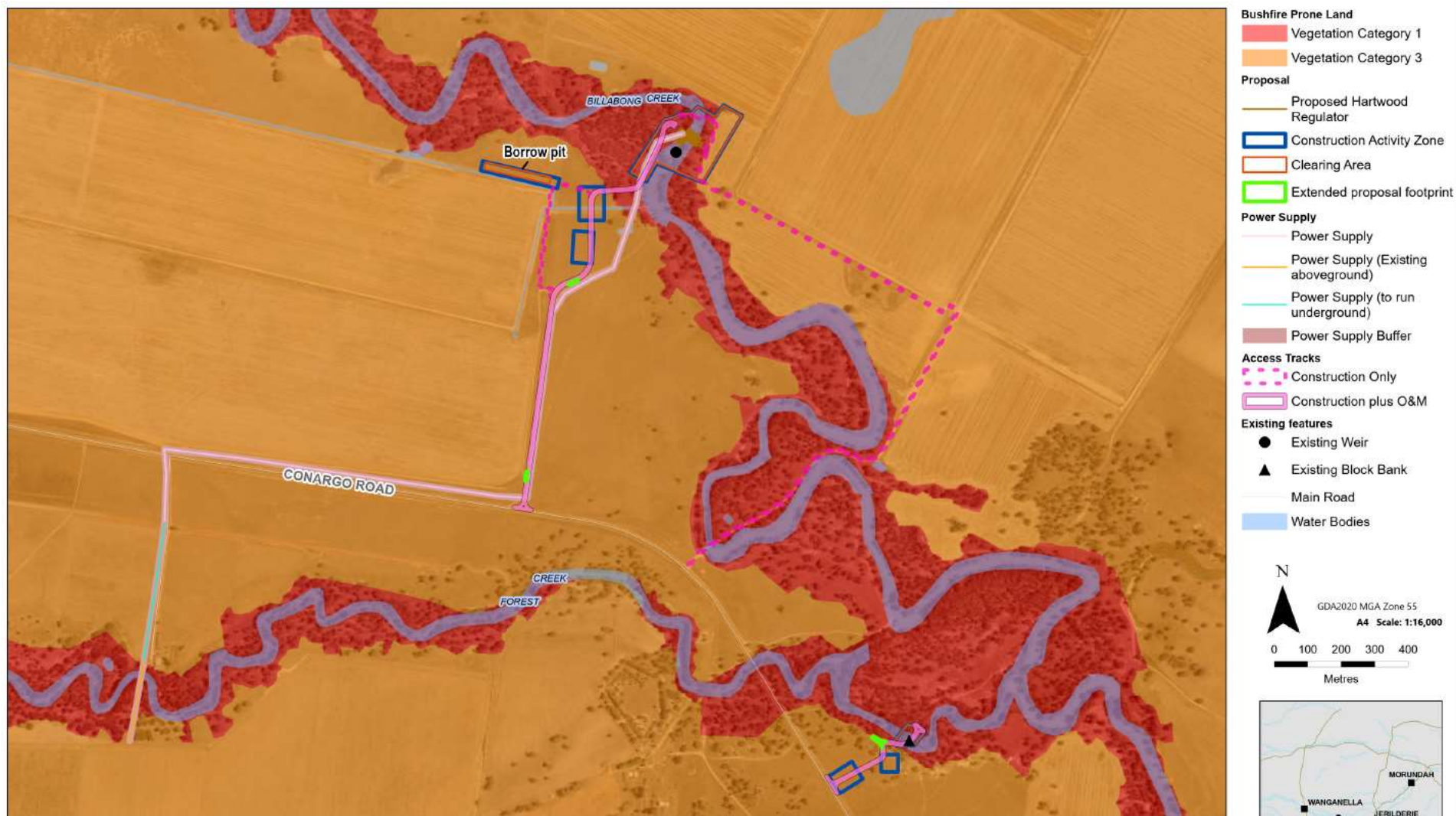


Figure 3.1 Hartwood – bushfire risk

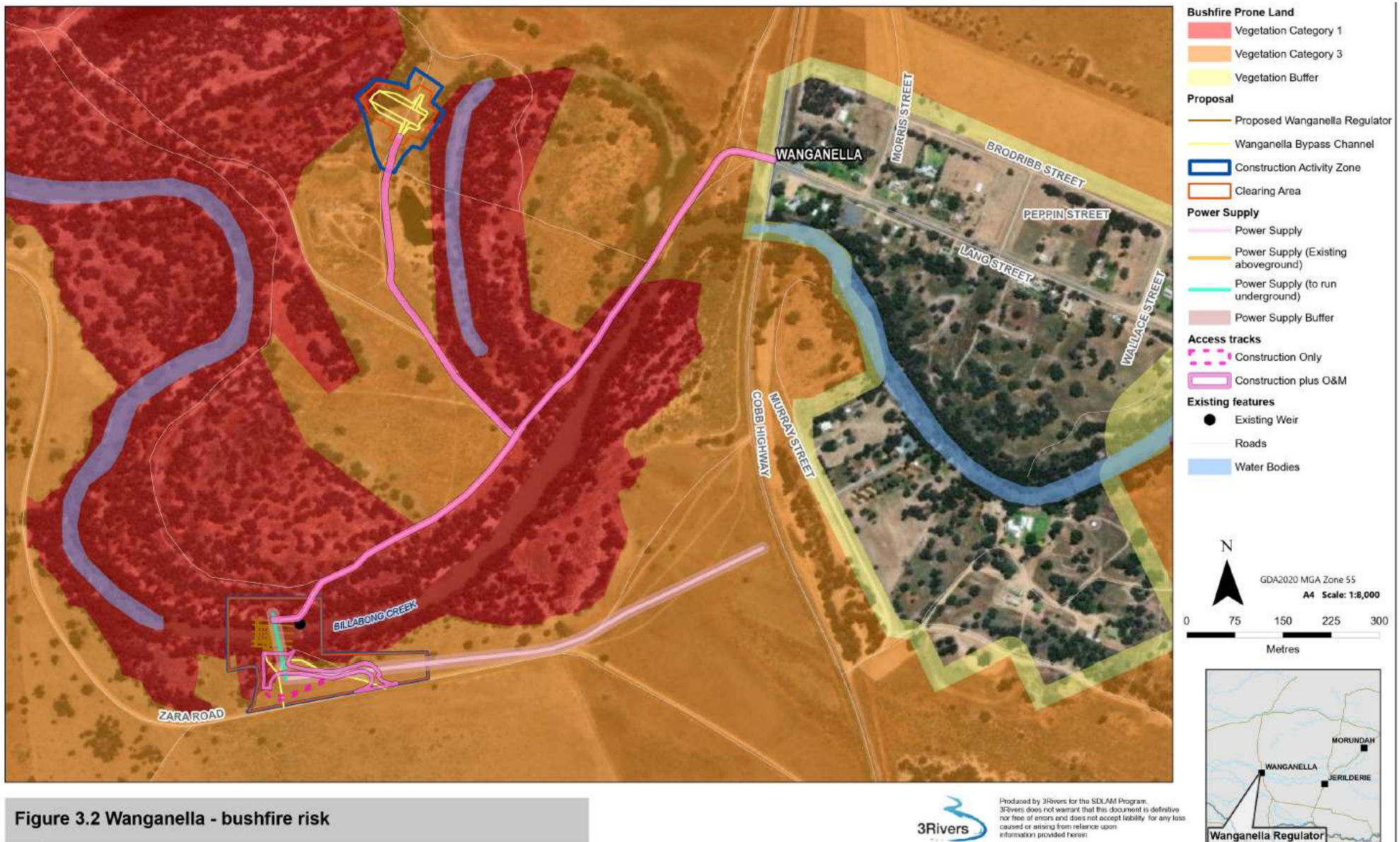


Figure 3.2 Wanganella - bushfire risk

Figure 3.2 Wanganella – bushfire risk

3.2.2 Impact assessment

Australian Standard AS 3959:2018 Construction of buildings in bushfire prone areas, specifies requirements for the construction of buildings in bushfire areas in order to improve the resistance to attack from embers, radiant heat, flame contact and a combination of attacks.

The proposal is not a building in accordance with the National Construction Code Building Classifications. Some parts of the proposal would accord with Class 10 buildings or structures, through Class 10b category structures which comprises 'being a fence, mast, antenna, retaining wall, swimming pool, or the like'. As per the methodology of AS 3959:2018, the fire risk for the proposal area is considered to be BAL-FZ and therefore the consideration of Sections 3 and 9 of these standards are relevant to parts of the proposal. Key requirements that apply to the proposal comprise:

- Section 9.2 Sub-floor supports – shall be of non-combustible materials
- Section 9.4 Walls – exposed components of external wall shall be of non-combustible materials
- Section 9.7 Verandas, decks, steps and landings - shall be of non-combustible materials.

The proposal will meet the requirements of the AS 3959:2018.

A review of Planning for Bushfire Protection 2019 (NSW RFS) guidance was completed to determine its' relevance to the proposal. This document provides requirements based on the development type from which Chapter 8 classifies 'Other Development'. The regulators would be classified as Class 10 structures 'non-habitable buildings or structures' as detailed in Section 8.3.2 of the guidance. Some elements of the proposal would be categorised under Class 10b structure 'being a fence, mast, antenna, retaining wall, swimming pool, or the like'. This section of the guidance states that "There is no bush fire protection requirements for Class 10a buildings located more than 6m from a dwelling in bush fire prone areas". No specifications are provided for Class 10b or Class 10c structures. Under this guidance no measures apply for the proposal structures.

The proposal includes an electrical switchboard for each regulator. These will comprise a prefabricated structure that has been designed in accordance with the fire resistance requirements of Water NSW Electrical Works Design and Installation Standard. The fire resistance requirements comprise:

- High and low voltage switch rooms shall be fire rated for a minimum two hours
- All openings, ducts, trenches, cable ways or the like made for the entry of electrical conduits and cables through external walls, shall be properly sealed with approved method to maintain the minimum fire rating.

All over head electricity cables would be managed by Essential Energy in accordance with their standard operating and maintenance procedures. These procedures include *CEOP2021 – Vegetation removing vegetation near overhead powerlines*, which provides for the protection from ignition of fires by electricity networks.

3.2.3 Management and Mitigation measures

The proposal will be designed in accordance with relevant design standards in order to minimise potential risks of causing a bushfire during operation of the proposal. In addition, the design will meet relevant standards to minimise risk to the structures and infrastructure from being impacted by a bushfire. No additional mitigation measures have been identified for the design.

4 Conclusion and justification

The additional information provided in in Chapter 2 (Response to agency requests) and Chapter 3 (Additional information and assessment) of this report, do not change the justification of the proposal, as outlined in the EIS and the Submissions Report.

Additional information and assessment have been provided on the draft Operations Plan, cumulative impacts and bushfire management. It is considered that construction and operation of the proposal can be managed to control and minimise impacts to the environment and community while the benefits of the proposal can be realised.

The proposal is needed to improve the efficiency of water management in Billabong Creek by improving the ability to deliver the right amount of environmental and consumptive (town and irrigation) water to the right place at the right time, and to improve the passage of native fish through the system. The proposal would assist delivery of improved environmental outcomes compared to current conditions. This would support the aim of the Murray-Darling Basin Plan adopted in November 2012 and NSW DCCEEW's Yanco Creek modernisation program which aims to upgrade of infrastructure to enable smarter use of water in the Yanco Creek system. It would also meet the NSW Government's commitment to the Commonwealth Government under the SDLAM Program.

In summary the proposal would contribute to the modernisation program through a focus on delivering improved environment outcomes through upgraded infrastructure and smarter use of water. The objectives of the Billabong Creek Regulators proposal are to:

- modernise ageing infrastructure
- provide service for water users
- improve fish passage
- improve delivery of environmental water.

This design of the proposal would meet the objectives listed above while avoiding and minimising impacts on the local and regional environment, and impacts on the local community and businesses, as far as possible.

5 References

- Australian Standard AS 3959 (2018) Construction of buildings in bushfire prone areas
- Commonwealth of Australia (2022) National Construction Code Building classifications, Australian building codes work
- NSW DCCEEW (2024) Billabong Creek Regulators Environmental Impact Assessment
- NSW DCCEEW (2025) Billabong Creek Regulators Submissions Report
- Department of Planning and Environment (DPE) (2023). Technical Supplement - Social Impact Assessment Guideline for State Significant Projects.
- DPE (November 2024) Yanco Creek Systems Operations Plan - Draft.
- DPIE (2022). Cumulative Impact Assessment Guidelines for State Significant Projects
- NSW Department of Planning, Housing and Infrastructure (DPHI) (2024). State significant infrastructure guidelines – preparing a submissions report Appendix C to the state significant infrastructure guidelines March 2024
- NSW Rural Fire Service (RFS) (2019) Planning for Bushfire Protection
- Water NSW (2021) Electrical Works Design and Installation Standard

Appendices

Appendix A – Updated mitigation measures

Updated mitigation and management measures

The EIS for the Billabong Creek Regulators proposal identified a range of environmental mitigation and management measures that would be required to avoid or reduce environmental impacts.

After consideration of the issues raised in the public submissions, the environmental management measures for the proposal have been revised. Should the proposal proceed, the environmental management measures in Table A1 will guide the subsequent phases of the proposal. Additional and/or modified environmental mitigation and management measures to those presented in the Submissions Report (May 2025) have been underlined and deleted measures, or parts of measures, have been struck out.

Table A.1: Updated mitigation and management measures

ID	Impact	Environmental safeguards	Responsibility	Timing
Groundwater				
GW01	Construction Dewatering	The need for construction dewatering will be reviewed if the construction methodology changes substantially from that assessed in the Groundwater Assessment Report and deeper excavations are proposed.	NSW DCCEEW / Contractor	Detailed design / Construction
GW02	Groundwater drawdown	Groundwater level monitoring utilising the existing monitoring wells should be undertaken on a monthly basis at wells BH201 (Hartwood) and BH3 (Wanganella) for five years.	WaterNSW	Operation
GW03	Groundwater quality	Annual water quality monitoring for salinity (as electrical conductivity) and pH. at wells BH201 (Hartwood) and BH3 (Wanganella) for five years.	WaterNSW	Operation
GW04	Groundwater quality	Site environmental management, inclusive of spill response measures, will be in accordance with broader WaterNSW existing environmental management procedures and policies	WaterNSW	Operation
Geomorphology				
GE01	Erosion and sedimentation	Regulator structures designed to avoid erosion around and downstream of structures through erosion protection. Regulator structure includes energy dissipation measures to manage erosion immediately downstream including concrete aprons and rock armouring of bed and channel banks.	NSW DCCEEW	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
GEO2	General	A Construction Environment Management Plan (CEMP) will be prepared to include side specific control measures to manage potential erosion, or sedimentation impacts from instream works as set out below.	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
GEO3	Erosion and sediment	A construction Erosion and Sediment Control Plan (ESCP) will be prepared as part of the construction soil and water management plan (CSWMP) and will detail the specific erosion and sediment control measures to be implemented within the proposal area, in accordance with the principles and requirements of Managing Urban Stormwater – Soils and Construction, Volumes 1 (Landcom 2004) and 2C (DECC, 2008) (known as the Blue Book). Controls should include but not be limited to: • Instream control measures: – Floating silt fences for instream works. – Undertaking work when flows are low/dry and minimise the duration of works within the watercourse as far as practicable. – Weir removal and new regulator construction to be undertaken in two phases; half of the creek needs to remain unobstructed to maintain continuous flow of water while construction is undertaken on the other side. Cofferdams, sumps and pumps would be used to separate and dewater the half of the creek undergoing construction. – Minimise clearance of vegetation and retain existing vegetation as much as possible. – Contingencies are in place for moderate to high flows, particularly during instream construction works. – Wherever possible, prefabricate instream structural elements prior to instream installation. • Terrestrial control measures – Install sediment controls around stockpiles and borrow areas to contain coarse soil and sediment, as applicable to prevent sedimentation of watercourses. – Placement of stockpiles away from the watercourse (at least 20 metres of creek channels) and be covered when not in use to prevent sediment runoff and consider whether covering of stockpiles containing coarse soil and sediment is also required.	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		– Stabilise exposed soil where applicable with the appropriate structural materials and media for the construction activities (e.g. stabilisation matting, rock armour or vegetation). – Regular, at least daily, visual water quality monitoring of waterways adjacent to the project area during construction, to assess the effectiveness of silt fences, so they can be fixed if necessary. – Erosion and sediment controls established prior to commencement of vegetation clearing or earthworks where practical.		
GE04	Reinstatement	Disturbed areas will be revegetated as soon as practical, progressively. Rehabilitation at construction sites to include replacing topsoil.	Contractor	Construction
GE05	Erosion and sediment	Erosion and sediment controls will be maintained post construction until disturbed areas are stabilised. Undertake two post-construction visual assessments of the regulator over two years to identify and assess any erosion, so it can be addressed if required.	WaterNSW	Operation
Surface water quality and aquatic ecology				
SWQ01	General – CEMP	Preparation of a CEMP to outline the measures to manage water quality impacts associated the construction works is recommended. If risks are to be minimised, it is recommended the CEMP include, but not be limited to, the following: • Measures to minimise/manage erosion and sediment transport within the disturbance area and off site with consideration of contingencies for moderate to high rainfall events. • Measures to manage stockpiles, including locations and sediment controls and stabilisation. • Detail procedures to capture, contain and dispose of concrete waste. • Measures to manage saline soils.	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		- Measures to manage water (including dewatering) and groundwater ingress from construction, including water collection protocols, and water quality standards to be achieved for release to downstream environment. This should be included in a dewatering management plan that would be prepared as a subplan to the CEMP. - Staging of works to consider and respond to forecast high flows and heavy rainfall events. - Management of the spread of weeds and pests. - Management of spills and leaks.		
SWQ02	General – CEMP	Measures to ensure all waterway crossings will be constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land – riparian corridors (NRAR, 2018), Guidelines for watercourse crossings on waterfront land (DPI, 2012), Guidelines for riparian corridors on waterfront land (DPI, 2012) and Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI, 2003).	Contractor	Pre-construction
SWQ03	Erosion and sediment management during construction	A construction Erosion and Sediment Control Plan (ESCP) will be prepared as part of the construction soil and water management plan (CSWMP) and will detail the specific erosion and sediment control measures to be implemented within the proposal area, in accordance with the principles and requirements of Managing Urban Stormwater – Soils and Construction, Volumes 1 (Landcom 2004) and 2C (DECC, 2008) (known as the Blue Book). Controls should include but not be limited to: - Instream control measures - Floating silt fences for instream works. - Undertaking work when flows are low/dry and minimise the duration of works within the watercourse as far as practicable	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		– Weir removal and new regulator construction to be undertaken in two phases; half of the creek needs to remain unobstructed to maintain continuous flow of water while construction is undertaken on the other side. Cofferdams, sumps and pumps would be used to separate and dewater the half of the creek undergoing construction. – Minimise clearance of vegetation and retain existing vegetation as much as possible. – Contingencies are in place for moderate to high flows, particularly during instream construction works. – Wherever possible, prefabricate instream structural elements prior to instream installation.		
SWQ04	Spills or leaks during construction	Site specific controls to be developed to manage the risk of accidental spills or leaks of fuels, oils and chemicals (such as hydraulic oils), or concrete, during construction. These controls are to be documented in the CEMP and would include: • emergency spill response procedure in accordance with NSW DCCEEW incident management protocols • site specific controls to reduce the risk of the release of potentially harmful chemicals from spills or leaks entering waterways • storage of hazardous materials such as oils, chemical and refuelling activities in bunded areas within contractor's temporary work areas • bunded receptacles for concrete waste including concrete slurries and washout water provided at the work sites to capture, contain and appropriately dispose of any concrete waste at a suitably licenced waste facility. These will be located as far from waterways as feasible.	Contractor	Pre-construction
SWQ05	Concrete works management	To avoid ingress of concrete waste material into downstream watercourse, the CEMP would outline procedures to capture, contain and appropriately dispose of any concrete waste.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		Concrete structures would be prefabricated prior to installation instream, where practicable.		
SWQ06	Water quality monitoring	To detect and manage the degradation of water quality due to construction activities, a water quality monitoring program will be designed and implemented and appended to the CSWMP. As a minimum water quality monitoring would include: • Water quality monitoring upstream and downstream of the proposal site prior to and during construction. In particular, monitoring of dissolved oxygen to ensure suitable saturation levels and turbidity to determine effectiveness of erosion and sediment controls. • Any groundwater that enters excavations within the works sites will be tested and, if suitable, pumped into nearby waterways or otherwise transferred into a treatment pond and treated before being discharged into nearby waterways. The CEMP will include water quality criteria for any water to be discharged into nearby waterways.	Contractor	Construction
SWQ07	Fish passage management during construction	Minimise the duration of fish passage restrictions (e.g. cofferdams).	Contractor	Construction
SWQ08	Weed and pathogen management	Develop and implement a weed and pathogen control plan that includes the following requirements and measures to mitigate spread: • Vehicle, personnel, material and equipment hygiene protocols (including measures required to prevent the spread or transmission of Chytrid Fungus as per Hygiene protocols for the control of diseases in Australian frogs (Murray et al. 2011). • Weed, pest animal and pathogen management and monitoring and reporting requirements during the construction period. • Weed and pathogen management and monitoring and reporting requirements should be documented. Measures must be auditable and linked to management outcomes.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		- Identify any listed weeds (identified in NSW WeedWise) that have been found in the construction area as part of the ecological assessment and assess the risk of additional spread prior to relocating topsoil. Implement measures to manage this risk when clearing, grading, and reinstatement activities. - To a reasonable extent when conducting clearing and grading activities, check that vehicles and plant equipment are free of soil (dust/clods) and vegetation prior to entry and exit from the construction area. - Evaluate disturbed areas post-construction and implement rehabilitation in accordance with the appropriate safeguards. - To avoid and minimise spread of weeds and pathogens, all vehicles and plant undertaking construction works directly in the watercourse must be cleaned and free of debris prior to entering a waterway, and on exit if working between multiple waterways		
SWQ09	Aquatic habitat disturbance minimisation	- Limit disturbance to riparian vegetation and snags to the assessed clearing areas and avoid complete removal wherever possible. - Any large woody debris and snags (>3m long or 30cm wide) that have to be removed from the construction footprint should be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.	Contractor	Construction
SWQ10	Reinstatement	- Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, progressive reinstatement. - Rehabilitation at construction sites to include replacing topsoil from the site stockpile.	Contractor	Construction
SWQ11	Pest control	Food waste accumulated on site will be stored in inaccessible bins and disposed off-site regularly so that the waste doesn't attract predatory pests such as cats and foxes.	Contractor	Construction
SWQ12	Fauna Management	Implement the following fauna management procedures during construction including:	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		• Prepare a dewatering plan for coffer dams to avoid potential impacts to aquatic fauna such as fish stranding. • As a requirement of the dewatering plan, native aquatic fauna entrained within the coffer dams will be captured and relocated to a nearby suitable habitat by qualified aquatic ecologists. • Development and implementation of handling and salvage protocols for terrestrial and aquatic fauna during construction, including requirements for legislative permits and authorisation requirements of wildlife handlers. This will include procedures for pre-clearing, clearing surveys and procedures should fauna or nests/burrows be found during these surveys and removal is required. The protocols will include details of requirements, including wildlife handler/ecologist/NSW DPI permits.		
SWQ13	Fauna Management	All fencing must be fauna friendly to minimise risk of injury from collision and include provision of egress points, for example: • Temporary to exclude construction: High visibility string of bunting or plastic mesh (not transparent) attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas). • Temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground. • No barbed or razor wire will be used.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		Trench management, including avoiding open trenches overnight where practicable. Where trenches cannot be closed, check trenches at the start and end of each day (i.e. dawn/dusk), and consider feasibility of measures (e.g. ramps) to aid animal escape.		
SWQ14	Fauna Management	Implement measures to minimise noise, vibration and lighting impacts on known threatened fauna species and habitat, including: - Avoid unnecessary light spill across a broader area than required to avoid attracting insects and subsequently their predators (bats and birds). - Avoiding night works during periods of high insect/bird/bat activity (October to March) as far as reasonably practical, so as to minimise disturbance to fauna communication, foraging and other behaviours that depend on sound and darkness.	Contractor	Construction
SWQ15	Hydrology	Once the proposal structures have been in operation through an appropriate operational cycle, the Yanco Creek System Operations Plan will be reviewed taking into account system monitoring results, identified operating risks and ecological response.	NSW DCCEEW WaterNSW	Operation
SWQ16	Erosion and sediment control during operation	- Erosion and sediment controls, including semi-permanent controls along the creek bed and bank as required, will be maintained post construction until disturbed areas are stabilised. - Undertake two post-construction visual assessments of regulators over two years to identify and assess any erosion caused by the structures, so it can be addressed if required.	WaterNSW	Operation
SWQ17	Spills or leaks during operation	Site environmental management, inclusive of spill response measures, will be in accordance with broader WaterNSW operation and maintenance and environmental management procedures for operations.	WaterNSW	Operation

ID	Impact	Environmental safeguards	Responsibility	Timing
SWQ18	Fish passage management during operation	- Develop and adhere to fishway maintenance protocols in line with NSW DPI – Fisheries advice. - Conduct fishway monitoring in line with advice from NSW DPI - Fisheries at each regulator once the construction is complete to ensure they are operating as anticipated.	WaterNSW	Operation
SWQ19	Water quality management downstream of the new regulators	To assess changes in water quality following the construction of the proposal and implementation of the Yanco Creek System Operations Plan, develop and conduct a water quality monitoring program for Billabong Creek, downstream of Wanganella and Hartwood Regulators. This may be incorporated into existing catchment-based monitoring programs at long-term monitoring locations, if not already covered.	WaterNSW	Operation
SWQ20	Fauna management during operation	- All operation personnel would be informed of environmental responsibility with respect to the protection of aquatic and terrestrial fauna and their habitat. - All vehicles driven by operation personnel would be required to remain on designated tracks and not drive through water.	WaterNSW	Operation
Terrestrial flora and fauna				
B01	General biodiversity impacts	Flora and fauna management controls will be included within the CEMP-that specifies measures, processes, and responsibilities to minimise the potential for biodiversity impacts during construction. The CEMP will specify requirements for the implementation of these measures and provide for audit and compliance.	Proposal ecologist	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
B02	General biodiversity impacts	Flora and fauna management controls will be included within the WaterNSW operational environmental management procedures. This will include measures, processes, and responsibilities to minimise the potential for biodiversity impacts during operation of the proposal incorporating the measures listed below. The OEMP will specify requirements for the implementation of these measures and provide for audit and compliance.	WaterNSW	Operation
B03	General	All workers will be provided with an environmental induction prior to starting work on site. This will include information on the biodiversity values of the site, protection measures to be implemented to protect native biota and penalties for breaches.	Construction contractor and Proposal ecologist	Construction
B04	Removal of vegetation and habitat resources	Plans will be prepared showing areas to be cleared and areas to be protected, including exclusion zones and protected habitat features in the vicinity of work areas.	Proposal ecologist	Pre-construction
B05	Removal of vegetation and habitat resources	A pre-construction assessment of the local <i>Swainsona murrayana</i> population will be conducted including: • consideration of whether the construction period coincides with the August to November flowering period for the species (Cth. DCCEEW 2024b) • consideration of prevailing rainfall conditions in the preceding cool season and assessment of the likely health and extent of the local population • supplementary survey as appropriate to confirm the extent of above-ground plants in the local population • definition and implementation of additional impact and avoidance measures as appropriate potentially including delayed construction activity, adjustment of CAZs, exclusion fencing and/or translocation.	Proposal ecologist	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
B06	Removal of vegetation and habitat resources	A pre-construction assessment of the local Southern Bell Frog population will be conducted including: • consideration of whether the construction period coincides with the Spring-Summer breeding and higher adult frog activity period for the species • consideration of prevailing rainfall and river conditions and assessment of the likely presence and extent of potential breeding habitat in ephemeral wetlands • supplementary survey as appropriate to confirm the extent of occupied breeding habitat and/or mobile adult frogs in the local population • definition and implementation of additional impact and avoidance measures as appropriate potentially including delayed construction activity, adjustment of CAZs, exclusion fencing, procedures for dewatering of wetlands and/or translocation.	Proposal ecologist	Pre-construction and construction
B07	Removal of vegetation and habitat resources	A pre-construction assessment of threatened bird breeding habitat will be conducted including: • consideration of whether the construction period coincides with the Spring-Summer breeding periods for the Little Eagle, Pink Cockatoo and other threatened bird species • inspection of the known Little Eagle nest tree location, species polygon areas, and any other suitable habitat containing candidate nest trees within 200 m of the proposal footprint • supplementary monitoring as appropriate to confirm the presence of occupied nest trees, breeding activity, and behaviour of birds in the vicinity of the proposal footprint definition and implementation of additional impact and avoidance measures as appropriate to ensure that occupied nests are not disturbed, potentially including delayed construction activity, adjustment of CAZs and exclusion fencing.	Proposal ecologist	Pre-construction and construction

ID	Impact	Environmental safeguards	Responsibility	Timing
B08	Removal of vegetation and habitat resources	Prior to the commencement of any work in or adjoining areas of native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.	Proposal ecologist	Pre-construction and construction
B09	Unexpected direct impacts to threatened flora and fauna	An unexpected finds protocol will be implemented including measures to be undertaken if threatened flora and fauna not previously recorded on site are detected during clearing or construction activities.	Proposal ecologist	Construction
B010	Harm to resident fauna	The following protocols for the management of fauna and habitats will be implemented in accordance with the CEMP: • a procedure for the felling of hollow-bearing trees to prevent or minimise mortality of fauna • salvage of hollows and logs where practicable • management of any trenches or drill sites to prevent fauna from becoming trapped or injured • any additional measures for the management of frog breeding habitat as appropriate to seasonal conditions and the outcomes of pre-construction surveys.	Contractor and Proposal ecologist	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
B011	Harm to resident fauna	Pre-clearing surveys will be undertaken prior to and during construction by a suitably qualified ecologist. The surveys and inspections, and any subsequent relocation of species, will be undertaken in accordance with the CEMP. Specific surveys include: • an initial pre-clearance survey of the proposal footprint, undertaken by a suitably qualified ecologist prior to the commencement of any clearing activities including: – surveys for roosting microbats in any man-made structures to be removed – searches for nests in vegetation to be removed – identification of fauna refuge sites potentially requiring fauna management during removal, including hollow-bearing trees, woody debris as well as human made material such as metal sheets – a daily pre-clearance fauna survey of the day's work area, undertaken by a suitably qualified ecologist prior to the clearing of native vegetation – monitoring of clearing activities and observation, rescue, treatment and/or relocation of any resident fauna as appropriate.	Contractor and Proposal ecologist	Construction
B012	Harm to resident fauna	Monitoring of clearing activities would include particular focus on habitat features that may harbour threatened species that are vulnerable to direct or indirect harm including during: • felling of habitat trees that may contain roosting threatened birds or microbats • earthworks in or near floodplain depressions that may contain breeding habitat for the Southern Bell Frog • earthworks affecting cracking clay soils or woody debris that may harbour Grey Snakes or Southern Bell Frogs. • construction activity in the vicinity of the known Little Eagle nest tree or any other nest sites observed in or near the proposal footprint.		
B013	Harm to resident fauna	A post-clearing report will be prepared documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: • date and time of the sighting and details of the observer	Contractor and Proposal ecologist	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		- species - number of individuals recorded - adult/juvenile - condition of the animal (living/dead/injured/sick) - management action undertaken (e.g. captured, handled, taken to vet) - results of any management actions (e.g. released, placed in a nest box, euthanised, placed with carer). An inventory of hollows and fallen timber salvaged and relocated will be maintained.		
B014	Pathogen spread and establishment	All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the NSW best practice Protocols to protect priority biodiversity areas (DPIE 2020f). Protocols to prevent introduction or spread of chytrid fungus will be implemented following the NSW hygiene guidelines for wildlife (DPIE 2020f). Vehicle washdown logbooks will be maintained.	Contractor	Construction
B015	Spread of weeds	Declared priority weeds will be managed according to requirements of the NSW <i>Biosecurity Act</i>. Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance would be avoided as much as possible to minimise the potential for spreading weeds.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
B016	Soil loss hazard – erosion of soils and sediment due to clearing during construction	A construction Erosion and Sediment Control Plan (ESCP) will be implemented as part of the construction soil and water management plan (CSWMP) and will detail the specific erosion and sediment control measures to be implemented within the proposal area, in accordance with the principles and requirements of Managing Urban Stormwater – Soils and Construction, Volumes 1 (Landcom 2004) and 2C (DECC, 2008) (known as the Blue Book).	Contractor	Pre-construction, construction
B017	Reduction in surface water quality due to sedimentation	Erosion and sediment controls throughout the proposal site will be inspected and maintained to ensure they are operating effectively. Management measures that have been integrated in the proposal design, including partial coffer damming of Billabong Creek are specified in the Surface Water Quality and Aquatic Ecology Assessment Report, Appendix K to the EIS (Jacobs 2023b).	Contractor	Construction
B018	Vehicle strike	Appropriate speeds for all construction and contractor vehicles will be enforced to limit dust generation and minimise risk of fauna mortality through vehicle strike during construction and operation.	Contractor, WaterNSW	Construction, operation
B019	Light spill. Displacement of fauna from habitat adjoining the proposal footprint	Works would be confined to daytime hours of 7:00am to 6:00pm, Monday to Sunday (including public holidays), with the exception of the limited activities as described above for noise impacts. Light generated during construction will be managed in general accordance with the requirements in Australian Standard AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. Directional lighting will be used to minimise the effects of light spill outside the CAZ as far as possible.	Contractor, WaterNSW	Construction, operation

ID	Impact	Environmental safeguards	Responsibility	Timing
B020	Noise and vibration generation Displacement of fauna from habitat adjoining the proposal footprint	All activities on site are to be undertaken as per the approved CEMP and WaterNSW operational environmental procedures, with works confined between the following hours: daytime hours of 7am to 6pm, Monday to Sunday (including public holidays), with the exception of the following activities: - the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; emergency work to avoid the loss of life or damage to property, or to prevent environmental harm - emergency work to avoid the loss of life, property and/or material harm to the environment - works as approved through the out-of-hours works protocol as approved through the CEMP. These specific controls will be in accordance with the Interim Construction Noise Guideline (DECC. 2009) as listed in the Noise and Vibration Impact Assessment (GHD 2023b).	Contractor, WaterNSW	Construction, operation
B021	Water quality, chemical and fuel impacts on flora and fauna	Post approval Management/Monitoring plans will be prepared and implemented in accordance with relevant NSW EPA Guidance including, but not limited to: - Consultants reporting on contaminated land, Contaminated Land Guidelines, NSW EPA 2020. - Environmental Guidelines, Solid Waste Landfills (2nd Edition), NSW EPA 2016. - The NSW Waste Classification Guidelines and relevant NSW reuse/waste orders and exemptions (E.g. the Excavated Natural Material Order / Exemption) - NSW DCCEEW incident management protocols. Measures will include: - Site specific controls to reduce the risk of the release of potentially harmful chemicals from spills or leaks entering waterways - Spill kits will be kept on site and in construction vehicles where required - Storage of hazardous materials such as oils, chemical and refuelling activities in bunded areas within the construction activity zones	Contractor, WaterNSW	Construction, operation

ID	Impact	Environmental safeguards	Responsibility	Timing
		Bunded receptacles for concrete waste including concrete slurries and washout water provided at the work sites to capture, contain and appropriately dispose of any concrete waste at a suitably licenced waste facility. These will be located as far from waterways as feasible.		
BO22	Water quality, chemical and fuel impacts on flora and fauna	Site environmental management during operation, inclusive of spill response measures, will be in accordance with broader WaterNSW existing environmental management procedures and policies.	WaterNSW	Operation

ID	Impact	Environmental safeguards	Responsibility	Timing
Aboriginal Heritage				
<u>AH1</u>	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	<u>All ground-disturbing works to the following earth mounds and potential archaeological deposit (PAD) site must be avoided, specifically:</u> <u>Forest Creek Block Bank Earth Mound 1 (AHIMS # 54-3-0058),</u> <u>Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055),</u> <u>Hartwood Weir Earth Mound 1 (AHIMS # 54-3-0054) and</u> <u>Hartwood Weir Earth Mound 2 (AHIMS # 54-3-0056),</u> <u>Traditional Owners must be involved in monitoring works to ensure the protection of these sites from the proposed works. Specific site protection conditions include:</u> <u>Six Aboriginal cultural heritage sites are in close proximity to the access tracks. Prior to the commencement of works these sites must be fenced off using temporary flagging to ensure no disturbance occurs, specifically:</u> <u>Forest Creek Block Bank Earth Mound 1 (AHIMS # 54-3-0058),</u> <u>Hartwood Weir Scarred Tree 1 (AHIMS # 54-3-0026),</u> <u>Hartwood Weir Scarred Tree 3 (AHIMS # 54-3-0029),</u> <u>Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055),</u> <u>Hartwood Weir Earth Mound 1 (AHIMS # 54-3-0054) and</u> <u>Hartwood Weir Earth Mound 2 (AHIMS # 54-3-0056),</u> <u>All vehicles must keep to the access tracks.</u> <u>An exclusion line using bollards is to be erected to the south of Hartwood Weir Earth Mound 1 (AHIMS # 54-3-0054) and Hartwood Weir Earth Mound 2 (AHIMS # 54-3-0056) to ensure that no vehicles drive in close proximity to sites.</u>	<u>Contractor</u>	<u>Construction</u>

ID	Impact	Environmental safeguards	Responsibility	Timing
<u>AH2</u>	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	<u>The following culturally modified (scar) trees are to have no ground-disturbing works within the canopy dripline, damage to their trunks or limbed removed and/or damaged this includes:</u> <u>Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055),</u> <u>Wanganella Weir Scarred Tree 1 (AHIMS # 54-2-0263),</u> <u>W scar tree 2 (AHIMS # 54-2-0251) and</u> <u>Forest Creek Block Bank Scarred Tree 3 (AHIMS # 54-3-0034)</u> <u>Temporary flagging must be erected to ensure the preservation of these sites and Traditional Owners must be involved in monitoring works to ensure the protection of these sites from the proposed works.</u>	<u>Contractor</u>	<u>Construction</u>
<u>AH3</u>	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	<u>Hartwood Weir Scarred Tree 4 (AHIMS # 54-3-0059), Hartwood Weir Hearth (AHIMS # 54- 3-0061), Forest Creek Block Bank Scarred Tree 2 (AHIMS # 54-3-0031), Wanganella Weir Scarred Tree 3 (AHIMS # 54-2-0264) and Forest Creek Block Bank Scarred Tree 4 (AHIMS # 54-3-0057) will be impacted by the proposed works and are to be managed in accordance with recommendations AH4, AH5 and AH6 below.</u>	<u>Contractor</u>	<u>Construction</u>

ID	Impact	Environmental safeguards	Responsibility	Timing
<u>AH4</u>	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	The Conditions of Approval must state that impacts the following sites must be managed under the preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP): • <u>Hartwood Weir Scarred Tree 4 (AHIMS # 54-3-0059): digital recording of the tree using LIDAR scanning and casting of the scar; followed by careful removal of the tree avoiding damage to the cultural modification of the tree,</u> • <u>Hartwood Weir Hearth (AHIMS # 54-3-0061): including archaeological salvage of the site with RAPs present,</u> • <u>Forest Creek Block Bank Scarred Tree 2 (AHIMS # 54-3-0031): trimming to be conducted by qualified arborist and under supervision of RAPs,</u> • <u>Forest Creek Block Bank Scarred Tree 4 (AHIMS # 54-3-0057): trimming to be conducted by qualified arborist and under supervision of RAPs, and</u> • <u>Wanganella Weir Scarred Tree 3 (AHIMS # 54-2-0264) digital recording of the tree using LIDAR scanning and casting of the scar; followed by careful removal of the tree avoiding damage to the cultural modification of the tree.</u>	<u>NSW DCCEEW, Contractor</u>	<u>Pre-construction, construction</u>

ID	Impact	Environmental safeguards	Responsibility	Timing
AH5	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	The ACHMP at a minimum, must include protocols for: 1. <u>Minimisation and managing the impacts of the project on heritage items within the disturbance area.</u> 2. <u>Protecting the heritage items outside the project disturbance area.</u> 3. <u>Managing the discovery of human remains or previously unidentified heritage items based on Water NSW's unexpected finds protocol.</u> 4. <u>Ensuring any workers on site receive suitable heritage inductions prior to carrying out any work on site.</u> 5. <u>Monitoring and reporting on the effectiveness of any mitigation measures and any heritage impacts of the project.</u> 6. <u>Maintaining and managing reasonable access for registered Aboriginal parties (RAPs) to heritage items on site.</u> 7. <u>Conducting further archaeological and heritage assessments in any disturbance areas where this assessment has not already been carried out.</u> 8. <u>Be developed in consultation with RAPs and Heritage NSW.</u>	<u>Contractor</u>	<u>Pre-construction, construction</u>
AH6	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	This assessment covers the harm to all known cultural heritage sites. In the event that unexpected finds occur during the proposed construction activities, an unexpected finds process must be followed. This process will be developed as part of the recommended ACHMP prior to the proposed works' commencement. 1. <u>If human skeletal remains are encountered, all work must cease immediately and NSW Police must be contacted, they will then notify the Coroner's Office. Following this, if the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.</u>	<u>Contractor</u>	<u>Pre-construction, construction</u>

ID	Impact	Environmental safeguards	Responsibility	Timing
<u>AH7</u>	<u>Impacts to and benefits for Aboriginal communities</u>	<u>It is recommended that NSW DCCEEW continues to inform the Aboriginal stakeholders about the management of Aboriginal cultural heritage within the study area throughout the completion of the project. The consultation outlined as part of this ACHA is valid for six months and must be maintained by the proponent for it to remain continuous. If a gap of more than six months occurs, then the consultation will not be suitable to support an ACHMP for the study areas.</u>	<u>NSW DCCEEW, Contractor</u>	<u>Design, pre-construction, construction</u>
<u>AH8</u>	<u>Impacts to and benefits for Aboriginal communities</u>	<u>A copy of this report should be forwarded to all Aboriginal stakeholder groups who have registered an interest in the project.</u>	<u>NSW DCCEEW</u>	<u>Design, pre-construction</u>
<u>AH1</u>	<u>Protecting Aboriginal heritage and minimising impacts during construction</u>	All ground disturbing works to earth mound and/or potential archaeological deposit (PAD) sites, including Forest Creek Block Bank Earth Mound 1 (AHIMS # 54-3-0058), Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055), Hartwood EM Weir 1 (AHIMS # 54-3-0054) and Hartwood EM Weir 2 (AHIMS # 54-3-0056), must be avoided. Traditional Owners must also be involved in monitoring works to ensure the protection of these sites from the proposed works. Specific conditions include: 1. The identified Aboriginal sites Four Aboriginal cultural heritage sites that are in close proximity to the access tracks, including Forest Creek Block Bank Earth Mound 1 (AHIMS # 54-3-0058), Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055), Hartwood EM Weir 1 (AHIMS # 54-3-0054) and Hartwood EM Weir 2 (AHIMS # 54-3-0056), must be fenced off using temporary flagging to ensure that the sites are not disturbed. All vehicles must keep to the access tracks. 2. All vehicles must keep to the access tracks 3. An exclusion line using bollards is to be erected to the south of Hartwood EM Weir 1 (AHIMS # 54-3-0054) and Hartwood EM Weir 2 (AHIMS # 54-3-0056) to ensure that no vehicles drive in close proximity to sites.	<u>NSW DCCEEW, Contractor</u>	<u>Design, pre-construction, construction</u>

ID	Impact	Environmental safeguards	Responsibility	Timing
AH2	Protecting Aboriginal heritage and minimising impacts during construction	Identified scar trees, including The following culturally modified (scar) trees_Hartwood Weir Scarred Tree and PAD (AHIMS # 54-3-0055), Wanganella Weir Scarred Tree-1 (AHIMS # 54-2-0263) and Forest Creek Block Bank Scarred Tree-3 (AHIMS # 54-3-0034) are to have no ground-disturbing works within the canopy dripline, damage to their trunks or limbed removed and/or damaged. Temporary flagging must be erected to ensure the preservation of these sites and Traditional Owners must be involved in monitoring works to ensure the protection of these sites from the proposed works.	Contractor	Pre-construction, construction
AH3	Protecting, avoiding and minimising impacts on Aboriginal heritage & Consultation	Heritage features must be managed under the preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) that, at a minimum, includes: 1. Minimisation and managing the impacts of the project on heritage items within the disturbance area. 2. Protecting the heritage items outside the project disturbance area. 3. Managing the discovery of human remains or previously unidentified heritage items based on WaterNSW's unexpected finds protocol. 4. Ensuring any workers on site receive suitable heritage inductions prior to carrying out any work on site. 5. Monitoring and reporting on the effectiveness of any mitigation measures and any heritage impacts of the project. 6. Maintaining and managing reasonable access for registered Aboriginal parties (RAPs) to heritage items on site. 7. Conducting further archaeological and heritage assessments in any disturbance areas where this assessment has not already been carried out. 8. Be developed in consultation with RAPs and Heritage NSW.	NSW-DGCEEW Contractor	Design, pre-construction, construction, operation
AH4	Unexpected finds	This assessment covers the harm to all known cultural heritage sites. In the event that unexpected finds occur during the proposed construction activities, an unexpected finds process must be followed. This process will be developed as part of the recommended ACHMP prior to the proposed works' commencement.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		If, human skeletal remains are encountered, all work must cease immediately and NSW Police must be contacted, they will then notify the Coroner's Office. Following this, if the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.		
AH5	Consultation	It is recommended that <u>NSW DCCEEW</u> will continues to inform the Aboriginal stakeholders about the management of Aboriginal cultural heritage within the study area throughout the completion of the project. The consultation outlined as part of this ACHA is valid for six months and must be maintained by the proponent for it to remain continuous. If a gap of more than six months occurs, then the consultation will not be suitable to support an ACHMP for the study areas.	NSW DCCEEW	Construction
AH6	Consultation	A copy of the ACHAR should be forwarded to all Aboriginal stakeholder groups who have registered an interest in the project.	NSW DCCEEW	Design, pre-construction
AH7	Protecting, avoiding and minimising impacts on scar trees.	Hartwood Weir Scarred Tree 4 (AHIMS # 54-3-0059), Hartwood Weir Hearth (AHIMS #54-3-0061, Forest Creek Block Bank Scarred Tree 2 (AHIMS # 54-3-0031), Wanganella Weir Scarred Tree 3 (AHIMS # 54-2-0264) and Forest Creek Block Bank Scarred Tree 4 (AHIMS # 54-3-0057) will be impacted by the proposed works and are to be managed in accordance with these recommendations: Conditions of approval must state that impacts to the following sites must be managed under preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) — Hartwood Weir Scarred Tree 4 (AHIMS # 54-3-0059), digital recording of the tree using LIDAR scanning and casting of the scar, followed by careful removal of the tree avoiding damage to the cultural modification of the tree — Hartwood Weir Hearth (AHIMS #54-3-0061, including archaeological salvage of the site with RAPs present — Forest Creek Block Bank Scarred Tree 2 (AHIMS # 54-3-0031), trimming to be conducted by a qualified arborist and under supervision of RAPs • Wanganella Weir Scarred Tree 3 (AHIMS # 54-2-0264) trimming to be conducted by a qualified arborist and under supervision of RAPs	NSW DCCEEW, Contractor	Pre-construction, construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Non Aboriginal heritage				
HH1	Impacts to registered and previously unidentified historical heritage items or archaeological sites	Management of historical heritage during pre-construction and construction: • Prior to construction commencing, all personnel working on site will be provided a site-specific cultural heritage induction (e.g. Project induction toolbox talks and staff inductions). This will include the heritage sensitivities of work sites and the procedures for the management of non-Aboriginal cultural heritage during construction, such as the discovery of historical artefacts, features or deposits, or the discovery of human remains. • An unexpected finds protocol that specifies measures to avoid and minimise impacts on any previously unidentified historical archaeological sites and values discovered during pre-construction and construction will be prepared. If unexpected items are discovered during construction, all work will cease in the area. The Contractor will inform the site supervisor and Project Manager, and an Historical Archaeologist will be engaged to assess the item's significance. The Project Manager must advise a WaterNSW heritage officer of any unexpected finds on WaterNSW land or in relation to a WaterNSW asset, as per Section 146 of the Heritage Act.	NSW DCCEEW, Contractor	Pre- construction, Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
HH2	Impacts to Hartwood Weir (WaterNSW S170 4550110)	Management of Hartwood Weir (WaterNSW S170 4550110) during pre-construction • NSW DCCEEW will record the asset prior to demolition in accordance with Heritage NSW's How to Prepare Archives Records of Heritage Items, Guidelines for Photographic Recording of Heritage Sites, Buildings and Structures, and the updates to technology and practice which have occurred since the 2006 guidelines were issued. The archival recording should result in three sets of a digital photographic report, along with digital materials. DCCEEW will provide WaterNSW with a draft copy for review, prior to lodging this recording with the Heritage NSW library, State Library of NSW and the local council library (<i>Guideline 3.57</i>). NSW DCCEEW and WaterNSW will also retain a copy of the final report for their own records. • Explore options in conjunction with WaterNSW for the installation of interpretation of Hartwood Weir to provide information about the heritage significance of the site, fabric, value and history of the site, supported by digital content, including consideration of expenditure and ongoing maintenance. The interpretation display should include the engraving (from the right bank abutment), which is proposed to be removed as part of demolition. For example, interpretation options may include (but are not limited to): – signage – embedded interpretation – artworks – interpretive display. • Places for interpretive display/s may include location/s determined by WaterNSW and/or NSW DCCEEW. Recommendations from the Edward River Council and/or other local stakeholders may be taken into consideration in the determination of the preferred location/s.	WaterNSW, NSW DCCEEW, Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		Provision of 14 days prior written notification of the proposed demolition of the heritage item will be made to the Heritage Council of NSW by NSW DCCEEW and WaterNSW.		
HH3	Impacts to Wanganella Weir	Management of Wanganella Weir during pre-construction - The asset will be recorded prior to demolition in accordance with Heritage NSW's preferred method of archival recording, as described in HH2. A draft version of the report should be provided to WaterNSW for review. NSW DCCEEW will provide WaterNSW with a draft copy for review, prior to lodging this recording with the Heritage NSW library, State Library of NSW and the local council library. NSW DCCEEW and WaterNSW will also retain a copy of the final report for their own records. - Explore options in conjunction with WaterNSW for the installation of interpretation (for example but not limited to signage, embedded interpretation, artworks, interpretive display) at the portion of Wanganella Weir which is being retained (near the southern wingwall and timber formwork) to provide information about the heritage significance of the site, fabric, value and history of the site, supported by digital content, including consideration of expenditure and ongoing maintenance. - Prior to its demolition, measures to manage indirect historical heritage impacts to the remaining elements of the weir (the southern wingwall and timber formwork) will be implemented, including physical barrier protection and/or exclusion zones, until the works in the vicinity of the remaining weir features have been completed.	NSW DCCEEW, Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Land use, property and agriculture				
LU1	Biosecurity (Weeds and pathogen management)	As part of the CEMP document weed and pathogen management should be documented. Measures must be auditable and linked to management outcomes such as: • identify listed weeds (identified in NSW WeedWise) in the construction area and assess the risk of additional spread prior to relocating topsoil. Implement measures to manage this risk during clear and grade, and reinstatement • to a reasonable extent practicable during the clear and grade phase, check that vehicles and plant equipment are free of soil (dust/clods) and vegetation prior to entry and exit from the construction area • evaluate disturbed areas post-construction and implement rehabilitation in accordance with the appropriate safeguards. • To avoid and minimise spread of weeds and pathogens, all vehicles and plant undertaking construction works must be cleaned and free of debris prior to entrance to the site. Plant used within waterways must be cleaned before exiting the site if working between multiple waterways.	Contractor	Pre-construction, construction and operation
LU2	Land use and property impacts, including severance and other impacts on operations	The design and construction planning would continue to be refined to minimise potential impacts on land uses and properties as far as reasonably practicable. Consultation with landholders would be ongoing to identify opportunities to minimise impacts on farming operations where practicable. Property owners and occupants would be consulted in accordance with the communication management plan for the proposal, to ensure that owners/occupants are informed about: • the timing and scope of activities in their area • any potential property impacts/changes, particularly in relation to potential impacts on access, services, or farm operational arrangements • activities that have the potential to impact on livestock.	Contractor	Pre-construction and construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		Feasible and reasonable property-specific measures would be identified in consultation with landholders, and implemented during construction, where construction is located on or immediately adjacent to private properties and has the potential to affect farm operational arrangements.		
LU3	Native Title	Consultation with the claimants of Native Title Claim VC2021/001 would be undertaken to confirm any further plans to get the claim registered. In the event further attempts to register the claim are proposed consultation with the claimant would occur with regards to the proposed works within the claim area.	Contractor	Pre-construction
LU4	Property acquisition and easements	All property acquisition and easements will be carried out in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> and in consultation with WaterNSW.	DCCEEW	Pre-construction
LU5	Traffic and access	Landowners will be consulted about access arrangements.	Contractor	Pre-construction/ construction
LU6	Reinstatement	Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, progressively. Rehabilitation at construction sites to include replacing topsoil. Mature trees removed from the construction footprint will be cut into appropriate sections and relocated adjacent to waterways. Existing woody debris will also be relocated. Any reinstatement plans in proximity to the proposal will be reviewed and approved by WaterNSW beforehand.	Contractor	Construction
LU7	Wanganella Landfill	Access to the Wanganella Landfill is to be maintained at all times. Any loss of public access is to be notified to the community in advance with an alternate access to be provide where possible.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
LU8	Wanganella Landfill	Wanganella Landfill is not to be used for the disposal of waste without the prior approval from Edward River Council. It should also only be used for the disposal of materials agreed upon with Council.	Contractor	Construction
LU9	Travelling Stock Reserves	Access along the Travelling Stock Reserves is to be maintained at all times. Where access cannot be maintained, consultation with Local Land Services would be undertaken to confirm any requirements during any full closures of the reserve.	Contractor	Construction
LU10	Travelling Stock Reserves	Consultation with Local Land Services would be undertaken to confirm any specific requirements for works within a travelling stock reserve in relation to their use and any fencing or similar required during construction.	Contractor	Construction
Traffic and access				
TA1	Impacts to traffic and transport networks	Develop a construction traffic management sub-plan, prior to construction. The plan shall detail: - the potential impacts/delays associated with the development. - the works required to the existing road infrastructure. - the measures to be implemented to maintain the standard and safety of the network. - the procedures to monitor and ensure compliance. The plan will include, at a minimum, the following management measures: - preparation of a Traffic Guidance Scheme, detailing adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised - maintain accessibility for pedestrians and cyclists - indicate routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses - implement measures to manage traffic flows around the area affected by the construction of the proposal, including, as required, regulatory and direction	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		signposting, line marking, and variable message signs and all other traffic control devices necessary for the implementation of the construction traffic management sub-plan undertake consultation with the relevant road authorities during preparation of the sub-plan. Ensure the performance of proposal traffic arrangements is monitored during construction.		
TA2	Safety implications arising from the general increase in traffic volumes	Protection shall be provided through advanced warning of roadworks, speed changes, safety barriers with adequate offsets and deflection allowance, where necessary. The construction TMP shall cover strategies to manage vehicular flow to facilitate the safe movement of road users (i.e. workers and staff, and the general public – pedestrians, cyclists, and other non-proposal vehicles) within, around, and to/from the proposal footprint.	Contractor	Construction and operation
TA3	Increase in heavy vehicles	All deliveries shall be scheduled and coordinated to facilitate the organised arrival of trucks. Ample space and time shall be allotted for the safe loading and unloading of materials. All parking and queueing (if any) shall be contained within the proposal footprint.	Contractor	Construction and operation
TA4	Damage on roads along haulage and access routes resulting from the movement of proposal vehicles	The conditions of the access roads to the proposal's footprint, and of the roads linking the proposal sites to the existing freight network used for freight transport shall be assessed by a Road Dilapidation Report prior to construction commencing and following completion of construction. Any defects attributable to construction activities shall be rectified or compensated in consultation with the relevant road authorities.	NSW DCCEEW / Contractor	Construction
TA5	Environmental impacts associated with the	Monitor the roads leading to and from the proposal footprint and take necessary steps to rectify any road deposits caused by site vehicles as soon as reasonably practicable, to maintain the safety of road users.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
	movement of vehicles	Where possible, offset the construction vehicle activity from peak periods of road network activity.		
TA6	Environmental impacts associated with the movement of vehicles	Induct employees and contractors to raise awareness and understanding of traffic and transport mitigation measures to be implemented during construction via the CEMP.	Contractor	Construction
TA7	Impacts to road infrastructure	Undertake the necessary upgrades and construction of vehicular access tracks to provide safe and efficient movement of light and heavy vehicles to the proposal sites.	Contractor	Pre-construction
Noise and vibration				
NV1	Construction hours and scheduling	Where feasible and reasonable, construction would be carried out during the ICNG standard daytime working hours. Work generating high noise and/or vibration levels would be scheduled during less sensitive time periods.	NSW DCCEEW / Contractor	Construction
NV2	Construction noise	The use of quieter and less vibration emitting construction methods would be considered and implemented, where feasible and reasonable.	NSW DCCEEW / Contractor	Pre-Construction, Construction
NV3	Construction noise	As much distance as possible would be placed between the plant or equipment and residences and other sensitive land uses, where possible.	NSW DCCEEW / Contractor	Pre-Construction, Construction
NV4	Construction noise	Reduce throttle setting and turn off equipment when not being used.	Contractor	Construction
NV5	Construction noise	Selection of equipment which is of an appropriate size and power for the task would be undertaken where possible.	NSW DCCEEW / Contractor	Pre-Construction, Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
NV6	Impacts from deliveries	Loading and unloading of materials/deliveries would occur as far as possible from sensitive receivers.	NSW DCCEEW / Contractor	Construction
NV7	Impacts from deliveries	Delivery vehicles would be fitted with straps rather than chains for unloading, wherever possible.	NSW DCCEEW / Contractor	Construction
NV8	Impacts from deliveries	Out of hours movements would be avoided or minimised where possible.	NSW DCCEEW / Contractor	Construction
NV9	Vibration impacts	Where required, limit the size of the vibratory compactor to maintain the safe work buffer distances.	NSW DCCEEW / Contractor	Construction
NV10	Notification to affected residences	Where site establishment works at site access tracks (vegetation clearing or upgrade of tracks) would occur within 700 metres of residences, the affected residences would be notified a minimum of 7 days prior to work including: • a description of the works to be undertaken including its timing and duration • the expected noise levels during the works • a contact number for further information or for complaints.	NSW DCCEEW / Contractor	Pre-construction
NV11	Construction traffic noise	Reduce the speed of vehicles when approaching sensitive receivers.	Contractor	Construction
NV12	Construction traffic noise	With the exception of delivery of oversized plant or structures, schedule deliveries to nominated hours only.	Contractor	Construction
NV13	Construction traffic noise	Optimise the number of vehicle trips to and from site – movements can be organised to amalgamate loads rather than using a number of vehicles with smaller loads.	Contractor	Construction
NV14	Construction traffic noise	Limit access routes to the site to the designated routes.	Contractor	Construction
NV15	Construction traffic noise	Manage driver behaviour and avoidance of the use of engine compression brakes.	Contractor	Construction
NV16	Operational noise	Mechanical plant should be designed to meet the Noise Policy for Industry project noise trigger levels.	NSW DCCEEW / Contractor	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
NV17	Operational noise	Mechanical plant should be well maintained and operate in an efficient manner. This is to limit any excess noise generation that may arise when plant is not functioning correctly.	NSW DCCEEW / Contractor	Detailed design
Visual amenity				
V1	Changes to view from vegetation loss	Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, progressively. Mature trees removed from the construction footprint will be cut into appropriate sections and relocated adjacent to waterways. Existing woody debris will also be relocated.	Contractor	Construction
V2	Impacts to views from construction	Work areas will be kept tidy at all times. All temporary above-ground infrastructure will be removed at the completion of construction. Reinstatement of construction activity zones will commence progressively post construction and will be undertaken as soon as practicable.	Contractor	Construction
V3	Impacts from construction lighting	Lighting of work areas, compounds, and work sites will be oriented to minimise glare and light spill impact on nearby receivers.	Contractor	Construction
V4	Changes to views in Wanganella Camping Reserve	The following actions will be adhered to during work within Wanganella Camping Reserve: - Picnic tables and facilities within the construction footprint will be relocated to another area in Wanganella Camping Reserve. - Construction site hoarding and fencing will be designed, erected, and maintained to minimise visual impacts. This will include: - erecting hoarding/fencing as early as possible in the site - using high quality materials suitable for parks and public spaces. - The hoarding of construction materials will be minimised as far as practicable.	Contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
V5	Rehabilitation of the site	A rehabilitation plan for the sites will be developed in consultation with WaterNSW and Edward River Council. This will include a planting schedule of endemic riparian and floodplain species (replacing like for like) appropriate to the sites and requiring low maintenance. The disturbed riverbanks will be reinstated with materials that provide stability while also presenting as natural an appearance as possible. Any rehabilitation plans in proximity to the proposal will be reviewed and approved by WaterNSW.	NSW DCCEEW Contractor	Pre-construction, construction and operation
Public health and safety				
HR1	Managing the potential for hazards during construction	The CEMP will detail processes, responsibilities, and measures to manage hazards, and incident and emergency situations during construction.	Contractor	Pre-construction, construction
HR2	Managing the potential for hazards during construction	The soil and water management plan will include a spill response procedure. The procedure will detail measures to manage hazardous substances and dangerous goods, including storage, handling, and spill response, in accordance with legislative requirements.	Contractor	Pre-construction, construction
HR3	Signage to warn of safety risks from traffic	Where required, signs will be installed during construction of the proposal to communicate risks from traffic to the community.	Contractor	Pre-construction, construction
HR4	Managing risks to users of Billabong Creek	A creek exclusion zone will be demarcated using buoys during construction and operation of the proposal. During construction, the creek exclusion zone will be of a sufficient size to remove the risk of vessels or swimmers colliding with construction equipment and to reduce the risk of injury from underwater noise during piling. During operation, the creek exclusion sign will be of a sufficient size to manage the safety risk to swimmers from the regulators.	Contractor	Construction, operation

ID	Impact	Environmental safeguards	Responsibility	Timing
		Signs will be installed during operation of the proposal to communicate that swimming near or jumping of the new regulators is prohibited.		
HR5	Bushfire risk	A bush fire emergency management plan will be prepared in accordance with Planning for Bush Fire Protection (NSW Rural Fire Service, 2019) and in consultation with the NSW Rural Fire Service. The bush fire emergency management plan will include responsibilities associated with and details of: • site specific hazards and risks for the proposal area • hot works procedures • procedures to maintain bush fire awareness • bush fire mitigation measures • fire preparedness actions including evacuation triggers, evacuation routes, mustering points, neighbourhood safe places • instructions for sheltering in-vehicle if there are no other options. Construction staff attendance on site will be suspended on days with severe or greater forecast fire danger ratings, and construction/maintenance hours will be reduced or moved to an earlier time on hot days (days above 40 degrees) to avoid work being undertaken during the hottest time of the day.	Contractor	Construction
HR6	Bushfire risk	WaterNSW will implement procedures relating to bushfire hazards for maintenance activities.	WaterNSW	Operation
Social				
S1	Impacts and benefits for local and regional communities	NSW DCCEEW will continue to manage and deliver the Communication and Engagement Plan (C&EP) in the lead up to and during construction of the proposal. This will help to ensure that: • the community and stakeholders have a high level of awareness of all processes and activities • accurate and accessible information is made available • a timely response is given to issues and concerns raised by the community	NSW DCCEEW	Pre-construction, construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		feedback from the community is encouraged opportunities for input are provided.		
S2	Amenity and access impacts for local communities and landholders	A communication management plan will be developed by the primary contractor in accordance with the C&EP and implemented to define the specific requirements for engagement during delivery of the proposal. A communication management plan will be developed to ensure that: - landowners/landholders, community members and businesses affected by construction activities (eg property impacts, cultural heritage impacts, access changes, noise, vibration, dust) are notified in a timely manner about impacts - accurate and accessible information is made available through multiple channels (eg printed fact sheets and notification letters, email, phone calls, online) - feedback from the community is encouraged - opportunities for input are provided where appropriate. The communication management plan will define the requirements for the complaints management system to be implemented throughout the duration of the proposal, including 24-hour, seven days a week phone line, postal and email address for written enquiries, and publication of contact details.	NSW DCCEEW, Contractor	Pre-construction, construction
S3	Impacts to and benefits for Aboriginal communities	NSW DCCEEW will continue to engage with local Aboriginal stakeholders about the proposal. NSW DCCEEW will continue to manage and deliver tailored and targeted engagement with Traditional Owners and Aboriginal communities and stakeholders in accordance with the C&EP. This will: - provide mechanisms for Aboriginal people and communities to provide input to the proposal - draw upon perspectives, knowledge, relationships, cultural practices, and wisdoms of Aboriginal stakeholders to minimise potential disruptions from the proposal - demonstrate how input provided is incorporated into decision making and planning for the proposal	NSW DCCEEW	Pre-construction, construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		- identify employment, training, and procurement opportunities associated with the proposal - protect and mitigate harm of Aboriginal cultural heritage and spiritual values within the influence of the proposal scope.		
S4	Local and First Nation employment and business opportunities	NSW DCCEEW will maximise the participation of local, regional and First Nation businesses in the proposal, such as: - preferential local and First Nation participation inclusions in tender documents which outline the sub-contracting and local employment goals that construction contractors would need to deliver - promotion of supply and employment opportunities through local industry channels, employment organisations and local Aboriginal organisations.	NSW DCCEEW	Pre-construction, construction
S5	Non-resident workforce accommodation requirements	The construction contractor will share information with local accommodation providers about any non-resident workforce accommodation requirements in a timely manner.	Contractor	Pre-construction, construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Soils and contamination				
CS1	Wanganella flood bypass channel area – Development of a leachate and ground gas management plan as part of construction management documents	• Development of a leachate and ground gas management plan and assessment of potential for runoff from the Landfill into receiving water bodies as part of construction management documents (e.g. CEMP). Consideration should be given to targeted site investigations to inform the development of the leachate and ground gas management plan. • Implementation of a monitoring during construction works in this area to address human health risks from potential gas/vapour migration. • Implementation of a groundwater monitoring program to assess the potential for leachate migration into excavations and during operation. • Management/Monitoring plans should be prepared in accordance with relevant NSW EPA Guidance including, but not limited to: – consultants reporting on contaminated land, Contaminated Land Guidelines, NSW EPA 2020 – Environmental Guidelines, Solid Waste Landfills (2nd Edition), NSW EPA 2016.	Contractor	Pre-construction
CS2	Construction environmental management plan (CEMP)	• Odour and dust/fibre control procedures and monitoring to minimise the release of dust/fibres to the surrounding environment. • Erosion and sediment control procedures and management measures. • Procedures to minimise the potential for construction spills and contamination releases. • Protocols to minimise the potential for offsite migration of impact in surface water and groundwater. • Emergency response procedures in the event of a release of contamination, whether it be via surface water, groundwater, or air. • A soil management plan detailing the high-risk areas of the site, exposure risk management protocols, materials storage procedures (including stockpile management and reuse protocols), waste transport procedures, waste tracking and disposal plans to ensure all material is appropriately managed.	Contractor	Pre-construction, construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		• An unexpected finds protocol, particularly with regard to asbestos, which is linked to additional site investigations and the development of a remedial action plan, where required, to effectively manage contamination. • Management/Monitoring plans should be prepared in accordance with relevant NSW EPA Guidance including, but not limited to: • Consultants reporting on contaminated land, Contaminated Land Guidelines, NSW EPA 2020. • Environmental Guidelines, Solid Waste Landfills (2nd Edition), NSW EPA 2016. • The NSW Waste Classification Guidelines and relevant NSW reuse/waste orders and exemptions (E.g. the Excavated Natural Material Order / Exemption).		
CS3	Environmental monitoring program	• Surface water, groundwater and dust monitoring should be implemented to monitor for and respond to the emergence of contamination impacts during construction of the proposal. • Monitoring plans should be prepared in accordance with relevant NSW EPA Guidance including, but not limited to: – consultants reporting on contaminated land, Contaminated Land Guidelines, NSW EPA 2020.	NSW DCCEEW / Contractor	Pre-construction, construction and operational
CS4	Operational management	An operational management plan will include controls to minimise contamination from plant and equipment usage during maintenance activities.	WaterNSW	Operation

ID	Impact	Environmental safeguards	Responsibility	Timing
Air quality				
AQ1	Air quality	Dust during construction will be considered and addressed within the CEMP and will include methods to manage work during strong winds or other adverse weather conditions as required. As a minimum, the following measures will be included: • covering all loaded trucks and vessels • machinery to be turned off rather than left to idle when not in use • maintenance of all vehicles, including trucks and vessels entering and leaving the site in accordance with the manufacturers specifications to comply with all relevant legislation • maintenance of all plant and equipment to ensure good operating conditions and exhaust emissions comply with the <i>Protection of the Environment Operations Act 1997</i> • stockpiled materials will be covered, stabilised, or stored in areas not subject to high wind • maintaining the work site in a condition that minimises fugitive emissions of dust.	Contractor	Pre-construction, construction
AQ2	Impacts on sensitive receivers	Local residents will be advised of hours of operation and duration of work and supplied with a contact name and number for queries regarding air quality.	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Waste and resource management				
WR1	Waste management	Resource and waste management controls will be prepared and included in the CEMP. These will include the following (as a minimum): - the type, classification, and volume of all materials to be generated and used on-site including identification of recyclable and non-recyclable waste in accordance with <i>NSW EPA Waste Classification Guidelines</i> (2014) - quantity and classification of excavated material generated as a result of the proposal - interface strategies for excavated spoil on-site to ensure reuse where possible - strategies to 'avoid', 'reduce', 'reuse' and 'recycle' materials - classification and disposal strategies for each type of material - destinations for each resource/waste type either for on-site reuse or recycling, offsite reuse or recycling, or disposal at a licensed waste facility - details of how material will be stored and treated on-site - identification of available recycling facilities on and off-site - identification of suitable methods and routes to transport waste - procedures and disposal arrangements for unsuitable excavated material or contaminated material - the types of waste collected, amounts, date/time and details of disposal are to be recorded in a waste register - site clean-up for each construction stage.	Contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
WR2	Waste management	Waste receptacles will be provided, and recycling of materials encouraged. Rubbish will be transported to an appropriate waste disposal facility.	Contractor	Construction
WR3	Waste management	All wastes will be managed in accordance with the POEO Act.	Contractor	Construction
WR4	Waste management	Portable toilets will be provided for construction workers and will be managed by the service provider to ensure the appropriate disposal of sewage.	Contractor	Construction
WR5	Waste management	Weeds removed during work will be managed in accordance with the <i>Biosecurity Act 2015</i> requirements that relate to their classification status.	Contractor	Construction
WR6	Waste management	Site inductions will occur and be recorded by a Site Supervisor to ensure staff are aware of waste disposal protocols.	Contractor	Construction
WR7	Demand on resources	Procurement will endeavour to use materials and products with a recycled content where that material or product is cost and performance effective.	NSW DCCEEW Contractor	Pre-construction

Appendix B – Aboriginal Cultural Heritage Assessment Report - updated