

Review of Environmental Factors Addendum

Northside Storage Tunnel Wet Well Desilting and Decline Tunnel

Rehabilitation


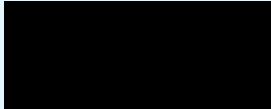
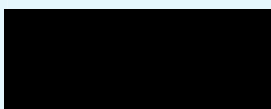
Determination

This Review of Environmental Factors Addendum (REFA) assesses the potential environmental impacts associated with the proposed change to the timing of concrete truck movements for shotcrete works within the Northside Storage Tunnel (NST) Wet Well Desilting Project. The REF was prepared under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Sydney Water both the proponent and determining authority.

The Sydney Water Project Manager is accountable for ensuring the proposal is carried out as described in this REFA and the approved REF. Additional environmental impact assessment may be required if the scope of work or work methods described in this REFA change significantly following determination.

Certification

I certify that I have reviewed and endorsed this REFA and, to the best of my knowledge, it is in accordance with the EP&A Act and the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation). The proposal has been considered against matters listed in section 171 (Appendix A) and the guidelines approved under section 170 of the EP&A Regulation. The information it contains is neither false nor misleading.

Prepared by:	Reviewed and endorsed by:	Endorsed by:
 Onyekachi Kelvin Nmereole Environmental Business Partner Interflow Date: 29/04/2026	 John Eames Snr Enviro Scientist Sydney Water Date: 30/04/2026	 Ozzie Goray Project Manager Sydney Water Date: 30/04/2026

Decision Statement

The main potential construction environmental impacts associated with the proposal change relate to noise and vibration from out of hours truck movements and temporary social impacts to nearby sensitive receivers. The proposal does not result in an increase in overall traffic volumes compared to those assessed in the approved REF, but rather a change in the timing of existing truck movements to night-time periods along Darley Road and Bluefish Drive.



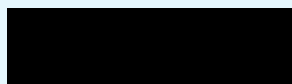
Operational impacts are limited to the duration of the works and are similarly associated with noise and vibration from truck movements, including potential sleep disturbance, and temporary disturbance to nearby residents. There is also potential for minor, short-term disturbance to fauna due to night-time vehicle movements along the existing road corridor.

These impacts are temporary, intermittent, and limited in scale, and will be effectively managed through the implementation of mitigation measures outlined in this REFA and the CNVMP.

The proposal will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats. Therefore, a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

Given the nature, scale and extent of impacts and implementation of the mitigation measures outlined in this REF, the proposal is unlikely to have a significant impact on the environment. Therefore, we do not require an Environmental Impact Statement (EIS) and the proposal may proceed.

Determined by:



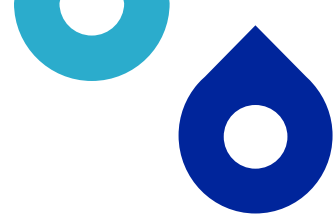
Elissa Howie, A/Senior Manager Environment and Heritage, Sydney Water

Date: 4 May 2026

1. Proposal description

Table 1-1 Proposal need, objectives and consideration of alternatives

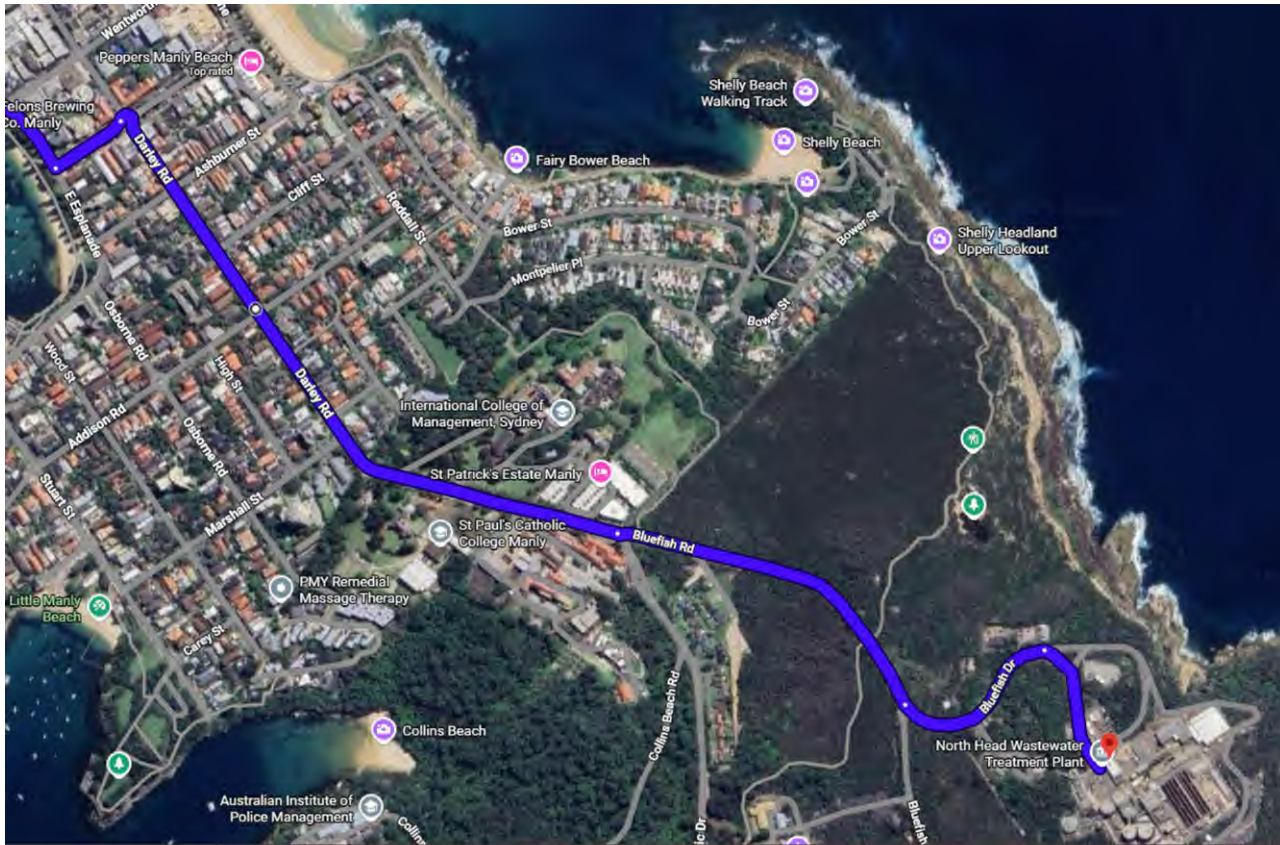
Aspect	Relevance to proposal
Approved REF	Northside Storage Tunnel Wet Well Desilting and Decline Tunnel Rehabilitation, November 2023.
Proposal need and objectives	<p>The proposal need and objectives remain consistent with the Approved REF. The proposal is required to facilitate the ongoing Northern Suburbs Ocean Outfall System (NSOOS) rehabilitation program. The NSOOS rehabilitation program is required to meet Sydney Water’s operational requirements under the Northern Suburbs Sewage Treatment System Environment Protection Licence (EPL) No 378.</p> <p>The proposal objectives are to:</p> <ul style="list-style-type: none"> • ensure the NST remains operable to manage dry and wet weather overflows • support the NSOOS desilting and rehabilitation program • reduce risk of asset failure and extend the service life of the asset.
Proposal change description and methodology	<p>The proposed change relates to the timing of concrete delivery and associated truck movements required to support shotcrete application works within the NST Wet Well as part of the approved NST Wet Well Desilting Project.</p> <p>Shotcrete works are required to rehabilitate internal tunnel surfaces and are to be undertaken within the existing underground asset. Due to operational constraints, including ventilation requirements and coordination with upstream CSS works, concrete deliveries are proposed to occur outside standard construction hours.</p> <p>The proposed works involve:</p> <ul style="list-style-type: none"> • up to three concrete truck deliveries per shift (between 6pm and 11pm) via Darley Road and Bluefish Drive • entry of trucks into the North Head WRRF using existing access roads • transfer of concrete from delivery trucks to a low-height agitator within the WRRF • conveyance of concrete to the workface and application of shotcrete within the tunnel • each truck remaining on site for approximately 20 to 30 minutes, with no on-site queuing • works will be undertaken Monday to Friday (6pm – 11pm) and will occur over an estimated 30 working days between May and November 2026.



Aspect	Relevance to proposal
Justification for proposal change	<ul style="list-style-type: none">• Delivery of shotcrete works requires a continuous and time-sensitive supply of concrete to maintain quality and safety during application.• Concrete deliveries during standard construction hours are not feasible due to ventilation constraints and coordination with concurrent upstream works.• Out of hours deliveries are required to provide safe access to the tunnel environment when ventilation conditions allow works to proceed.• The proposed approach enables completion of critical tunnel rehabilitation works within the required program timeframe.
Proposal change timing	<p>Shotcreting is expected to start May 2026 and take up to 5 months. Concrete delivery for shotcrete works outside standard working hours will be carried out in 30 shifts, subject to weather conditions.</p> <p>Out of hours shotcrete deliveries will be scheduled 6 pm to 11 pm, Monday to Friday</p>



FIGURE 1: AERIAL VIEW SHOWING THE SITE AND PROPOSED OUT OF HOURS (OOH) TRUCK MOVEMENT PATH.





2. Consultation

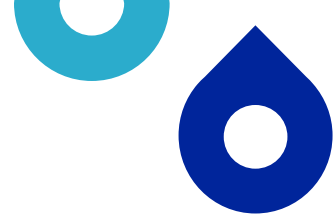
Additional consultation matters above those already assessed in the approved REF are detailed below:

Community notifications and consultation where required will be undertaken as per the approved Community and Stakeholder Action Plan (CSAP), in addition:

- Targeted community consultation will be undertaken in accordance with the recommendations of the CNVMP and Sydney Water's community engagement guidelines. This will include notification to nearby sensitive receivers and engagement through the North Head WRRF Community Reference Group.
- Site supervisor will be onsite during the work at North Head WRRF to respond to and manage any customer enquiries that may arise. The Interflow Community Engagement team will be available out of hours to receive any phone calls during the work period and support the site team as required.
- Interflow Community Engagement team will prepare and distribute notifications (7-days prior to work commencement) to all residents on Darley Rd from Victoria Rd to the North Head WRRF. The Interflow community engagement team contact details will be provided in the notification should any resident wish to discuss the work further.

Ongoing consultation will continue, as required, throughout the work period.

No change to TISEPP notification required.



3. Legislative requirements

There are no additional legislative requirements beyond those assessed in the approved REF.

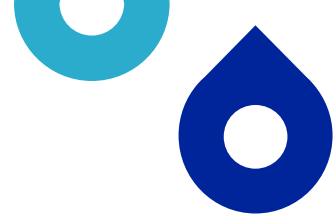


4. Environmental assessment

The environmental impacts checklist (SWEMS0019.01) was considered for the proposal change. Table 4-1 includes only the potentially impacted aspects and Table 4-2 lists additional mitigation measures. All other environmental impacts in the approved REF remain the same and will be incorporated into the contractor's CEMP.

Table 4-1 Review of environmental aspects

Aspect	Potential additional impacts
Flora and fauna	<p>The change in shotcrete delivery timing introduces night-time vehicle movements along Bluefish Drive, which traverses land in National Park areas. This may result in temporary disturbance to fauna due to noise and vehicle presence. These impacts are expected to be localised, short in duration, and limited to an existing operational road corridor, with no long-term or residual ecological impacts anticipated.</p> <p>Mitigation measures in the approved REF and Addendum are sufficient to manage impacts.</p>
Noise and vibration	<p>The proposed out of hours truck movements introduce additional noise impacts compared to those assessed in the approved REF. The noise assessment that forms part of the Construction Noise and Vibration Management Plan (CNVMP) (Appendix C) predicts that noise levels from truck movements are likely to exceed the applicable night-time noise management levels at nearby sensitive receivers, with potential for sleep disturbance, particularly for movements occurring after 10 pm.</p> <p>Sensitive receivers have been grouped into Noise Catchment Areas (NCAs), with the assessment indicating that noise impacts are expected to be consistent across receivers located along the haulage route due to similar proximity to Darley Road.</p> <p>The noise impacts are intermittent and associated with discrete truck pass-by events rather than continuous noise sources. A maximum of three truck movements will occur per shift (6pm – 11pm only), with each movement representing a short-duration event.</p> <p>Noise impacts will be managed through implementation of mitigation measures in the approved REF, this addendum and those outlined in the CNVMP, including operational controls, scheduling, and community notification.</p>
Traffic and access	<p>The proposal results in a change to the timing of truck movements to night-time periods. There is no increase in the total number of truck movements compared to those assessed in the approved REF. With the completion of desilting works, overall traffic volumes associated with the project have reduced. All movements will continue to utilise the existing approved haulage route via Darley Road.</p>
Social and visual	<p>The change in timing may result in increased sensitivity of impacts to nearby residents due to night-time noise and vehicle activity. These impacts are</p>



Aspect	Potential additional impacts
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temporary, intermittent, and confined to the duration of the works. Potential impacts will be managed through implementation of mitigation measures and proactive community consultation.

Table 4-2 Mitigation measures

Additional mitigation measures	
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Noise and vibration	<p>Concrete deliveries will be limited to a maximum of three trucks per shift (between 6pm and 11pm) to minimise the frequency of noise events.</p> <p>Truck arrivals will be staggered to avoid clustering of noise events and provide respite periods for nearby sensitive receivers.</p> <p>Drivers will be instructed to minimise engine idling, avoid harsh braking, and reduce rapid acceleration to limit noise generation.</p> <p>Truck arrivals will be coordinated to prevent queuing outside the site, avoiding prolonged noise impacts along Darley Road.</p> <p>Operate construction plant in a quiet and efficient manner (eg Limit the use of compression braking in residential areas)</p> <p>All vehicles and equipment will be maintained in good working order, including effective mufflers and exhaust systems, to minimise noise emissions.</p> <p>Avoid use of reversing alarms where possible – use less annoying alternatives where possible (eg broadband quackers)</p> <p>Deliveries will be scheduled, where practicable, earlier in the night period to reduce the potential for sleep disturbance.</p> <p>Nearby residents and stakeholders will be notified in advance of the works in accordance with the CNVMP, including details of timing and duration.</p> <p>A complaints management process will be implemented, with prompt investigation and response to any complaints, and adjustments to operations where practicable.</p>
Traffic and access	<p>Maintain use of existing approved haulage routes (Darley Road)</p> <p>Stagger truck arrivals to minimise clustering of movements and reduce disturbance</p> <p>Ensure all drivers comply with site-specific traffic management requirements</p> <p>Implement traffic control measures where required to ensure safe ingress and egress.</p>



Additional mitigation measures

Community and Social

Undertake targeted notification to nearby sensitive receivers prior to commencement of works

Engage with the North Head WRRF Community Reference Group

Maintain coordination with Sydney Water Community team throughout the works

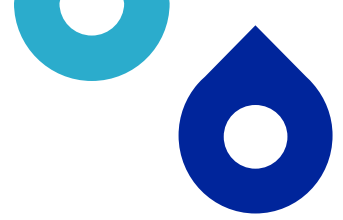
Implement a complaints management process, including prompt response and corrective actions where required

Flora and Fauna

Restrict all vehicle movements to existing sealed road infrastructure

Ensure no stopping or unnecessary activity occurs within National Park areas

Drivers are to be inducted on the need to drive with care in the National Park and will be required to adhere to a reduced speed limit of 20 km/h when travelling along Bluefish Drive and within the Sydney Water North Head WRRF.



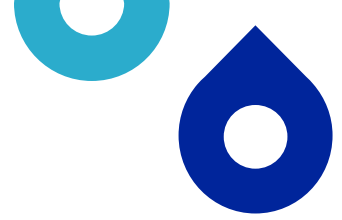
5 Conclusion

This REFA has been prepared to assess the potential environmental impacts associated with the proposed change to the timing of concrete truck movements for shotcrete works within the NST Wet Well Desilting Project. The proposal change is required to enable the safe and efficient completion of critical tunnel rehabilitation works, taking into account operational constraints such as ventilation limitations within the tunnel environment and the need to coordinate with concurrent upstream activities. These constraints restrict safe access during standard daytime hours and necessitate works being undertaken during out of hours periods when suitable conditions are available.

The main potential additional construction environmental impacts of the proposal change relate to noise and vibration from out of hours truck movements, as well as temporary social impacts to nearby sensitive receivers. There is no increase in the overall number of truck movements compared to those assessed in the approved REF, with the change limited to the timing of activities. Additional considerations include minor, short-term disturbance to fauna associated with night-time vehicle movements along the existing road corridor.

These impacts are temporary, intermittent, and limited in duration and scale. With the implementation of mitigation measures outlined in this REFA, the approved REF, and the CNVMP, the proposal is not expected to result in significant environmental impacts. Accordingly, an Environmental Impact Statement is not required under Division 5.1 of the *Environmental Planning and Assessment Act 1979*.

The proposal has been assessed against the principles of Ecologically Sustainable Development (ESD) (Appendix B) and is considered consistent with these principles. The works will support the ongoing reliability and performance of critical wastewater infrastructure, contributing to the protection of environmental and community values, without resulting in degradation of environmental quality or risk to environmental safety.



Appendix A – Section 171 checklist

Requirements in addition to those considered in the approved REF are limited to the change in timing of construction activities associated with out of hours truck movements. The assessment findings are summarised in the table below.

Section 171 checklist	REF finding
Any environmental impact on a community	There may be short-term impacts on the community associated with out of hours truck movements, including increased sensitivity to noise and potential sleep disturbance at nearby sensitive receivers. These impacts are temporary, intermittent, and limited to a maximum of three short-duration events per shift. Impacts will be managed through implementation of mitigation measures outlined in the CNVMP, including operational controls and targeted community notification. The proposal will contribute to the continued reliability and performance of critical wastewater infrastructure, providing long-term benefits to the local community.
Any environmental impact on the ecosystems of the locality	The proposal will not result in additional environmental impacts to ecosystems of the locality beyond those assessed in the approved REF. The works do not involve vegetation clearing, habitat fragmentation, or disturbance to soil, water, or hydrological processes. The change relates to the timing of activities only and is limited to the use of existing infrastructure and road corridors. Any potential impacts are confined to temporary disturbance associated with noise and vehicle movements and are not expected to affect ecosystem function or integrity.
Any impact on the habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	The proposal will not result in any direct impact on the habitat of protected animals within the meaning of the <i>Biodiversity Conservation Act 2016</i> . The works do not involve vegetation clearing, habitat removal, or ground disturbance and are confined to existing infrastructure and road corridors. The change in timing introduces temporary night-time vehicle movements, which may cause minor, short-term disturbance to fauna; however, these impacts are intermittent, localised, and not expected to affect habitat integrity or function.
Any endangering of any species of animal or plant or other form of life, whether living on land, in water or in the air	The proposal is not expected to endanger any species of animal, plant, or other form of life. The works do not involve vegetation clearing, habitat loss, or ground disturbance, and are confined to existing infrastructure and road corridors. While the change in timing introduces temporary night-time vehicle movements, any associated disturbance to fauna will be short-term, localised, and not of a magnitude that would threaten the viability of any species.
Any degradation of the quality of the environment	The proposal is not expected to result in any degradation of environmental quality. The works are limited to a change in the timing of activities and do not involve additional disturbance to land, water, or ecological systems beyond those assessed in the approved REF. Any temporary impacts associated with out of

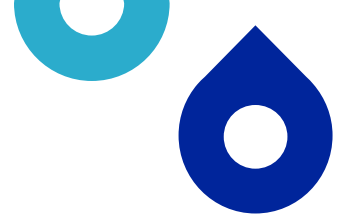


Section 171 checklist	REF finding
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	hours activities will be effectively managed through the implementation of mitigation measures outlined in this REFA and the CNVMP.
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Any other relevant environmental factors.

The proposal has been assessed against the environmental factors listed above, and no other relevant environmental factors have been identified.



Appendix B – Consideration of Ecologically Sustainable Development

Additional ESD considerations are covered in the table below.

Principle	Proposal alignment
Precautionary principle – <i>if there are threats of serious or irreversible environmental damage, lack of scientific uncertainty should not be a reason for postponing measures to prevent environmental degradation. Public and private decisions should be guided by careful evaluation to avoid serious or irreversible damage to the environment where practicable, and an assessment of the risk-weighted consequences of various options.</i>	The proposal is not expected to result in serious or irreversible environmental damage, as it involves a change to the timing of activities only and does not alter the approved construction footprint or methodology. Potential impacts, primarily associated with night-time noise and traffic, have been assessed through the CNVMP and will be managed through targeted mitigation measures. This approach ensures that environmental risks are identified, assessed, and controlled, and that uncertainty is addressed through a conservative and risk-based management framework. The proposal supports the safe and controlled delivery of essential infrastructure while maintaining environmental protection.
Inter-generational equity – <i>the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.</i>	The proposal will help to meet the needs of future generations by providing a reliable wastewater service.
Conservation of biological diversity and ecological integrity – <i>conservation of the biological diversity and ecological integrity should be a fundamental consideration in environmental planning and decision-making processes.</i>	The proposal will not significantly impact on biological diversity or impact ecological integrity.
Improved valuation, pricing and incentive mechanisms — <i>environmental factors should be included in the valuation of assets and services, such as ‘polluter pays’, the users of goods and services should pay prices based on the full life cycle costs (including use of natural resources and ultimate disposal of waste) and environmental goals</i>	The proposal supports efficient use of resources by enabling the timely and safe delivery of essential rehabilitation works within existing infrastructure. By adopting a construction methodology that responds to operational constraints, the proposal avoids delays and reduces the risk of rework or extended project duration, resulting in more efficient use of materials, labour, and energy. The works contribute to the long-term performance of wastewater infrastructure, supporting optimal environmental outcomes and reducing the likelihood of environmental harm associated with system failure.



Appendix C –Construction Noise and Vibration Management Plan

SW 197 05/26