

Review of Environmental Factors

Marayong Reservoirs Refurbishment (WS0066 and WS0292)

1 Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of Marayong Reservoirs Refurbishment. 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 REF. Additional environmental impact assessment may be required if the scope of work or work methods described in this REF change significantly following determination.




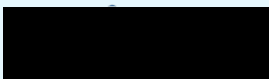
Decision Statement

The main potential construction environmental impacts of the proposal include impacts to flora, heritage, noise, and visual amenity. During operation, no impacts are anticipated. 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.

Certification

I certify that I have reviewed and endorsed this REF, 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 REF considers how the proposal aligns with the principles of ecologically sustainable development (Appendix B). The information it contains is neither false nor misleading.


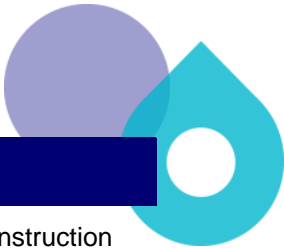
Prepared by:	Reviewed by:	Endorsed by:	Approved by:
 Andrea Glass Environmental Scientist Sydney Water Date: 27/08/2024	 John Eames Environment Representative Sydney Water Date: 10/09/2024	 Giovanni Boggio Project Manager Sydney Water Date: 24/09/2024	 Murray Johnson Environment and Heritage Manager Sydney Water Date: 30/09/2024

2 Proposal description

Table 1 Description of proposal

Aspect	Detailed description
Proposal need and objectives	<p>This proposal is part of the reservoir renewals program. The program is required to meet Sydney Water's commitment to ensure ongoing safety and security of water supply.</p> <p>The site includes 4 reservoirs; WS0066, WS0195, WS0292 and WS0435, and a pumping station; WP0289. The proposal would replace the roof of 2 of the reservoirs; WS0066 and WS0292. WS0066 was constructed in 1939 with a storage capacity of 9.1 ML. WS0292 was constructed in 1980 with a storage capacity of about 30 ML.</p> <p>The objectives of the proposal are to:</p> <ul style="list-style-type: none">• Protect public health and the environment by improving reliability of the reservoir• Improve chemical dosing to the reservoirs. <p>The reservoirs capacities would not increase as a result of this proposal.</p>
Consideration of alternatives/options	<p>Two roof layout options were considered for the proposal:</p> <ul style="list-style-type: none">• Option 1 – Radial arrangement• Option 2 – Grid arrangement. <p>Option 1 was identified as the preferred option as it aligned with the proposals objectives and is the most cost-effective of the options, while maintaining the asset based on its service requirement.</p>
Proposal description and methodology	<p>The proposal involves the refurbishment of WS0066 and WS0292 and installation of two chemical dosing units (CDU).</p> <p>The methodology includes:</p> <ul style="list-style-type: none">• site establishment including the installation of site compounds and vegetation trimming• civil works including the excavation and installation of permanent services including electrical cables, security system and CDUs• demolition works and disposal of redundant assets including pipes, reservoir roof infrastructure and hazardous building materials• repairs and remediation works including abrasive blasting, relining of the reservoirs and path upgrades, if required• installation of new roof structure including but not limited to internal columns, handrails, hatches, ventilations, electrical and instrumentation• site restoration and demobilisation. <p>Indicative plant and equipment to be used for the proposal:</p> <ul style="list-style-type: none">• Confined spaces safety equipment (e.g. gantry/davit)• Skip bins

Aspect	Detailed description
	<ul style="list-style-type: none"> • Ablution sediment tank • Concrete pumps • Air compressors • Generators • Concrete saws • Jackhammers • Hand tools • Scaffolding • Elevated work platform • Site facilities and amenities • Storage containers • Excavators (13t or greater) • Tip trucks • Concrete agitator trucks • Street sweeper • Compactor • Light vehicles • Compaction Roller • Cranes (100t or greater) • Vac-truck • Enclosed fuel cells • Automated dosing system.
Location and land ownership	<p>The street address of the site 25 Wilson Road, Acacia Gardens. The site is in the Blacktown Local Government Area. The land is owned by Sydney Water. Relevant lot and DPs include:</p> <ul style="list-style-type: none"> • Lot A DP338569 • Lot A DP336760 • Lot 1 DP592925 • Lot 2 DP592925.
Site establishment and access tracks	<p>The site would be accessed from Wilson Street through a secure, locked access gate.</p> <p>Site establishment would include tree trimming and installing temporary site amenities.</p>

Aspect	Detailed description
Ancillary facilities (compounds)	Construction compounds will likely be required to house site sheds, construction amenities and materials laydown. Indicative locations for site compounds are shown on Figure 1.
Work hours	<p>Work and deliveries will be scheduled during standard daytime hours:</p> <ul style="list-style-type: none"> • 7 am to 6 pm, Monday to Friday • 8 am to 1 pm, Saturdays. <p>The proposal is not expected to require work outside these hours. However, Sydney Water's Project Manager can approve work outside of standard daytime hours. The approval process is described in the mitigation measures in Section 6.</p>
Proposal timing	Construction is expected to start in early 2025 and take about 23 months.



Figure 1 Location of proposal and environmental constraints

3 Consultation

Community and stakeholder consultation

Our approach to community and stakeholder consultation is guided by Sydney Water's community and stakeholder engagement guidelines.

Stakeholder and community engagement is a planned process of initiating and maintaining relationships with external parties who have an interest in our activities. Community and stakeholder engagement:

- enables us to explain strategy, policy, proposals, proposal or programs
- gives the community and stakeholders the opportunity to share their knowledge, issues and concerns
- enables us to understand community and stakeholder views in our decision-making processes alongside safety, environment, economic, technical and operational factors.

The nature, scale and extent of the proposal's potential impact has been evaluated in this REF. If our work impacts the community in some way, we will consult with affected groups throughout the proposal. This includes engaging the broader community and stakeholders during plan or strategy development or before making key decisions.

We will also provide local councils with reasonable notice when we would like to commence works. This includes public safety issues, temporary works on council land, and full or partial road closures of council managed roads.

Consultation required under State Environmental Planning Policies and other legislation

Sydney Water must consult with councils and other authorities for work in sensitive locations or where the work may impact other agencies' infrastructure or land. This is specified in the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

No formal consultation was required under the TISEPP. Further detail is provided in Appendix C.

4 Legislative requirements



Table 2 Environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Blacktown Local Environmental Plan 2015	The proposal is located on land zoned SP2 Infrastructure.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	<p>Section 2.159 of the TISEPP permits development by or on behalf of a public authority for water reticulation systems without consent on any land.</p> <p>Section 2.158 of the TISEPP defines that water reticulation systems also include water supply reservoirs.</p> <p>As Sydney Water is a public authority, the proposal is permissible without consent.</p>

Environmental Planning Instrument	Relevance to proposal
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BCSEPP)	<p>Vegetation in non-rural areas (Chapter 2)</p> <p>The proposal is in an area or zone listed in subsection 2.3(1). However, subsection 2.4(1) states: '<i>This Policy does not affect the provisions of any other SEPP....</i>', and as the works are permissible under the TISEPP, a council permit to clear vegetation under this SEPP is not required.</p>

Table 3 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	<p>An EPL does not apply to the proposal.</p> <p>Chapter 5 of the POEO Act defines different types of pollution incidents. Part 5.7 of the POEO Act specifies the duty to notify harm to the environment where there is actual or potential environmental harm. Should one of these incidents occur during construction, the response and investigation to the incident would follow SWEMS0009 - Responding to incidents with an environmental impact.</p>	NA	NA
<i>Biodiversity Conservation Act 2016</i> (BC Act)	<p>No threatened species, ecological communities or their habitats are anticipated to be impacted by the proposal.</p> <p>Vegetation trimming will be required for the proposed work and would be managed in accordance with the safeguards in Section 6.</p>	REF	Pre-construction, Sydney Water
<i>Heritage Act 1977</i>	<p><i>Heritage Act 1977</i> provides for the conservation of environment heritage in NSW.</p> <p>The proposal would replace the roof of the Marayong Reservoir WS0066 which is a heritage item listed on the Sydney Water Heritage and Conservation Register (Section 170) (ID: 4575777).</p> <p>A Local Heritage Item Impact Approval has been prepared for the proposal, refer to Appendix D. The proposal would have a minor and inconsequential impact on the heritage significance of the reservoir. Refer to Section 5 and Appendix D for further details.</p>	Local Heritage Item Impact Approval	Pre-construction, Sydney Water

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
<i>Water Act 1912/ Water Management Act 2000</i>	If groundwater removal is required, a Water Supply Works Approval (WSWA) and/or Water Access Licence (WAL) application is required. A WSWA or WAL is required before any groundwater dewatering can start.	WSWA (for less than 3 ML) and WAL (for more than 3 ML)	Pre-construction, contractor

5 Environmental assessment

The environmental impacts checklist (SWEMS0019.01) was completed for the works which considers all environmental aspects. Table 4 includes only the potentially impacted aspects.

Table 4 Key environmental aspects and potential impacts of construction and operation

Aspect	Potential impacts
Topography, geology and soils	<p>The topography of the site ranges from 87 to 93 metres Australian Height Datum and slope down towards the south-east corner. The site is located within an area of localised salinity hazard. No areas of acid sulphate soils are known.</p> <p>Excavation would be required for the installation of the CDUs associated infrastructure, electrical cabling and path replacement if required. In a worst-case scenario, excavations would be up to 4 metres deep and limited to the site. Local topography would not be substantially altered once operational when excavations have been filled in.</p> <p>There is the potential for soil to become contaminated through accidental chemical or fuel spills and leaks from construction plant and equipment, and maintenance activities during operation.</p> <p>Potential topography, geology and soil impacts will be managed by implementing the safeguards listed in Section 6.</p>
Water and drainage	<p>There are no waterways or potential groundwater dependent ecosystems within 200 metres of the site.</p> <p>Before replacing the reservoir roof, the water in the reservoir would be reduced to a low level through customer use of water. The remaining water would then be dewatered into the stormwater system via an existing scour. Water will be discharged in accordance with Sydney Water's discharge protocol to prevent any water quality impacts.</p> <p>Groundwater may be encountered during construction activities. Groundwater dewatering is not anticipated, however if it is required, a WSWA and/or WAL (if greater than 3ML) must be obtained before groundwater dewatering begins.</p> <p>Potential impacts to water and drainage will be managed by implementing the mitigation measures listed in Section 6.</p>
Flora and fauna	<p>Grey-headed Flying Fox have been recorded within 200 metres of the site. Within the site, plant community type Cumberland Plain Shale Woodland (PCT 3320) has been recorded. The PCT has associated threatened ecological communities.</p> <p>The proposal would undertake trimming of planted trees to allow for the movement of vehicles within the site and for cranes. The recorded PCT would not be impacted.</p> <p>The minor loss of vegetation is not anticipated to impact the Grey-headed Flying Fox as it is a mobile species and there are other roosting opportunities within 200 metres of the works.</p> <p>With the implementation of mitigation measures in Section 6 and the minor nature of the proposed works, it is unlikely that the proposal would result in a significant flora or fauna impact.</p>

Aspect	Potential impacts
Heritage	<p>Aboriginal Heritage</p> <p>There are two known Aboriginal heritage sites within 200 metres of the site: [REDACTED]</p> <p>The sites are located to the north of Wilson Street, outside of the site. The likelihood of encountering unexpected Aboriginal heritage items within the site is low as it has been highly disturbed.</p> <p>Non-Aboriginal Heritage</p> <p>The proposal would replace the roof of the Marayong Reservoir WS0066, which is a heritage item listed on the Sydney Water Heritage and Conservation Register (Section 170) (ID: 4575777).</p> <p>A Local Heritage Item Impact Approval has been prepared by Sydney Water's Heritage Adviser to assess the potential impacts of the proposal on the heritage items, refer to Appendix D.</p> <p>The significance of the heritage item is associated with the serving the needs of suburban communities and demonstrating the growth of demand in the area. The listing includes the reservoir and all associated pipework, valves, and valve houses to the property boundary.</p> <p>The proposed works have been assessed and will have no adverse impact on the significant fabric of the heritage item. The current roof was added in the 1960s and is not considered significant fabric. Cleaning and relining the reservoir are maintenance works consistent with its heritage values. The proposal would have a minor and inconsequential impact on the heritage item.</p> <p>With the implementation of mitigation measures in Section 6 and the minor nature of the proposed works, the proposal would not have a significant heritage impact.</p>
Noise and vibration	<p>Noise</p> <p>The proposal is within a residential setting. The existing noise environment is influenced by road traffic. Sensitive receivers who may be impacted by noise from the works includes residents immediately adjacent to the site and a childcare facility 30 meters north of the site.</p> <p>The works would generate noise during construction from the operation of machinery and equipment. Works are proposed to be carried out over 5 shifts per week (i.e. Monday through Friday 7am to 6pm). Construction would occur during standard daytime hours and is expected to take about 23 months to complete. The noisiest works would include the abrasive blasting inside WS0292 for about 2 months.</p> <p>Based on the risk profile of the works from Table 2 of the Draft Construction Noise Guideline (EPA, 2020), a quantitative noise assessment was performed for the proposal. The purpose of the noise assessment was to assess the predicted worst-case noise impacts. This identified recommended additional mitigation measures for impacted receivers at different distances from the works, which would guide</p>

Aspect	Potential impacts
	<p>community engagement for the site. The noise assessment was performed using the Transport for NSW Construction and Maintenance Noise Estimator. The modelled scenarios comprised of the following inputs:</p> <ul style="list-style-type: none"> • Representative noise environment – R3 • Distance based noisiest plant – abrasive blasting • Line of sight to the receiver – Yes. <p>Noise levels higher than the existing environment during the day would be heard within 70 metres of the proposed works. Residential receivers and the childcare facility would be impacted by noise during construction, refer to Figure 2. The abrasive blasting is only required for WS0292, and it would occur within the reservoir. The abrasive blasting works are about 90 meters from the childcare facility and partially shielded, therefore would be outside of the moderately intrusive noise impact area.</p> <p>Additional mitigation measures from the Transport for NSW Construction and Maintenance Noise Estimator that should be considered by the community team are as follows:</p> <ul style="list-style-type: none"> • N: Notification (letter box drop) • PC: Phone call • RO: Respite offer (e.g. work blocks of 2 hours with one hour breaks in between). <p>No operational noise impacts are anticipated.</p> <p>Vibration</p> <p>It is anticipated that the works would involve minor vibratory activities such as the use of an abrasive blaster. There are no structures adjacent to the reservoir that may be impacted to the minor vibratory activities. No vibration impacts are anticipated.</p>

Air and energy

The nearest sensitive receivers which may be impacted by changes to air quality are the residents located adjacent to the site.

Dust and pollution impacts may result from:

- Dust generated during excavation
- Dust generated by construction vehicles travelling on disturbed/ unsealed access routes or on unsealed laydown areas or road verges
- Emissions from machinery, equipment and vehicles used during construction.

Nearby receivers may be affected by minor changes in air quality during construction. Air quality impacts would be managed by implementing the mitigation measures listed in Section 6.

Aspect	Potential impacts
	<p>During construction the proposal would require increased energy, and this would marginally increase Sydney Water's total energy use. During operation the proposal would be operated in accordance with energy use procedures that apply to Sydney Water's existing network.</p>
Waste and hazardous materials	<p>HazCentral identified asbestos and lead paint and within WS0066 and WS0292. Before construction starts the reservoirs would be inspected for these hazardous materials to confirm their location and appropriate removal of the materials.</p> <p>Construction waste streams are anticipated to include:</p> <ul style="list-style-type: none"> • Redundant assets • Domestic waste • Contaminated materials • Excavated soil • Green waste. <p>Waste will be stored in separate skip bins or delineated areas within the compound or taken directly off-site to a facility licenced to accept the waste. Recycling or re-use of waste streams such as green waste and concrete is encouraged where possible.</p> <p>Waste and hazardous materials would be managed by implementing the mitigation measures listed in Section 6.</p>
Traffic and access	<p>The site is accessed via a locked gate from Wilson Road, a local road managed by Blacktown City Council. No road closures would be required.</p> <p>At peak construction, up to 18 light vehicles and some vehicles would access the site per shift. All vehicles would be parked within the site. Access to nearby residential properties, and existing Sydney Water assets would be maintained. It is not expected that any traffic control would be required.</p> <p>Traffic and access would be managed by implementing the mitigation measures listed in Section 6.</p>
Social and visual	<p>The proposal has the potential to cause social impacts associated with air quality and noise, which have been assessed above. Visual impacts from the loss of vegetation and presence of construction personnel and equipment are anticipated.</p> <p>The impacts to visual amenity during operation would be limited. The new roof would be like for like and the additional infrastructure, such as the new CDUs, are consistent with the existing use of the site. Retained vegetation would screen the additional infrastructure at the site from nearby residents.</p> <p>Social and visual impacts would be managed by implementing the mitigation measures listed in Section 6.</p>
Cumulative and future trends	<p>Sydney Water is not aware of any planned or future work that will overlap with these works being performed. Development applications currently (August 2024)</p>




Aspect	Potential impacts
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active or determined in the last 6 months for the suburb of Acacia Gardens relate to localised residential developments and changes to existing buildings.

Overall, potential impacts of the proposed works are expected to be minor and localised, and unlikely to make a significant contribution to any cumulative environmental impact on a local or regional scale.



Figure 2 Noise impacts

6 Environmental mitigation measures

Table 5 Mitigation measures

Mitigation measures

Sydney Water's Project Manager (after consultation with the environmental and community representatives and affected landowners) can approve temporary ancillary construction facilities (such as compounds and access tracks), without additional environmental assessment or approval if the facilities:

- limit proximity to sensitive receivers
- do not disrupt property access
- have no impact to known items of non-Aboriginal and Aboriginal heritage
- are outside high risk areas for Aboriginal heritage
- use existing cleared areas and existing access tracks
- have no impacts to remnant native vegetation or key habitat features
- have no disturbance to waterways
- do not require additional safeguards beyond those included in the EIA
- do not disturb contaminated land or acid sulphate soils
- will be rehabilitated at the end of construction.

The Delivery Contractor must demonstrate in writing how the proposed ancillary facilities meet these principles. Any facilities that do not meet these principles will require additional environmental impact assessment.

The agreed location of these facilities must be shown on the CEMP site plan and appropriate environmental controls installed.

Should the proposal change from the EIA, no further environmental assessment is required provided the change:

- remains within the site and has no net additional environmental impact or
- is outside the site but:
 - reduces impacts to biodiversity, heritage, or human amenity or
 - avoids engineering (for example, geological, topographical) constraints and
 - after consultation with any potentially affected landowners and relevant agencies.

The Delivery Contractor must demonstrate in writing how the changes meet these requirements, for approval by Sydney Water's Project Manager in consultation with the environmental and community representatives.

Prepare a Construction Environmental Management Plan (CEMP) addressing the requirements of this environmental assessment. The CEMP should specify licence, approval, and notification requirements. Prior to the start of work, all project staff and contractors will be inducted in the CEMP.

The CEMP must be readily available on site and include a site plan which shows:

- go/no go areas and boundaries of the proposed works including locations of lay-down and storage areas for materials and equipment
- location of environmental controls (such as erosion and sediment controls, fences, or other measures to protect vegetation or fauna, spill kits)
- location and full extent of any vegetation disturbance.

Mitigation measures

Prepare an Incident Management Plan (IMP) outlining actions and responsibilities for:

- predicted/onset of heavy rain during works
- spills
- unexpected finds (e.g. heritage and contamination)
- other potential incidents relevant to the scope of works.

All site personnel must be inducted into the IMP.

To ensure compliance with legislative requirements for incident management (e.g. *Protection of the Environment Operations Act 1997*), Follow [SWEMS0009](#) and attach [SWEMS0009](#) to the CEMP.

Complaints to be managed in accordance with Sydney Water's Complaints Procedure and relevant Community Engagement Plan.

Assign single person with accountability for coordinating communication and information flow across contractors and consultants and provide the contact details of this person in the CEMP.

Topography, geology and soils

Prevent sediment moving offsite in accordance with Managing Urban Stormwater, Soils and Construction, Volume 1 and 2A (Landcom 2004 and DECC 2008), including, but not limited to:

- divert surface runoff away from disturbed soil and stockpiles
- install sediment and erosion controls before construction starts
- reuse topsoil where possible and stockpile separately
- inspect controls at least weekly and immediately after rainfall
- rectify damaged controls immediately
- remove controls once surfaces have been stabilised, including removing trapped sediment in drainage lines.

Minimise ground disturbance and stabilise disturbed areas progressively.

Delivery Contractor to ensure imported material is Virgin Excavated Natural Materials (VENM) or meets a relevant NSW EPA Resource Recovery Order and Resource Recovery Exemption or is a commercially supplied material that is not waste.

If using materials that are subject to an NSW EPA Resource Recovery Order/Exemption the Delivery Contractor must ensure the conditions in that Order/Exemption are strictly adhered to.

Stop work in the immediate vicinity of suspected contamination. Indicators of contamination include discoloured soil, anthropogenic material within fill, asbestos, chemical or petrol odours and leachate. Contain disturbed material on an impermeable surface and cordon areas off. Notify the Sydney Water Project Manager and the Environmental Representative (who will contact Contamination and Hazardous Materials team) to agree on proposed management approach.

Stop work during heavy rainfall or in waterlogged conditions when there is a risk of sediment loss off site.

Sweep up any sediment/soil transferred off site at least daily, or before rainfall.

Mitigation measures

Adopt appropriate soil salinity mitigation measures in accordance with [Western Sydney Salinity Code of Practice](#) (Western Sydney Regional Organisation of Councils, 2003). This may include:

- stabilising existing areas of erosion
- minimising water use on site
- avoiding rotation and vertical displacement of the original soil profile
- backfilling excavations deeper than one metre in the same order or treating or using this material as fill at depths more than one metre from the finished level.

Water and drainage

Keep functioning spill kit on site for clean-up of accidental chemical/fuel. Keep the spill kits stocked and located for easy access.

Keep stockpiles to a minimum and ensure adequate contingency measures are in place to prevent sedimentation of waterways in the event of a large flood event.

If the potential for intercepting groundwater is confirmed after the REF is determined, Sydney Water will obtain a groundwater Water Supply Works Approval. Where dewatering is >3ML per water year (from 1 July), Sydney Water will also obtain a Water Access Licence from NRAR. The Delivery Contractor is responsible for:

- providing expert hydrogeological technical information to obtain the approvals
- preparing a Dewatering Management Plan
- complying with the conditions of the approvals (such as protecting water quality; minimising aquifer extraction volumes, monitoring extraction with flow meters and recording volumes).

Discharge all water in accordance with Sydney Water's Water Quality Management During Operational Activities Policy (D0001667) including erosion controls, discharge rate, dechlorination, monitoring. Re-use potable / groundwater water where possible.

Dewater excavations in accordance with the Program Delivery Guidance Standard 9.1 Excavation Dewatering (ENV-GS-001).

Store all chemicals and fuels in accordance with relevant Australian Standards and Safety Data Sheets. Record stored chemicals on site register. Ensure bunded areas have 110% capacity of the largest chemical container, or an additional 25% capacity of the total volume stored within (whichever is greater). Tightly secure chemicals and fuels in vehicles. Clearly label all chemicals.

Ensure equipment is leak free. Repair oil/fuel leaks immediately or remove from site and replace with a leak-free item.

Flora and fauna

Provided it is essential for delivering the project, Sydney Water's Project Manager can approve the following vegetation removal and tree trimming, without additional environmental assessment (but only after consultation with the Environmental and Community Representatives and affected landowners). Sydney Water considers vegetation removal in these circumstances has minimal environmental impact.

- Any minor:
 - vegetation trimming or

Mitigation measures

- removal of exotic vegetation or
- removal of planted native vegetation
- where the vegetation is not a threatened species (including a characteristic species of a threatened community or population), heritage listed, in declared critical habitat or in a declared area of outstanding biodiversity value.
- Any removal of remnant vegetation where there is no net change to environmental impact (e.g. a different area of vegetation is removed but the total area is the same or less than assessed in the EIA).

Written explanation of the application of this clause (including justification of the need for trimming or removal and any proposed revegetation) should be provided when seeking Project Manager approval. Any impacts to native vegetation and trees must be offset in accordance with the Biodiversity Offset Guideline ([SWEMS0019.13](#)).

If vegetation is highly sensitive, trimming or clearance cannot proceed without written authorisation from the Sydney Water Project Manager (in consultation with Environmental Representative).

Protect trees in accordance with the requirements of Australian Standard 4970-2009 for the Protection of Trees on Development Sites. Do not damage tree roots unless absolutely necessary and engage a qualified arborist where roots >50mm are impacted within the Tree Protection Zone.

Inspect vegetation for potential fauna prior to clearing or trimming. If fauna is present, or ecological assessment has determined high likelihood of native fauna presence (including hollow bearing trees), engage WIRES or a licenced ecologist to inspect and relocate fauna before works.

Heritage

Do not make publicly available or publish, in any form, Aboriginal heritage information on sites / potential archaeological deposits, particularly regarding location.

Repeat the basic AHIMS search if it is older than 12 months. Conduct additional assessment if new sites are registered and could be impacted by the works.

If any Aboriginal object or non-Aboriginal relic is found, cease all excavation or disturbance in the area and notify Sydney Water Project Manager in accordance with [SWEMS0009](#).

Excavations on the site should be undertaken with an Unexpected Finds Protocol in place (Refer to Part 6 of the *National Parks and Wildlife Act 1974* and Part 6 (Division 9) of the *Heritage Act 1977*).

Appropriate records should be kept, to record the history of the development of the site.

Noise and vibration

Works must comply with the EPA Construction Noise Guideline (Draft, 2021), including scheduling work and deliveries during standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday. No work to be scheduled on Sunday nights or public holidays. Any proposed work outside of these hours must be justified.

The Proposal will also be carried out in accordance with:

- Sydney Water's Noise Management Procedure SWEMS0056
- Noise Policy for Industry (EPA, 2017).

All reasonable and feasible noise mitigation measures should be justified, documented, and implemented on-site to mitigate noise impacts.

Mitigation measures

Incorporate standard daytime hours noise management safeguards into the CEMP, including but not limited to:

- Identify and consult with the potentially affected residents prior to commencement of works. This should:
 - describe the nature of works, the expected noise impacts, approved hours of work, duration, complaints handling and contact details
 - determine need for, and appropriate timing of respite periods (e.g. times identified by the community that are less sensitive to noise such as mid-morning or mid-afternoon for works near residences).
- Implement a noise complaint handling procedure.
- Do not warm-up plant or machinery near residential dwellings before the nominated working hours.
- Select appropriate plant for each task, to minimise the noise impact (e.g. all stationary and mobile plant will be fitted with residential type silencers).
- Do not use engine brakes when entering or leaving the work site(s) or within work areas.
- Regularly inspect and maintain equipment in good working order.
- Arrange work sites where possible to minimise noise (e.g. generators away from sensitive receivers, site set up to minimise use of vehicle reversing alarms, site amenities and/ or entrances away from noise sensitive receivers).
- Use natural landforms/ mounds or site sheds as noise barriers.
- Schedule noisy activities around times of surrounding high background noise (local road traffic or when other noise sources are active).

Air and energy

Use alternatives to fossil fuels where practical and cost-effective.

Maintain equipment in good working order, comply with the clean air regulations of the *Protection of the Environment Operations Act 1997*, have appropriate exhaust pollution controls, and meet Australian Standards for exhaust emissions.

Switch off vehicles/machinery when not in use.


Implement measures to prevent offsite dust impacts, for example:

- Water exposed areas (using non-potable water source where possible such as water from excavation pits).
- Cover exposed areas with tarpaulins or geotextile fabric.
- Modify or cease work in windy conditions.
- Modify site layout (place stockpiles away from sensitive receivers).
- Vegetate exposed areas using appropriate seeding.

Cover all transported waste.

Waste and hazardous materials

Manage waste in accordance with relevant legislation and maintain records to show compliance e.g. waste register, transport and disposal records. Record and submit [SWEMS0015.27 Contractor Waste Report](#).



Mitigation measures

Provide adequate bins for general waste, hazardous waste, and recyclable materials.

Manage waste and excess spoil in accordance with the NSW EPA Resource Recovery Orders and Exemptions (if applicable) and / or Waste Classification Guidelines. Where materials are not suitable or cannot be reused onsite or offsite, recycle where appropriate. Recycle soils at a licensed soil recycling facility or dispose at an appropriately licenced landfill facility.

Review existing hazardous building materials (HBM) report and implement relevant safeguards. Conduct hazardous materials survey prior to commencement where works could impact hazardous materials not surveyed in previous HBM assessments.

If fibro or other asbestos containing material is identified, restrict access, and follow Sydney Water's Asbestos Management – Minor Works procedure, Document Number 746607 and SafeWork NSW requirements. Contact Sydney Water Project Manager (who will consult with Contamination and Hazardous Materials team).

Manage lead paint in accordance with the WHS Regulation (2017) Part 7.2 and the Australian Standard Lead Paint Management Guidelines. Consult with Contamination and Hazardous Materials team where works involve removal of lead-based paint. Develop a Lead Management Plan if required.

Traffic and access

Ensure work vehicles do not obstruct vehicular or pedestrian traffic, or private driveway, public facility, or business access unless necessary and only if appropriate notification has been provided.

Social and visual

Undertake works in accordance with Sydney Water Communications policies and requirements including:

- Notify impacted residents and businesses.
- Erect signs to inform the public on nature of work.
- Treat community enquiries appropriately.

Restore work sites to pre-existing condition or better.

Maintain work areas in a clean and tidy condition.

Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There may be short-term impacts on the community from flora, noise, and visual amenity impacts. There will be environmental improvements by providing a reliable water service to the local community.
Any transformation of a locality	The proposal will not result in the transformation of a locality.
Any environmental impact on the ecosystems of the locality	The proposal will not result in environmental impacts to ecosystems of the locality. The proposal will lead to environmental improvements by ensuring a reliable drinking water service and minimising any impacts on the ecosystem.
Any reduction of the aesthetic, recreational, scientific, or other environmental quality or value of the locality	The proposal will not reduce the aesthetic, recreational, scientific, or other environmental quality or value of the locality.
Any effect upon a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific, or social significance or any other special value for present or future generations	<p>The proposal would replace the roof of the Marayong Reservoir WS0066, which is a heritage item listed on the Sydney Water Heritage and Conservation Register (Section 170) (ID: 4575777).</p> <p>A Local Heritage Item Impact Approval has been prepared by Sydney Water's Heritage Adviser to assess the potential impacts of the proposal on the heritage items, refer to Appendix D.</p> <p>The proposed works have been assessed and will have no adverse impact on the significant fabric of the heritage item. The current roof was added in the 1960s and is not considered significant fabric. Cleaning and relining the reservoir are maintenance works consistent with its heritage values. The proposal would have a minor and inconsequential impact on the heritage item.</p>
Any impact on the habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	The proposal involves trimming of planted vegetation within the site, however this will not have any impact on the habitat of protected animals.
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 will not be endangering any species of animal, plant, or other form of life, whether living on land, in water or in the air.
Any long-term effects on the environment	The proposal will not have any long-term impacts on the environment but will have a long-term benefit by providing a reliable and modern water service for the area.
Any degradation of the quality of the environment	The proposal will not cause the degradation of the quality of the environment.
Any risk to the safety of the environment	The proposal will not increase risk to the safety of the environment.

Section 171 checklist	REF finding
Any reduction in the range of beneficial uses of the environment	The proposal will not reduce the range of beneficial uses of the environment.
Any pollution of the environment	Environmental mitigation measures will mitigate the potential for the proposal to pollute the environment. No pollution of the environment is expected.
Any environmental problems associated with the disposal of waste	Waste disposal will be in accordance with the environmental mitigation measures, and no environmental problems associated with the disposal of waste are expected.
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	The proposal will not increase demand on resources, that are, or are likely to become, in short supply.
Any cumulative environmental effect with other existing or likely future activities	The proposal will not have any cumulative environmental effect with other existing or likely future activities.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	The proposal will not have any impact on coastal processes or hazards, and coastal processes and coastal hazards will not have any impact on the proposal.
Any applicable local strategic planning statements, regional strategic plans or district strategic plans made under the EP&A Act, Division 3.1	There are no applicable strategic planning statements or plans, as the proposal forms part of a renewals program.
Any other relevant environmental factors.	The proposal has been assessed against the factors listed above, and there are no other relevant environmental factors to consider.

Appendix B – Consideration of principles of ecologically sustainable development (ESD)

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 will not result in serious or irreversible environmental damage and mitigation measures have been designed to reduce scientific uncertainty relating to the proposal.
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 water 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 will provide cost efficient use of resources and provide optimum outcomes for the community and environment.

Appendix C – Consideration of TISEPP consultation

TISEPP section	Yes	No
Section 2.10, council related infrastructure or services – consultation with council		
Will the work:		
Potentially have a substantial impact on stormwater management services provided by council?		X
Be likely to generate traffic that will strain the capacity of the road system in the LGA?		X
Connect to, and have a substantial impact on, the capacity of a council owned sewerage system?		X
Connect to, and use a substantial volume of water from a council owned water supply system?		X
Require temporary structures on, or enclose, a public space under council's control that will disrupt pedestrian or vehicular traffic that is not minor or inconsequential?		X
Excavate a road, or a footpath adjacent to a road, for which the council is the roads authority, that is not minor or inconsequential?		X
Section 2.11, local heritage – consultation with council		
Is the work likely to affect the heritage significance of a local heritage item, or of a heritage conservation area (not also a State heritage item) more than a minor or inconsequential amount?		X
Section 2.12, flood liable land – consultation with council		
Will the work be on flood liable land (land that is susceptible to flooding by the probable maximum flood event) and will works alter flood patterns other than to a minor extent?		X
Section 2.13, flood liable land – consultation with State Emergency Services		
Will the work be on flood liable land (land that is susceptible to flooding by the probable maximum flood event) and undertaken under a relevant provision*, but not the carrying out of minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? * (e) Div.14 (Public admin buildings), (g) Div.16 (Research/ monitoring stations), (i) Div.20 (Stormwater systems)?		X
Section 2.14, development with impacts on certain land within the coastal zone– council consultation		
Is the work on land mapped as coastal vulnerability area and inconsistent with a certified coastal management program?		X
Section 2.15, consultation with public authorities other than councils		
Will the proposal be on land adjacent to land reserved under the <i>National Parks and Wildlife Act 1974</i> or land acquired under Part 11 of that Act? <i>If so, consult with DPE (NPWS).</i>		X
Will the proposal be on land in Zone C1 National Parks and Nature Reserves or on a land use zone that is equivalent to that zone? <i>If so, consult with DPE (NPWS).</i>		X
Will the proposal include a fixed or floating structure in or over navigable waters? <i>If so, consult TfNSW.</i>		X
Will the proposal be on land in a mine subsidence district within the meaning of the <i>Coal Mine Subsidence Compensation Act 2017</i> ? <i>If so, consult with Subsidence Advisory NSW.</i>		X
Will the proposal be on land in a Western City operational area specified in the <i>Western Parkland City Authority Act 2018</i> , Schedule 2 and have a capital investment value of \$30 million or more? <i>If so, consult the Western Parkland City Authority.</i>		X
Will the proposal clear native vegetation on land that is not subject land (i.e. non-certified land)? <i>If so, notify DPE at least 21 days prior to work commencing. (Requirement under s3.24 Chapter 3 Sydney Region Growth Centres - of the SEPP (Precincts – Central River City) 2021).</i>		X



Appendix D – Local Heritage Item, Impact Approval



SW 105 10/24

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SWEMS0025.03v1



1. Item

For Sydney Water's heritage items of **local** heritage significance (non-Aboriginal), as listed on a Council's LEP *Heritage List* and / or Sydney Water's *S170 Heritage & Conservation Register*.

Item name: Marayong Reservoir (WS0066)

Item number: 4575777

Curtilage: defined within Lot A in DP no.336760

Statement of Significance: Marayong Reservoir (WS 66). One of a small group of cylindrical concrete reservoirs, serving the needs of suburban communities, and demonstrating the growth of demand. The listing includes the reservoir and all associated pipework, valves and valve houses to the property boundary.

2. Applicant

Name: Andrea Glass

Contact: [REDACTED]

3. Proposed works

Use this form for works to items of LOCAL heritage significance. Works assessed as cleaning, maintenance or repair do not need approval.

Address: 50 Wilson Road, Acacia Gardens

Proposal: The proposal involves the refurbishment of WS0066 and WS0292 and installation of two Chemical Dosing Units (CDU). The methodology includes:

- site establishment including the installation of site compounds and vegetation trimming
- civil works including the excavation and installation of permanent services including electrical cables, security system and CDUs
- demolition works and disposal of redundant assets including pipes, reservoir roof infrastructure and hazardous building materials
- repairs and remediation works including abrasive blasting, relining of the reservoirs and path upgrades, if required
- installation of new roof structure including but not limited to internal columns, handrails, hatches, ventilations, electrical and instrumentation
- site restoration and demobilisation.

4. Analysis of proposal (heritage advisors to complete)

Appraisal:

The concrete reservoir WS0066 is an item of local heritage significance included on Sydney Water's S170 Register. Proposed works on the site include the removal and replacement of the reservoir roof structure, cleaning and relining of the reservoir and replacement of pipework. Associated works on the site include installation of Chemical Dosing Units (CDU), excavations for new pipework, landscaping and works to Reservoir WS0292.

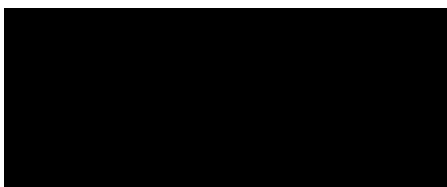
The proposed works have been assessed and will have no adverse impact on the significant fabric of Reservoir WS0066. The current roof was added in the 1960s and is not significant fabric. Cleaning and relining the reservoir are maintenance works consistent with its heritage values. Works in the vicinity will not have any adverse impacts to the significance of Reservoir WS0066.

For the purposes of Clause 2.11 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021*, the impacts of the proposed works are minor and inconsequential.

The works are approved subject to the consent conditions:

- Excavations on the site should be undertaken with an Unexpected Finds Protocol in place (Refer Part 6 of the *National Parks and Wildlife Act 1974* and Part 6 (Division 9) of the *Heritage Act 1977*);
- Appropriate records should be kept, to record the history of the development of the site.

Approved by:



Tony Brassil - Heritage Adviser

Asset Lifecycle

(16/09/2024)

☐ Entered in SWIM (/ Contribution Folders / Govern Sydney Water / ... / Heritage / Approvals)

Notes:

- Compliance with Part 6 of the *National Parks and Wildlife Act 1974* and Part 6 (Division 9) of the *Heritage Act 1977* is required.

- Compliance with clause 2.11 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* may also be required.

References

Parent document number	Parent document title
SWEMS0031	Heritage Compliance Procedure

5. Consent conditions

Conditions imposed to ensure compatibility between the proposed work and the heritage significance of the proposed location.

- Excavations on the site should be undertaken with an Unexpected Finds Protocol in place (Refer Part 6 of the *National Parks and Wildlife Act 1974* and Part 6 (Division 9) of the *Heritage Act 1977*);
- Appropriate records should be kept, to record the history of the development of the site.

6. Documents provided

Proposed works and environmental constraints:

