Review of Environmental Factors

WX0057 Chatswood Reservoir Re-chlorination Plant – Mechanical and Electrical Renewal

Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of Chatswood Reservoir Re-chlorination Plant – Mechanical and Electrical Renewal. 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.

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 information it contains is neither false nor misleading.

Prepared by:	Reviewed and endorsed by:	Endorsed by:
[redacted]	[redacted]	[redacted]
Andi Stokan/ Sarah Schmelzer REF author Sydney Water Date: 27/3/26	Grace Corrigan Environment Representative Sydney Water Date: 30/3/26	Gary Syed Project Manager Sydney Water Date: 31/3/26

Decision Statement

The main potential construction environmental impacts of the proposal include impacts to heritage and vegetation, and impacts from noise and vibration. During operation, some minor visual impacts are expected. 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:	[redacted]	Elissa Howie, A/Senior Manager Environment and Heritage, Sydney Water Date: 31 March 2026

1. Proposal description

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

Aspect	Relevance to proposal
Proposal need and objectives	The proposal is part of a renewals program required to meet Sydney Water's commitment to ensure ongoing safety and security of the water supply. The objective of the proposal is to ensure appropriate levels of chlorination of drinking water to the local supply network.
Proposal description and methodology	The scope of work is to decommission the existing re-chlorination plant (RCP) and install a new RCP on Sydney Water land near Chatswood Reservoir. Figure 1 shows the proposal location. The proposal includes: • completing any remaining inspections and installing site environmental controls e.g. erosion and sediment controls • clearing and trimming vegetation • installing site amenities including temporary compounds • excavating and trenching (about 400 m^2 surface area, up to 2 m depth) • supplying and installing services e.g. dosing pipework, leak containment pit, electrical pits and conduits in the excavated area • installing a concrete foundation pad for RCP building and containment sump • bringing the new pre-fabricated RCP to site using a crane • connecting the new RCP to services • supplying and installing water sample return system and new chlorine analyser • installing and testing power and security system • removing internal elements of the original RCP as well as the chemical tanks and chemical bunds • demobilising site including removing any site amenities. Indicative plant and equipment to be used for the proposal includes:

Aspect	Relevance to proposal
	• vacuum truck • 13 t excavator with hammer attachment • 22 t excavator without attachment • 6 t front tipper • concrete core drilling rig • upright rammer • bogie trucks • 400 t mobile crane • confined spaces safety equipment (e.g. gantry/davit) • sediment tank • concrete pumps • air compressors • generators • jackhammers • hand tools • stump grinder • site facilities and amenities • storage containers • tip trucks • concrete agitator trucks • street sweepers • light vehicles • compactor • vacuum trucks • elevated work platforms (EWP) • telehandlers • backhoes • concrete saws
Consideration of alternatives/options	The 'do nothing' option was considered but not chosen, since: • the asset is reaching the end of its service life (20 to 30 years) • the technology is outdated • the bunding is insufficient. Different locations around the reservoir were considered for the new RCP. The preferred location is the hardstand area next to the existing RCP.
Location and land ownership	Chatswood Reservoir is at 565 Pacific Highway Artarmon (1+2/-/DP1149313, 1/-/DP921883), in the Willoughby City Council Local Government Area. The entire site is owned by Sydney Water.
Site establishment and access tracks	The site would be accessed through existing driveways (Figure 2). Some vegetation trimming would be required for site establishment, for equipment access and to install the site sheds.
Ancillary facilities (compounds)	Construction compounds would likely be required for parking, spoil laydown area, site office, site sheds and construction amenities. Figure 1 shows the indicative locations for these areas.
Work hours	Work and deliveries would be scheduled during standard daytime hours: • 7am to 6pm, Monday to Friday

Aspect	Relevance to proposal
	• 8am to 1pm, Saturdays. The proposal is expected to require work outside these hours for the delivery and set up of the franna crane and prefabricated RCP. Lane closures at the Pacific Highway entrance are required. One or 2 night shifts are expected with a maximum of 6 allowed for during the project. Noisy works would not extend past midnight. Sydney Water's Project Manager can approve work outside of standard daytime hours. Works outside standard daytime hours have been assessed and the approval process is described in the mitigation measures.
Proposal timing	Construction is expected to start early-mid 2026 and take about 8-9 months.

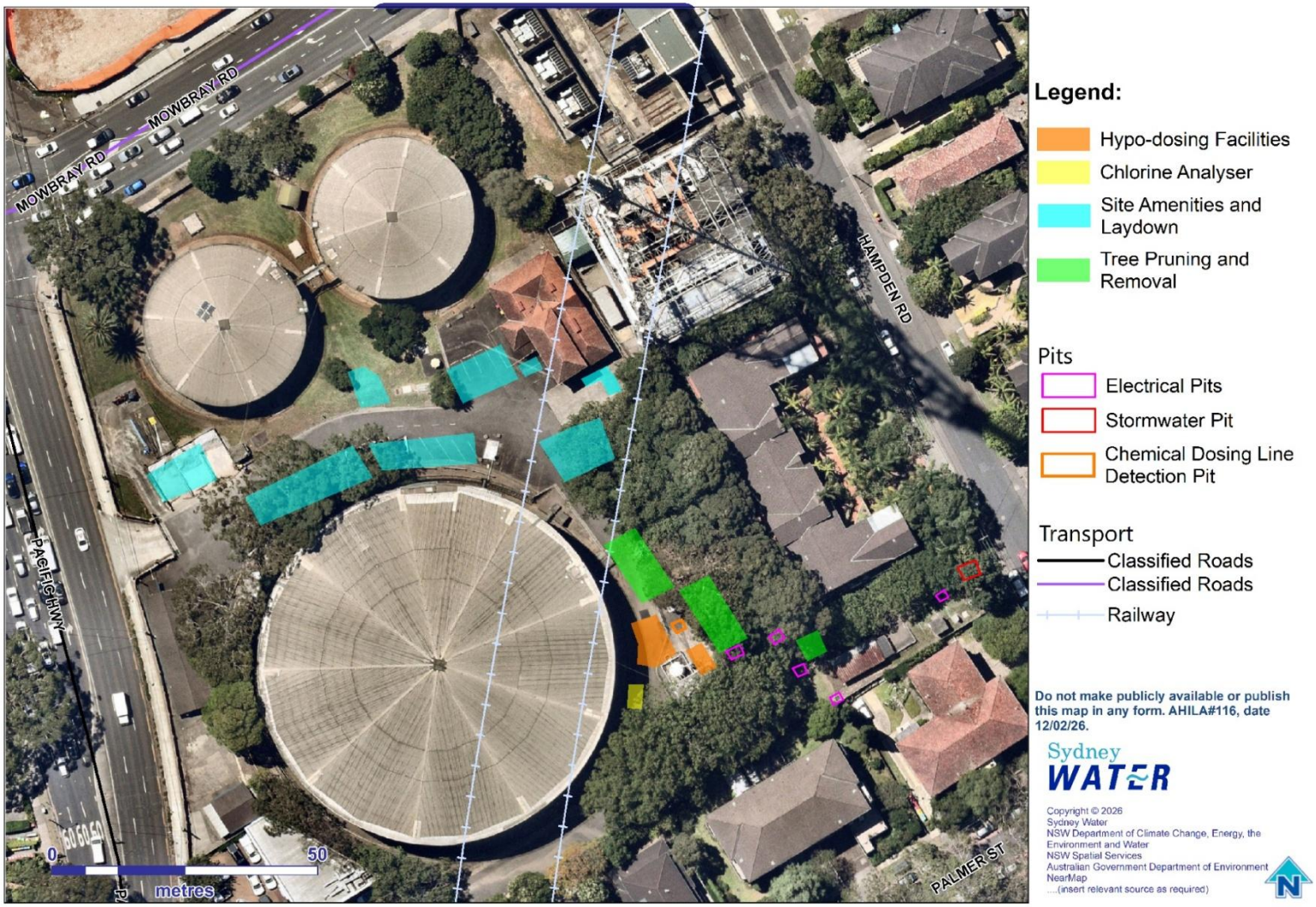

Figure 1 – Proposal location

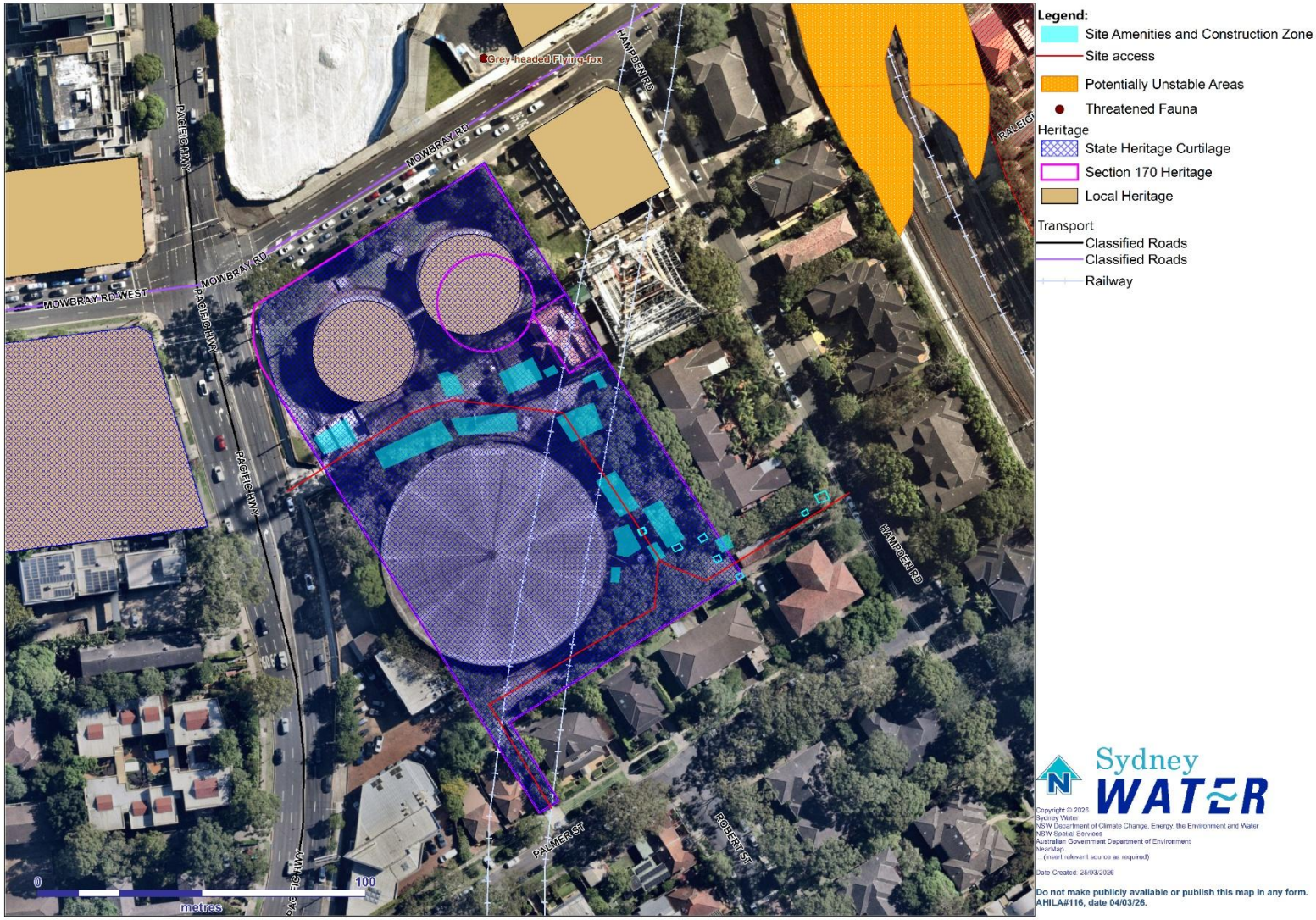

Figure 2 – Environmental Constraints

2. Consultation

2.1 Community and stakeholder consultation – general

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. The Community and Stakeholder Action Plan (CSAP) for the proposal has been developed in line with the overarching Regional Engagement Plan for the North region. Key actions from this CSAP include:

- notifying by letterbox drop of construction timing and impacts to adjacent and nearby properties
- directly notifying about construction timing and impacts (in addition to the letterbox drop) to nearby properties on Palmer Street and Hampden Road where there have been previous complaints about noise and light during out of hours work, maintenance issues contributing to flooding in wet weather, and turf damage on private property
- consulting with affected receivers if they engage Sydney Water
- maintaining a public website for the proposal.

We will also provide Willoughby City Council with reasonable notice when we would like to start works.

2.2 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.

3. Legislative requirements

Table 3-1 Environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Willoughby Local Environmental Plan 2012 (Willoughby LEP)	The proposal is on land zoned Water Supply System (SP2). In accordance with Clause 1.9 of the LEP 2012, as the proposal is permitted without consent under the TISEPP, the consent provisions of the LEP 2012 do not apply.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	The Standard Instrument defines water reticulation systems as including dosing facilities. The RCP is a dosing facility. 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. The proposal involves development of a water reticulation system and Sydney Water is a public authority, so the proposal is permissible without consent.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BCSEPP)	**Vegetation in non-rural areas (Chapter 2)** The proposal is in the Willoughby LGA in zone SP2 Water Supply System. This is in an area or zone listed in subsection 2.3(1). However, subsection 2.4(1) states: '*This Policy does not affect the provisions of any other SEPP….*', and as the works are permissible under the TISEPP, a council permit to clear vegetation under this SEPP is not required. **Water catchments (Chapter 6)** The proposal is in a regulated catchment (Sydney Harbour Catchment). Section 4 of the REF assesses potential environmental impacts on water quality and quantity, aquatic ecology, flooding, access, cultural heritage, flora and fauna, and scenic quality. The assessment confirmed that potential impacts are low to negligible and meet the requirements of part 6.2 of the SEPP. Section 171A of the EP&A Regulation requires a determining authority take into account the likely environmental impact from the proposal for work in a regulated catchment. As the proposal is in the Sydney Harbour Catchment, sections 6.6 to 6.9 of this SEPP need to be considered. Impacts to water quality and quantity, aquatic ecology, flooding, and recreation and public access would be negligible. Section 4 details these potential impacts.

Table 3-2 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
Protection of the Environment Operations Act 1997 (POEO Act)	Part 5.7 of the POEO Act requires immediate reporting of any pollution incidents to the relevant authority where material harm to the environment is caused or threatened. The definition of material harm and the relevant authorities are identified in Part 5.7 of the POEO Act. The contractor is responsible for immediately reporting such incidents in accordance with SWEMS0009 Responding to incidents with an environmental impact.	N/A	Sydney Water during operation and contractor during construction
Heritage Act 1977	The *Heritage Act 1977* aims to promote conservation of heritage items in NSW. Part 3A of the Act establishes a register of places, buildings, works, relics, moveable objects or precincts considered to have State heritage significance. A permit under section 60 of the Act is required for works that may impact a state heritage listed site. The Chatswood Reservoir site is listed under the State Heritage Register. The proposal includes controlled activities under section 57(1) and does not fit under standard exemptions. As such, a section 60 approval is required.	Section 60 approval	Pre-construction, Sydney Water
Roads Act 1993	Lane closures would be required along the Pacific Highway for a crane to enter and exit the site. Consent from the roads authority is required under section 138 of the Roads Act for these lane closures. A road occupancy licence would be required from TfNSW.	Road Occupancy Licence	Pre-construction, contractor

4. Environmental assessment

The environmental impacts checklist (SWEMS0019.01) was considered for the proposal. Table 3-1 includes only the potentially impacted aspects and Table 4-3 lists relevant mitigation measures.

Table 3-1 Review of environmental aspects

Aspect	Potential impacts
Topography, geology and soils	The topography of the site ranges from 94 to 104 m Australian Height Datum. No areas of acid sulphate soils or salinity have been recorded within the site. A soil characterisation report was prepared for the proposal (Confluence Water, 2026). It found one borehole (BH3) with contaminants (total recoverable hydrocarbon and benzo(a)pyrene) above the health investigation level and health screening level. Anthropogenic materials were found in fill soils at 2 boreholes to 0.20 m below ground level (m bgl). Hydrocarbon odour was found in fill soils at one borehole from 0.10 – 0.20 m bgl. About 400 m^2 of excavation would be required to install pipe work, electrical components, the new RCP and associated assets. Excavation depth is limited to 2 m due to the Metro line running under the site. Hardstand and grassed areas would need to be excavated. Excavations would be backfilled or reinstated as these activities are completed. Although the new RCP and other new assets would be above ground, local topography would not be substantially altered once excavation has been filled in. The localised contaminated and odorous soil would be exposed during excavation and managed on site (e.g. by treating the soil). Soil could become contaminated during construction and operation through accidental chemical or fuel spills and leaks. Potential topography, geology and soil impacts would be managed by implementing the mitigation measures listed in Table 3-3.
Water and drainage	There are no waterways or groundwater dependent ecosystems within 200 m of the site. Groundwater was found about 5.5 m below ground at the nearby Chatswood Metro dive site (Site Audit Report Sydney Metro Chatswood Dive Structure 339, Ramboll, October 2020). The site contains stormwater pits, and internal surface drains in multiple locations including around the reservoirs, along the southern boundary, and along kerbs near the Pacific Highway entrance. Chatswood Reservoir is in the Flat Rock Creek Catchment but is outside any flood prone areas (Flat Rock Creek Floodplain Risk Management Study and Plan, Willoughby City Council, 2020). Groundwater is not anticipated to be found during construction. A Water Supply Works Approval would be needed if groundwater is found and cannot be used for dust suppression. Access in and out of the site is unlikely to be blocked during peak flood events. No changes to flooding or flood patterns are expected from the proposal. Given there are no waterways nearby, no changes to water quality or quantity are expected. The proposal would require temporary storage of fuels and/or chemicals for equipment and machinery operation during construction and operation. This storage is expected to be limited to bunds for fuel and small chemical containers for chemicals such as glue or marking paint. Potential impacts include accidental leaks, spills and seepage into the soils or stormwater system. Any fuels and chemicals required to be stored on site would be securely bunded.

Aspect	Potential impacts
	There is a surface drain (concrete kerb) following the western edge of the existing fencing for the existing RCP. This kerb may need to be removed for excavation and civil works, but would be reinstated once these works are complete. Surface water flows within the site are unlikely to significantly change during construction or operation. Potential impacts to water and drainage would be managed by implementing the mitigation measures listed in Table 3-3.
Flora and fauna	Vegetation at the site is a mix of native and non-native species. This vegetation is not mapped as a plant community type. The closest recorded threatened species sighting is a Grey-Headed flying-fox (vulnerable) mapped 40 m from the site (accuracy to 50 m). An arborist report assessed 12 trees potentially impacted by the proposal (Canopy Consulting, 2025). Trees numbered 3, 4, 5, 6, 7, 8 and 9 in the arborist report need to be removed. Installing the new RCP would require excavation in more than 10% of the Tree Protection Zone of each of these trees. The damage that this is predicted to cause to tree health makes tree removal the preferred option. Figure 3 shows the tree protection zones, structural root zones and positions. The tree species include: • trees 3 and 4: Crimson Bottlebrush *(Callistemon citrinus)* • tree 5: Lemon-scented Gum *(Corymbia citriodora)* • trees 6 and 8: Camphor Laurel (*Cinnamomum camphora)* • tree 7: Norfolk Island Pine (*Araucaria heterophylla)* • tree 9: Canary Island Date Palm (*Phoenix canariensis).*

Aspect	Potential impacts

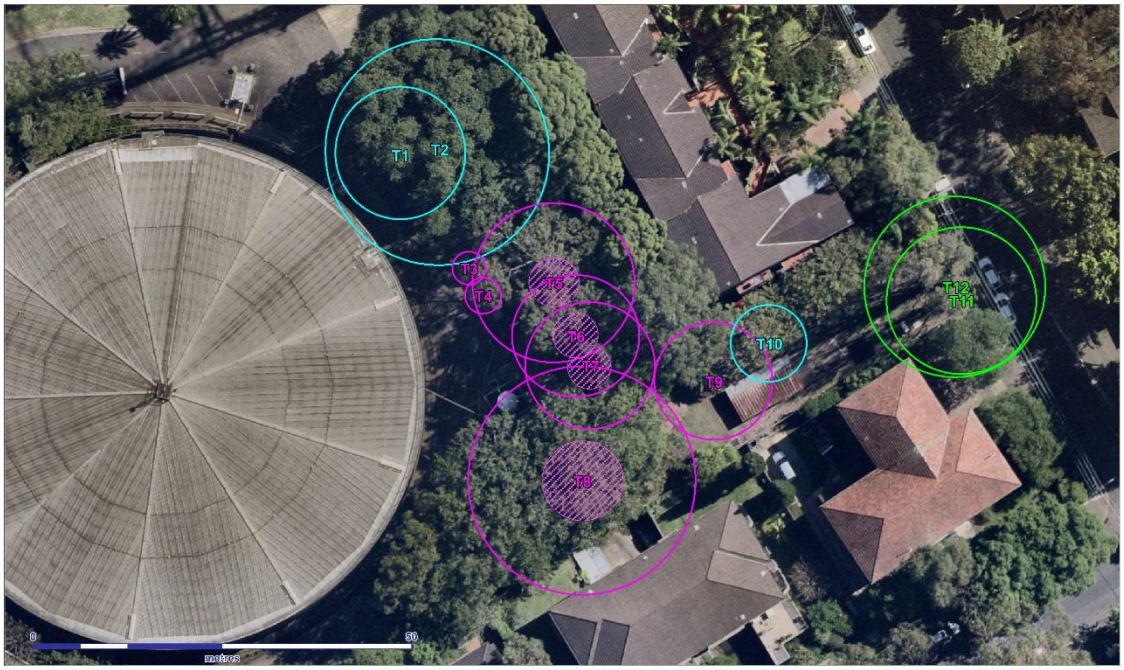

Figure 3 – Tree position, protection zone, and structural root zones

Figure 4 – T3 and T4 with T5 in the background

Aspect	Potential impacts

Figure 5 – T6 with T5 in the background

Figures 4 and 5 display trees located close to the RCP and main construction works.

Pruning would also be required on 3 trees (tree 1, 2 and 10) to allow equipment access to the site:

- tree 1: Canary Island Date Palm *(P. canariensis)*
- tree 2: Moreton Bay Fig (*Ficus macrophylla)*
- tree 10: Crepe Myrtle *(Lagerstroemia indica)*.

Habitat features such as stag ferns have been observed on site in Tree 2. The stag ferns are not anticipated to be impacted by pruning works on Tree 2. Pre-clearing checks would be done, including checks on habitat features.

Moreton Bay Figs are a part of the Grey-Headed flying foxes' diet, which may contribute to them being sighted nearby (Australian Association of Bush Regenerators, 2010). A significant impact to the Grey-Headed flying fox is not expected, since:

- there are other feed trees in the surrounding area
- the species is mobile and can access these other feed trees
- the fig tree requires pruning, not removal.

As no waterways are nearby, no impacts to any aquatic ecology features are expected.

Flora and fauna impacts are expected to be low and can be managed through the mitigation measures in Table 4-3.

Aspect	Potential impacts
Heritage	**Non-Aboriginal heritage** Appendix D includes the Statement of Heritage Impact (SoHI) prepared by AECOM for the proposal. <u>Existing environment</u> The proposal is in the curtilage of multiple local, state and section 170 heritage items: • Chatswood Reservoirs (all of Lot 1/ DP 1149313) – State Heritage Register and section 170 register • Two reservoirs (part of above lot/DP) – council listing • Reservoir 2 (part of above lot/DP) – section 170 only • Former Pumping Station (part of above lot/DP) – section 170 only. The proposal would directly or indirectly impact these heritage items. There are also nearby heritage listed items outside the proposal area, which would not be impacted by the proposal: • Chatswood Zone Substation No. 80 (Building only) (Lot 1 and 2, Section C, DP 4048) – council listing, adjacent to the proposal area • Mowbray House and 10m curtilage (Lot 2, DP 221896) – council listing, about 50 m north-east • Great Northern Hotel (including original interiors) (Lot 1, DP 799314) – council listing, about 50 m north-west • Chatswood South Uniting Church and Cemetery (Lot 1 and 2, DP 628421) – council and State Heritage Register listing, about 50 m west Figure 2 shows these heritage listings. There is a Conservation Management Strategy (CMS) (Urbis Pty Ltd, 2008) for the State Heritage listed curtilage of Chatswood Reservoirs. The CMS lists the significance of different elements in this State Heritage listed curtilage. Selected elements include: • exceptional significance – reservoirs No. 1 (WS0024) and No. 2 (WS0025) and original steel panels of reservoirs No. 1 and 2 • high significance – the pump house • moderate significance – welded steel reservoir WS0239, meter house, significant plantings (palm trees, camphor laurels and eucalypts), existing site boundary • little significance – analyser shed, depot building and garage, vegetation excluding significant plantings (see “moderate” above), timber and wire fencing around perimeter of site and vehicular access gates • intrusive significance – concrete block blade walls for fill. The existing RCP is not listed on the schedule of significant elements.

Aspect	Potential impacts

Potential impacts

Table 1 lists the potential impacts in the State Heritage curtilage of Chatswood Reservoirs during construction. The proposal is in the curtilage of 3 other local and section 170 listed items. Table 1 also captures impacts to these 3 items.

Table 1 Potential heritage impacts

Activity	Description	Type and level of impact
Establishing site (running power/communication lines from the pump house)	No additional penetrations – can use existing conduits.	No direct impact, if using existing conduits.
Installing and using laydown area	Near Reservoirs No. 1 (WS0024) and No. 2 (WS0025). For storing equipment and materials.	Little potential for adverse impacts if the area is fenced and existing asphalt roads are used, to protect the 2 reservoirs from accidental damage.
Removing vegetation	Up to 7 trees to be removed, including 4 trees with moderate significance.	Direct impacts, low level. Removal would not adversely affect overall heritage significance of the item. Not compliant with the standard exemption for vegetation removal.
Excavating and trenching about 400 m^2 and up to 2 m depth	Mostly located away from the significant elements of the site except for trenching along the eastern concrete apron of WS0239.	Unlikely to cause adverse impacts. The site has low archaeological potential, so archaeological material is unlikely to be exposed.
Installing and connecting pipes and conduits to WS0239	The dosing lines would be connected to later, modern additions to WS0239.	Unlikely to cause direct adverse impacts.
Activities causing vibration	Excavating near WS0239 would require vibratory equipment (excavator with hammer).	Unlikely that use of the machinery would indirectly impact WS0239.

Aspect	Potential impacts		
	Settlement or change of use	No excavation beneath significant features, no change in use.	No indirect impacts expected.
	Visual impacts	Installing the RCP, removing vegetation, subsurface excavation.	The small new RCP is unlikely to have any visual impact in regard to heritage. Vegetation removal would change the visual characteristics. Excavation not considered to have a potential impact.

No elements of exceptional or high significance would be impacted by the proposal. Overall impacts to the site and its elements have been assessed as minor.

A section 60 approval has been prepared by Sydney Water under delegation to support the proposal (document no. 2526_S60_002). The proposal would not materially affect the significance of the State Heritage listed Chatswood Reservoirs. Recommendations from this approval have been captured as mitigation measures in Table 4-3.

Aboriginal heritage

There are no known Aboriginal heritage items within 200 m of the proposal (AHIMS search ID 1076206, 12 December 2025). The reservoir site is not in or near any high risk areas for finding previously unknown Aboriginal heritage. Construction involves work in disturbed terrain, and is unlikely to uncover any previously unknown Aboriginal objects. No operational impacts are expected.

Noise and vibration

Noise

Appendix E shows the construction noise and vibration memo prepared for the proposal.

Existing environment

Chatswood Reservoir is impacted by background noise from:

- the TX telecommunications tower and Electricity Sub-station No.80 to the east of the site
- major roads: the Pacific Highway to the west and Mowbray Road to the north
- Chatswood Metro, and the dive site currently being remediated
- heavy rail to the east.

Table 2 shows the estimated background noise used to assess noise impacts from the proposal.

Aspect	Potential impacts

Table 2 Background noise levels

Noise area category		R3
RBL or L_{A90}[1] Background level (dB(A))	Day	50
	Evening	45
	Night	40

Potential impacts – construction

Construction would take about 8-9 months, with most work during the day. Up to 6 night shifts have been allowed for cranes to enter and exit the site while delivering the RCP. Due to the size of the cranes, this would require road occupancy licences at night. The crane would enter site before midnight, park in the required location, and be switched off overnight.

Construction would be over 2 stages.

The first stage is the site establishment and civil works in preparation for installing the new RCP. Site establishment includes installing compounds and removing vegetation. Preparing for the new RCP involves excavating and trenching the ground where the new RCP would be installed.

Vegetation trimming and removal would be done during site establishment. This activity would take about a week to complete near the start of the construction program. This would likely require use of noisier equipment such as chainsaw, mulcher and stump grinder.

The noisiest equipment used in construction would be a 13 t excavator with hammer attachment, to break out concrete and other hardstand areas in preparation for installing the new RCP. This civil work would take about 6 months to complete. Noisier work such as the excavator with hammer and concrete saw would not be required every shift. This noisier work would be completed under respite, during the day only, and is expected to take about 2 weeks to complete.

The second stage is installing the new RCP, demolishing redundant assets and site demobilisation. The new RCP would be built off site. It would be brought to site on a large crane and lifted into place. Redundant equipment and assets such as the existing bund, tank, pipework and cables would be removed.

The excavator with hammer may also need to be used to remove redundant equipment and assets near the end of the construction program.

Modelled impacts – day work

Receivers with line of sight within 70 m of the site are predicted to be highly affected by noise during construction. This would be during the worst-case scenario (use of 13 t excavator with hammer). Highly affected means that the background noise would be greater than 75 dB(A). Figure 6 displays this distance.

No receivers with no line of sight are predicted to be noise impacted beyond 70 m from the site.

Aspect	Potential impacts

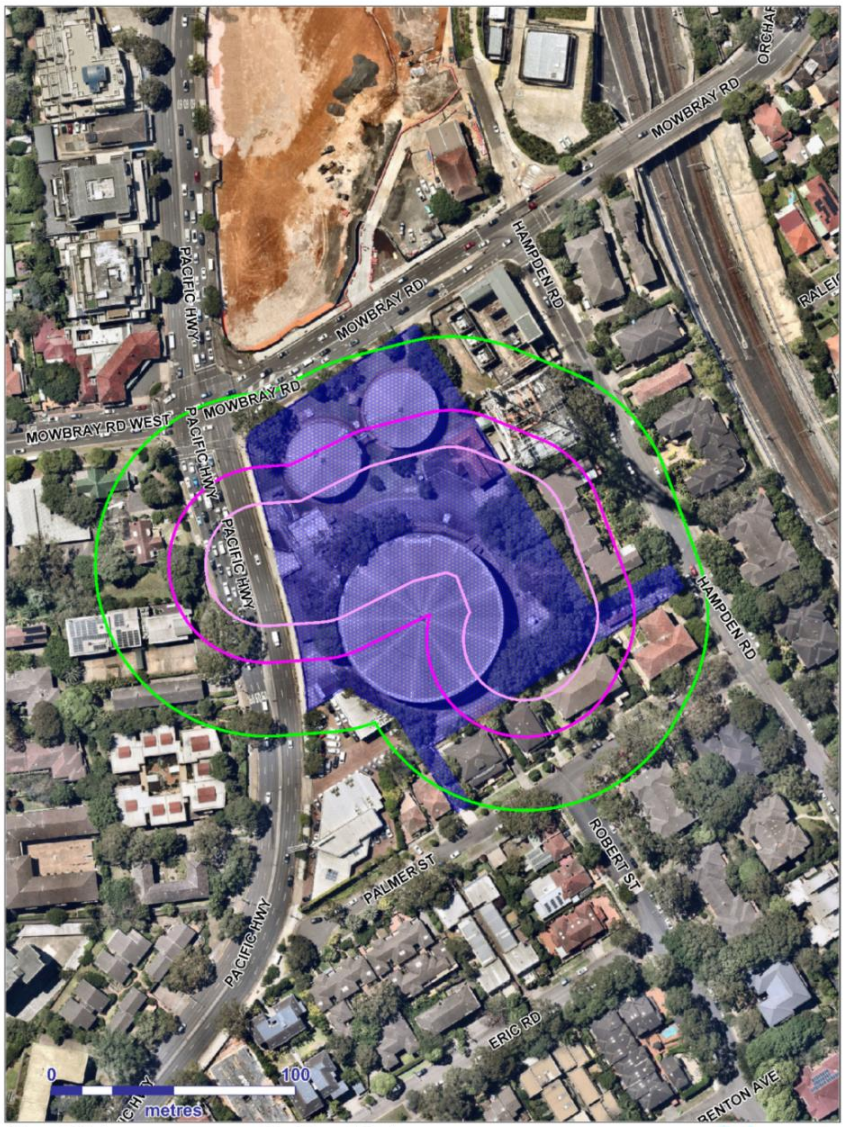

Figure 6 - Affected distance for receivers with line of sight during standard construction hours

Modelled impacts – night work

Predicted noise impacts during night work (using 400 t franna crane) are:

- highly affected (background noise at least 75 dB(A)) within 25 m with line of sight

Aspect	Potential impacts

- highly intrusive (noise impacts >30 dB(A) above background) with line of sight in 45 m radius
- clearly audible (noise impacts 20-30 dB(A) above background) with no line of sight up to 120 m away
- noticeable (5-10 dB(A) above background) with no line of sight up to 185 m away
- sleep disturbance (background noise at least 65 dB(A)) within a 65m radius of the construction zone.

Figure 7 displays these distances.

Figure 7 – Affected distance for receivers with and without line of sight during out of hours construction

Aspect	Potential impacts
	Vibration There is potential for vibration impacts within Chatswood Reservoir. The largest vibratory equipment used on site would be a 13 t excavator with hammer attachment used for concrete breaking and excavation. Additional mitigation measures would be required if this equipment is used within 7 m of light-framed structures or within 19 m of heritage and other sensitive structures. There are no light-framed structures within 7 m of the proposal. Although vibratory equipment would be used within the curtilage of the State Heritage listed items, there would be no vibratory equipment used within 19 m of any of the heritage items listed as moderate significance or above. **Operational noise and vibration** An existing RCP (WX0057) is operating on-site and contributes to the existing background noise at Chatswood Reservoir. The new RCP is expected to have similar noise levels to the existing RCP and is in a similar location. Therefore, no major changes to noise and vibration are anticipated from the operation of the new RCP. With the implementation of noise and vibratory mitigation measures, impacts to sensitive receivers are expected to be low. Refer to Table 4-3 for mitigation measures.
Air and energy	The reservoir site is bordered by residential properties to the south, east and west. Nearby land use that may currently impact air quality includes: • the telecommunications tower and electricity sub-station to the east • road traffic on Mowbray Road and Pacific Highway • North Shore Railway Line about 100-150 m east • former Chatswood Metro dive site, an open excavation currently being remediated. During construction, the proposal would potentially result in: • dust generated by construction vehicles travelling on grassed or unsealed areas • excavations or cleared areas (e.g. from vegetation removal) being left uncovered • emissions from machinery, equipment and vehicles used during construction. Exposing hydrocarbons may generate odour during excavation, in areas where they have been found during borehole testing. However, treating and moving these materials offsite quickly would manage this risk. Odour is otherwise unlikely to be generated during construction. Construction impacts would be minor and can be managed through mitigation measures. Operational impacts are not expected.

Aspect	Potential impacts
Waste and hazardous materials	Hazardous materials recorded in the existing RCP are listed below: • asbestos containing material (external) • synthetic mineral fibres (internal) • ozone depleting substances (external). Areas of the reservoir site are already used for storage of pipes and other materials. Waste streams are expected to include typical construction waste streams, such as: • soil and fill material • asphalt and concrete • vegetation • office and amenities waste • metal and other waste from demolishing the tank and bund. Waste volumes would be reduced by retaining the existing brick building that houses the existing dosing facility. Soil stockpiles are expected to be treated, if required (e.g. if any hydrocarbon contamination is observed) and taken off site quickly. Construction impacts are minor and can be managed with mitigation measures. No operational impacts are expected.
Traffic and access	The reservoir site can be accessed from 3 different gates: • Pacific Highway (automatic gate, best access for heavy vehicles) • Palmer Street (automatic gate) • Hampden Road (manual gate). Pacific Highway is a State Road, carrying about 50,000 vehicles daily (Transport for NSW traffic counter station ID 33014, viewed 11 December 2025). It has a mix of no stopping and no parking zones, with clearways operating during peak hours. Palmer Street and Hampden Road are both local roads, with a mix of timed and unrestricted parking. There are footpaths at all these gates. Seven bus routes travel along Pacific Highway past the reservoir site, one of which has daily services starting at 4am or 4:30am running until 3:30am. Some parking spaces are available in the reservoir site, around the pump house and southern reservoir. The Chatswood Metro and heavy rail station are about 1 km north of the site, and Artarmon heavy rail station is about 400 m south-east of the site. The site is not publicly accessible. Up to 8 construction personnel and personal cars are expected to be on site at any one time. Once site offices and laydown areas are installed, parking availability in the reservoir site would be limited. Some street parking on nearby local roads would likely be used for 1 – 2 months. This impact would be relatively minor, as there are multiple surrounding streets that could have spaces available. Light vehicle entry and exit is likely to be via Palmer Street or Pacific Highway. There is a risk that construction vehicles queuing to enter the site to start at 7am could block other public vehicles. The construction team should explore options to reduce the risk

Aspect	Potential impacts
	of queueing, such as entering site during a staggered time range (e.g. between 6:30am and 7am). Heavy vehicles would enter and exit site through the Pacific Highway entrance. No lane closures would be required during day shifts. However, lane closures would be required at night along the Pacific Highway for the crane to enter and exit the site. This would cause slight delays and speed reductions for buses and other vehicles. No bus stops or footpaths are expected to be blocked during construction. As the site is owned by Sydney Water and not accessible to the public, no public recreation areas would be impacted. Construction impacts are minor and can be managed with mitigation measures. No operational impacts are expected.
Social and visual	Social impacts related to traffic and access, noise and vibration, and air quality and odour have been assessed elsewhere in this REF. Surrounding residential properties have a line of sight to the reservoir site and above-ground structures in the site, including vegetation. Changes during construction include: • presence of construction vehicles, plant and equipment, site shed • construction activities such as vegetation removal, removing the chain wire fence along a section of the eastern boundary and installing the new RCP. Changes during operation include: • mature vegetation removed along the back of the existing RCP is unlikely to be replaced in the same location. This would result in loss of canopy and likely mean that nearby sensitive receivers would have increased visibility to this part of the site. The loss of canopy would be most noticeable to those apartments at higher levels, that are in line with the height of the canopy. However, the site is already visible from in between the trees, so the visibility would not significantly increase • the new RCP would be installed on the hardstand next to the existing RCP and near the area where the mature vegetation is being removed. The new RCP is larger (about 12 m long by 3 m wide by 3 m tall) than the existing one (about 6 m long by 3 m wide and 3 m tall, with the adjacent tank and bund about 3 m wide by 3 m long by 3 m tall). The new RCP would be painted a standard Sydney Water colour (a pale olive green). It is expected this building would provide a visual buffer, once constructed, to other work that may be happening in Chatswood Reservoir • the tank and bund from the existing RCP would be removed, but the brick building would remain. This reduces the extent of visual change for nearby receivers who would notice the removal of the tank, bund and mature vegetation. The scenic quality of the site, as viewed by surrounding residential receivers, would change during operation. This is due to the vegetation removal and installation of the

Aspect	Potential impacts
	new RCP. The above impacts are expected to be minor given the small scale compared with existing infrastructure on the site and given the new RCP will be similar height to the existing building. These impacts are manageable with mitigation measures.
Cumulative and future trends	The existing RCP would remain active until the new RCP is installed and connected. Regular chemical deliveries are required during construction. These deliveries which would enter through the Palmer Street driveway. Sydney Water is not aware of any other planned or future work within the reservoir site that would overlap with the proposal. The former Chatswood Metro Dive site just north of the reservoir site is currently being remediated and would likely be developed into housing in future. Other infill developments are planned or in construction along the Pacific Highway in Chatswood. Overall, potential cumulative impacts of the proposal are expected to be minor and localised. However, nearby residents may experience construction fatigue due to the recently completed and ongoing development nearby. The proposal is not on bushfire-prone or flood-prone land. It is unlikely to significantly impact, or be significantly impacted by, future trends such as climate change or extreme weather events.

Table 4-3 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 sulfate 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 have appropriate environmental controls installed.
Should the proposal/methodology change from the REF, no further environmental assessment is required provided the change: • remains within the assessment/study area for the REF and has no net additional environmental impact or • is outside the assessment/study area for the REF 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. Before starting 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 (e.g. heritage/AHIP zones professionally surveyed. Mark the boundary with highly visible non-ground-disturbing and 'environmental protection zone' signs) and boundaries of the

Mitigation measures
work area/disturbance area 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. Delineate approved disturbance area before construction.
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 EWMS and/or 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.
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 the Contamination and Hazardous Materials team) to agree on proposed management approach.
Separate and delineate the hazardous waste identified at BH3 from other waste on site. It should be excavated and disposed separately from the rest of the material. The excavation of the hotspot should be undertaken under the supervision of a suitably qualified and experienced environmental consultant. Follow the Hotspot Removal Management Plan in section 6 of the soil characterisation report (Confluence Water, 2026).
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

Eliminate ponding and erosion by restoring natural landforms to the pre-works condition.

Ensure regular inspections are carried out while the site is demobilised between civil works and the new RCP arriving, to ensure suitable groundcover remains in place.

Water and drainage

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

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.

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

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
- 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).

Offset residual impacts to native vegetation and trees in accordance with the Biodiversity Offset Guideline (SWEMS0019.13).

Mitigation measures

Minimise vegetation clearance and disturbance, including impacts to standing dead trees and riparian zones. Where possible, limit clearing to trimming rather than the removal of whole plants.

Physically delineate vegetation to be cleared and/or protected on site and install appropriate signage prior to works commencing.

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 >50 mm are impacted within the Tree Protection Zone.

Notify potentially affected residents of any tree removal.

Inspect vegetation for potential fauna before 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.

If any threatened species (flora or fauna) is discovered during the works, stop work immediately and notify the Sydney Water Project Manager. Work will only recommence once the impact on the species has been assessed and appropriate control measures implemented.

Pruning works are to:

- follow the guidelines of AS 4373-2007 Pruning of amenity trees and arboricultural best practice to maintain tree physiology and structural integrity
- be undertaken by a qualified arborist with an understanding of tree physiology, biology, branch attachments and Compartmentalisation of Decay in Trees (CODIT)
- be conducted in a manner that will maintain the tree's natural form and habit, with care taken to avoid the excessive removal of foliage and internal branching.

Once the design has been finalised, an Arboricultural Impact Assessment (AIA) is to be prepared to provide a detailed evaluation of potential impacts on the site's trees, both individually and collectively. The AIA must assess likely impacts from construction activities, identify design modifications to minimise impacts, justify any tree removals, and outline measures to protect retained trees.

The AIA should be accompanied by a Tree Protection Management Plan (TPMP) and Tree Protection Specifications (TPS). The TPS must specify protective measures and prohibited activities with TPZ, while the TPMP, prepared to scale, must clearly show each tree's TPZ and the location of tree protection measures on site.

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.

Mitigation measures
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, particularly between demobilising and remobilising the site. • 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
Provide adequate bins for general waste, hazardous waste and recyclable 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.
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.
Prevent pollutants from escaping including by covering skip bins.
Dispose excess vegetation (non-weed) that cannot be used for site stabilisation at an appropriate green waste disposal facility.
Review existing hazardous building materials (HBM) report and implement relevant mitigation measures. Conduct hazardous materials survey before starting where works could impact hazardous materials not surveyed in previous HBM assessments. • Any locations/materials not included in the HBM register should be considered for survey, including areas identified as “inaccessible” (e.g. bitumen seals in reservoirs may contain asbestos-contaminated material, PCBs in HV equipment etc). • Contact propertyenvironmental@sydneywater.com.au for further advice
Use appropriate personal protective equipment when removing sections of HBM during demolition of the RCP. A scope of work for demolition of the RCP to be provided to propertyenvironmental@sydneywater.com.au for review.
For contamination, document in applicable management plans / procedures:

Mitigation measures

- where contamination has been identified and how it will be managed
- segregation process for all proposed excavated materials including different spoil / material types (fill, natural materials and contaminated material) to support the best use of excavated spoil in accordance with the waste hierarchy.

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 the Contamination and Hazardous Materials team

Heritage

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.

Trim a maximum of 30% of the significant trees (trees 1 and 2 – fig tree, palm trees near site office).

Install fencing around the temporary compound on the grassed area near Reservoirs 1 and 2 (the 2 smaller reservoirs in the north of the site) and only use existing access roads to access the compound.

Include a heritage component in any site induction for all project team members, contractors and subcontractors working at the Chatswood Reservoir site on these works. The site induction should include information regarding the heritage significance of the site, identify why Chatswood Reservoir is significant, the statutory obligations relating to heritage and the protection methods used during works to prevent accidental damage from the works.

In relation to the installation of electrical and communication cables in existing conduits in the pump house, if during construction the existing conduits are not able to be used, additional heritage assessment will need to be undertaken. This additional heritage assessment will need to assess the impact on the pump house, its significance and its significant fabric by any alternate arrangement of installing lines outside of the existing conduits. No installation works of these electrical and communication lines can commence until the conclusion of the additional heritage assessment and any relevant Section 65A (s65A) modification approvals are granted.

Where it will not impact on the ongoing operational requirements of the site:

- the *Corymbia* proposed to be removed (Tree 5) is to be replaced with the same species following construction
- the camphor laurels (trees 6 and 8) to be replaced with other trees that are not declared weeds but have a similar mature height and canopy.

All trees proposed for removal should be photographically recorded in situ before their removal. These photographs should include the individual trees, and their general landscape.

Protective hoarding or barriers to be installed around WS0239 to protect it from accidental damage during excavation and trenching works.

Mitigation measures

To ensure the protection of WS0239 and the pump house, monitor vibration during construction to ensure that safe levels are maintained and that these structures will not be impacted by vibration.

All work shall comply with the assessment and recommendations contained within the following:

a. Statement of Heritage Impact titled Rechlorination Plant, Chatswood Reservoirs No. 1 and No. 2, prepared by AECOM and dated 11 March 2026.
b. Section 60 Determination Assessment Report, prepared by Sydney Water and dated 27 March 2026.
c. Proposed plans and drawings prepared by Confluence Water (drawings issued for construction listed in the section 60 approval)

Significant built and landscape elements are to be protected during site preparation and the works from potential damage. Protection systems must ensure significant fabric and landscape elements are not damaged or removed.

An Archival Recording of the study area should be undertaken prior to and following completion of the works. The Archival Recording must be undertaken in accordance with Heritage NSW's 'Guidelines for preparing archival recordings of heritage items as a condition of consent' (2025). A copy of the completed Archival Recording should be provided to Sydney Water's heritage team for record keeping.

The section 60 approval will lapse if works are not substantially physically commenced within 5 years of the approval date.

The relevant provisions of Sydney Water's *Responding to incidents with an environmental impact Procedure* (SWEMS009) must be followed should works result in unexpected finds at the site. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery. In accordance with SWEMS009, works should immediately stop, and Sydney Water's heritage team must be notified if heritage items, including possible human skeletal material (remains) are unexpectedly discovered. This includes:

(a) relics are discovered which require notification under section 146 of the *Heritage Act 1977*; and / or,

(a) any Aboriginal "objects" are discovered that require notification under section 89A of the *National Parks and Wildlife Act 1974*.

Should any Aboriginal objects be uncovered by the work which is not covered by a valid Aboriginal Heritage Impact Permit, excavation or disturbance of the area is to stop immediately and Heritage NSW is to be informed in accordance with the *National Parks and Wildlife Act 1974*. Works affecting Aboriginal objects on the site must not continue until Heritage NSW has been informed and the appropriate approvals are in place. Aboriginal objects must be managed in accordance with the *National Parks and Wildlife Act 1974*.

Noise and vibration

Works must comply with the Draft Construction Noise Guideline (EPA, 2020), 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

Mitigation measures

- 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.

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

- Identify and consult with the potentially affected residents before starting 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.
- Where practical, schedule noisy activities around times of surrounding high background noise (local road traffic or when other noise sources are active).

If works **beyond standard daytime hours are needed (beyond those identified in this REF)**, the Delivery Contractor would:

- justify the need for out of hours work (OOHW) and why it is not possible to carry out the works during standard daytime hours
- consider potential noise impacts and implement the relevant standard daytime hours safeguards, follow Sydney Water's Noise Management Code of Behaviour (SWEMS0056.01) and document all reasonable and feasible management measures to be implemented
- identify additional community notification requirements and outcomes of targeted community consultation
- notify all potentially impacted residents and sensitive noise receivers not less than one week before starting out of hours work
- seek approval from the Sydney Water Project Manager in consultation with the environment and communications representatives.

Receivers within 150 m will be notified via letter drop 7 days before works start. Receivers with previous complaints will receive an additional phone call or in person meeting.

Mitigation measures
Project updates will be made to the community and nearby residents as determined by the Community and Stakeholder Action Plan.
A Community Engagement Advisor will be assigned to the project.
Engagement during construction will be ongoing and include proactive management of issues to minimise complaints. Where complaints and enquiries arise, action will be taken to address these with appropriate mitigation adopted.
All complaints will be recorded in Sydney Water's Delivery Portal and Customer Relationship Management database (SAP CRM).
Incorporate a register as part of site diary entry and pre-start meetings to discuss and record potential community and environmental issues and impacts.
A Project Environmental Mentoring session will be held in advance of work starting to induct all site crew members on the requirements of the REF and CEMP.
Apply respite period (3 hours on, one hour off) when completing noisier works (e.g. excavator with hammer).
Where practical, noise blankets would be installed along the work boundary (e.g. on fencing) including 1.8 m noise blankets within the excavation zone.
Attended noise monitoring would be done during civil works. Recordings will be reviewed to evaluate whether mitigation measures are adequate or require revision, and to address complaints.
Always use squawkers not beepers when reversing.
Conduct a dilapidation survey / asset condition assessment before works which have potential to damage existing structures (e.g. pump house)
Consider less vibration intensive methodologies where practicable and use only the necessary sized and powered equipment.
Monitor compliance with the recommended vibration levels in DIN 4150-3 1999: Structural Vibration – Part 3; Effects of vibration on structures: • baseline monitoring on the heritage pump house before construction starts • construction monitoring at the heritage pump house when the excavator with hammer is being used.
Traffic and access
Prepare a Traffic Management Plan (TMP) in consultation with the relevant traffic authority.

Mitigation measures
Meet NSW Roads and Maritime Service's Traffic Control at Worksites Manual v6.1 requirements for TfNSW roads. The Delivery Contractor will obtain a Road Occupancy Licence (ROL) from TfNSW, including if works are within 100 m of traffic signals when construction commences.
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.
Personnel to explore carpooling or public transport options to reduce the number of construction vehicles parking on site or on local streets.
During construction hours, limit site access only to essential workers.
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.
Minimise visual impacts (e.g. retain existing vegetation where possible).
Maintain work areas in a clean and tidy condition.
Cumulative impacts
Coordinate with the operations team to maintain access for chemical deliveries during construction, with other non-essential activities to be limited.

5. Conclusion

Sydney Water has prepared this REF to assess the potential environmental impacts of Chatswood Reservoir Re-chlorination Plant – Mechanical and Electrical Renewal. The proposal is required to ensure appropriate levels of chlorination in water, which contributes to safety and security of the water supply.

The main potential construction environmental impacts of the proposal include impacts to heritage and vegetation, and impacts from noise and vibration. During operation, some minor visual impacts are expected.

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, an environmental impact statement is not required under Division 5.1 of the EP&A Act.

The REF considers how the proposal aligns with the principles of Ecologically Sustainable Development (ESD) (Appendix B). The proposal will result in positive long-term environmental improvements. The proposal will not result in the degradation of the quality of the environment and will not pose a risk to the safety of the environment.

SW 162 04/26

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 impacts to vegetation, and impacts to noise, vibration and visual changes. 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 long-term environmental impacts to ecosystems of the locality. Trees will be pruned according to the Australian Standards.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	There will be no long-term reduction of these factors. Removed trees would be offset on site or nearby.
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	Aesthetic value of the site would be impacted by tree removal. The site would be more visible to receivers facing the new RCP. There would be minor impacts to the historical and cultural value of the site, which is listed on the State Heritage Register. No archaeological impacts are expected. However, an unexpected finds protocol will be implemented.
Any impact on the habitat of any protected animals (within the meaning of the *Biodiversity Conservation Act 2016*)	Grey-Headed flying foxes feed on the Moreton Bay Fig on site. The fig will be pruned during this project. However, pruning will be minor and is expected to have negligible impact on Grey-headed flying foxes. The removal of up to 7 trees is expected to have negligible impact on the habitat of the 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 endanger any species. Grey-Headed flying foxes feed on the Moreton Bay Fig on site. The fig will be pruned during this project. However, pruning will be minor and will not endanger the Grey-Headed flying fox.
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 maintain the quality of the environment.
Any risk to the safety of the environment	The proposal will ensure the safety of the environment.

Section 171 checklist	REF finding
Any reduction in the range of beneficial uses of the environment	The proposal will maintain 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. Soil stockpiles are expected to be treated, if required (e.g. if any hydrocarbon contamination is observed) and taken off site. 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 affect demand on resources.
Any cumulative environmental effect with other existing or likely future activities	The proposal is unlikely to 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 these factors.
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 Ecologically Sustainable Development

Principle	Proposal alignment
Precautionary principle – *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.*	The proposal will not result in serious or irreversible environmental damage. There is no scientific uncertainty relating to the proposal. The SoHI assesses overall impacts as minor, with recommendations to manage impacts. Other specialist advice has been received to support this REF (arborist report, soil characterisation report). Mitigation measures will reduce environmental impacts of the proposal.
Inter-generational equity – *the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*	The operating asset is reaching the end of its service life and represents an environmental risk. Sydney Water is responsible for the quality of its operating assets. The new RCP will meet these responsibilities and help meet the needs of future generations by providing a reliable water service.
Conservation of biological diversity and ecological integrity – *conservation of the biological diversity and ecological integrity should be a fundamental consideration in environmental planning and decision-making processes.*	The proposal will not significantly impact on biological diversity or impact ecological integrity. Vegetation removal will be mitigated by offset planting within the site, or nearby. Pre-clearing checks will be done and pruning will adhere to Australian Standards. A significant impact to the Grey-Headed flying fox is unlikely. Flora and fauna impacts are expected to be low and can be managed through the mitigation measures in Table 4-3.
Improved valuation, pricing and incentive mechanisms–- *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*	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?		✓
Be likely to generate traffic that will strain the capacity of the road system in the LGA?		✓
Connect to, and have a substantial impact on, the capacity of a council owned sewerage system?		✓
Connect to, and use a substantial volume of water from a council owned water supply system?		✓
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?		✓
Excavate a road, or a footpath adjacent to a road, for which the council is the roads authority, that is not minor or inconsequential?		✓
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?		✓
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?		✓
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)?		✓
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?		✓
Section 2.15, consultation with public authorities other than councils		

TISEPP section	Yes	No
Will the proposal be on land adjacent to land reserved under the *National Parks and Wildlife Act 1974* or land acquired under Part 11 of that Act*? If so, consult with DPE (NPWS).*		✓
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? *If so, consult with DPE (NPWS).*		✓
Will the proposal include a fixed or floating structure in or over navigable waters? *If so, consult TfNSW.*		✓
Will the proposal be on land in a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*? *If so, consult with Subsidence Advisory NSW.*		✓
Will the proposal be on land in a Western City operational area specified in *the Western Parkland City Authority Act 2018,* Schedule 2 and have a capital investment value of $30 million or more? *If so, consult the Western Parkland City Authority*.		✓
Will the proposal clear native vegetation on land that is not subject land (i.e. non-certified land)? *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).*		✓

Appendix D – Statement of Heritage Impact

Appendix E – Construction noise and vibration memo