Review of Environmental Factors

Epping to St Leonards – New Marsfield Reservoir (January, 2022)

PN # 20038362

Sydney WATER

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Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of the Epping to St Leonards – New 10ML Reservoir at Marsfield project and 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 State Environmental Planning Policy (Infrastructure) 2007 allows the proposal to be carried out without development consent. The proposal has also been considered against the matters listed in clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) (Appendix A).

During construction, the main potential environmental impacts of the proposal are typical construction impacts such as noise, dust, traffic and vegetation removal. During operation, the main impacts are associated with visual amenity. The assessment shows that if we adopt the measures identified in this REF, the proposal will not have a significant environmental impact. Accordingly, we do not require an Environmental Impact Statement (EIS).

The Sydney Water Project Manager will make sure the proposal is carried out as described in this REF. If the scope of work or work methods described in this REF change significantly following determination, additional environmental impact assessment may be required.

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1 Executive summary

Sydney Water proposes to construct a new reservoir at Marsfield to form part of the Epping to St Leonards (ESL) Growth Servicing Program which includes six projects to cater for growth in the Prospect North and Ryde delivery catchments. The Prospect North and Ryde delivery systems are currently servicing 1.56 million population. There is significant growth happening within the system and the population is expected to increase to 2.04 million by 2031 and 2.26 million by 2046. The proposal involves constructing a new reservoir within the boundary of the existing WS0212 property and adjacent to the existing reservoir.

Construction is expected to start mid-late 2022 and take approximately 18 months to complete. The scope of works is within the Sydney Water owned property boundary of the existing Marsfield reservoir. The new reservoir will be positioned to the south west of the existing reservoir. Construction will require some earthworks to alter the ground level of the site.

The Delivery Contractor will consult with key stakeholders including Ryde Council, surrounding residents, and sensitive receivers including nearby schools, businesses and churches.

During construction, the main potential environmental impacts of the proposal are typical construction impacts such as vegetation removal, traffic management, noise impacts and dust. During operation, the impacts are associated with visual amenity.

A Construction Environmental Management Plan, including a Soil and Water Management Plan, Waste Management Plan and Traffic Control Plan will be prepared by the delivery contractor to mitigate potential environmental impacts.

The proposal will result in positive long-term environmental improvements by servicing future growth in the Prospect North and Ryde delivery catchments, ensuring ongoing drinking water supply in accordance with the principles of an ecologically sustainable development.

2 Introduction

2.1 Context

We provide water, wastewater, recycled water and some stormwater services to almost five million people. We operate under the Sydney Water Act 1994 and have three equal objectives to: protect public health, protect the environment and be a successful business.

We are a statutory State-owned corporation and are classified as a public authority, and a determining authority for the proposed work under Division 5.1 of the EP& A Act. This REF assesses the potential environmental impacts associated with the new Marsfield reservoir and identifies safeguards that avoid or minimise potential impacts.

2.2 Proposal background and need

The Prospect North and Ryde delivery systems currently service 1.56 million customers. There is significant growth within the system and the population is expected to increase to 2.04 million by 2031 and 2.26 million by 2046.

The existing 9ML reservoir (WS0212) at Marsfield supplies to Macquarie Park precinct and will not be sufficient to address the growth in the area. The proposal involves constructing a new 10ML reservoir within the boundary of the existing WS0212 property and adjacent to the existing reservoir.

A summary of the proposal needs, objectives and consideration of alternatives are provided in **Table 2-1** below.

Table 2-1 Proposal needs, objectives and consideration of alternatives

Aspect	Relevance to proposal
Proposal need	The proposal is part of the Epping to St Leonards (ESL) Growth Servicing Program. This program is required to meet Sydney Water's commitments to service the future population growth in Prospect North and Ryde catchments with reliable water supply.
Proposal objectives	The objective of this project is to develop a solution with least life cycle cost and acceptable risk to service the major growth precincts within Ryde and Prospect North trunk Systems and to maintain capacity, reliability and water quality to service growth within these delivery systems in the short and long-term (2031 to 2046).

Consideration of alternatives/options	Several different proposed options were considered for the positioning of the reservoir and associated infrastructure. Options considered included: • Alternative positioning of the reservoir within the existing site boundary • Purchasing additional land in adjacent lots to alleviate space constraints on the site • Alignment of pipes for connections to existing assets. These options were assessed with considerations of: • Design, engineering and budget • Available space for ongoing access for maintenance requirements • Impacts to the community and adjacent properties. The preferred approach is discussed in Section 3 and has been selected as it appropriately balances the above considerations.

2.3 Consideration of Ecologically Sustainable Development

The proposal has been considered against the principles of ecologically sustainable development (ESD) (refer to **Table 2-2** below).

Table 2-2 Consideration of principles of ecologically sustainable development (ESD)

Principle	Consideration in proposal
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 and there is no scientific uncertainty relating to the proposal. The proposal is located in a previously disturbed lot and would provide continued drinking water supply into the future.
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 proposal will help to 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. The proposal will require some clearing of vegetation however this has been identified as planted, not remnant vegetation.
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.

3 Proposal Description

3.1 Proposal details

Table 3-1 identifies the scope of work for the proposal, **Figure 3-1** shows the location and **Figure 3-2** shows the proposed works.

Table 3-1 Description of proposal

Scope of work	Detailed description of work/ activity
Land ownership and location	Sydney Water owned land at 37 Abuklea Road, Marsfield Lot 1 DP860554

Proposal description	Construction of a new reservoir and associated infrastructure including:
	• 10ML reservoir (33.5m diameter, 13m tall)
	• Water quality kiosk
	• New Gauge house
	• 4m wide access road within the site, sufficient to allow 13m rigid truck to access the new and existing reservoirs
	• Pipelines:
	  ○ One new inlet main DN600
	  ○ Use of exiting outlet main DN600
	  ○ Use of existing scour DN375.

Site establishment and access tracks	There is an existing sealed driveway to access the site off Abuklea Road. This access track will be used throughout construction. No additional access tracks are proposed. Site establishment activities include: • Investigation works • Removal of vegetation including trees and ground cover (grasses) • Earthworks to excavate out the ground level at the location of the proposed reservoir to be approximately 1.5m below the current level to ensure the base of the new reservoir is at the same base level as the existing reservoir.
Ancillary facilities (compounds)	Construction compound will likely be required to house site sheds, construction amenities and materials laydown. At this stage it is expected that any available space within the property boundary will be used for storage and laydown areas during

Scope of work	Detailed description of work/ activity
	construction. Additional storage or compound requirements will be explored during detailed design. This detail will be confirmed in Stage 2 b the Delivery Contractor, in consultation with the landowner(s) and approved by Sydney Water's Project Manager as described in the safeguards in **Section 5**.
Scope of work	Construction of the proposal will involve the following key stages: 1. Site investigations (including geotechnical, contamination and service locating) 2. Site establishment (as discussed above including vegetation removal, earthworks and retaining wall) 3. Construction of the reservoir: • Installation of concrete footings • Delivery of prefabricated pieces of the reservoir • Assembly of the reservoir using a crane • Installation of wall cladding and roof • Installation of stair tower. 4. Realignment of existing pipeline and services in the access track 5. Installation of pipelines within the reservoir site boundary (including site access road) including overflow pipes and scour outlet pipes 6. Installation of a Water quality Kiosk (founded on a concrete footing) 7. Demolition of existing gauge house and installation of a new gauge house 8. Site restoration and commissioning **Table 3-2** below provides a more detailed description of the proposed construction methodology.
Commissioning	Commissioning involves testing and running the new equipment to ensure the equipment is working correctly and integrated with existing plant operations. The exact commissioning steps depend on the type of the equipment, but typically include: - Disinfection of tanks - Filling of tanks for pressure testing - Checking for leaks - Pressure and acceptance testing of the pipes - Disinfection of pipework
Restoration	The work site will not be restored to the pre-existing condition following construction as the site will have changed. As much of the existing grassed area as possible will be

Scope of work	Detailed description of work/ activity
	retained during the works. Any offset planting required will be done offsite due to the lack of space available.
Materials/ equipment	**Table 3-2** below provides a list of the required plant and equipment for each of the proposed construction phases.
Work hours	Most of the work and deliveries will be scheduled to occur during standard daytime hours: • 7am to 6pm, Monday to Friday • 8am to 1pm, Saturdays The proposal is expected to require work outside these hours for isolating the existing assets outside of peak usage times. This is expected to be for up to 6 nights. Sydney Water's Project Manager can approve work outside of standard daytime hours, following the approval process described in the safeguards in **Section 5**. The community will need to be informed of the work outside of the standard hours.
Proposal timing	Construction is expected to start mid-late 2022 and will take approximately 18 months.
Operational requirements	WP0005 will supply to Marsfield Reservoirs and also Wahroonga Reservoirs through the reinstatement of RP03.

Table 3-2 Construction Methodology

Activity	Location	Timing	Equipment	
Site Investigations - Boreholes (Geotech) - Potholing (non-destructive service locating)	Within reservoir site, along access driveway,	20 days within reservoir boundary	Concrete saw Truck mounted drilling rig Light vehicles 2T tipper truck	Plate compactor 5T excavator Sucker truck
Approximately 6 months between investigations and construction				
Vegetation removal	Within site boundary	2 weeks	Light vehicles 14T excavator Truck mounted elevated work platform (EWP)	Woodchipper Chipper truck Handheld chainsaws
Excavation and spoil removal	Works within site boundary. Trucks parked along Abuklea Road due to space constraints however no lane closures needed or property access affected	2 weeks Rock breaking limited to a few days only	30T excavator 30T excavator with hammer for rock breaking	6 wheel tip trucks Light vehicles
Excavation and construction of reservoir footing and base	Within site boundary	1 month Rock breaking limited to a few days only	30T excavator with hammer Concrete Agi trucks Concrete line pump Concrete vibrators & generator	Light vehicles Delivery trucks Crew truck Hand tools
Reservoir construction and commissioning	Due to space constraints delivery trucks will be parked on Abuklea Rd. Some delivery trucks may not fit inside the reservoir site and so will be unloaded on Abuklea Rd and	3 months	Tower crane 20T franna	Light vehicles Generators

Activity	Location	Timing	Equipment	
	materials transported to reservoir site using franna crane. This will require temporary closure of one or both lanes of Abuklea Rd, directly in front of reservoir access driveway. Disruptions will be of short durations in nature (typically 5min at a time) but may occur on multiple occasions within any given day.		Elevated work platform or scissor lifts Delivery trucks	Rail guided welding machine Hand tools
Installation of pipework, valves, fittings, pits	Within the reservoir boundary, access driveway, on Abuklea Rd,	2-3 months including about 6 nights for connections	30T Excavators (with hammer) 20T Excavators 6 Wheel tip trucks Light vehicles	HIAB truck Diesel generators Hand saw Shoring boxes
Pipework testing and commissioning	Within the reservoir boundary, access driveway, on Abuklea Rd,	2-3 weeks but will move to the different locations. If testing fails will need to be repeated until test are passed.	Trailer mounted water cart Compressor SW disinfection truck	Generator Hand tools
Surface restoration and resurfacing (roadbase with asphalt)	Within reservoir site boundary Access driveway Abuklea Road (will require partial road closures)	2 weeks	Light vehicles Tip trucks Bobcat Smooth drum roller Trailer mounted water cart	Multi tyre roller Line marking truck 2T padfoot roller Generators

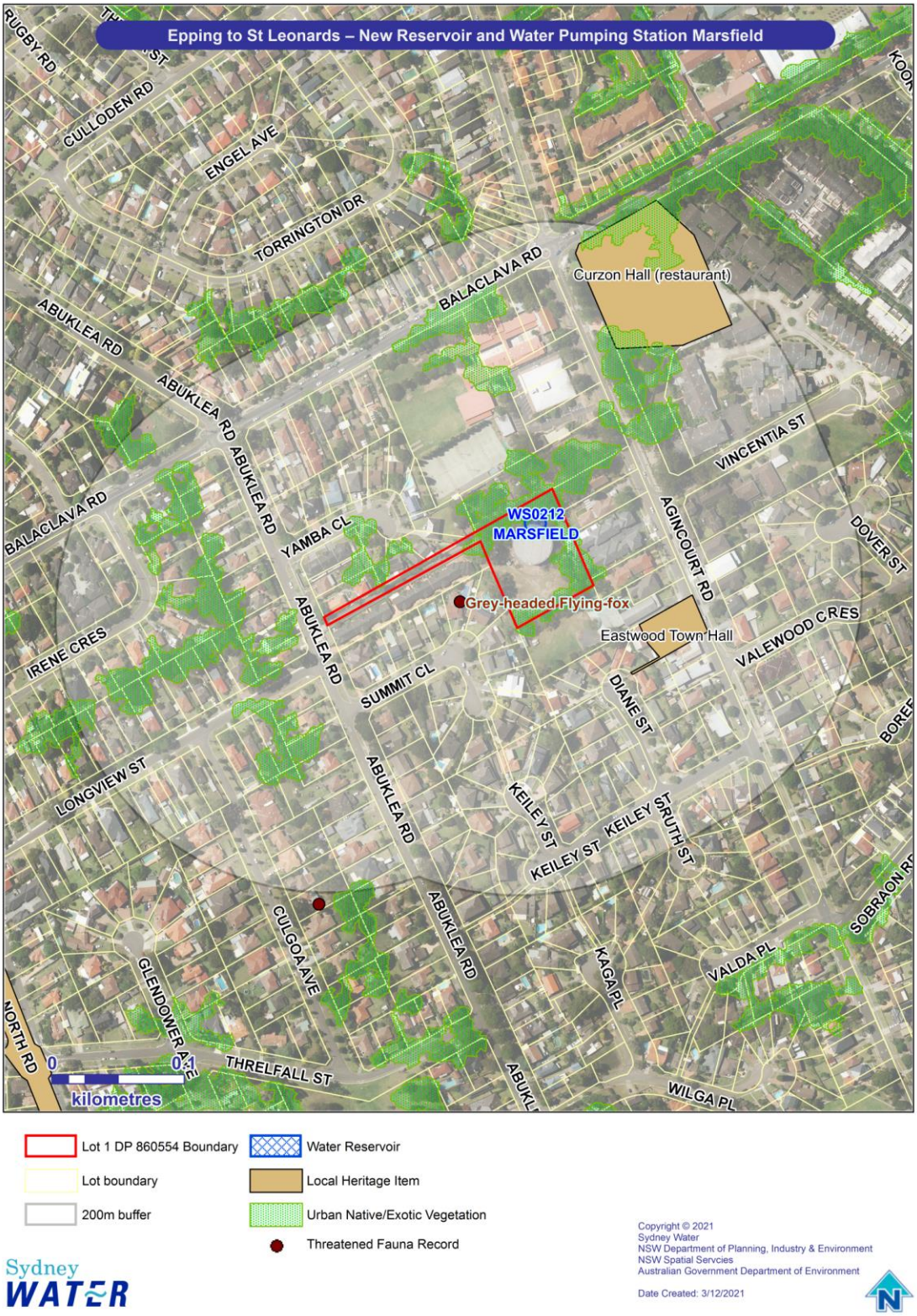

Figure 3-1 Location of proposal and key environmental constraints

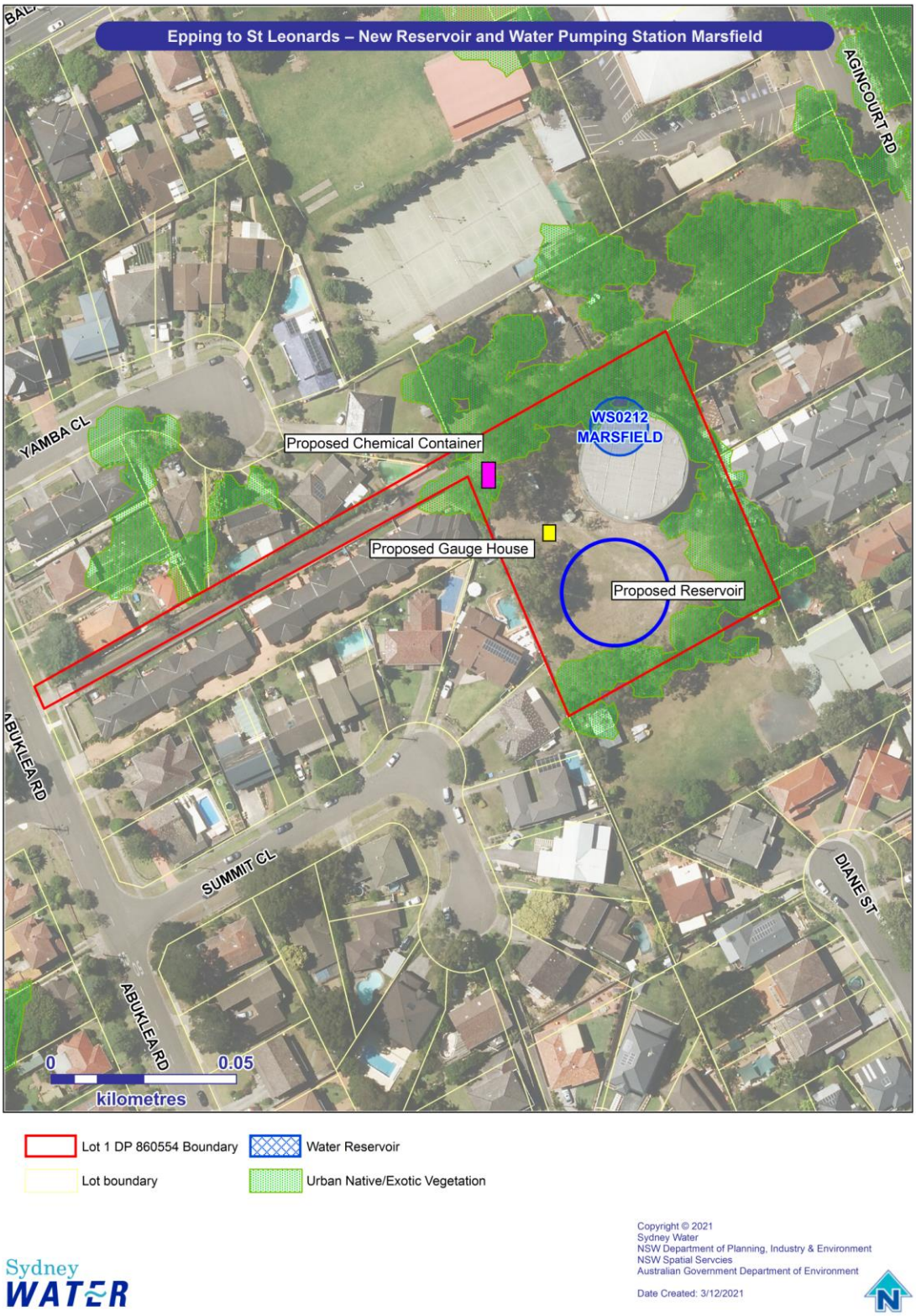

Figure 3-2 Proposed reservoir and associated infrastructure

3.2 Field assessment area and changes to the scope of work

The proposed design shown in this REF is indicative and based on the latest concept design at the time of REF preparation. The final design may change based on detailed design and/ or construction planning. If the design/scope of work or construction methods described in this document change significantly, supplementary environmental impact assessment must be prepared for the amended components in accordance with SWEMS0019. An addendum is not required provided the change:

- remains within the study area of the REF and has no net additional environmental impact; or
- is outside the study area of the REF but reduces the overall environmental impact of the proposal (s.5.4(a) of the Act).

Changes to the proposal outside the study area can only occur:

- to reduce impacts to biodiversity, heritage or human amenity; or
- to avoid engineering (for example, geological, topographical) constraints; and
- after consultation with any potentially affected landowners and relevant agencies.

The Delivery Contractor will 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.

4 Consultation

4.1 Community and stakeholder consultation

Our approach to community and stakeholder consultation is guided by the Policy and Guidelines for Community and Stakeholder Engagement (Sydney Water,2019).

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, projects 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.

If our work will impact the community in some way, we will consult with affected groups through a variety of ways and through different stages of a project. This includes engaging the broader community and stakeholders during plan or strategy development or before making key decisions.

The following sensitive receivers have been identified within 200m of the proposal and are shown on Figure 4-1:

- Residents neighbouring the reservoir site on Summit Close, Agincourt Road and Abuklea Road
- Marsfield Community Church on Agincourt Road
- St Anthony's Catholic Church on Agincourt Road
- St Anthony's Catholic Primary School on Agincourt Road
- St Anthony's AJH Sports on Agincourt Road
- Curzon Hall on Agincourt Road
- Eastwood/Marsfield Scout Group on Agincourt Road
- Businesses near intersection of Agincourt Road and Valewood Cres
- Southern Cross Care Marsfield Residential Aged Care on Vincentia Street

Figure 4-1 Sensitive receivers

We will also update Ryde City Council regularly and will provide reasonable notice when we would like to commence works, regardless of the need for development consent. Ryde Council will be consulted about matters identified in environmental planning instruments (refer Section 4.2 below), including public safety issues, the placement of any temporary site sheds or laydown areas on council land, or full or partial road closures of council managed roadways.

A Community and Stakeholder Engagement Plan has been prepared for the concept design.

A Consultation Outcomes report will be prepared providing a summary of the stakeholder engagement activities completed during concept design. Community and stakeholder engagement activities during concept design included:

- meetings with City of Ryde Council (30 September and 2 December 2021)
- meetings with directly affected private landowners (adjacent to reservoir site)
- meetings, emails and phone calls with internal and external stakeholders
- letters and a fact sheet to neighbouring residents
- providing a contact phone number and email for the comms representative for the community to engage with us.

We shared our plans, explained the impacts of the project and requested feedback on our design. We will continue to work with the local community and other stakeholders during the detailed design and delivery of the project to minimise impacts where possible.

4.2 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 (specified in Part 2 Division 1 of the *State Environmental Planning Policy (SEPP) Infrastructure 2007*).

Consultation with Ryde Council was required under clause 13 of the ISEPP as the proposal has the potential to:

- Involve excavation of the surface of, or a footpath adjacent to, a road for which the council is the roads authority.

The works are in proximity to 2 local heritage items (see Section 6.2.6), however the proposal would not affect the heritage significance of these items and therefore consultation with Ryde Council was not required under clause 14 of the ISEPP. Further detail is provided in **Appendix B**.

We shared our plans with City of Ryde Council at a project briefing meeting on 30 September 2021. Council was supportive of Sydney Water's plans to construct a second reservoir and the supplementary infrastructure to service the reservoir. The Council's support is driven by their

understanding of the rapid population growth in the area and the associated growing demand for water supply.

During consultation, Council raised their concern over number of trees expected to be removed at the reservoir site and requested that Sydney Water minimise the number where possible. There were also safety concerns should the structure of the reservoir fail and the subsequent impact on surrounding residents. Sydney Water informed Council that the reservoir has been designed in line with industry standards and regulations.

5 Legislative requirements

The following environmental planning instruments (**Table 5-1**) and legislation (**Table 5-2**) are relevant to the proposal. **Table 5-2** also documents any licences and permits, timing and responsibility for obtaining them.

Table 5-1 Consideration of environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Ryde Local Environmental Plan 2014	The proposal is located on land zoned SP2 infrastructure and is surrounded by R2 medium density residential, and B1 neighbourhood centre.
State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)	Clause 111 of the Infrastructure SEPP permits development by or on behalf of a public authority for water supply without consent on any land in a prescribed zone. The proposal involves development of a reservoir which is part of the water supply system and is in land zoned SP2 Infrastructure, which is considered a 'prescribed zone'. As Sydney Water is a public authority, the proposal is permissible without consent.
SEPP (Vegetation in Non-Rural Areas) 2017	This SEPP applies as it is in an area listed in Clause 5.1a (Ryde City LGA) and is in SP2 zoned land listed in Clause 5.1b. However, section 6.1 states: '*This Policy does not affect the provisions of any other SEPP….*' As the works are permissible under SEPP (Infrastructure) a Council permit to clear vegetation under this SEPP is not required.

Table 5-2 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
Environmental Planning and Assessment (EP&A) Act 1979	Sydney Water is the proponent and determining authority under this Act. The proposal does not require development consent,and is not classified as State Significant Infrastructure. We have assessed this proposal under Division 5.1 of the EP&A Act. This REF has concluded that the proposal is unlikely to have a significant impact on the environment.	REF	Pre-construction, Sydney Water

Protection of the Environment Operations (POEO) Act 1997	Construction and operation of the proposal is not a scheduled activity and therefore an EPL is not required. There is a requirement under Part 5.7 of the PoEO Act to immediately report 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 defined 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	N/A
Biodiversity Conservation (BC) Act 2016	The BC Act lists species and ecological communities which are protected in NSW. The impact of the proposal on threatened species, communities and their habitats were assessed in Section 6.2.3. The proposal will remove some vegetation however it has been determined that this is not considered a significant impact. Vegetation removed will be offset in accordance with Sydney Water's non-statutory offset policy.	REF Offset Strategy	Pre-construction, Sydney Water
National Parks and Wildlife (NPW) Act 1974	The proposal does not fall within land owned by National Parks and Wildlife Under Section 86 of this Act, it is an offence to harm or desecrate an Aboriginal place or object unless authorised by an Aboriginal heritage impact permit (AHIP), or where it is reasonably determined that no Aboriginal object will be harmed. The proposal will not impact any Aboriginal sites.	N/A	N/A
Heritage Act 1977	The proposal will not impact any items listed on the State heritage register.	N/A	N/A
Fisheries Management (FM) Act 1994	The proposal will not impact key fish habitat or obstruct fish passage.	N/A	N/A
Water Act 1912/ Water Management Act 2000	Section 60A of the Water Management Act states that it is an offence to take water without a licence. A Water Access Licence	WSWA and WAL	If groundwater is encountered during

	(WAL) is required under Section 61 where groundwater extraction will be greater than 3ML. A water supply work approval (WSWA) is required under section 90(2) to construct or use a water supply work. Geotechnical investigations indicate that the proposal is unlikely to encounter groundwater at the depths of required excavation and therefore it is not anticipated that a WSWA or WAL would be required.	unlikely to be required	construction, works will need to stop until these approvals are acquired.
Roads Act 1993	The proposal would involve large deliveries of equipment and materials which would require temporary partial road closure of Abuklea Road and the footpath. Abuklea Road is a local council road. The Delivery Contractor must obtain approval from Council as the Roads Authority as required under Section 138 of the Roads Act.	Section 138 Approval	Prior to commencing works in or closure of the road. Delivery Contractor.
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	Actions that are likely to have a significant impact on matters of national environmental significance (MNES), Commonwealth lands or actions carried out by the Commonwealth are subject to assessment and approval. Under the EPBC Act, a person must not take an action that has, will have or is likely to have a significant impact on any of the matters of environmental significance without approval from the Australian Government Minister for the Sustainability, Environment, Water, Population and Communities. The EPBC Act outlines the environmental assessment and approval process. The proposal would not result in any impact to MNES	N/A	N/A

6 Environmental assessment

The potential environmental aspects and impacts associated with construction and operation of the proposal are identified in Section 6 as well as safeguards to minimise these. These safeguards will be incorporated into contract documents and a Construction Environmental Management Plan (or similar) to be developed by the Contractor prior to commencement of work. A risk assessment will be undertaken by the Project Manager following Sydney Water's Risk Management Standard.

6.1 Existing environment

The site is located in Lot 1 DP 860554 and the property is approximately 65m by 80m in size. The site falls within a low to medium residential area of Marsfield in north-western Sydney. An existing steel tank reservoir built in approximately 1968 exists in the northern corner of the site along with ancillary structures. This tank is approximately 13m high and has a diameter of approximately 30.5m with a capacity of 9ML. The base of the existing tank is approximately 2m below the surrounding ground level. The site is accessed via an existing sealed driveway off Abuklea Road which is approximately 130m long and gated at both ends.

The surrounding area is characterised by low undulating hills with the site located at the top of a localised hill, with elevation of approximately 99m AHD. The nearest creeks are approximately 1km away towards both the southeast and the northwest of the site. There are planted mature trees which bound the site and the ground is covered with planted mown grasses. Figure 6-1 below shows a photo of the site.

Figure 6-1 Photo of the site including existing reservoir

6.2 Environmental aspects, impacts and safeguards

6.2.1 Topography, geology and soils

Existing environmental and potential impacts

The site is generally flat, with elevation between 96m AHD and 100m AHD. The study area is underlain by Ashfield Shale of the Wianamatta Group. Ashfield Shale consists of black to light grey shale and laminate and forms part of the Permo-Triasic Basins geology of the Sydney region. The study area is comprised of the Glenorie soil landscape which typically occurs on undulating to rolling low hills on Wianamatta Group shales. There are no contaminated, saline or acid sulphate soils recorded within the study area.

The existing reservoir has been installed at approximately 2m below the ground level. The proposal would involve some earthworks to ensure the new reservoir is at the same level. There will be approximately 4000m3 of excess spoil generated from the work which will be temporarily stockpiled and then progressively taken off site. There is potential for erosion of stockpiles and dust generation if they are not appropriately managed. Water carts will be used as required.

During construction, we will need to remove vegetation and excavate for construction of the new reservoir. This would result in exposed soils which could result in potential offsite erosion and sedimentation of surrounding land and waterways if not appropriately managed. The safeguards outlined below would minimise these risks.

Safeguards
Prevent sediment moving offsite in accordance with Managing Urban Stormwater, Soils and Construction, Volume 1 and 2A (Landcom 2004 and DECC 2008), including: • 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 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.

6.2.2 Water and drainage

Existing environment and potential impacts

Our proposal is located:

- approximately 850m from the nearest waterway Mars Creek. Poor site management may lead to potential sedimentation impacts on this local waterway/ stormwater system
- outside a flood prone area
- in an area with deep groundwater levels (Geotechnical Desk Study, July 2020). Given the lack of groundwater encountered in previous geotechnical investigations and the positioning of the site at a high point in the landscape, we do not anticipate encountering groundwater and therefore would not require a Water Supply Works Approval or Water Access Licence.

The proposal will require storage of fuels and chemicals on site which will be managed in accordance with the safeguards below to avoid any pollution of nearby waterways. Deliveries of chemical would occur only once per month.

Construction of the new reservoir will change the drainage conditions at the site. The reservoir roof and surrounding walkway and road would act as a new hardstand area. This will result in increased volume and velocity of stormwater flows leaving the site. The stormwater system around the reservoir will connect to the local stormwater network.

The existing reservoir connects to a scour which runs along the western edge of the property and connects to the existing stormwater network. The scour arrangement is not proposed to change, with the new reservoir connecting to the existing scour.

Safeguards
Store potential contaminants on robust waterproof membrane, away from drainage lines.
Keep functioning spill kit on site for clean-up of accidental chemical/fuel spills. Keep the spill kits stocked and located for easy access.
Discharge all water in accordance with Sydney Water's Discharge Protocols Standard Operating Procedure (WPIMS5021), including erosion controls, discharge rate, de-chlorination, monitoring. Re-use potable water where possible.
Store all chemicals and fuels in accordance with relevant Australian Standards and Safety Data Sheets. Record stored chemicals on site register. Bunded areas to have 110% capacity of stored liquid volume. Chemicals and fuels in vehicles must be tightly secured. All chemicals to be clearly labelled.
Conduct refuelling, fuel decanting and vehicle maintenance in compounds where possible. If field refuelling is necessary, designate an area away from waterways and drainage lines with functioning spill kits close by.
Conduct any equipment wash down within a designated washout area.
Ensure equipment is leak free. Repair oil/fuel leaks immediately or remove from site and replace with a leak-free item.
Prepare management plan to avoid impacts from drilling, including: • contain and monitor drilling fluids at entry/exit points

- identify and manage frac-outs
- re-use and/or disposal of drilling fluids.

6.2.3 Flora and fauna

Existing environment and potential impacts

An Ecological Assessment was prepared by Arcadis. This chapter summarises the report and the full report is provided in Appendix C.

During construction, we will clear native, planted vegetation. An area of 0.43 ha and 26 trees will require removal, including:

- Removal of 24 semi-mature/mature trees of species *E. saligna, E. grandis, E. tereticornis, C. salignus A. costata, E. pilularis, C. citriodora* and *Pinus sp*.
- Removal 0.34 ha of exotic grassland/lawn
- Removal of 0.02 ha of planted exotic vegetation
- Removal of 0.07 ha of disturbed native ground cover
- Removal of one hollow-bearing tree and one medium sized hollow.

This vegetation has not been identified as a threatened ecological community under the *Biodiversity Conservation Act 2016* or the *Environmental Protection and Biodiversity Conservation Act 1999.* A species impact statement is not required for the works.

The trees identified for removal are planted native trees that have low ecological value.

Further, no Matters of National Environmental Significance listed under the EPBC Act were identified within the site and are subject to impacts from the proposal. The proposal does not require an EPBC referral to the Department of Water, Agriculture and Environment.

While the Ecological Assessment assumes that all of the trees located onsite will require removal to facilitate construction, opportunities to retain vegetation along the site boundaries will be explored further during detailed design.

Although formal offsets are not required under the BC Act, Sydney Water has an internal position to deliver a 'maintained or enhanced' biodiversity outcome if projects have residual biodiversity impacts. Vegetation removed will be offset in accordance with Sydney Water's non-statutory offset guide.

Safeguards
Potentially affected residents will be notified of any tree removal.
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 removal of hollow bearing trees, engage an ecologist to inspect and relocate fauna before works.

If native fauna is encountered on site, stop work and allow the fauna to move away unharassed. Engage an ecologist if assistance is required to move fauna.
Map and report native vegetation clearing greater than 0.01 ha in extent (and any associated rehabilitation) to the Sydney Water Environmental Representative
Impacts to native vegetation and trees will be offset in accordance with the Biodiversity Offset Guideline (SWEMS0019.13).
Prepare site revegetation plan. This should be prepared in consultation with a suitably qualified specialist or the Project Environmental Representative as part of the CEMP.
In TOBAN period: 1. Check specific TOBAN notice to confirm whether the work can be carried out under standard exemptions (Govt Gazette No18 Feb 2018) 2. If not, apply to RFS for specific exemption.

6.2.4 Air and energy

Existing environment and potential impacts

The proposal is in a residential area. Potential sensitive receivers are shown on Figure 4-1. The proposal will potentially result in minor temporary air pollution from:

- dust generated during excavation works, stockpiling and general construction activities
- emissions from machinery, equipment and vehicles used during construction

No odour impacts are expected.

Safeguards
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.

6.2.5 Waste and hazardous materials

Existing environment and potential environmental impacts

The proposal will require disposal of approximately 4000m3 of spoil from earthworks associated with the construction of the reservoir. Geotechnical investigations suggest that this would most likely be classified as virgin excavated natural material (VENM). This material would be temporarily stockpiled (up to 1 week) on site before being taken off site for disposal or reuse. The stockpiles would be managed in accordance with the safeguards listed in Section 6.2.1. There will also be vegetation waste generated from the tree removal. Small amounts of general construction waste would also be generated as a result of the proposal.

Our goal is to reduce waste through recycling and re-use and to encourage our suppliers to minimise waste. Opportunities to reduce, recycle and reuse on this project would be sought with the Delivery Contractor and documented in a Waste Management Plan (SWEMS0026.08) or CEMP. Waste will need to be tracked using the EPA's WasteLocate online tracking System.

HazCentral identifies that asbestos containing material (ACM) is found within the expansion joint inside the existing reservoir. The proposal would not disturb the ACM. Lead paint has also been recorded on the reservoir roof support beams, and the external walls, stairs and handrails. The works would not involve any disturbance of the existing reservoir or these features. Sensors will be set up to monitor vibration levels during construction to ensure these hazardous materials are not disturbed or exposed.

Safeguards
Manage waste in accordance with relevant legislation and maintain records to show compliance eg waste register, transport and disposal records.
Provide adequate bins for general waste, hazardous waste and recyclable materials. Remove bins when 80% full.

Minimise the generation of waste, sort waste streams to maximise reuse/recycling in accordance with the Waste Avoidance and Resource Recovery Act 2001.
Manage waste and excess spoil in accordance with the NSW EPA Waste Classification Guidelines. Dispose wastes at an appropriately licenced facility.
Securely store all wastes to prevent pollutants from escaping.
Dispose excess vegetation (non-weed) that cannot be used for site stabilisation at an appropriate green waste disposal facility.
If fibro or other asbestos containing material is identified, restrict access and follow Sydney Water's Asbestos Management procedure, WHSMS0064. Contact Property Environmental Services for advice.
Manage lead paint in accordance with Sydney Water's Lead Paint Management Guidelines, HSG-503. Contact Property Environmental Services for advice.

6.2.6 Heritage

Existing environment and potential impacts

Aboriginal heritage

The proposal is not located within 200m of any AHIMS sites, in a high-risk landscape or near any culturally modified scarred trees. Works will occur in an area previously disturbed by the construction and operation of the original reservoir. Works can proceed with caution.

Non-Aboriginal heritage

The proposal is located near 2 local heritage items listed on the Ryde LEP:

- Eastwood Town Hall located 50m south east of the works
- Curzon Hall located 120m north east of the works

The proposal will not impact these items.

Safeguards
If any Aboriginal object or non-Aboriginal relic is found, cease all excavation or disturbance in the area and notify Environmental Representative in accordance with SWEMS0009

6.2.7 Noise and vibration

Existing environment and potential impacts

A Noise and Vibration Assessment was prepared by AECOM. This chapter summarises the report and the full report is provided in Appendix D. It is noted that the retaining wall construction that has been included in the report is no longer required for the project.

Construction

The proposal will generate noise and/or vibration during construction from excavation, vegetation removal and general construction. Most of the works will occur during standard daytime hours, with some investigative works undertaken outside of standard construction hours.

Night time works will be required for up to 6 nights to allow for isolating the existing assets. The works have the potential to exceed the Interim Construction Noise Guideline and impact on sensitive receivers, including the nearby residents, school and church. Reasonable and feasible measures will be implemented to reduce noise impacts during construction as outlined below and, in the Noise and Vibration Assessment (Appendix D).

During construction it is likely that all equipment would not be operating simultaneously at all times and in the one location, which would result in reduced noise levels compared with those predicted.

In terms of vibration impacts, minimum working distances will be implemented to allow for compliance with the construction vibration criteria, including the TfNSW Construction Noise and Vibration Strategy. If vibration intensive works are required within these minimum working distances, mitigation measures to control excessive vibration have been included below.

Construction traffic noise is expected to comply with the Road Noise Policy.

Operation

There are no proposed changes to the operation of the reservoir. Therefore, an operational assessment is not required for the proposal.

Safeguards

Incorporate standard daytime hours noise management safeguards into the CEMP:

- identify and consult with the potentially affected residents prior to the commencement:
    - 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 (eg times identified by the community that are less sensitive to noise such as mid-morning or mid-afternoon for works near residences)

- acceptance by the community of longer construction periods in exchange for restriction to construction times.

- implement a complaints handling procedure for dealing with noise and dust complaints
- plant or machinery will not be permitted to warm-up near residential dwellings before the nominated working hours.
- appropriate plant will be selected for each task, to minimise the noise impact (eg all stationary and mobile plant will be fitted with residential type silencers)
- engine brakes will not be used 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 (eg generators away from sensitive receivers, minimise use of vehicle reversing alarms).
- schedule noisy activities around times of surrounding high background noise (local road traffic or when other noise sources are active).

When night works are needed, the contractor's environmental representative would:

- justify the need for night works
- consider potential noise impacts and implement the relevant standard daytime and out of hours safeguards and other reasonable and feasible management measures
- identify community notification requirements (ie for scheduled night work (not emergency works))
- notify all potentially impacted residents and sensitive noise receivers not less than one week prior to commencing night work.
- seek approval from the Sydney Water Project Manager in consultation with Sydney Water's Environment and communications representatives.

Conduct a dilapidation survey / asset condition assessment prior to works which have potential to damage existing structures.

Monitor compliance with the recommended vibration levels in DIN 4150-3 1999: Structural Vibration – Part 3; Effects of vibration on structures

6.2.8 Traffic and access

Existing environment and potential impacts

The proposal is located off Abuklea Road and is accessed via an existing sealed access road. This access road is only wide enough for one way traffic and so vehicle entry to the site will be staggered and may result in some parking and idling of construction vehicles along Abuklea Road.

During construction some temporary partial road closures may be required for:

- Oversize vehicle access including crane, excavator, etc.

- Delivery of materials (ie prefabricated reservoir components), plant and equipment
- Vehicles used to remove waste and spoil from the site
- Installation of the pipeline within the existing access road and connections to existing assets on Abuklea Road.

The number of construction vehicle movements have been estimated to be up to 10 light and 15 heavy vehicles per day during construction works. Vehicles would access the site by Abuklea Road, Bridge Road and Lane Cove Road.

A traffic management plan will be prepared by the Delivery Contractor, in consultation with Ryde Council to manage these impacts.

The proposal would not result in any permanent changes to traffic volumes or access arrangements along Abuklea Road.

The proposal will not impact access to any of the adjacent properties. Construction vehicles will be parked within the site where possible however may temporarily utilise available street parking.

Safeguards
Prepare a Traffic Management Plan (TMP) in consultation with the relevant traffic authority. Meet NSW Roads and Maritime Service's Traffic Control at Worksites Manual v5 requirements for TfNSW roads. The Delivery Contractor will obtain a Road Occupancy Licence (ROL) from TfNSW, including if works are within 100m of traffic signals when construction commences.
Minimise traffic impacts near residential properties, schools and businesses by consulting with them (eg no major materials deliveries at school drop off or pick up times etc.).
Manage sites to allow people to move safely past the works, including alternative pedestrian, bicycles, pram and wheelchair access.
Erect signs to inform road users of the proposed works and any temporary road closures.
Consult with the relevant traffic authority about managing impacts to pedestrian traffic, signposting, meters, parking, line-marking or if traffic control or pavement restoration is required.
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.

6.2.9 Social and visual

Existing environment and potential impacts

A Visual Assessment was prepared by Aurecon. This chapter summarises the report and the full report is provided in Appendix E.

The proposed works would require the construction of new permanent above ground structures and would alter the visual character of the environment over the long-term. The new reservoir would introduce a view from residential properties similar to that of a four-storey building. The mass of two reservoirs (existing and proposed) and the removal of existing vegetation result in a high to high-moderate visual impacts, from residential viewpoints to the west of the site. Slightly lower impact rating is experienced to residents to the east due to an existing high timber paling fence and to direct view from an outdoor setting.

However, the high visual impacts as a result of the new reservoir and tall tree removal are expected to be experienced by a low number of residents, directly abutting the site. Visual impacts from further away are not expected due to intervening buildings and vegetation. The safeguards outlined below will be implemented to respond to the identified visual impacts.

The new reservoir will be approximately 33.5m in diameter and 13m high. Due to the proximity of the reservoir to adjacent residents, the reservoir will create shading over two properties located on the south-west (Summit Close) and one property to the east of the site (Agincourt Road). Although the shadows to the south-west would be present all year, these are only expected for a short time during morning during spring and winter. Overall, the shadow effect of the new reservoir is considered an adverse effect due to the total solid area of the shade cast.

The proposal would also result in removal of vegetation which resulting in less visual screening of the property.

The appearance of the new reservoir's façade, including choice of a recessive colour treatment and architectural screening would help in softening the industrial aesthetic of the structure and has potential to provide a visually appealing façade, as experienced by those properties to the south-west. These measures may be further investigated during detailed design.

There will also be some temporary visual impacts associated with construction including some light spill at night. These temporary visual impacts would be mitigated in consultation with stakeholders, such as Council and residents and the safeguards listed below.

The proposal will have a positive community impact by improving the resilience and reliability of the drinking water supply in the area.

Safeguards
Direct artificial light away from sensitive receivers where possible (ie residents, fauna or roadways).
Maintain work areas in a clean and tidy condition.

The steel tank surface and colour should respond to the natural landscape character and colour palette, thereby reducing the contrast, reflectivity and visual prominence of the new reservoir. Other structures within the site should incorporate natural finishes and a subdued colour palette to reduce the visual prominence.

6.2.10 Cumulative

Potential environmental impacts

Searches of the Department of Planning Industry and Environment major proposal register, and Ryde City Council development application (DA) register were undertaken on 25 November 2021.

Sydney Water is not aware of any other works occurring in the area. No cumulative impacts are anticipated.

6.2.11 General Environmental Management

Safeguards

Prepare a Construction Environmental Management Plan (CEMP) addressing the requirements of this environmental assessment. The CEMP should specify license, 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 work area
- location of environmental controls (including erosion and sediment controls, any fences or other measures to protect vegetation or fauna, spill kits, stockpile areas)
- location and full extent of any vegetation disturbance.

Sydney Water's Project Manager (after consultation with Sydney Water's environment 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 meet the following principles:

- limit proximity to sensitive receivers
- no disruption to property access
- no impact to known items of non-Aboriginal and Aboriginal heritage
- outside high-risk areas for Aboriginal heritage
- use existing cleared areas and existing access tracks
- no impacts to remnant native vegetation or key habitat features
- no disturbance to waterways
- potential environmental impacts can be managed using the safeguards in this REF

- no disturbance of contaminated land or acid sulfate soils
- will be rehabilitated at the end of construction.

The 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.

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

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

All site personnel should be inducted into the IMP.

Immediately notify the Project Manager, Community Relations Representative (Delivery Management) and Environmental Representative (Delivery Management) of any complaints.

To ensure compliance with legislative requirements for incident notification (eg. *Protection of the Environment Operations Act 1997*), Sydney Water's employees and contractors will follow SWEMS0009.

7 Conclusion

Sydney Water has prepared this REF to assess the potential environmental impacts of the new Marsfield reservoir. The proposal is required to provide reliable ongoing drinking water supply to cater to future the population growth within the Prospect North and Ryde delivery systems.

During construction, the main potential environmental impacts of the proposal are typical construction impacts such as vegetation removal, traffic management, noise impacts and dust. During operation, the impacts are associated with visual amenity. It is considered that, given the nature, scale and extent of impacts and implementation of the safeguards outlined in this REF, the proposed work is unlikely to have a significant impact on the environment and an environmental impact statement is not required under Division 5.1 of the EP&A Act.

The proposal has been considered in accordance with the principles of ESD. 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.

8 Appendices

Appendix A – Clause 228 checklist

Clause 228 checklist	REF finding
Any environmental impact on a community	There may be short-term impacts on the community from temporary noise and dust. There will also be longer term from visual impacts. There will be environmental improvements by providing a reliable water service to the local community.
A transformation of a locality	The proposed work will not result in the transformation a locality.
Any environmental impact on the ecosystem of the locality	The proposed work will not in environmental impacts to ecosystems of the locality. The trees to be removed are planted and not considered to be a significant impact on native ecosystems. There will be environmental improvements by ensuring reliable water supply service to the local community.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	The proposed work will result in some reduction of the aesthetic value of immediate locality as the new reservoir will introduce a view similar to that of a four-storey building. However, the safeguard measures described above will be implemented to reduce visual impacts from the limited private residences surrounding the site. The proposed work will not result in a reduction of the 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	The proposed work is not expected to have 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.
Any impact on the habitat of any protected animals (within the meaning of the Biodiversity Conservation Act 2016)	The proposed work will require the removal of one hollow-bearing tree and one medium sized hollow, however this will not have a significant impact on the habitat of protected animals. Vegetation removal required for the proposal will be offset under Sydney Water's biodiversity offset guide.
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 proposed work 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 proposed works would alter the visual character of the environment over the long-term as a result of the new reservoir and tree removal. However, visual impacts are expected to be experienced by a low number of residents and safeguards will be implemented to respond to the identified visual impacts. The proposal will have a long-term benefit by providing a reliable and modern drinking water service for the area.
Any degradation of the quality of the environment	The proposed work will not cause the degradation of the quality of the environment.
Any risk to the safety of the environment	The proposed work will not increase risk to the safety of the environment. The new reservoir has been designed in line with industry standards and regulations.
Any reduction in the range of beneficial uses of the environment	The proposed work will not have any reduction in the range of beneficial uses of the environment.
Any pollution of the environment	Environmental safeguards will mitigate the potential for the proposed work to pollute the environment. No pollution of the environment is expected.
Any environmental problems associated with the disposal of waste	The disposal of wastes will be conducted in accordance with the environmental safeguards, 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 proposed work 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 proposed work 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 proposed work will not have any impact on coastal processes or hazards.

Appendix B – Consideration of ISEPP consultation

ISEPP clause	Yes	No
Clause 13, 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
Involve connection to, and have a substantial impact on, the capacity of a Council owned sewerage system?		X
Involve connection to, and use of a substantial volume of water from a Council owned water supply system?		X
Involve installation of a temporary structure on, or enclosing, a public space under council's control that will cause a disruption to pedestrian or vehicular traffic that is not minor?		X
Involve excavation of the surface of, or a footpath adjacent to, a road for which the council is the roads authority that is not minor or inconsequential?	X	
Clause 14, 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
Clause 15, flood liable land – consultation with council		
Will the work be located on flood liable land (that is land that is susceptible to flooding by the probable maximum flood event) and will they alter flood patterns other than to a minor extent?		X
Clause 15AA, flood liable land – consultation with State Emergency Services		
Will the work be located on flood liable land (ie. 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
Clause 15A, 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
Clause 16 – consultation with public authorities other than councils		
Will the proposal be located on land adjacent to land reserved under the *National Parks and Wildlife Act 1974* or to land acquired under Part 11 of that Act*? If so, consult with DPIE (NPWS).*		X
Will the proposal be located on land in Zone E1 Nationals Parks and Nature Reserves or in a land use zone that is equivalent to that zone? *If so, consult with DPIE (NPWS)*		X
Will the proposal be adjacent to an aquatic reserve or a marine park declared under *Marine Estate Management Act 2014? If so, consult with the Department of Industry.*		X
Will the proposal be in the foreshore area within the meaning of the *Sydney Harbour Foreshore Authority Act 1998? If so, consult with Sydney Harbour Foreshore Authority*		X
Will the proposal comprise a fixed or floating structure in or over navigable waters? consult *TfNSW*		X
Will the proposal be located 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.*		X
Will the proposal involve clearing of native vegetation on land that is not subject land (ie non-certified land)? *If so, notify DPIE at least 21 days prior to work commencing. (requirement under SEPP (Sydney Region Growth Centres cl 18A)*		X

Appendix C – Biodiversity Impact Assessment

Appendix D – Construction Noise and Vibration Impact Assessment

Appendix E – Visual Impact Assessment