

Proposed Prospect Water Filtration Plant Reliability Upgrade Project

Supporting document for application for State Significant
Infrastructure

April 2017



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1 Introduction

1.1 Background

Prospect Water Filtration Plant (WFP) was commissioned in 1996 and is operated by SUEZ under an agreement with Sydney Water that extends to 2035. The WFP was designed to meet treated water quality standards in 1993 and has a treatment capacity of 3,000 megalitres (ML) a day.

Prospect WFP provides high quality drinking water for up to 85% of Sydney's population. Prospect WFP and its associated infrastructure are critical elements of Sydney's water supply.

Since 1993 the Australian Drinking Water Guidelines (ADWG) have changed, particularly regarding filtered water quality turbidity and disinfection requirements. Prospect WFP continues to provide drinking water that meets the revised ADWG.

Sydney Water proposes to carry out the Prospect WFP Reliability Upgrade Project (referred to as 'the proposal') to address key reliability improvements required due to the revised ADWG.

1.2 Existing plant operation

1.2.1 Source raw water

Prospect WFP receives raw water from the following three sources:

- Warragamba Dam
- Upper Canal, which transfers water from the Upper Nepean Dams
- Prospect Reservoir.

Prospect Reservoir is a strategic artificial operational water supply providing raw water to the WFP during emergency and maintenance periods. It is an integral part of the water supply network. Water from the Warragamba pipelines and the Upper Canal discharge partially treated raw water into Prospect Reservoir at nominated overflow and discharge locations. As water from Prospect Reservoir is used to supply drinking water, the reservoir is not used for recreational purposes due to the health risks associated with public use.

Prospect WFP and Prospect Reservoir operate as part of an integrated water supply system.

1.2.2 Water treatment plant process

Prospect WFP provides high rate contact filtration of raw water, and the existing treatment process is described below.

Inlet channel

A single open channel delivers raw water to Prospect WFP. An overflow weir 170 m long can divert raw water from the inlet channel to Prospect Reservoir when high water levels occur.

Filtration

Chemicals are added to the raw water as it moves through contact and filter inlet channels to assist in the coagulation of raw water. The coagulated raw water is then filtered through twenty-four filters.

Waste wash water from filter backwashing (cleaning of filters to remove accumulated solids) is transferred to gravity thickeners. Liquid from the gravity thickeners is further treated in the supernatant filtration plant before being recycled and returned to the inlet channel. Solids from the gravity thickeners are dewatered and removed off-site for beneficial reuse.

Post filtration, storage and distribution

Filtered water is dosed with chlorine, fluoride and adjusted for pH to meet the revised ADWG. It is then stored in clear water tanks which have a storage capacity of 140 ML. Water from the clear water tanks is distributed to Sydney's water supply network.

1.3 Location

Prospect WFP is located off Cowpasture Road, Wetherill Park, about 30 km west of Sydney in the Fairfield and Blacktown local government areas, and is situated next to Prospect Reservoir (refer to Figure 1).



Figure 1 Prospect WFP location map

1.4 Land tenure

The site of Prospect WFP is owned by Sydney Water (refer to **Figure 2**) and leased to the operator of the WFP.



Figure 2 Prospect Reservoir, Prospect WFP and surrounding land use

Aboriginal heritage information must not be made publicly available or be published in any form or by any means by Sydney Water or our contractors / joint ventures, unless where approval has been sought from [OEH's AHIMS Registrar](#) and provided in writing to Sydney Water.

Sydney Water has removed this information out of respect for Aboriginal cultural heritage and the Aboriginal community.

Figure 3 Location of registered Aboriginal sites near Prospect WFP

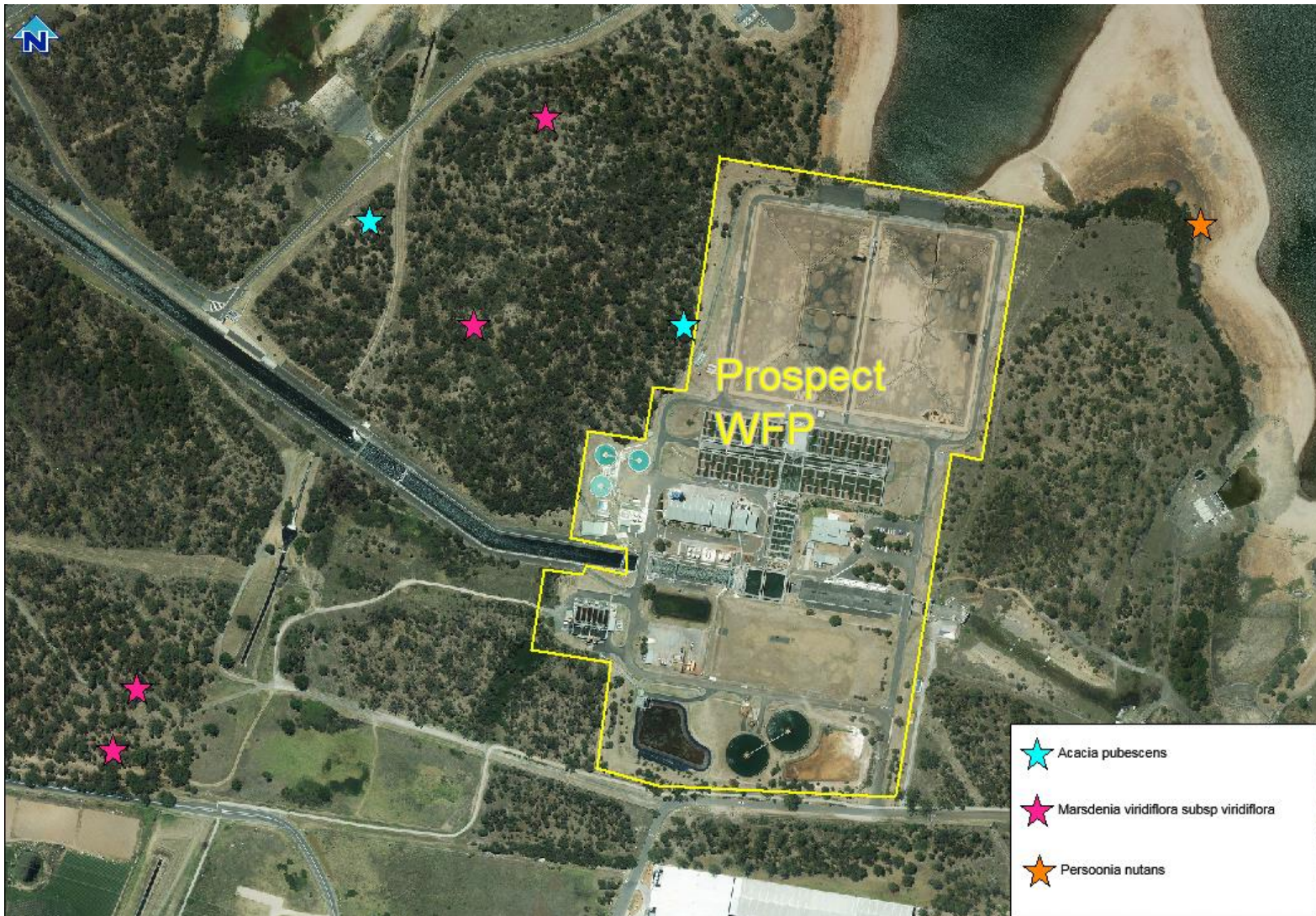


Figure 4 Location of threatened species near Prospect WFP

2 Description of the proposal

2.1 Key features

The proposal will improve the reliability of Prospect WFP to ensure that it continues to meet the revised ADWG requirements, protect the WFP from potential flooding events, and to provide drinking water to greater Sydney. Refer to section 5 for further discussion on the need for the proposal.

The key features of the proposal are shown in **Figure 5** and summarised in **Table 1**. Changes to these components may occur during development of the proposal design.

Table 1 Key features of the proposal

Area	Description of work
Upstream overflow on inlet channel	<ul style="list-style-type: none">Lower the existing overflow weir on the inlet channelModify and raise the level of contact and filter inlet channels
Filter recovery works	<ul style="list-style-type: none">Install pipework and upgrade stormwater open channels to Prospect Reservoir
Waste wash water system	<ul style="list-style-type: none">Upgrade existing waste wash water pump station and pipeworkUpgrade capacity of the supernatant filtration plantInstall new gravity thickener and emergency sludge lagoon
Multi-purpose chlorine contact tank	<ul style="list-style-type: none">Construct 18 ML chlorine contact tank with an overflow to Prospect Reservoir

All key features of the proposal will be constructed on the Prospect WFP site or adjacent Sydney Water land.

2.2 Capital investment value

The total project cost of the proposal is about \$150 million in 2016 dollars. The estimated cost of the key features is about \$130 million in 2016 dollars as shown in **Table 2**.

Table 2 Estimated cost of proposal key features

Area	Estimated cost (\$ 2016)
Upstream overflow works on inlet channel	\$5 million
Filter recovery works	\$10 million
Waste wash water system	\$29 million
Multi-purpose chlorine contact tank	\$86 million

Note.

The estimated cost is based on Jacobs (2015) and does not include Sydney Water costs for detailed planning and design development works.

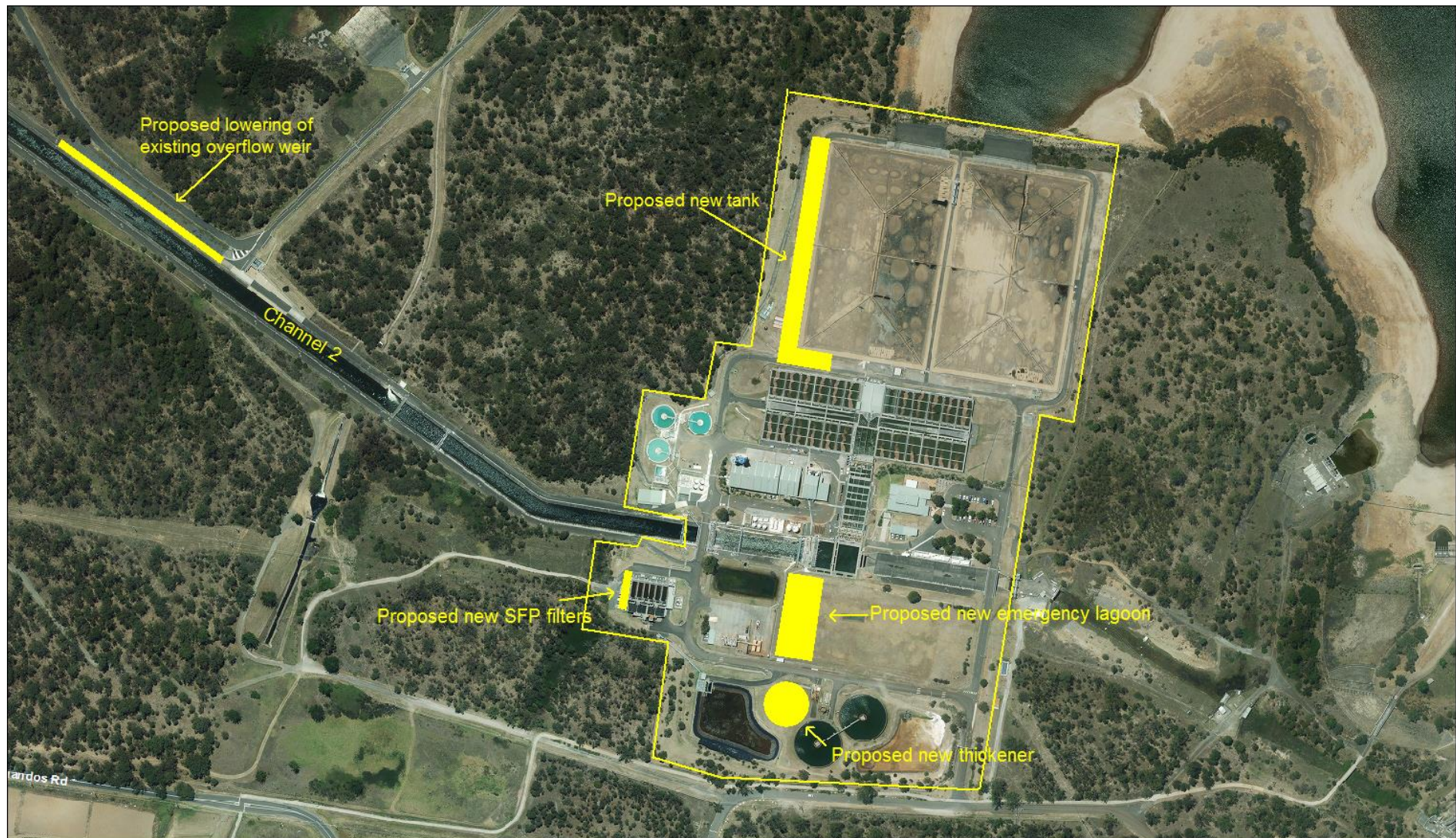


Figure 5 Location of key features of the proposal

3 Permissibility and strategic planning

Environmental Planning and Assessment Act 1979

Local government area (LGA)	Blacktown LGA
	Fairfield LGA
Land use zoning	WSP – Western Sydney Parklands

Applicable environmental planning instruments (EPIs)

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

Under clause 135 (3) of the ISEPP, development for the purpose of water treatment facilities may be carried out by or on behalf of a public authority without consent on land in any of the following land use zones:

- (a) RU1 Primary Production
- (b) RU2 Rural Landscape
- (c) RU4 Rural Small Holdings
- (d) IN1 General Industrial
- (e) IN3 Heavy Industrial
- (f) SP1 Special Activities
- (g) SP2 Infrastructure.

Refer to discussion on the State Environmental Planning Policy (Western Sydney Parklands) 2009 documented below.

Prospect WFP is considered to be within a prescribed zone and the proposal is permissible without consent under the ISEPP.

State Environmental Planning Policy (State and Regional Development) 2011

Clause 14 of the State Environmental Planning Policy (State and Regional Development) 2011 declares State Significant Infrastructure to be:

- (a) by the operation of a State environmental planning policy, permissible without development consent under Part 4 of the Act, and
- (b) specified in Schedule 3 of this SEPP.

Refer to the application of the ISEPP to the proposal documented above.

Schedule 3 State Environmental Planning Policy (State and Regional Development) 2011 includes:

4 Water storage or water treatment facilities

(1) Development for the purpose of water storage or water treatment facilities (not including desalination plants) carried out by or on behalf of a public authority that has a capital investment value of more than \$30 million.

The proposal is estimated to cost about \$150 million in 2016 dollars.

State Environmental Planning Policy (Western Sydney Parklands) 2009

Clause 6(1) states that the Blacktown Local Environmental Plan 1988 does not apply to the Western Parklands. Clause 1.8b of the Blacktown Local Environmental Plan 2015 amends the State Environmental Planning Policy (Western Sydney Parklands) 2009 by replacing the reference to the Blacktown Local Environmental Plan 1998 with the Blacktown Local Environmental Plan 2015.

In accordance with clause 2.2 and the land application map of the Fairfield LEP 2013, Prospect WFP is within land to which the Western Sydney Parklands SEPP applies.

Clause 6(2) of the Western Sydney Parklands SEPP states that aside from the excluded provisions, the ISEPP applies as if the Western Sydney Parklands were in a prescribed zone under the ISEPP.

Given this, the Prospect WFP is considered to be in a prescribed zone and the proposal is permitted without consent under clause 135 (3) of the ISEPP.

State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33)

Prospect WFP is a major hazard facility and licensed by SafeWork NSW. The quantities of hazardous materials stored and handled at Prospect WFP are likely to be above the screening thresholds given in the *Applying SEPP 33 guidelines* (DoP 2011). The proposal is not expected to increase the quantity of hazardous materials stored and handled at Prospect WFP.

Confirmation of Part 5.1 position

In accordance with Part 5.1 Division 1 Section 115U of the *Environmental Planning and Assessment Act 1979*, the proposal is declared to be State Significant Infrastructure under the State Environmental Planning Policy (State and Regional Development) 2011 as it:

- is development for the purpose of a water treatment facility;
- has a capital investment value of more than \$30 million; and
- is permissible without consent under the ISEPP.

An environmental impact statement (EIS) will be prepared for the proposal.

Other legislative considerations

Heritage Act 1977

Prospect Reservoir and surrounds is listed on the State Heritage Register and Sydney Water's Section 170 heritage register as an item of State heritage significance. If not for section 115ZG of the *Environmental Planning and Assessment Act 1979*, an approval under Section 57 of the *Heritage Act 1977* would be required for the proposal.

National Parks and Wildlife Act 1974

There are several registered Aboriginal sites near Prospect WFP. An Aboriginal heritage due diligence assessment, in accordance with the NSW Office of Environment and Heritage guideline *Due Diligence Code of Practice for the Assessment of Aboriginal Objects in NSW* (DECCW 2010) has been completed for the proposal (refer to Section 4.4). The proposal would not impact any registered Aboriginal sites or archaeologically sensitive areas. No additional approvals are required under the *National Parks and Wildlife Act 1974*.

Protection of the Environment Operations Act 1997

Prospect WFP operates under an Environment Protection Licence (EPL) from the Environment Protection Authority NSW. The EPL (number 4458) covers discharges from the stormwater holding pond and the sedimentation pond into Prospect Creek downstream of Prospect Reservoir.

Threatened Species Conservation Act 1995

There are records of several threatened plant species near Prospect WFP and remnant Cumberland Plain Woodland and a critically endangered ecological community on the western boundary of the WFP. Construction of the proposal is not expected to impact any threatened species or ecological community. Additional assessment is required for the potential impact on Cumberland Plain Woodland during operation of the proposal (refer to section 4.6).

Water NSW Act 2015

Prospect Reservoir is owned and managed by WaterNSW. The Prospect Special Area excludes Sydney Water-owned land at Prospect. No activities are proposed on WaterNSW land or within the Prospect Special Area.

Under Part 6 Division 5 Section 94 of the *Water NSW Act 2015*, Sydney Water requires agreement from WaterNSW to discharge to Prospect Reservoir.

Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) (Commonwealth)

Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest is listed as a critically endangered ecological community under the EPBC Act. Remnant Cumberland Plain Woodland occurs on the western boundary of Prospect WFP. No direct impacts on Cumberland Plain Woodland are expected during construction of the proposal, operation of the proposal has the potential to impact Cumberland Plain Woodland between the existing overflow weir on the inlet channel and Prospect Reservoir. Assessment of the potential impact on Cumberland Plain Woodland during operation of the proposal in accordance with the *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (DEWHA 2013) would be required as part of the EIS for the proposal. If a significant impact is considered likely, it would be referred to the Australian Government Environment Minister for consideration as a controlled action under the EPBC Act.

Strategic setting

Sydney Water Operating Licence

In accordance with our 2015-2020 Operating Licence, Sydney Water is required to:

- provide, construct, operate, manage and maintain efficient, coordinated and commercially viable systems for providing its services throughout its area of operations (clause 1.2.1)
- supply drinking water that complies with the health related guidelines provided in the Australian Drinking Water Guidelines except to the extent otherwise specified by NSW Health, as required by the Operating Licence (Schedule 4 - Customer Contract clause 3.1.2)

The proposal is required for Sydney Water to continue to meet its Operating Licence requirements.

4 Preliminary environmental impact assessment

The proposal will involve construction and commissioning activities n and around Prospect WFP and the inlet channel to the WFP. Construction of the proposal would be scheduled to minimise disturbance to operation of the WFP and maintain compliance with EPL no. 4458. An Environmental Management Plan (EMP) would be prepared for the construction phase of the proposal in accordance with the *Guideline for the Preparation of Environmental Management Plans* (DIPNR 2004). The EMP would incorporate all safeguards identified in the EIS for the proposal.

This section outlines the preliminary environmental assessment of the preferred proposal and proposed safeguards to minimise identified impacts. Further details will be outlined in the EIS for the proposal.

4.1 Soils and erosion

Soils in the study area are mapped as Blacktown Soil Landscape (Bannerman and Hazelton 1990), which is an acidic texture contrast soil with friable loamy topsoil soil over a clay B horizon developed on Wianamatta Shale geology. There is no mapped acid sulfate soils risk or known contaminated land at, or surrounding, Prospect WFP.

Prospect Reservoir and its surrounds are mapped as having a risk of localised salinity. The potential presence of saline soils is not expected to impact the proposal. The proposal does not involve any land clearing and is not expected to increase the risk of saline soils in the surrounding area.

The proposal will involve excavation for foundations for new structures, pumping stations, storage tanks, trenches for pipework and internal access roadways. There would be an increase in the amount of soil exposed to erosion by wind and rain (including stockpiled spoil). This may result in the degradation of aquatic habitats and water quality through sediment laden run-off from unprotected soil stockpiles and excavated ground. Impact on aquatic habitats and the water quality of Prospect Reservoir from sedimentation would be minor and short-term, and would be minimised with the implementation of appropriate site-specific safeguards during construction of the proposal.

Operation of the proposal would increase the risk of an overflow from the existing overflow weir on the inlet channel to Prospect WFP overland to Prospect Reservoir. In the unlikely event of raw water being diverted by the overflow weir, fast moving raw water from the inlet channel could result in erosion from the inlet channel down to Prospect Reservoir. This is further discussed in section 4.2 and 4.6 below.

Mitigation of impacts

- The risk of impacting aquatic habitat and the water quality of Prospect Reservoir would be minimised by implementing appropriate site-specific erosion and sediment control

safeguards during construction of the proposal in accordance with the requirements of *Managing Urban Stormwater: Soils & Construction* (4th Edition Landcom 2004).

- In the unlikely event of raw water being diverted by the overflow weir on the inlet channel during operation of the proposal, there is potential for scouring of the flow path down to Prospect Reservoir. This would need to be further assessed in the EIS for the proposal.
- Safeguards identified in the EIS for the proposal would be implemented during the construction and operation phase of the proposal.

4.2 Water quality and aquatic ecology

Prospect Reservoir is an earth-fill dam with a capacity of about 31 GL and has a small catchment area of 10 km². Raw water within Prospect Reservoir is sourced from the Upper Nepean Dams, Warragamba Dam and its local catchment area. Prospect Reservoir is owned and operated by WaterNSW. Common fish such as Long-finned Eels (*Anguilla reinhardtii*), Eel-tailed Catfish (*Tandanus tandanus*), Australian Bass (*Macquaria novemaculeata*), Carp (*Cyprinus carpio*), Flat-headed Gudgens (*Philypnodon grandiceps*) and Australian Smelt (*Retropinna semoni*) are present in Prospect Reservoir.

There is potential for excavated soil to migrate off site during construction of the proposal. With the implementation of appropriate safeguards (refer to section 4.1), construction of the proposal is not expected to impact on the water quality of Prospect Reservoir.

During operation of the proposal, if issues arise with filter performance, the filters will need to be backwashed. This would require a limited volume of raw water upstream of the filter beds with a minor increase of suspended solids, being discharged to Prospect Reservoir. There is also potential for raw water to be diverted by the overflow weir on the inlet channel overland to Prospect Reservoir. The new multi-purpose chlorine contact tank will be provided with an overflow weir to divert filtered water to Prospect Reservoir. The new overflow location would be located near the existing overflow discharge point at the existing clear water tanks at Prospect WFP.

Mitigation of impacts

- The potential impacts of the operation of the proposal on water quality and the aquatic ecology of Prospect Reservoir would be further assessed in the EIS for the proposal.
- Safeguards identified in the EIS for the proposal would be implemented during the construction and operation phases of the proposal.

4.3 Air quality

Dominant sources of air emissions in the Fairfield and Blacktown LGAs are ceramic product manufacturing, waste treatment, disposal and remediation services, cement line, plaster and concrete product manufacturing and polymer product manufacturing (Commonwealth of Australia 2014). There is potential for minor, localised air quality impacts during construction of the proposal

from erosion of exposed surfaces and an increase in emissions from construction plant and machinery. Impacts on air quality are expected to be temporary and minimised through the implementation of appropriate site specific safeguards.

No changes to air quality impacts are expected during operation of the proposal.

Mitigation of impacts

- Vehicles and machinery would be maintained in good working condition, have appropriate exhaust pollution controls and meet the Australian Standards for exhaust emissions.
- Machinery and vehicles would not be left running or idling when not in use.
- All loads would be covered and secured to minimise dust generation during transport.

4.4 Aboriginal heritage

Aboriginal sites have been recorded on land surrounding Prospect WFP (refer to **Figure 3**). An Aboriginal heritage due diligence assessment, in accordance with the NSW Office of Environment and Heritage guideline *Due Diligence Code of Practice for the Assessment of Aboriginal Objects in NSW* (DECCW 2010) has been prepared for the proposal (Sydney Water 2016). The due diligence assessment concluded that:

- No Aboriginal sites or archaeologically sensitive areas are known to occur on land to be impacted by the proposal.
- Aboriginal sites near the proposal are not at risk of harm by ancillary impacts such as site construction access or lay-down areas.

The operation of the proposal would not affect any Aboriginal heritage items.

Mitigation of impacts

Safeguards to minimise the risk of inadvertently damaging the registered Aboriginal sites during the construction phase of the proposal would be identified in the EMP and include:

- Work areas would be clearly defined and no work permitted outside designated areas.
- A site induction would include the Aboriginal heritage values of the surrounding area.

4.5 Non-Aboriginal heritage

The proposal is within the curtilage of the State Heritage Listed Prospect Reservoir. The proposal is expected to have no impact on the heritage significance of Prospect Reservoir.

The operation of the proposal would not affect any non-Aboriginal heritage items.

Mitigation of impacts

- Work areas would be clearly defined and no work permitted outside designated areas.

- The non-Aboriginal heritage significance of Prospect Reservoir would be included in the site induction.

4.6 Ecology

Prospect WFP is surrounded by remnant Cumberland Plain Woodland, and the vegetation on the western side of the WFP is mapped as 'priority conservation land' in the Cumberland Plain Recovery Plan (DECCW 2010). The following threatened species have been recorded near the WFP: Downy Wattle (*Acacia pubescens*), Native Pear (*Marsdenia viridiflora* subsp. *viridiflora*) and Nodding Geebung (*Persoonia nutans*), refer to **Figure 4**.

Aside from lowering the overflow weir on the inlet channel, all work is within the existing fenced boundary of Prospect WFP.

No vegetation clearing is required for the proposal. During operation of the proposal, the likelihood of raw water being diverted by the overflow weir on the inlet channel to Prospect Reservoir would increase. This fast moving raw water would be discharged overland through an area of weed-infested remnant Cumberland Plain Woodland vegetation. The new multi-purpose chlorine contact tank will be provided with an overflow weir to divert filtered water to Prospect Reservoir. The new overflow location would be located near the existing overflow discharge point at the existing clear water tanks at Prospect WFP.

Mitigation of impacts

- The potential impacts of an overflow of raw water from the inlet channel to Prospect Reservoir through remnant Cumberland Plain Woodland would be further assessed in the EIS for the proposal.
- The potential impacts of an overflow of filtered water from the multi-purpose chlorine contact tank to Prospect Reservoir would be further assessed in the EIS for the proposal.
- Site specific safeguards from the EIS for the proposal would be incorporated into the EMP and implemented during construction phase of the proposal.

4.7 Social and visual

Prospect Reservoir is not currently used for water based recreational activities such as boating and fishing. The picnic grounds at Prospect Reservoir are owned and managed by Sydney Water and there is restricted access to Sydney Water owned land surrounding Prospect Reservoir. A section of the Prospect to Blacktown Bike Network runs across the entry of Prospect WFP. Sections of this bicycle path have been closed to the public for extended periods during WaterNSW's recent reservoir wall upgrade works. Peckys Disability Services is located on Sydney Water land to the north east of Prospect Reservoir, adjacent to the NSW National Parks and Wildlife Service owned and managed Prospect Nature Reserve. Peckys Disability Services is accessed from Reservoir Road to the north of Prospect Reservoir (refer to **Figure 2**[Error! Reference source not found.](#)).

The proposal involves the upgrade of existing, as well as construction of new infrastructure at an operating WFP. The proposal does not involve any clearing of vegetation and is not expected to impact the visual amenity of the surrounding area in the long term. The presence of additional plant and machinery at and around the WFP during the construction phase of the proposal is expected to have a temporary and minor impact on the visual amenity of the area.

Operation of the proposal will have a long term positive social impact in ensuring the security and reliability of Sydney's drinking water supply provided by Prospect WFP.

Mitigation of impacts

- Sydney Water would consult with potentially impacted businesses and residents, with early notification to the community of any changes to access of Sydney Water land.
- There would be early communication of any impact to the Prospect to Blacktown Bike Network to the community during construction of the proposal.

4.8 Traffic and access

The M7 Motorway is located to the west, the M4 Motorway is to the north, and the Cumberland Highway is to the east of Prospect Reservoir. Industrial areas are located to the south and west of Prospect WFP. Traffic impacts during the construction phase of the proposal are expected to be minor, given the proximity to major roads and the neighbouring industrial land use.

Operation of the proposal is not expected to result in a change to the existing traffic and access arrangements to the WFP or Sydney Water land.

Mitigation of impacts

- Potential traffic impacts from the proposal would be minimised by consultation with the Roads and Maritime Services, and Blacktown and Fairfield City Councils before start of the construction phase.

4.9 Noise and vibration

There are no sensitive noise receivers near Prospect WFP. Construction of the proposal would result in an increase in the number and frequency of light and heavy vehicles accessing the WFP which would increase noise levels at and around the WFP. Construction activities at the WFP would also generate noise.

Given the deep clay soils in the area (refer to section 4.1), rock breaking is not expected during the construction phase. Although construction of the proposal is not expected to impact Prospect Reservoir, potential vibration impacts would be further assessed in the EIS for the proposal.

Operation of the proposal is expected to result in no change to the existing noise levels.

Mitigation of impacts

- Site specific safeguards from the EIS for the proposal would be incorporated into the EMP and implemented during the construction phase of the proposal.

4.10 Waste management

Waste generated during the construction phase of the proposal would include excavated materials and typical construction wastes. It would also include small volumes of general waste and excess materials such as concrete, green waste and putrescible waste.

During operation of the proposal no additional waste streams are expected. Waste materials would be disposed in accordance with the existing Prospect WFP waste management processes and procedures.

Mitigation of impacts

- The EMP would include strategies to ensure that the waste hierarchy of avoidance, reuse and recycling is followed on site where feasible during the construction phase of the proposal.
- Disposal of wastes, including spoil that cannot be reused, would only take place at an appropriately licensed waste disposal depot.

4.11 Preliminary environmental risk assessment

Key potential environmental impact	Before application of environmental safeguards			Comment
	Likelihood	Consequence	Risk	
Pollution of waterways, including Prospect Reservoir during construction phase	Unlikely	Moderate	Medium	Sedimentation and erosion controls to be installed before construction starts.
Pollution of Prospect Reservoir during operation phase	Very unlikely	Moderate	Low	Sedimentation due to scouring of ground cover in event of overflow from overflow weir on inlet channel to Prospect Reservoir.
Impact on Prospect Reservoir water quality during operation phase	Unlikely	Minor	Low	Further assessment of the impacts of discharging raw water and filtered water to Prospect Reservoir to be investigated.
Noise during construction phase impacting sensitive receivers	Unlikely	Minor	Low	No sensitive receivers near Prospect WFP. Further assessment of vibration impacts on Prospect Reservoir to be investigated.
Traffic impacts during construction phase	Unlikely	Minor	Low	Prospect WFP is bounded by major roads and an industrial area to the south. Consultation with stakeholders, local council and Roads and Maritime Service before construction starts to minimise potential impacts.

Key potential environmental impact	Before application of environmental safeguards			Comment
	Likelihood	Consequence	Risk	
Impact on heritage values of Prospect Reservoir	Very unlikely	Major	Medium	Construction works within curtilage of Prospect Reservoir. No impact on heritage significance of Prospect Reservoir are expected. Further assessment of impacts on Prospect Reservoir to be investigated.
Impact on Aboriginal heritage value of surrounding area	Very unlikely	Major	Medium	All construction activities are located within disturbed land. No impact on known Aboriginal sites.
Impact on vegetation during construction phase	Unlikely	Moderate	Medium	Prospect WFP is bounded by Cumberland Plain Woodland No vegetation clearing is required.
Impact on vegetation during operation phase	Unlikely	Moderate	Medium	Raw water being diverted overland from overflow weir on inlet channel to Prospect Reservoir, may scour ground cover and damage remnant Cumberland Plain Woodland vegetation. Further assessment of impacts to be investigated.
Pollution due to inappropriate management of waste during construction phase	Unlikely	Moderate	Medium	Strategies to be implemented to minimise waste generation. All waste to be disposed of at appropriately licenced facility.

Note.

Risk assessment undertaken in accordance with Sydney Water's Risk Management Standards D0000217

5 Justification for the proposal

When Prospect WFP was commissioned in 1996, two of the key water quality objectives of the treated water quality standards of the time were a turbidity target for combined filtered water to be less than 0.3 NTU¹, and a maximum allowable combined filtered water turbidity of 0.5 NTU.

The revised ADWG now has a turbidity target for individual filters rather than for combined filtered water. The turbidity target for individual filters is to be less than 0.2 NTU, with a maximum allowable turbidity for individual filters of less than 0.5 NTU. The revised ADWG also now specifies a disinfection requirement which is stated as a minimum contact time of 15 mg/L.min.

Changes to the operation of Prospect WFP have been made to ensure that it continues to comply with the revised ADWG. However, implementation of the revised ADWG has identified that reliability upgrade works are needed to address the following operational risks, including:

- The overflow weir on the inlet channel is too high to provide emergency relief under all operating conditions. Flooding of the WFP is possible if the WFP is taken off-line. If this were to occur it would lead to significant damage to equipment and the WFP. This would result in a loss of supply to 4.5 million people and the likely issue of a boil water notice for a prolonged failure of the WFP.
- If issues arise with filter performance they need to be backwashed. There is not enough current capacity in the waste wash water system to handle filter backwash volumes. This increases the time for filter recovery and ability to produce treated water.
- The current design requires the filters to be operating for a filter to be backwashed. There are limits on the filtered water volume available for backwashing. This increases the time for filter recovery and ability to produce treated water.
- The existing clear water tanks have reached their design life and need to be taken off-line for maintenance. If one of the two clear water tanks were taken off-line, the treated water would not meet the revised ADWG disinfection contact time requirements of 15 mg/L.min.

The proposal will address these issues and ensure that it protects a critical part of Sydney's drinking water supply and meet the following objectives:

- ensure continued compliance of drinking water with the revised ADWG requirements for turbidity and disinfection
- improve reliability of the WFP to maintain the production capacity and continuity of supply to customers under adverse operating conditions
- reduce the risk of catastrophic failure and loss of production of the WFP
- work together and with affected stakeholders, to achieve the best possible outcomes for the proposal and for those affected

¹ NTU stands for Nephelometric Turbidity Unit, a measure of turbidity

- demonstrate a commitment to innovation in the design and implementation of the works to achieve the lowest whole-of-life costs and a value-for-money outcome.

6 Consultation

Sydney Water has identified the following initial stakeholders for consultation during the preparation of the EIS for the proposal:

- Blacktown City Council
- Cumberland Council
- Eastern Creek Raceway
- Endeavour Energy
- Fairfield City Council
- Jemena
- NSW Environment Protection Authority
- NSW Health
- NSW National Parks and Wildlife Service
- NSW Office of Environment & Heritage
- Peckys Disability Services
- Roads and Maritime Services
- Transgrid
- WaterNSW
- Western Sydney Parklands Trust
- Wet 'n' Wild

Consultation has begun with WaterNSW and NSW Health on aspects of the proposal.

A communications strategy for the proposal has been prepared. A community and stakeholder engagement plan will be developed for the proposal and will identify stakeholders and timing of consultation during the planning and construction of the proposal.

7 Conclusion and recommendations for further assessment

Sydney Water has developed the proposal to improve the reliability of Prospect WFP to ensure continued compliance to the revised ADWG and produce high quality drinking water.

Construction of the proposal is not expected to have a significant environmental impact. Implementation of appropriate safeguards during the construction phase would minimise any potential environmental impacts.

During operation of the proposal, it would result in:

- an increased likelihood of raw water and treated water being diverted to Prospect Reservoir (even though there are existing overflow and discharge points to Prospect Reservoir from the Warragamba pipelines and Upper Canal as part of the existing integrated water supply system); and
- scouring of ground cover and likely damage to remnant Cumberland Plain Woodland from overland discharge of raw water from the inlet channel to Prospect Reservoir.

These items would be further assessed in the EIS for the proposal and considered during the detailed design phase.

The EIS for the proposal would include the following specialist studies: flora and fauna assessment, vibration assessment, and water quality and aquatic ecology.

8 References

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