



Review of Environmental Factors

Menangle Park Wastewater Infrastructure
(January, 2024)

Sydney
WATER



Table of contents

Determination	3
1 Introduction	4
1.1 Context.....	4
1.2 Proposal background and need	4
1.3 Consideration of Ecologically Sustainable Development	5
2 Proposal description	6
2.1 Proposal details	6
2.2 Impact area and changes to the scope of work.....	13
3 Consultation	14
3.1 Community and stakeholder consultation.....	14
3.2 Consultation required under State Environmental Planning Policies and other legislation	14
4 Legislative requirements	16
4.1 Environmental legislation	16
5 Environmental assessment	19
5.1 Existing environment	19
5.2 Environmental aspects, impacts and mitigation measures	19
5.2.1 Topography, geology and soils	19
5.2.2 Water and drainage	21
5.2.3 Flora and fauna.....	23
5.2.4 Heritage	26
5.2.5 Noise and vibration	29
5.2.6 Air and energy.....	37
5.2.7 Waste and hazardous materials	38
5.2.8 Traffic and access.....	39
5.2.9 Social and visual	40
5.2.10 Cumulative and future trends.....	42
5.2.11 General environmental management	43
6 Conclusion	45
Appendix A – Section 171 checklist	1
Appendix B – Consideration of TISEPP consultation.....	3
Appendix C – Aboriginal heritage figures.....	4
Appendix D – Aboriginal Heritage Due Diligence	5
Appendix E – Statement of Heritage Impact	6
Appendix F – Noise Assessment Memo	7
Appendix G – Draft Landscape Concept Design.....	8



Figures

Figure 2-1 Location of SP1185 and key environmental constraints	10
Figure 2-2 Location of SP1186 and key environmental constraints	11
Figure 2-3 Location of SP1238 and key environmental constraints	12
Figure 5-1 Residential receivers within affected distance of SP1186 during day works	31
Figure 5-2 Residential receivers within affected distance of SP1238 during day works	32
Figure 5-3 Residential receivers within affected distance of SP1185 during night works	33
Figure 5-4 Residential receivers within affected distance of SP1238 during night works	34

Tables

Table 1-1 Proposal need, objectives and consideration of alternatives.....	4
Table 1-2 Consideration of principles of ecologically sustainable development (ESD).....	5
Table 2-1 Description of proposal	6
Table 4-1 Environmental planning instruments relevant to the proposal.....	16
Table 4-2 Consideration of key environmental legislation	18
Table 5-1 Environmental mitigation measures — topography, geology and soils	20
Table 5-2 Environmental mitigation measures — water and drainage	22
Table 5-3 Environmental mitigation measures — flora and fauna	25
Table 5-4 Environmental mitigation measures — heritage	28
Table 5-5 Affected distance for residential receivers during <i>Activities 1, 2 and 3</i>	29
Table 5-6 Environmental mitigation measures — noise and vibration.....	35
Table 5-7 Environmental mitigation measures — air and energy	38
Table 5-8 Environmental mitigation measures — waste and hazardous materials	39
Table 5-9 Environmental mitigation measures — traffic and access	40
Table 5-10 Environmental mitigation measures — social and visual	41
Table 5-11 Environmental mitigation measures — cumulative and future trends	43
Table 5-12 Environmental mitigation measures — general environmental management	43

Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of Menangle Park Wastewater Infrastructure proposal. The REF was prepared under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Sydney Water both the proponent and determining authority.

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

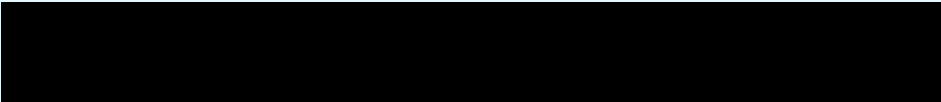
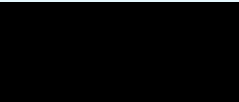
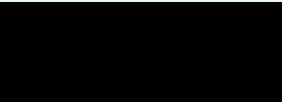

Decision Statement

The main potential construction environmental impacts of the proposal include impacts relating to air quality, visual amenity, noise and traffic. During operation, the impacts are associated with a change in visual amenity. The proposal will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats. Therefore, a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

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

Certification

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

Prepared by:	Reviewed by:	Endorsed by:	Approved by:
 Felix Salmon REF author Sydney Water Date: 17/01/2024	 Veronica Ku Lead Environmental Scientist Sydney Water Date: 19/01/2024	 Fadi Alhyari Senior Project Manager Sydney Water Date: 19/01/2024	 Murray Johnson Environment and Heritage Manager, Asset Lifecycle Sydney Water Date: 22/01/2024

1 Introduction

1.1 Context

Sydney Water provides water, wastewater, recycled water and some stormwater services to over 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 proposal under Division 5.1 of the EP&A Act. This REF assesses the potential environmental impacts associated with the Menangle Park Wastewater Infrastructure proposal and identifies mitigation measures that avoid or minimise potential impacts.

1.2 Proposal background and need

Two new wastewater pump stations, SP1186 in Menangle Park and SP1238 in Menangle are proposed to be developed to support growth in these suburbs. An upgrade to SP1185 in Menangle is also proposed.

Table 1-1 summarises the proposal need, objectives and consideration of alternatives.

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

Aspect	Relevance to proposal
Proposal need	The proposal is part of the Menangle Park Water and Wastewater infrastructure program. This program is required to meet Sydney Water's need to service 3,000 additional dwellings in the Menangle Park area by 2046 which will be connected to West Camden Water Resource Recovery Facility (WRRF).
Proposal objectives	The proposal objective is to provide wastewater services to Menangle Village and Menangle Park.
Consideration of alternatives/options	Wastewater servicing options for servicing growth in Menangle and Menangle Park were shortlisted during the design stage of the proposal. Five shortlisted options for servicing the broader area were reviewed. This included options that considered series of pumping (Options WW-1.1 and WW-1.2), a common rising main (Option WW-3.2) and transfer with some areas of pressure sewer (Option WW-6). Alternate options of a single transfer and a common rising main would limit the ability to cater to staging of developments and different developers in the study area. There was also limited flexibility on catering for additional growth due to rezoning. The other alternate option with pressure sewer was deemed high risk due to community and developer dissatisfaction with costs and maintenance issues associated with this option.

Aspect	Relevance to proposal
	Option WW3-1 (this proposal) was selected as the preferred option based on a solution with least life cycle cost that meets stakeholder requirements with an acceptable risk.

1.3 Consideration of Ecologically Sustainable Development

Table 1-2 considers how the proposal aligns with the principles of ecologically sustainable development (ESD).

Table 1-2 Consideration of principles of ecologically sustainable development (ESD)

Principle	Proposal alignment
Precautionary principle - <i>if there are threats of serious or irreversible environmental damage, lack of scientific uncertainty should not be a reason for postponing measures to prevent environmental degradation. Public and private decisions should be guided by careful evaluation to avoid serious or irreversible damage to the environment where practicable, and an assessment of the risk-weighted consequences of various options.</i>	The proposal will not result in serious or irreversible environmental damage and there is no scientific uncertainty relating to the proposal. The proposed new infrastructure will contribute to providing a wastewater service for an additional 3,000 dwellings in the Greater Macarthur Priority Growth Area.
Inter-generational equity - <i>the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.</i>	The proposal will help to meet the needs of future generations by providing a reliable wastewater service.
Conservation of biological diversity and ecological integrity - <i>conservation of the biological diversity and ecological integrity should be a fundamental consideration in environmental planning and decision-making processes.</i>	The proposal will not significantly impact on biological diversity or impact ecological integrity. The proposal will not clear any vegetation.
Improved valuation, pricing and incentive mechanisms - <i>environmental factors should be included in the valuation of assets and services, such as 'polluter pays', the users of goods and services should pay prices based on the full life cycle costs (including use of natural resources and ultimate disposal of waste) and environmental goals</i>	The proposal will provide cost efficient use of resources and provide optimum outcomes for the community and environment.

2 Proposal description

2.1 Proposal details

Table 2-1 describes the proposal and Figure 2-1, Figure 2-2 and Figure 2-3 show the location and key environmental constraints.

Table 2-1 Description of proposal

Aspect	Detailed description
Proposal description	<p>The proposal includes a:</p> <ul style="list-style-type: none"> • new wastewater pumping station SP1186, Menangle Park • new wastewater pumping station SP1238, Menangle • new odour control unit (OCU) and pumps at existing SP1185, Menangle Park. <p>Associated network infrastructure, including connection mains, will be delivered by developers to service the Menangle Park area and will be covered by separate environmental planning approvals. This includes a new gravity main along Spine Road (Developer delivery by 2024-2025).</p>
Location and land ownership	<p>The works are located on land to be acquired for the pump stations at:</p> <ul style="list-style-type: none"> • new wastewater pumping station SP1186 - Lot 3, Plan 236059, Menangle Park • new wastewater pumping station SP1238 - Lot 201, Plan 590247, Menangle. <p>The work to upgrade the OCU at existing wastewater pumping station SP1185 is on Lot 1, DP 737485, Menangle Park. This land is owned by Sydney Water.</p> <p>SP1185 and SP1186 are located within City of Campbelltown LGA and SP1238 is located within the Wollondilly Shire LGA.</p>
Site establishment and access tracks	<p>Site establishment includes delineating the construction site, storage and laydown areas, erosion and sediment controls and traffic management.</p> <p>The proposal is in a rural residential area, with access via public roads.</p> <p>SP1238 will require a temporary slip lane along Menangle Road to facilitate site access to the construction site at SP1238.</p> <p>No other lead in access tracks are required. Construction traffic would access work sites and compounds via the local road network. As both sites do not contain any vegetation, there will be no vegetation removal required for the proposal.</p>

Aspect	Detailed description
Ancillary facilities (compounds)	Construction compound(s) will likely be required to house site sheds, construction amenities and materials laydown. The exact location of these will be chosen by the Contractor and approved by Sydney Water's Project Manager as described in the mitigation measures in Section 5 .
Methodology	<p>The scope of work includes:</p> <ul style="list-style-type: none"> • site establishment including site clearing, fencing, compound set up, pavement demolition and temporary access tracks/slip lane • excavations to depths up to 16 m and construction of overflow points, subgrade utilities and lead-in utilities • build batters and structures at SP1186 and SP1238 • at SP1185, replace old pumps and install a new OCU • construction of support structure for booster pumping station and chlorination building • installation/ commissioning of electrical/ mechanical components • construction of permanent slip lane outside of property boundary and within road reserve, along Menangle Road adjacent to SP1238 • site disestablishment, restoration and landscaping. <p>One shift of night works may be required for modifications to SP1185 and up to four shifts of night works may be required for construction of the slip lane for SP1238 due to traffic restrictions.</p>
Commissioning	<p>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:</p> <ul style="list-style-type: none"> • hydrostatic tests for water retaining structures and components, such as valves • testing and commissioning for all modes of operation.
Restoration	<p>The work site will be restored to the pre-existing condition following construction, Restoration activities include:</p> <ul style="list-style-type: none"> • backfilling of trenches as soon as works are finished (in addition to at the end of each work day as required) • dismantling compounds, removing and disposing of waste material • establishing landscaping to prevent erosion from the site

Aspect	Detailed description
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	<ul style="list-style-type: none"> removing erosion and sediment controls, fencing and traffic management measures.
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<p>Materials/ equipment</p>	<p>Plant:</p> <ul style="list-style-type: none"> Excavators (various sizes) Haulage trucks (various sizes) Mobile cranes Graders Compactors Bobcats Backhoes Road saws Vacuum trucks Concrete trucks and pumps Water cart and pump Hydraulic rockbreakers Horizontal borer Hydraulic pipe jackers Vibratory rollers Truck mounted crane <p>Materials:</p> <ul style="list-style-type: none"> Stabilised sand Asphalt Select fill (granular backfill material) Excavated spoil Formwork timber Concrete Pipework and appurtenances Diesel and petrol
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- Semi-trailers and large delivery trucks
- Light commercial and passenger vehicles.

Equipment:

- Pumps (various sizes)
- Pipe welding equipment
- Air compressors
- Compaction equipment
- Generators
- Jackhammers
- Davit systems
- Fall arrest equipment
- Temporary fencing
- Hand tools
- Skip bins
- Day makers
- Jersey kerbs
- Water-filled barriers
- Portable amenities.

Aspect	Detailed description
Work hours	<p>Work and deliveries will be scheduled to occur during standard daytime hours:</p> <ul style="list-style-type: none"> • 7 am to 6 pm, Monday to Friday • 8 am to 1 pm, Saturdays. <p>The proposal is not expected to require work outside these hours except for limited night works which may be required for the construction of the slip lane at SP1238 (up to four nights) and wastewater bypass at SP1185 (one night).</p> <p>Sydney Water's Project Manager can approve work outside of standard daytime hours, following the approval process described in the mitigation measures in Section 5.2.5.</p>
Proposal timing	<p>Construction is expected to start in 2024. Construction will take approximately 40 weeks, 92 weeks and 80 weeks at SP1185, SP1186 and SP1238 respectively.</p>
Operational requirements	<p>All infrastructure would be inspected, maintained and repaired as necessary in accordance with Sydney Water's standard operating procedures.</p>

Figure 2-1 Location of SP1185 and key environmental constraints



- Impact assessment area
- Watercourse
- Key fish habitat
- Cumberland Shale Plains Woodland
- Cumberland Red Gum Riverflat Forest
- Local heritage

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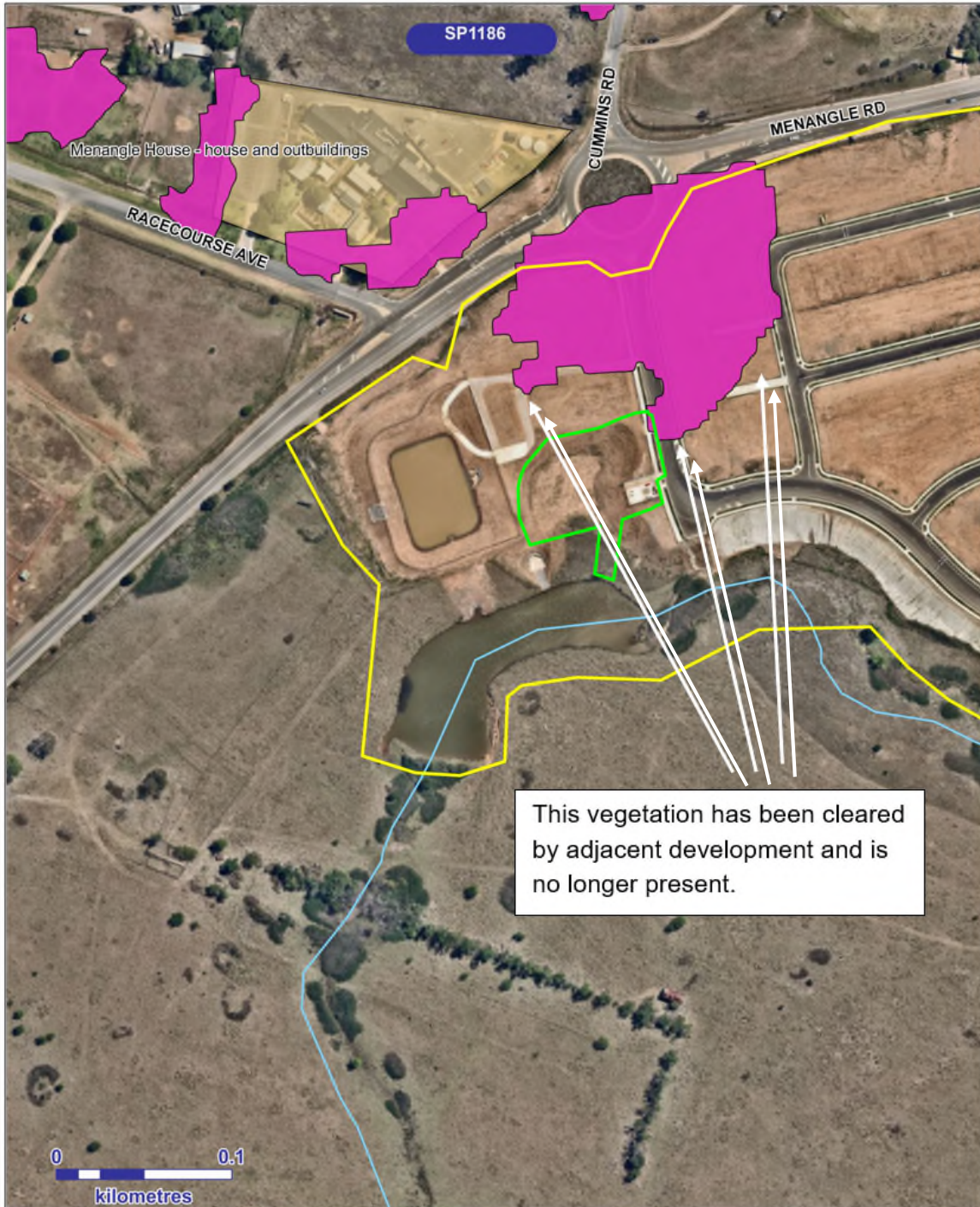


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Impact assessment area based on information provided by WRDT



Figure 2-2 Location of SP1186 and key environmental constraints



- Impact assessment area
- Watercourse
- Dahua AHIP area
- Local heritage
- Cumberland Shale Plains Woodland



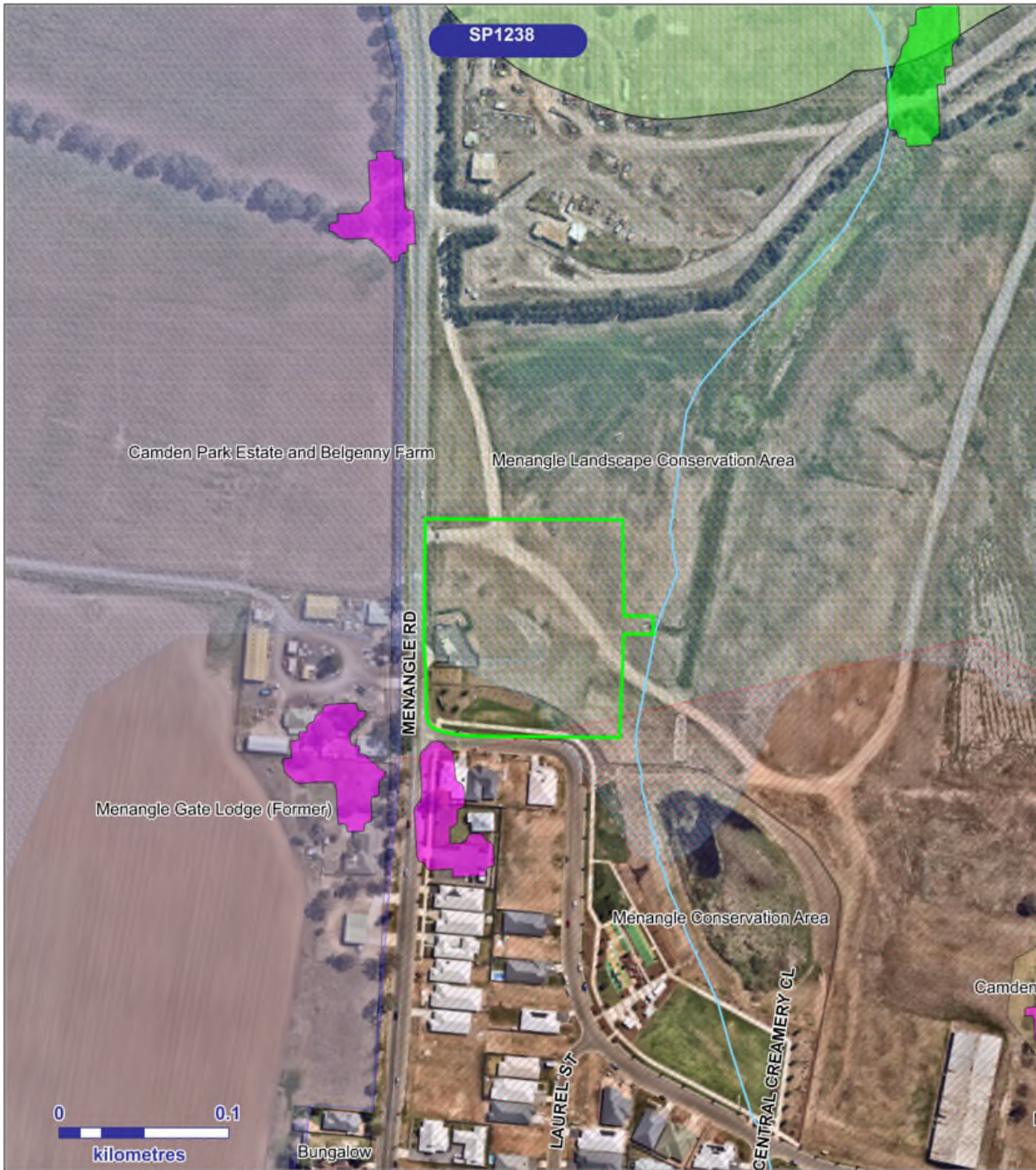
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Figure 2-3 Location of SP1238 and key environmental constraints



- Impact assessment area
- Watercourse
- ▨ 1 in 100 year flood risk
- Local heritage
- Local heritage landscape
- Local heritage area
- State Heritage
- Cumberland Shale Plains Woodland
- Cumberland Red Gum Riverflat Forest
- Riparian Protection Area

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Impact assessment area based on information provided by WRDT





2.2 Impact area and changes to the scope of work

The location of the wastewater pumping stations shown in this REF is indicative and based on the latest concept design at the time of REF preparation. The impact area assessed is shown on Figure 2-1, Figure 2-2 and Figure2-3.

The final proposal may change based on detailed design or construction planning. The general mitigation measures (refer to Section 5.2.11) outline when changes to the proposal trigger supplementary environmental impact assessment. If required, further assessment must be prepared in accordance with SWEMS0019.



3 Consultation

3.1 Community and stakeholder consultation

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

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

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

The nature, scale and extent of the proposal's potential impact has been evaluated in this REF. Construction will have noise and amenity impacts to surrounding receivers including residential and businesses. Sydney Water will continue to consult with Council, local residents and other affected groups throughout the project. This includes targeted engagement to minimise impacts.


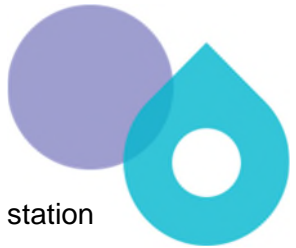
We will also provide local councils with reasonable notice when we would like to commence works. Local council(s) will be consulted about matters identified in environmental planning instruments (refer Section 3.2 below). This includes public safety issues, temporary works on council land, and full or partial road closures of council managed roads.

3.2 Consultation required under State Environmental Planning Policies and other legislation

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

Consultation was required with Western Parkland City Authority (WPCA) under section 2.15 (2) (h) of the TISEPP. This is because the proposal involves works within the Western City operation area as specified in the *Western Parkland City Authority Act 2018*, Schedule 2 and will have a capital investment value of >\$30 million. WPCA was notified of the proposal on 16 August 2023 with a follow-up on 7 September 2023. No response has been received within the 21 day statutory period.

Consultation was required with Subsidence Advisory NSW under section 3.12 under the TISEPP as the proposal involves works in areas mapped as a mine subsidence area. Subsidence Advisory NSW on 26 June 2023 advised the following:

- 
- 
- SP1186 located in lot 3 DP 236059 overlies an exploration title. This pumping station should be designed to remain serviceable and repairable with mine subsidence parameters of 2 mm/m tensile or compressive strain, 4 mm/m tilt and a minimum radius of curvature of 10 km.
 - SP1238 located in lot 4 DP 1260223 is not located over a mining title. No specific mine subsidence design requirements are considered necessary for this pumping station. Should any infrastructure extend into the adjacent lot (Lot 2 DP 1133910) the requirements identified for SP1186 should be applied.

Subsidence Advisory NSW was also contacted on 14 August 2023 regarding upgrade works at SP1185. Subsidence Advisory NSW on 15 September 2023 advised the following:

- The site overlies an exploration title. It is recommended the pumping station be designed to remain serviceable and repairable with mine subsidence parameters of 2mm/m tensile or compressive strain, 4mm/m tilt and a minimum radius of curvature of 10km.
- Future approvals may also require pumping stations to remain 'safe' for estimated subsidence parameters of 3mm/m strain, 7mm/m tilt and 5km radius of curvature.

Sydney Water engaged Mine Subsidence Engineering Consultants during the design phase and the proposal has been designed to comply with relevant standards and will comply with recommendations from Subsidence Advisory NSW. Further detail is provided in Appendix B.

During consultation with Wollondilly Shire Council, Council raised concerns about visual impacts due to SP1238. As a result of consultation, a draft Landscape Concept Design was created to provide a visual representation of potential visual impacts and how they may be offset. Campbelltown Council was also consulted however did not request landscaping at SP1186.

4 Legislative requirements

4.1 Environmental legislation

Sydney Water is the proponent and determining authority under the EP&A 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.

The following environmental planning instruments (Table 4-1) and legislation (Table 4-2) are relevant to the proposal. Table 4-2 also documents any licences and permits required, and timing and responsibility for obtaining them.

Table 4-1 Environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Wollondilly Local Environmental Plan 2011	The proposal for SP1238 is located on land zoned as Public Recreation (RE1), Primary Production (RU1), Low Density Residential (R2) and Infrastructure (SP2).
Campbelltown Local Environmental Plan 2015	The proposal for SP1185 and SP1186 are both located on land zoned as Infrastructure (SP2) and Low Density Residential (R2).
Cumberland Plain Conservation Plan Guidelines for Infrastructure Development 2022 (CPCP)	<p>The proposal for SP1185 and SP1186 are located on Excluded land under the CPCP, so no restrictions apply to these activities.</p> <p>SP1238 is located on land mapped as Strategic Conservation Area (SCA). Biodiversity approvals under the CPCP do not apply to the SCA.</p>
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	<p>Section 2.126 of the TISEPP permits development by or on behalf of a public authority for sewerage reticulation systems without consent on any land in the prescribed circumstances. There is a limitation on land reserved under the <i>National Parks and Wildlife Act 1974</i>. However, the proposal will not be located on any land reserved under this act.</p> <p>As Sydney Water is a public authority, the proposal will be carried out in the prescribed circumstances and is permissible without consent.</p>
SEPP (Biodiversity and Conservation) 2021 (BCSEPP)	<p>Vegetation in non-rural areas (Chapter 2)</p> <p>The proposal is in an area or zone listed in subsection 2.3(1). However, subsection 2.4(1) states: ‘<i>This Policy does</i></p>

not affect the provisions of any other SEPP...', and as the works are permissible under the TISEPP, a council permit to clear vegetation under this SEPP is not required.

Nonetheless, the works will not clear any vegetation.

Koala habitat protection 2020 (Chapter 3)

All pumping stations in the proposal are located within land mapped as koala habitat protection under the *State Environmental Planning Policy (Biodiversity and Conservation) 2021*. The proposal will not impact vegetation and therefore will not impact koalas or koala habitat. As the works are permissible without consent under *State Environmental Planning Policy (Transport Infrastructure) 2021*, development consent is not required for the proposal.

Water catchments (Chapter 6)

Chapter 6 of this SEPP applies as the proposal is within the Hawkesbury-Nepean Catchment, a regulated catchment area. Section 5 of this REF assessed potential environmental impacts on water quality and quantity, aquatic ecology, flooding, access, cultural heritage, flora and fauna, and scenic quality. The assessment confirmed that potential impacts are minimal and meet the requirements of part 6.2 of the SEPP.

Strategic conservation planning (Chapter 13)

The proposal for SP1238 is located on land mapped as a Strategic Conservation Area. SP1185 and SP1186 are located on Excluded land. With reference to the CPCP Guidelines for Infrastructure Development 2022, biodiversity approvals under the CPCP do not apply. The proposal will meet the biodiversity matters listed in the CPCP guidelines as it will avoid impacts to biodiversity and ecological values of the land. The proposal will not clear vegetation and will minimise the potential for impacts to surrounding ecological systems (refer section 5.2.3).

Table 4-2 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
<i>National Parks and Wildlife Act 1974 (NPW Act)</i>	The proposal at SP1186 is in an area of Aboriginal heritage significance and is subject to an AHIP granted to a developer. Sydney Water is in the process of being granted permission to work under the developer's AHIP.	Existing developer AHIP	Post REF, pre-construction, Sydney Water
<i>Heritage Act 1977</i>	There will be no impacts to state or commonwealth listed non-Aboriginal heritage items however works are located within the curtilage of some locally listed items.	Not required	N/A
<i>Protection of the Environment Operations (POEO) Act 1997</i>	The proposal will form part of the sewage treatment system associated with West Camden. The proposal is therefore covered under the West Camden WRRF EPL 1675. Temporary relaxation of the EPL is not required during construction or commissioning. A variation to the EPL is not required for operation.	EPL variation not required	N/A
<i>Water Act 1912/ Water Management Act 2000</i>	The proposal requires extracting approximately 16 ML of groundwater.	Water Supply Works Approval and Water Access Licence	Pre-construction, Sydney Water
<i>Roads Act 1993</i>	An approval is required as works are within 100 m of a State road, Menangle Road.	Road Occupancy Licence	Pre-construction, Contractor



5 Environmental assessment

Section 5.2.1 describes the existing environment and assesses direct and indirect impacts of construction and operation. It also identifies mitigation measures to minimise impacts. These will be incorporated into contract documents and a Construction Environmental Management Plan prior to starting work.

5.1 Existing environment

The proposal is in the suburbs of Menangle and Menangle Park in the Campbelltown and Wollondilly LGAs, respectively. The surrounding area includes agricultural properties and low density residential properties. SP1185 is located on Sydney Water land. The proposed wastewater pumping stations SP1186 and SP1238 are located on rural land (currently vacant of buildings and vegetation) and the surrounding land is currently being developed into residential housing areas.

The study area, as the focus of this REF, comprises the impact areas for the existing wastewater pumping station SP1185 and proposed wastewater pumping station sites SP1186 and SP1238.

5.2 Environmental aspects, impacts and mitigation measures

5.2.1 Topography, geology and soils



Existing environment and potential impacts

The proposal:

- is not in an area impacted by soil contamination as indicated on the EPA list of notified contaminated sites
- is not in an area impacted by acid sulfate soils (ASS) as indicated on the ASS Risk Maps (OEH, 1998)
- is not in an area impacted by soil salinity as indicated on DLWC Salinity Hazard mapping
- is within the South Campbelltown Mine Subsidence District and Wilton Mine Subsidence District. Sydney Water has notified Subsidence Advisory NSW in accordance with part 3.12 of the TISEPP.

During construction, we will disturb ground, excavate, and stockpile soil which could result in potential offsite erosion and sedimentation of surrounding land and waterways.

The works to construct SP1186 and SP1238 propose to permanently change the surface topography and drainage patterns of the proposal area. The above ground structures will be elevated up to 4 m compared to the current landscape to meet mine subsidence requirements and elevate the structures above the 1% AEP flood level. At SP1186 and SP1238, batters will be constructed within the impact areas shown Figure 2-2 and Figure 2-3. These areas will not be returned to their original topography and drainage pattern following construction. As a result,



changes to topography and drainage are anticipated within the proposal area. The area surrounding SP1238 slopes down to the east and the earthworks will be completed to allow for adequate surface water drainage. The relatively small and localised area of elevation mean that potential impacts to the drainage and topography of surrounding areas would be minor.

Mitigation measures

With the implementation of the mitigation measures below, impacts to topography, geology and soils can be adequately managed, and residual impacts are expected to be minor.

Table 5-1 Environmental mitigation measures — topography, geology and soils

Mitigation measures
Access sites through paved roads where available.
Prevent sediment moving offsite in accordance with Managing Urban Stormwater, Soils and Construction, Volume 1 and 2A (Landcom 2004 and DECC 2008), including, if relevant: <ul style="list-style-type: none">• 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 ground disturbance through access, or sediment loss off site.
Sweep up any sediment/soil transferred off site at least daily, or prior to leaving the site.
Backfill excavations in the same order excavated and minimise the potential for settlement and sediment run-off.
Comply with Subsidence Advisory NSW recommendation: SP1186 and SP1185 should be designed to remain serviceable and repairable with mine subsidence parameters of 2 mm/m tensile or compressive strain, 4 mm/m tilt and a minimum radius of curvature of 10 km.
No contaminated materials will be left on the surface following the works.
Delivery Contractor to ensure imported material is certified for intended use.
Stop work in the immediate vicinity of suspected contamination. Indicators of contamination include discoloured soil, asbestos, strong chemical or petrol odours and leachate. Contain disturbed material on an impermeable surface and cordon areas off. Notify the Sydney Water Project Manager and the Environmental Representative. Contact Property Environmental Services for advice on management options.

5.2.2 Water and drainage

Existing environment and potential impacts

The proposal requires:

- excavation in a flood prone area at SP1238
- excavation of about 4,000 m³ of material at SP1186 and about 2,000 m³ of material at SP1238. Both sites will require a net import of fill. SP1186 will require import of 9,000 m³ and SP1238 will require import of 15,000 m³. Rehabilitation is expected to permanently alter drainage patterns where the batters are constructed
- storage of fuels and chemicals on site.

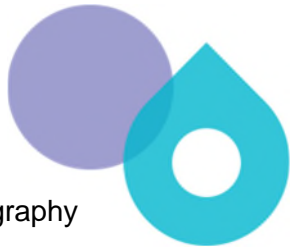

The nearest waterway to the proposal is Nepean River which is a key fish habitat. The proposal at SP1185, SP1186 and SP1238 are located 950 m, 700 m and 350 m from the Nepean River respectively. An overflow point is proposed to the drainage line south of SP1186. An overflow point is proposed to the drainage line east of SP1238. Wastewater system design always requires designing overflow points into the system as a contingency, so wastewater does not back up into houses and businesses if pipeline capacity is exceeded. This is a standard global approach to wastewater system design and also aligns with several Water Services Association of Australia (WSAA) codes and standards such as the Water Supply Code of Australia (WSA 03).

During extreme weather events, the wastewater storage capacity at SP1185, SP1186 and SP1238 may be exceeded and untreated wastewater could flow from the overflow point. This is necessary to avoid internal surcharges in the wastewater system. During these overflow events, wastewater would have the potential to impact Nepean River, contributing to an increase in background nutrient loads, pathogen levels and trace pollutant loads. The impact of these temporary and infrequent wastewater discharges would be minimal in comparison to the large catchment flows that occur during extreme wet weather events. The network will be designed to be leak tight which will minimise infiltration of flood waters into the wastewater system. The proposal will be designed to comply with Sydney Water's existing environment protection licence for the West Camden system (EPL 1675).

During commissioning of SP1186 and SP1238 no discharges to the environment will be required. During commissioning, water will be discharged to the wastewater network through developer delivered infrastructure that will be constructed prior to commissioning of SP1186 and SP1238.

The proposal for SP1185 will require a temporary bypass of this pumping station to maintain wastewater services in the area. The bypass will be undertaken at night during a low flow period using hoses and generator powered pumps for up to 8 hours.

The proposal for SP1238 is located within a flood prone area based on council 1% AEP flood maps. Flooding has the potential to move spoil offsite during construction at SP1238 and negatively impact receiving waterways during construction. Earthworks and construction of batters are proposed to elevate SP1238 above the current 1% AEP flood level to avoid potential flood impacts during operation. During operation, changes to topography and drainage are anticipated within the proposal area during operation. The area surrounding SP1238 slopes down to the east and the earthworks will be completed with adequate surface water drainage. The relatively small



and localised area of elevation mean that potential impacts to the drainage and topography of surrounding areas would be minor.

Groundwater is 10-15 m below ground level based on WaterNSW groundwater bore level data. Excavation to depths of up to 16 m is required at SP1186 and SP1238. To complete the proposal we anticipate dewatering approximately 8 ML for SP1238 and approximately 8.2 ML for SP1186. Excavation to a depth of up to 2 m is required at SP1185, however no dewatering is required. The nearest groundwater dependent ecosystems to SP1185, SP1186 and SP1238 are located at distances of 130 m, 670 m and 350 m respectively. There are no high priority GDEs located within 1 km of the proposal. The works can be classified as 'minimal impact activity', as per the Aquifer Interference Policy.

The proposal is not in an area administered by Water NSW and a NorBE assessment is not required.

Mitigation measures

With the implementation of the mitigation measures below, impacts to water and drainage can be adequately managed, and residual impacts are expected to be low.

Table 5-2 Environmental mitigation measures — water and drainage

Mitigation measures
Use appropriate controls to avoid potential sedimentation to waterbodies.
Keep functioning spill kit on site for clean-up of accidental chemical/fuel spills. Keep the spill kits stocked and located for easy access.
Store all chemicals and fuels in accordance with relevant Australian Standards and Safety Data Sheets. Record stored chemicals on site register. 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.
Locate portable site amenities, chemical storage and stockpiles of erodible materials away from watercourses, drainage lines and flood prone areas. Appropriately secure/ bund temporary stockpiles or reduce/ remove stored materials on site ahead of forecasted storm/ flood events.
Conduct refueling, fuel decanting and vehicle maintenance in compounds where possible. If field refueling is necessary, designate an area away from waterways and drainage lines with functioning spill kits close by.
As the works are predicted to intercept groundwater and require dewatering >3 ML per water year (from 1 July), Sydney Water will obtain a groundwater Water Supply Works Approval and Water Access Licence. The Delivery Contractor is responsible for: <ul style="list-style-type: none">• preparing a Dewatering Management Plan at least four months prior to construction• complying with the approval conditions (such as protecting water quality; minimising aquifer extraction volumes, monitoring extraction with flow meters and recording volumes).

Mitigation measures

Minimise groundwater ingress during detailed design. Prepare Dewatering Management Plan as part of the Construction Environmental Management Plan (CEMP) for groundwater dewatering, including: (eg protecting water quality, monitoring extraction volumes).

The proposal will be designed to comply with Sydney Water's existing environment protection licence for the West Camden system (EPL 1675).

Seek approval and discharge criteria from the relevant Sydney Water Network Area Manager prior to discharge to the wastewater system. Otherwise tanker by a licensed waste contractor and dispose off-site to an appropriately licensed facility.

For the wastewater bypass:

- pressure test hoses before, and monitor during bypass
- monitor wastewater flows to ensure critical flows are not reached
- stop bypass if leaks occur
- bund access chambers
- contain wastewater spills and pump back to wastewater system or disposal tanker.

5.2.3 Flora and fauna

Existing environment and potential impacts

The proposal will:

- not be carried out in a declared area of outstanding biodiversity value
- be located within 1 km of previously recorded threatened species
- not trigger the Biodiversity Offset Scheme
- have negligible direct or indirect impacts on local flora and fauna
- not require clearing of native or exotic vegetation
- not impact matters protected under the *Biodiversity Conservation Act 2016* or *Environment Protection and Biodiversity Conservation Act 1999*.

The proposal is located within a rural residential area currently undergoing residential development and construction activities adjacent to and within the proposal area.

SP1185 and SP1186 are located on land mapped as Excluded land under the Cumberland Plain Conservation Plan. SP1238 is located on land mapped as SCA under the Cumberland Plain Conservation Plan, however review of recent aerial imaging shows the area mapped as SCA at SP1238 has been cleared. As noted in section 3.2 of the *Cumberland Plain Conservation Plan*



Guidelines for Infrastructure Development August 2023, biodiversity approvals under the CPCP do not apply to the strategic conservation area.

All pumping stations in the proposal are located within land mapped as koala habitat protection under the *State Environmental Planning Policy (Biodiversity and Conservation) 2021*. The proposal will not impact vegetation and does not require any impact to koalas or koala habitat. As the works are permissible without consent under *State Environmental Planning Policy (Transport Infrastructure) 2021*, development consent is not required for the proposal.

The critically endangered threatened ecological community (TEC) Cumberland Shale Plains Woodland is shown to be mapped within the proposal impact area for SP1186. However this vegetation has been cleared by recent development and no vegetation is present (Figure 2.2). No threatened flora or fauna have previously been recorded within the proposal area.

TECs within 1 km of the proposal area include:

- Cumberland Shale Plains Woodland (110 m north of SP1185, 100 m northwest of SP1238 and 20 m south of SP1186)
- Cumberland Red Gum Riverflat Forest (230 m north west of SP1185, 450 m south of SP1186 and 330 m northeast of SP1238)
- Cumberland Shale Hills Woodland (770 m northeast of SP1186 and 630 m south of SP1238)
- Cumberland Bangalay x Blue Gum Riverflat Forest (900 m west of SP1185, 530 m south of SP1186 and 330 m north of SP1238)
- Cumberland Moist Shale Woodland (800 m east of SP1186 and 990 m northwest of SP1238)
- Cumberland Blue Box Riverflat Forest (750 m south east of SP1186)
- Cumberland Shale-Sandstone Ironbark Forest (770 m south east of SP1186 and 550 m west of SP1238)
- Greater Sydney Enriched Grey Myrtle Dry Rainforest (200 m east of SP1185)
- Sydney Hinterland Grey Gum Transition Forest (850 m south east of SP1238).

Threatened flora within 1 km of the proposal area include:

- Brown Pomaderris (480 m northwest of SP1238).

Threatened fauna within 1 km of the proposal area include:

- Greater Broad-nosed Bat (430 m west of SP1185)
- Great Broad-nosed Bat (150 m north of SP1186)
- Diamond Firetail (950 m southwest of SP1186 and 550 m north east of SP1238)
- Cumberland Plain Land Snail (300 m southeast of SP1238)
- Eastern Coastal Free-tailed Bat (280 m north of SP1185 and 800 m southeast of SP1238)
- Eastern False Pipistrelle (380 m west of SP1185)

- Grey-headed Flying-fox (400 m west of SP1185 and 800 m southeast of SP1238)
- Regent Honeyeater (600 m south of SP1238)
- Large Bent-winged bat (950 m west of SP1185)
- Latham's Snipe (240 m east of SP1185)
- Powerful Owl (800 m northwest of SP1238)
- White-bellied Sea-Eagle (450 m west of SP1185).

The impact area for the proposal has been previously cleared and does not support habitat for any of these species or communities. No impacts to flora and fauna are anticipated due to the absence of vegetation and habitat on site. The proposal is anticipated to positively impact flora and fauna due to the proposed landscaping at SP1238.

Table 5-3 Environmental mitigation measures — flora and fauna

Mitigation measures
<p>Provided it is essential for delivering the project, Sydney Water's Project Manager can approve the following vegetation removal and tree trimming, without additional environmental assessment (but only after consultation with the Environmental and Community Representatives and affected landowners). Sydney Water considers vegetation removal in these circumstances has minimal environmental impact.</p> <ul style="list-style-type: none"> • Any minor: <ul style="list-style-type: none"> ○ vegetation trimming or ○ removal of exotic vegetation or ○ removal of planted native vegetation <p>where the vegetation is not a threatened species (including a characteristic species of a threatened community or population), heritage listed, in declared critical habitat or in a declared area of outstanding biodiversity value.</p> <ul style="list-style-type: none"> • Any removal of remnant vegetation where there is no net change to environmental impact (eg a different area of vegetation is removed but the total area is the same or less than assessed in the EIA). • Any removal of remnant vegetation where there is no net change to environmental impact (eg a different area of vegetation is removed but the total area is the same or less than assessed in the EIA). <p>Written explanation of the application of this clause (including justification of the need for trimming or removal and any proposed revegetation) should be provided when seeking Project Manager approval. Any impacts to native vegetation and trees must be offset in accordance with the Biodiversity Offset Guideline (SWEMS0019.13).</p>

5.2.4 Heritage

Existing environment and potential impacts

Aboriginal heritage

The proposal for:

- SP1185 is within [REDACTED] AHIMS sites [REDACTED]
- SP1186 is within [REDACTED] AHIMS sites [REDACTED]
- SP1238 and SP1186 has a higher likelihood of encountering Aboriginal heritage, being within 200 m of a watercourse and nearby to registered AHIMS sites
- SP1238 is located [REDACTED]

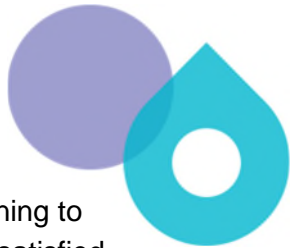

An AHIMS search for all 3 pumping stations included in this proposal was completed on 5 September 2023. The [REDACTED] AHIMS sites [REDACTED] were reviewed internally by Sydney Water. Only AHIMS sites [REDACTED] were identified as having potential to be impacted by the proposal at SP1185. AHIMS site [REDACTED] was reported as destroyed under an AHIP as part of other development in the area in AECOM's *Menangle Park Water Main Lead-in: Aboriginal and non-Aboriginal Heritage Due Diligence Assessment* (October 2022). AHIMS site [REDACTED]

[REDACTED] The location of this reburied AHIMS site has been confirmed as part of this REF and will not be impacted by the works. A no go zone, as shown in Appendix C, will be established around AHIMS site [REDACTED] for the duration of the proposal at SP1185 to prevent impact.

For the proposal at SP1186 and SP1238, AECOM was engaged by Sydney Water to undertake an Aboriginal Heritage Due Diligence (AHDD) assessment. SP1238 was previously named SP1214 and is referred to as SP1214 in the AHDD. See Appendix D for the full AHDD. At the time of the AHDD, reticulation mains were included to the south of SP1238, however these have since been removed from the proposal scope.

AECOM's assessment reported:

- There are no known Aboriginal sites within the proposal area for SP1186 and SP1238.
- Visual inspection and environmental context review suggests that SP1186 is located within an area of [REDACTED] which cannot be avoided by the proposal.
- The area surrounding SP1186 is currently managed under the provisions of AHIP #4877 which permits harm to the area, subject to the conditions issued in the AHIP document [REDACTED]
- SP1238 is in an area of low or negligible Aboriginal archaeological risk and has no heritage constraints.
- SP1186 is located in an area of [REDACTED] Sydney Water should seek approval from the AHIP [REDACTED]



holder prior to commencing any work. Also, confirm that salvage works pertaining to the AHIP have been completed in the AHIP area and any relevant conditions satisfied. If any Aboriginal objects are identified during works, all works must cease.

The works are in an area previously disturbed by land clearing, farming and construction, so the risk of potential Aboriginal objects existing at the site is low. Sydney Water is currently in the process of formalising an agreement to proceed under the AHIP holder's permit.

Non-Aboriginal heritage

There are no non-Aboriginal heritage items located within 200 m of SP1185.

The proposed works at SP1186 are located within 200 m of locally listed Menangle House (70 m) (Campbelltown LEP).

The proposed works at SP1238 are located within 200 m of:



- locally listed Menangle Landscape Conservation Area (SP1238 is located within this heritage item) (Wollondilly LEP)
- locally listed Menangle Conservation Area (SP1238 located partially within this heritage item) (Wollondilly LEP)
- locally listed Menangle Gate Lodge (Former) (10 m) (Wollondilly LEP)
- locally listed Dairy Farm No.4 (EMAI Cottage 29) (10 m) (Wollondilly LEP)
- state listed Camden Park Estate and Belgenny Farm (10 m).

Due to the potential for encountering non-Aboriginal heritage, AECOM was engaged by Sydney Water to undertake a Statement of Heritage Impact (SoHI) for the proposal. The Statement of Heritage Impact¹ is attached in Appendix E. At the time of the AHDD, reticulation mains were included to the south of SP1238, however these have since been removed from the proposal scope.

AECOM concluded the following:

- Both archaeological and research potential are considered low in the areas of Camden Park and Belgenny Farm (01697) heritage items and other locally significant heritage items that intersect with the proposal area.
- The proposal is unlikely to intercept archaeological remains and will have negligible impact on the heritage values of items associated with corresponding heritage listings.
- The wastewater pumping stations will not interrupt views to and from any heritage item.
- The works within and adjacent to locally significant heritage items do not require statutory approval and may proceed without approval.
- While not specifically identified on any heritage listing, mature vegetation along Menangle Road contributes to the aesthetic significance of the Menangle Conservation Area and will be avoided by all excavation activities.

¹ At the time of the Statement of Heritage Impact, SP1238 was referred to as SP1214.



The impact area for SP1238 has been cleared of all vegetation due to adjacent development. However, there is potential for minor localised impacts to the significance of this heritage listing due to raising of the ground level and construction of SP1238. Sydney Water will minimise impacts to Menangle Landscape Conservation Area through landscaping at SP1238.

Mitigation measures

With the implementation of the mitigation measures below, impacts to heritage can be adequately managed, and residual impacts are expected to be minor.

Table 5-4 Environmental mitigation measures — heritage

Mitigation measures
Do not make publicly available or publish, in any form, Aboriginal heritage information on sites / potential archaeological deposits, particularly regarding location.
If any Aboriginal object or non-Aboriginal relic is found, cease all excavation or disturbance in the area and notify Sydney Water Project Manager in accordance with SWEMS0009 . Include the stop work procedure in the Construction Environmental Management Plan.
Works at SP1186 must not proceed until a written agreement with the AHIP holder for Sydney Water to work under AHIP #4877 is in place. Prior to commencing any work Sydney Water must confirm what salvage works pertaining to the AHIP have been completed in the AHIP area and any relevant conditions satisfied.
Ensure AHIP boundary is professionally surveyed & physically delineated for the duration of Sydney Water's project to ensure Sydney Water's activities are restricted to within the approved AHIP boundary. Do not remove the delineation until Sydney Water formally completes all activities within AHIP 4877. The reason for the physical delineation & the need for it to stay in the surveyed position (i.e. ensuring compliance) must be explained in an AHIP toolbox talk before activities commence.
All Sydney Water on-site crew, including contractors, must be made aware of all consent conditions, including Schedule A prohibitions and Conditions #22 to #29, in AHIP 4877 throughout the duration of the Project. New staff must be inducted to the appropriate heritage protection measures.
All Sydney Water on-site crew and contractors, must be made aware of the AHIP required no go zone at SP1186. This no go zone is part of the developer's CEMP and must be included in Sydney Water's CEMP. The Sydney Water Project Manager will confirm location of the no go zone with the developer and advise the Contractor for the purpose of inclusion into the CEMP.
A no go zone will be flagged around AHIMS site [REDACTED] at SP1185 as shown in Appendix C to prevent impact.

5.2.5 Noise and vibration

Existing environment and potential impacts

The proposal is in a rural residential setting and SP1186 and SP1238 will be adjacent to areas currently subject to ongoing residential development.

SP1185, SP1186 and SP1238 are approximately 280 m, 130 m and 40 m from sensitive receivers respectively.

Construction is expected to start in early 2024. Construction will take approximately 40 weeks, 92 weeks and 80 weeks at SP1185, SP1186 and SP1238 respectively. One shift of nightworks may be required to complete the proposal at SP1185. Up to four shifts of nightworks may be required at SP1238 if a daytime Road Occupancy Licence is not granted for construction of the slip lane on Menangle Road.

The likelihood of noise impact was assessed using Table 2 of the Draft Construction Noise Guideline (EPA 2020). Although night works will be short term, the review indicated that the likelihood of noise impact is medium risk and therefore a quantitative noise impact assessment was undertaken.

The quantitative noise assessment was completed based on the following worst case (noisiest) activities. It is noted that these worst case activities are short-lived and 'rare' in the context of the duration of the construction period as they occur across a few days or nights only.

- Activity 1: Saw cutting access road at SP1186 and Menangle Road at SP1238 during standard daytime construction hours with line of sight to receptors.
- Activity 2: Use of generators at night with line of sight to receptors. This activity will occur at SP1185.
- Activity 3: Saw cutting of the road at night with line of sight to receptors. This activity will occur at SP1238.

Given the long duration of construction, the proposal has potential to temporarily impact on sensitive receivers. The results are summarised in Table 5-5 below and the Noise Assessment Memo (Appendix F).

Table 5-5 Affected distance for residential receivers during *Activities 1, 2 and 3*

Activities	$L_{Aeq(15\text{minute})}$ noise level above background (L_{A90})		
	20 to 30 dB(A)	> 30 dB(A)	$L_{Aeq(15\text{minute})}$ 75dB or greater
	Moderately intrusive	Highly intrusive	Highly affected
Activity 1 – Saw cutting of the road during standard daytime construction hours with line of sight.	155 m	60 m	35 m
Activity 2 – Use of generators at night with line of sight.	85 m	30 m	10 m

Activities	L _{Aeq(15minute)} noise level above background (L _{A90})		
	20 to 30 dB(A)	> 30 dB(A)	L _{Aeq(15minute)} 75dB or greater
	Moderately intrusive	Highly intrusive	Highly affected
Activity 3 – Saw cutting of the road at night with line of sight	360 m	155 m	35 m

The quantitative assessment predicted Activity 1 (daytime works at SP1186 and SP1238) to be moderately intrusive for residential receivers within 155 m, highly intrusive for receivers within 60 m and would highly affect receivers within 35 m. At SP1186, the Menangle Country Club (130 m away) is the only receiver that will be impacted by moderately intrusive sound levels.

At SP1238, 12 residents and one fire station will experience moderately intrusive sound levels, four residents will experience highly intrusive sound levels and five residents (40 m away) may be highly affected. Activity 1 is shown in Figure 5-1 and Figure 5-2 below. Noise generated by Activity 1 will be intermittent and shows as worst case scenario. During most of the construction period the actual noise impacts will be less than impacts shown by the quantitative assessment.

The quantitative assessment predicted Activity 2 (night time works at SP1185) to be moderately intrusive for residential receivers within 85 m, highly intrusive for receivers within 30 m and receivers within 10 m would be highly affected. Due to the distance of receivers to Activity 2, no receivers would be subject to moderately or highly intrusive noise and will not be highly affected. There are no residents within moderately intrusive, highly intrusive or highly affected distances. Noise generated by Activity 2 will only occur for a single night shift. Activity 2 is shown in Figure 5-3 below.

The quantitative assessment predicted Activity 3 (night time works at SP1238) to be moderately intrusive for residential receivers within 360 m (up to 43 residents), highly intrusive for receivers within 155 m (13 residents and one fire station) and five residents within 35 m would be highly affected. Noise generated by Activity 3 will only occur for a maximum of four nights. Activity 3 is shown in Figure 5-4.

Noise levels from the assessed activities will vary and be intermittent during the construction program. The scenarios assessed quantitatively represent worst case construction scenarios which occur during short periods (a few days or nights) within the context of the construction program.

Figure 5-1 Residential receivers within affected distance of SP1186 during day works



— Impact assessment area
 — Watercourse

○ Moderately Intrusive (20-30 dB(A))
 ○ Highly Intrusive (>30 dB(A))
 ○ Highly Affected (75+ dB(A))

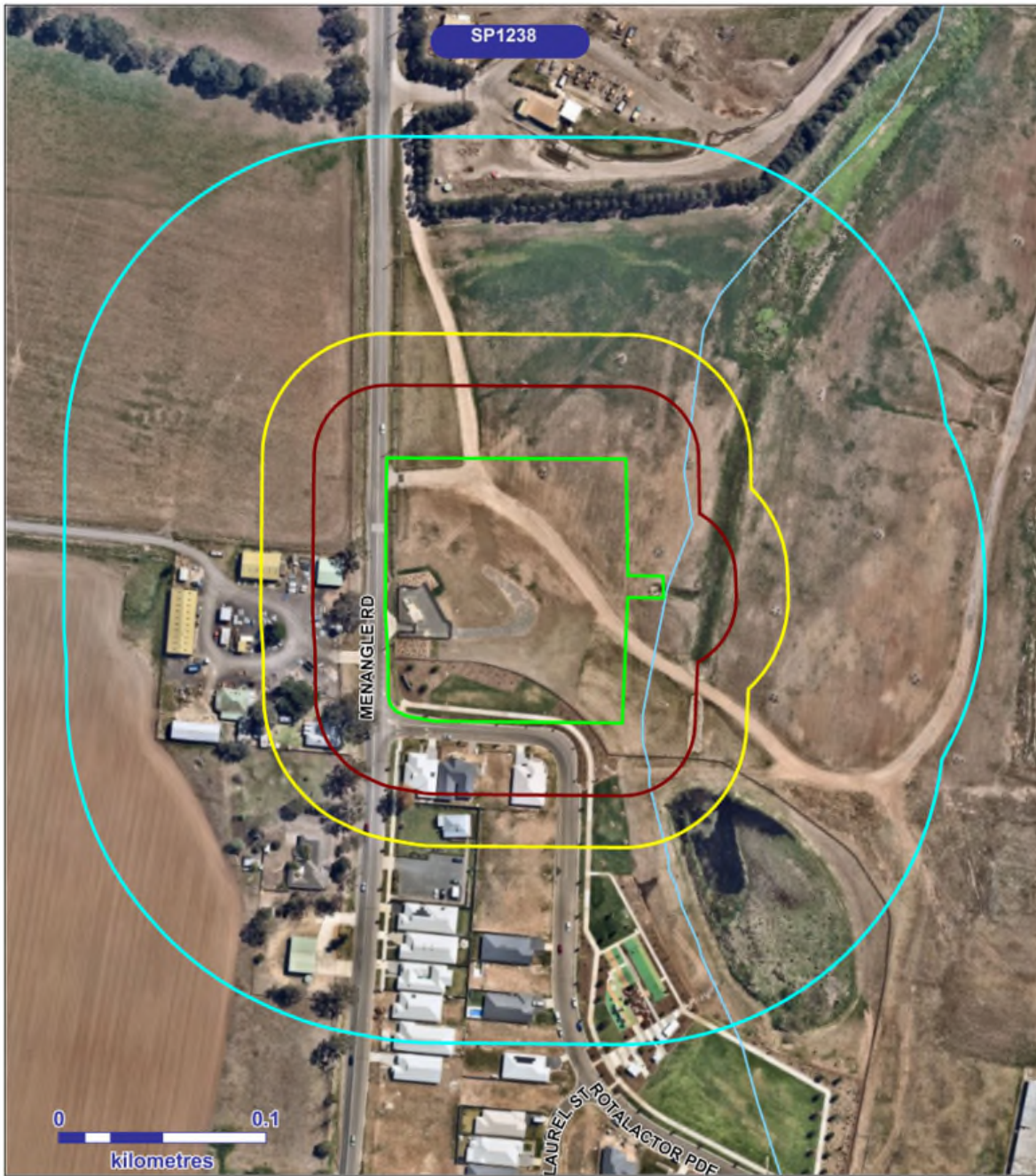


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Figure 5-2 Residential receivers within affected distance of SP1238 during day works



- Impact assessment area
- Watercourse
- Moderately Intrusive (20-30 dB(A))
- Highly Intrusive (>30 dB(A))
- Highly Affected (75+ dB(A))

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Figure 5-3 Residential receivers within affected distance of SP1185 during night works



— Impact assessment area
 — Watercourse

— Highly Affected (75+ dB(A))
 — Highly Intrusive >30 dB(A)
 — Moderately Intrusive (20-30 dB(A))

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Figure 5-4 Residential receivers within affected distance of SP1238 during night works



- Impact assessment area
- Moderately Intrusive (20-30 dB(A))
- Watercourse
- Highly Intrusive (>30 dB(A))
- Highly Affected (75+ dB(A))

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During operation, there will be no changes to background noise. Noise generated during operation will not exceed the noise criteria in the Noise Policy for Industry (EPA 2017).

The proposal will generate vibration during construction. The works will include rock breaking and other activities that may generate vibration. No vibration impacts are anticipated to be experienced by sensitive receivers, provided the excavator/ hydraulic hammer does not exceed 18 tonnes.

Negligible vibration will be generated during operation of the pump stations and will not impact beyond the plant boundary.

Mitigation measures

With the implementation of the mitigation measures below, impacts from noise and vibration can be adequately managed. Appendix F provides a description of some mitigation measures. Consultation with nearby receivers will be critical in managing noise impacts during construction.

Table 5-6 Environmental mitigation measures — noise and vibration

Mitigation measures
Works must comply with the Draft Construction Noise Guideline (EPA 2020), including schedule work and deliveries during standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday. No work to be scheduled on Sundays or public holidays.
The Proposal will also be carried out in accordance with: <ul style="list-style-type: none">• Sydney Water's Noise Management Procedure SWEMS0056• Noise Policy for Industry (EPA, 2017).
Reasonable and feasible noise mitigation measures should be implemented to mitigate noise impacts.

Additional consultation with residential receivers will be undertaken prior to construction and a Community Engagement Advisor will be assigned to the project.

Incorporate **standard daytime hours noise management mitigation measures** 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 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

Mitigation measures

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).

If works **beyond standard daytime hours are needed (in addition to those already described in this REF)**, the Contractor would:

- justify the need for out of standard daytime work
- consider potential noise impacts and: implement the relevant standard daytime hours safeguards; Sydney Water's Noise Management Code of Behaviour (SWEMS0056.01) and other reasonable and feasible management measures
- notify all potentially impacted residents and sensitive noise receivers not less than one week prior to commencing night work.
- identify community notification requirements
- seek approval from the Sydney Water Project Manager in consultation with Sydney Water's Environment and communications representatives.

Excavators for rock breaking must be 18 tonnes or less to avoid triggering additional mitigation measures for human comfort listed in the Construction Noise and Vibration Guideline (TfNSW 2023). If use of larger excavators is required for rock breaking, measures including verification, notification and respite periods are required as listed in Appendix C of the Draft Construction Noise Guideline (EPA 2020). These mitigation measures are to be followed to mitigate the potential impacts at sensitive receivers.

Notification must be undertaken in accordance with Table 6 of Appendix F. Notification may consist of using a variable message sign, letterbox drop (or equivalent), web site / social media or a combination to distribute information detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of five working days prior to the start of works.

Specific notifications, letterbox drops (or equivalent) to receivers within 360 m of SP1238 no later than five working days ahead of Activity 3 must be undertaken in accordance with Table 6 of Appendix F. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops.

Phone calls detailing relevant information will be made to identified/affected stakeholders, who have provided their contact details, within seven calendar days of construction start. Phone calls must be undertaken in accordance with Table 6 of Appendix F. Where the resident cannot be telephoned then an alternative form of engagement should be used.

Respite offers should be considered where there are high noise and vibration generating activities near receivers in accordance with Table 6 of Appendix F. As a guide work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers.

Mitigation measures

Respite periods should be considered in accordance with Table 6 of Appendix F. Night time construction noise shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm.

Duration respite should be considered in accordance with Table 6 of Appendix F. Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through duration respite so that the project can be completed more quickly.

The Contractor should engage with receivers within 360 m of SP1238 prior to Activity 3 to determine if duration respite is required.

5.2.6 Air and energy

Existing environment and potential impacts

The proposal is in a rural residential setting and SP1186 and SP1238 are in areas currently subject to ongoing residential development. SP1185, SP1186 and SP1238 are approximately 280 m, 130 m and 40 m from existing sensitive receivers respectively.

It is expected that ongoing construction activities will occur in the greater project area as part of the broader program of works for the Greater Macarthur Growth Area, particularly housing development. Other works close by include residential property development at Menangle and Menangle Park adjacent to SP1186 and SP1238.

Due to other infrastructure and local developments in the area there is potential for cumulative air quality impacts during construction.



Potential air quality impacts from the proposal are expected to be limited and localised, particularly with the implementation of the environmental mitigation measures proposed below. Accordingly, the potential for cumulative air quality impacts to occur with other projects is low.

The proposal will potentially result in minor amounts of dust, emissions and odour from:

- dust generated during excavation activities and by construction vehicles travelling on disturbed/ unsealed access routes
- emissions from construction machinery, equipment and vehicles
- odour during operation of the wastewater pumping stations SP1186 and SP1238.

Construction of the proposal will generate greenhouse gas emissions from the combustion of fuels from the following sources:

- generators used on site
- vehicles transporting materials to and from site.



During operation, changes to background odour are not expected at receivers nearby to SP1186 and SP1238. To mitigate potential odour impacts, odour control units (OCUs) will be installed at SP1186 and SP1238 while the OCU at SP1185 will be upgraded. However infrequent, short term odour associated with wastewater may be experienced in the event of mechanical failure.

The operation of the proposal would require energy to run the pumping stations. However, electricity consumption by the pumping stations is less than alternative options such as tinkering.

Mitigation measures

With the implementation of the mitigation measures below, impacts from air and energy can be adequately managed, and residual impacts are expected to be minor.

Table 5-7 Environmental mitigation measures — air and energy

Mitigation measures
Maintain equipment in good working order, comply with the clean air regulations of the <i>Protection of the Environment Operations Act 1997</i> , 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: <ul style="list-style-type: none">• modify or cease work in windy conditions• modify site layout (place stockpiles away from sensitive receivers)• vegetate exposed areas using appropriate seeding.
Install OCUs at SP1186 and SP1238 to mitigate potential odour impacts in the event of a mechanical failure.

5.2.7 Waste and hazardous materials

Existing environment and potential environmental impacts

Our corporate objectives include to be a resource recovery business with an increasing portfolio of circular economy products and services. This includes reducing waste through recycling and re-use, and encouraging our suppliers to minimise waste. The Contractor will seek opportunities to reduce, recycle and reuse materials. This will be documented in the CEMP.

Waste that will be generated by the proposal includes general construction waste, excavated material, concrete, formwork and steel. Excavation volumes are expected to be about 4,000 m³ of material at SP1186 and 2,000 m³ of material at SP1238 however both sites will require a net import of fill. Minor excavation may be required at SP1185. During construction, we will excavate and temporarily stockpile soil within the proposal area boundary. There is the potential to unexpectedly encounter contaminated spoil during excavations. Refer to Section 5.2.1 for relevant mitigation measures. Impacts overall are expected to be minor provided mitigation measures in this document are implemented.

Waste is not expected to need tracking using the EPA's [Waste Locate online tracking System](#).

An overflow point is proposed to the drainage line south of SP1186. An overflow point is proposed to the drainage line east of SP1238. During operation, the overflow points may discharge during extreme weather. Refer to Section 5.2.2 for further description and design mitigation measures. No other impacts are anticipated during operation.

Mitigation measures

With the implementation of the mitigation measures below, impacts from waste and hazardous materials can be adequately managed, and residual impacts are expected to be minor.

Table 5-8 Environmental mitigation measures — waste and hazardous materials

Mitigation measures
Manage waste in accordance with relevant legislation and maintain records to show compliance eg waste register, transport and disposal records. Record and submit SWEMS0015.27 Contractor Waste Report .
The Contractor will seek opportunities to reduce, recycle and reuse materials. This will be documented in the CEMP.
Cover all transported waste.
Prevent pollutants from escaping including covering skip bins.
Provide adequate bins for general waste, hazardous waste and recyclable materials.

5.2.8 Traffic and access



Existing environment and potential impacts

The proposal:

- is adjacent to the state and regionally classified road Menangle Road
- is accessed via Racecourse Avenue, Menangle Road and Rotalactor Parade.

The proposal for SP1186 and SP1238 will require about 480 heavy vehicle movements during construction. It is expected that the proposal would require a construction workforce in the order of 50 people at a given time across all construction areas. This would generate a proportionate volume of light vehicle movements for workforce transport. It is anticipated that SP1185 would require 10 light vehicles and 20 workers per day while both SP1186 and SP1238 would each require 20 light vehicles and up to 35 workers per day.

No road closures are anticipated. A road occupancy licence and notification will be required for the works at SP1238 adjacent to the State road, Menangle Road. The proposal will not impact access to any private properties. There are no nearby bus stops, cycle paths or footpaths on Menangle Road near SP1238. As the majority of the works are located away from the road reserve, with the exception of the short term slip lane works at SP1238, the proposal is not anticipated to impact pedestrians, cyclists, buses or other road users.



Traffic would be managed in line with the proposed mitigation measures and would not be expected to significantly affect road function or availability of parking apart from the SP1238 proposal including temporary heavy vehicle movements and construction of the slip lane. Temporary parking on Rotalactor Parade may also be required during construction of SP1238 however SP1185 and SP1186 are located away from public roads and will not impact parking on public roads.

During operation, the pumping stations will only require infrequent vehicle access to carry out routine inspection and maintenance. Impacts on traffic are considered negligible.

Mitigation measures

With the implementation of the mitigation measures below, impacts to traffic and access can be adequately managed, and residual impacts are expected to be minor.

Table 5-9 Environmental mitigation measures — traffic and access

Mitigation measures
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 Contractor will obtain a Road Occupancy Licence (ROL) from TfNSW, including if works are within 100 m 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.
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.
Erect signs to inform road users of the proposed works and any temporary road closures.
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.

5.2.9 Social and visual

Existing environment and potential impacts

Social

The local area surrounding the proposal includes a mix of land uses including low density residential and primary production. The main potential impacts to the community during are associated with construction activities such as the movement of vehicles and machinery, installation of equipment, earthworks and changed traffic conditions. These activities have potential to cause impacts to the community associated with air quality, visual amenity, noise and traffic.

Construction impacts will be mitigated by mitigation measures listed in this REF to reduce impacts to the environment, community and local values as reasonably practical.

No adverse social impacts are anticipated during operation of the proposal.

Visual

- The proposal is in a rural residential setting and SP1186 and SP1238 are in areas currently subject to ongoing residential development.
- SP1185, SP1186 and SP1238 are approximately 280 m, 130 m and 40 m from sensitive receivers respectively.

Temporary visual impacts associated with site compounds and worksites during construction are expected for nearby residential and commercial receivers. These temporary visual impacts will be mitigated in consultation with stakeholders such as council and residents, in accordance with the mitigation measures below.

The proposal for SP1186 and SP1238 will require new permanent above ground structures and will alter the visual character of the immediate environment over the long-term. The ground level at SP1186 and SP1238 will be built up approximately 4 m above the current ground level. These sites will each have a 2 m high electrical kiosk, vent shaft up to 12 m high and a pad mounted generator up to 2 m high. An above ground building approximately 4 m high, 3.8 m wide and 10.9 m long is also proposed at SP1238. Due to the distance from sensitive receivers, potential visual impacts at both pumping stations are expected to be moderate.

As a result of consultation with Wollondilly Shire Council, a draft Landscape Concept Design was created to provide a visual representation of potential visual impacts and how they may be offset. See Appendix G for the draft Landscape Concept Design.

Mitigation measures

With the implementation of the mitigation measures below, impacts from social and visual aspects of the proposal can be adequately managed, and residual impacts are expected to be moderate.

Table 5-10 Environmental mitigation measures — social and visual

Mitigation measures
Undertake works in accordance with Sydney Water Communications policies and requirements including: <ul style="list-style-type: none">• notify impacted residents and businesses• erect signs to inform the public on nature of work• personnel treat community enquiries appropriately.
Potential visual impacts due to modifying the landscape of Menangle Landscape Conservation Area will be minimised through landscaping at SP1238. Landscaping will preference native trees and grasses. The draft Landscape Concept Design will be finalised prior to construction and implemented following construction of SP1238.
Landscaping will preference native vegetation.

Mitigation measures

Work sites will be restored to pre-existing condition or better.

Minimise visual impacts.

Direct artificial light away from sensitive receivers where possible (i.e. residents, fauna or roadways).

Maintain work areas in a clean and tidy condition.

5.2.10 Cumulative and future trends

Existing environment

It is expected that ongoing construction activities will occur in the greater project area as part of the broader program of works for the Greater Macarthur Growth Area, particularly housing development. Other works close by include residential property development at Menangle and Menangle Park adjacent to SP1186 and SP1238.

A review of the NSW Government Major Projects database (NSW Government 2023) returned one project, Menangle Quarry in the region of the proposal. Menangle Quarry's proposal was granted for quarrying activities that have occurred since 1989 to continue until 2036. Menangle Quarry is located approximately 140 m north of the proposal for SP1238.

Future trends that could impact the proposal were considered, such as flooding and extreme storm events related to climate change.

Potential environmental impacts

Due to other infrastructure and local developments in the area there is potential for cumulative impacts. The main potential cumulative project impacts of the proposal and other projects in the region include air quality, noise and traffic impacts during construction.

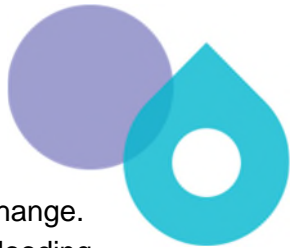

Potential air quality impacts from the proposal are expected to be limited and localised, particularly with the implementation of the environmental mitigation measures proposed in section 5.2.6. Accordingly, the potential for cumulative air quality impacts to occur with other projects is low.

With regard to potential noise impacts, given the minor, short-lived noise impacts of the proposal and distance to Menangle Quarry, it is considered cumulative noise impacts are unlikely.

With regard to potential traffic impacts, the proposal would generate a relatively small volume of traffic that would be managed in accordance with the mitigation measures that are proposed in section 5.2.8, including the preparation and implementation of a traffic management plan. Accordingly, the potential for cumulative traffic impacts is low.

The Contractor and Sydney Water will work with local developments to reduce impacts as required.

The proposal has considered future trends and is unlikely to further exacerbate them. The proposed SP1238 is located within the 1 in 100 year flood zone and the structure will be raised by



up to 4 m above current ground levels to mitigate increased flooding due to climate change. Drainage patterns will be altered within the proposal area for SP1186 and SP1238. Flooding and drainage of the surrounding area is unlikely to experience more than minor impacts. Some drainage lines adjacent to the proposal have been modified by surrounding development for increased water velocity and to reduce the probability of flooding.

Impacts from cumulative and future trends have been adequately managed and residual impacts are expected to be minor.

Table 5-11 Environmental mitigation measures — cumulative and future trends

Mitigation measures

Continued monitoring and consultation with proponents of developments in proximity to the proposal.

5.2.11 General environmental management

Table 5-12 Environmental mitigation measures — general environmental management

Mitigation measures

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

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

Mitigation measures

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

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

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

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

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

The CEMP will identify appropriate delineation with flagging for the construction corridor and flagging for no go zones. Delineate approved disturbance boundary before construction.

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 must be inducted into the IMP.

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

In TOBAN period:

- check specific TOBAN notice to confirm whether the work can be carried out under standard exemptions ([Govt Gazette No18 Feb 2018](#))
- if the work is not covered by a standard exemption, apply to RFS for specific exemption.

To ensure compliance with legislative requirements for incident management (e.g. *Protection of the Environment Operations Act 1997*), Sydney Water's employees and contractors will follow SWEMS0009. Attach SWEMS0009 to the CEMP.



6 Conclusion

Sydney Water has prepared this REF to assess the potential environmental impacts of the Menangle Park Wastewater Infrastructure proposal. The proposal is required to provide a wastewater service to 3,000 additional dwellings in the Menangle Park area by 2046.

The main potential construction environmental impacts relate to air quality, visual amenity, noise and traffic. Once commissioned, there will be a change in visual amenity. Given the nature, scale and extent of impacts and implementation of the mitigation measures outlined in this REF, the proposal is unlikely to have a significant impact on the environment. Therefore, an environmental impact statement is not required under Division 5.1 of the EP&A Act.

The REF considers how the proposal aligns with the principles of 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.



Appendices



Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There may be short-term impacts on the community from construction impacts associated with noise, dust, odour and traffic. There will be environmental improvements by providing a reliable wastewater service to the local community.
Any transformation of a locality	The proposal will not result in the transformation of a locality. The locality is currently undergoing substantial residential development which may transform the locality. The wastewater pumping stations represent a minor change to visual amenity in comparison, particularly in the context of broader development planned within the Greater Macarthur Growth Area.
Any environmental impact on the ecosystems of the locality	The proposed work will not result in environmental impacts to ecosystems of the locality. There will be environmental improvements by ensuring a reliable wastewater service will collect and treat wastewater, minimising any impacts on the ecosystem.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	The proposed work will not result in a reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality. Landscaping following the work will increase the amount of vegetation currently within the proposal area.
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 has a low potential to adversely impact historical archeological items. Impacts to the Menangle Landscape Conservation area will be minimised through landscaping at SP1238. Encountering Aboriginal archaeological objects is possible during work at SP1186 for which Sydney Water will seek approval to work under an existing AHIP covering this area, held by others. Any objects identified during work for SP1186 will be managed as per requirements in the AHIP in order to appropriately manage effects on cultural values.
Any impact on the habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	The proposed work will not have any impact on the habitat of protected animals.
Any endangering of any species of animal or plant or other form of life, whether living on land, in water or in the air	The 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. No vegetation removal is proposed.

Section 171 checklist

REF finding

Any long-term effects on the environment	The proposed work will not have any long-term impacts on the environment but will have a long-term benefit by providing a reliable and modern wastewater 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. During operation there is potential for short term impacts due to extreme weather resulting in wastewater overflows.
Any risk to the safety of the environment	The proposed work will not increase risk to the safety of the environment.
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. The proposal will operate in accordance with EPL 1675.
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 have a minor cumulative environmental effect with other 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, and coastal processes and coastal hazards will not have any impact on the proposed activity.
Any applicable local strategic planning statements, regional strategic plans or district strategic plans made under the EP&A Act, Division 3.1	The proposed works are to service growth in the Menangle and Menangle Park area. The proposal aligns with Campbelltown Council's Local Strategic Planning Statement Planning Priority 14 – Ensuring infrastructure aligns with growth. The proposal also aligns with Wollondilly Council's Local Strategic Planning Statement Planning Priority 1 – Aligning infrastructure provision with community needs.
Any other relevant environmental factors.	The proposed work has been assessed against the factors listed above, and there are no other relevant environmental factors to consider.

Appendix B – Consideration of TISEPP consultation

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



Appendix C – Aboriginal heritage figures

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 written approval has been provided to Sydney Water from [DPE's AHIMS Registrar](#) .

For publicly displayed REFs, all Aboriginal heritage information that identifies individual sites must be removed.



Appendix D – Aboriginal Heritage Due Diligence





Appendix E – Statement of Heritage Impact





Appendix F – Noise Assessment Memo





Appendix G – Draft Landscape Concept Design

SW 41 12/23

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