OPERATIONAL WATER REUSE STRATEGY

Footbridge St Marys (FSM)

05 AUGUST 2024

TABLE OF CONTENTS

APPENDICES

1.1 TABLES

1.2 FIGURES

ACRONYMS AND ABBREVIATIONS

Term	Description
AEW	Advanced and Enabling Works
BOM	Bureau of Meteorology
BMCS	Building Management and Control System
CWRS	Construction Water Reuse Strategy
FSM	Footbridge St Marys
LORAC	Laing O'Rourke Australia Construction
OWRS	Operational Water Reuse Strategy
SDG	Sustainable Design Guidelines
SM-WSA	Sydney Metro – Western Sydney Airport
SSTOM	Station, Systems Trains Operation & Maintenance
TAP	Transport Access Program
TfNSW	Transport for New South Wales
WELS	Water Efficiency Labelling and Standards

1 INTRODUCTION

1.1 Purpose of this Report

Arcadis has been engaged by Laing O'Rourke Australia Construction (LORAC) to prepare an Operational Water Reuse Strategy (OWRS) for the Footbridge St Marys (FSM) Detailed Design. MCoA E102 requires the Project to prepare a Water Reuse Strategy which sets out options for the reuse of collected stormwater and groundwater during construction and operation. The Water Reuse Strategy has been separated into an OWRS (this Strategy) and a Construction Water Reuse Strategy (reported separately by LORAC).

1.2 Project Description

TfNSW's Transport Access Program (TAP) is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. Within this program, the Easy Access Station Upgrade Projects encompasses upgrades at various train stations. The FSM Project is part of the Advanced and Enabling Works (AEW) work packages of Sydney Metro – Western Sydney Airport (SM-WSA) – a new railway line that will service Great Western Sydney and the new Western Sydney International (Nancy-Bird Walton) Airport (the "Airport"). It is a key commitment under the Western Sydney City Deal and plays a major role in supporting the Airport, the development of the Aerotropolis and shaping the Western Parkland City, with the objective that the SM-WSA is operational when the Airport is scheduled to open. The key objective for this FSM Project is to provide connectivity between the new St Marys Metro Station to the existing northern St Marys Station carpark and the Sydney Trains St Marys Station.

The FSM Project Stage 1 Concept Design (SDR level) was previously delivered under the Sydney Metro Station, Systems Trains Operation & Maintenance Contract works package (SSTOM). The FSM project has since been removed from SSTOM separating the brownfield works (works over the existing rail infrastructure) out of the SM-WSA contract to be delivered as part of TAP under TfNSW Infrastructure and Place. This change enables a separation between works required in the existing rail corridor under Sydney Trains jurisdiction from the new Metro works outside of the existing rail corridor.

The FSM project is being delivered by LORAC under LORAC's Managing Contractor (MC) contract with Transport for New South Wales (TfNSW).

The design delivery scope of service for the FSM project consists of the engineering and architectural design, coordination and documentation of the aerial footbridge structure connecting the two island platforms of the existing St Marys Station with the new carpark (located north of the station) and the St Marys Metro Station Box (located south of the station).

1.3 Scope

This Strategy addresses the water use requirements and reuse options for the operational phase of the FSM Project. Specifically, the Strategy details the following:

- Water use requirements for the Project's operational phase, including for:
  - Water fixtures (toilets and basins) in the Sydney Trains building, including:
    -
  - Landscaping irrigation

Note: No amenities for station patrons are proposed for the Project.

- Water minimisation strategies to reduce water consumption; and

- An evaluation of non-potable water use options considered, including:
  - Rainwater harvesting and re-use
  - Groundwater collection and re-use
  - Stormwater collection and re-use

This Strategy does not consider the following:

- Treatment and re-use of sewerage or greywater (due to the low volume of greywater expected to be generated during operation and cross-contamination risk)
- Construction water reuse

1.4 Project Requirements

A Water Reuse Strategy is required by MCoA E102. The requirements of MCoA E102 are summarised in the following table.

Table 1 MCoA E102 requirements

Requirement	Section Addressed
A Water Reuse Strategy must be prepared, which sets out options for the reuse of collected stormwater and groundwater during construction and operation.	Section 4.3 Section 4.4
The Water Reuse Strategy must include, but not be limited to: (a) evaluation of reuse options	Section 4 Section 5
(b) details of the preferred reuse option(s), including volumes of water to be reused, proposed reuse locations and/or activities, proposed treatment (if required), and any additional licences or approvals that may be required	Section 6
(c) measures to avoid misuse of recycled water as potable water	Section 3
(d) consideration of the public health risks from water recycling	Section 3
(e) time frame for the implementation of the preferred reuse option(s)	NA
The Water Reuse Strategy must be prepared based on best practice and advice sought from relevant agencies, as required.	NA
The Strategy must be applied during construction.	Refer to Construction Water Reuse Strategy
A copy of the Water Reuse Strategy must be made publicly available.	-

1.5 Sustainability Objectives

Sustainability considerations have been prioritised in the FSM Project design, including the objective to maximise efficiencies to reduce water consumption. This Strategy will support sustainable consumption of water during the 50-year operational phase of the Project. The following principles were considered in the development of this Strategy:

- Understand the Project's operational stage water demand, including identification of operational activities/aspects with high demand.
- Reduce the volume of water required during the Project's operational stage to the greatest extent possible.
- Replace potable water with non-potable sources where deemed feasible by water reuse considerations and criteria set out in Section 3.

Water sustainability targets pertaining to operational water use are based on the SM-WSA Particular Specification-01 Version 2.0 and TfNSW Sustainable Design Guidelines (SDG) Compulsory Requirement 8 and 8A. A summary of the Project-specific targets based on these documents are outlined in the following table.

Table 2 SM-WSA PS-01 and SDG requirements and targets

Requirement/Target ID	Description
SM-WSA PS-01 1.6.3 (a) [SM-WSA-FSM-PS-G-1047]	Contractor must undertake a water balance study and submit it to the Principal that identifies the sources, uses and estimated quantities of potable and non-potable water which will be either created or used in the performance of FMS Contractor's Activities, achieving a minimum **15%** reduction against a reference case for operational water demand.
SM-WSA PS-01 1.6.3 (d) [SM-WSA-FSM-PS-G-2486]	Contractor must ensure that 100% of non-potable water is sourced from non-potable sources during the operations phase where recycled water mains access is available
SM-WSA PS-01 1.6.3 (e) [SM-WSA-FSM-PS-G-1054 to SM-WSA-FSM-PS-G-1058]	The following minimum Water Efficiency Labelling and Standards (WELS) ratings must be met, as applicable: (i) toilets: 4 stars (ii) urinals: 6 stars (iii) taps: 6 stars (iv) showers: 4 stars
SM-WSA PS-01 1.6.3 (e) [SM-WSA-FSM-PS-G-1129]	Contractor 's integrated approach to urban water cycle management must achieve: (i) a reduction in potable water demand through: - the use of rainwater or greywater where a reticulated reuse is not available - the use of water efficient appliances and fittings (ii) a reduction in wastewater generation (iv) a maximum use of stormwater in the urban landscape

Requirement/Target ID	Description
SDG CR8	To achieve P4, the Project must undertake a water balance study and demonstrate a **15%** reduction in operational water use.
SDG CR8A	Appliances and equipment in the following categories with star ratings under the WELS must have at least the following star ratings: (i) showerheads: 3 stars (ii) toilets and urinals, washing machines, dishwashers: 4 stars (iii) taps and flow controllers: 4.5 stars

1.6 Strategy Guidelines

This strategy has been prepared with consideration of previous best practices undertaken by other TAP, TfNSW and SM-WSA projects. The following guidelines, reports and policies have been consulted:

- Australian Guidelines for Water Recycling: provides a risk-based framework for the management of recycled water schemes and supports sustainable recycling of waters. The document also includes guidelines for stormwater harvesting and reuse, while managing public health and environmental risks associated with the reuse of roof water collected from residential or industrial buildings, and urban stormwater from sewered areas.

2 OPERATIONAL WATER DEMAND

FSM will adopt water use and sourcing in accordance with the hierarchy illustrated in Figure 1 during its operation.

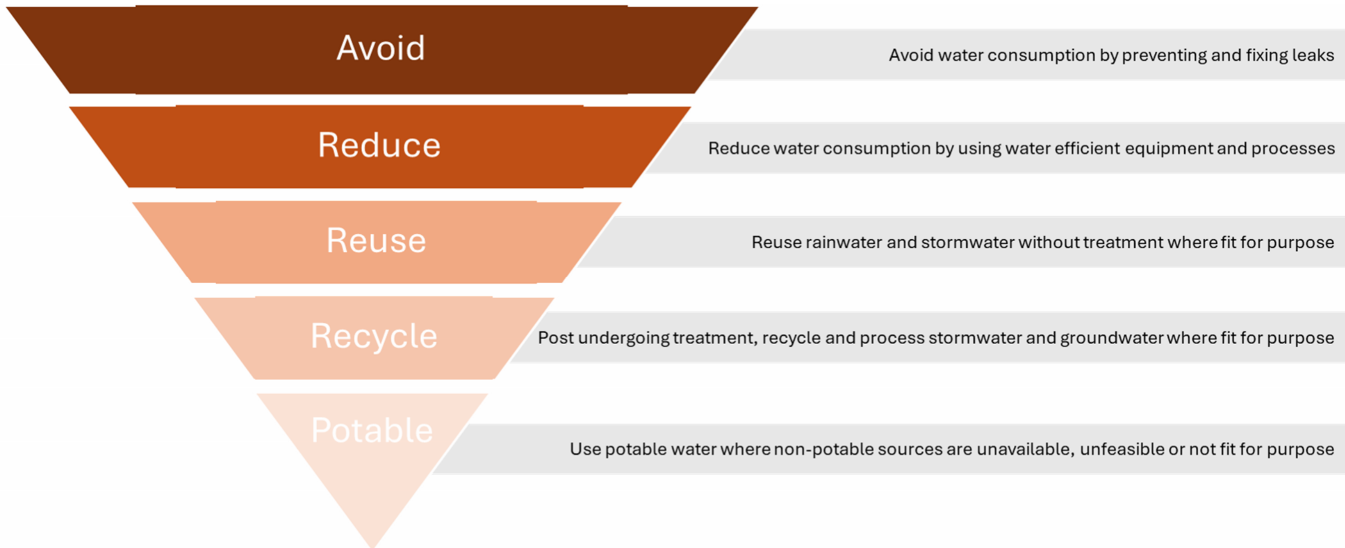

Figure 1 Water use and sourcing hierarchy

During the Project's operation, water will be utilised for the following:

- Water fixtures (toilets and basins) in the Sydney Trains building
- Landscaping irrigation

Note: No amenities for station patrons are proposed for the Project.

Of the aspects listed, above, the water demand aspects/activities that were deemed suitable for replacement with non-potable water are toilets and landscaping irrigation.

A preliminary Water Balance Study has been undertaken to estimate the demand for different operational aspects/activities. The demand is summarised in the following table.

Table 3 Operational water demand aspects/activities

Aspect	Overview	Description
Toilets	One toilet located in the Sydney Trains building, requires water for flushing	1x Caroma Care 800 Cleanflush Wall Faced Suite WELS rating: 4 stars Use rate: 3.5L/flush
Taps and basins – kitchen	Tap located in the Sydney Trains building kitchen for the purposes of drinking, handwashing, and rinsing. and basins located in the	1x HYDROTAP G5 BCSHA100 5-IN-1 Classic Tap with Classic Mixer WELS rating: 6 stars Flow rate: 3 L/min

Aspect	Overview	Description
Taps and basins – amenities	Tap located in the Sydney Trains building amenities for the purposes of drinking, handwashing, and rinsing.	1x GalvinAssist Single Lever Basin Mixer WELS rating: 6 stars Flow rate: 4.5 L/min
Taps and basins – cleaner's room	Tap located in the Sydney Trains building cleaner's room for the purpose of cleaning and rinsing.	1x Galvin Wellbeing Leva 80mm Recess Wall Set WELS rating: 6 stars Flow rate: 4 L/min
Taps and basins – cleaner's room	Tap located in the Sydney Trains building cleaner's room for the purpose of cleaning and rinsing.	1x Ezy-Twist® CP-BS Cam Action Hose Tap WELS rating: 6 stars Flow rate: 5.5 L/min
Landscaping irrigation	Drought tolerant, native vegetation planted in the Northern Plaza of the site may require watering during operation.	631 m2 of irrigated planting on ground. 12x native trees (24 m2). 3x non-native trees (6 m2).

2.1 Water Efficiency Measure

In accordance with the hierarchy illustrated in Figure 1, design measures to avoid and reduce water consumption have been prioritised. These measures include:

- Use of a Building Management and Control System (BMCS) which is connected to water sub-meters and monitors building hydraulic services. The BMCS will ensure water consumption is monitored on an ongoing basis. It will also ensure any leaks are detected and fixed immediately, avoiding unnecessary water consumption.
- Use of water efficient water fixtures with WELS ratings exceeding minimum SDG requirements. Product certificates including WELS ratings for water fixtures are included in Appendix A.
- Selection of drought-tolerant native species with low irrigation requirements in landscaping design.
- Use of a permanent automatic drip-feed irrigation system with moisture sensors to minimise landscape watering requirements and ensure plants only receive the necessary amount of water.

These measures collectively contribute to significant water savings, aligning with the project's sustainability objectives and reducing the reliance on external water sources.

3 WATER REUSE CONSIDERATIONS AND CRITERIA

All non-potable water sources will be evaluated for suitability and measures will be adopted to avoid misuse of recycled water as potable water. The use of non-potable water will be prioritised over the use of potable water where suitable quality and supply is available and practical. The following table outlines the considerations used to deem if a non-potable water source is suitable and practical for reuse within the evaluation process.

Table 4 Consideration to suitability of water reuse

Aspect	Risk	Mitigation	Suitability Measures
Health and safety	Personnel contact with contaminated stormwater or groundwater. Personnel consuming recycled water due to poor identification of recycled water lines.	Clear labelling and colour coding of recycled water lines. Use of non-potable water considered for toilet and irrigation supply only.	If used, regular sampling and analysis of recycled water to determine compliance with relevant health guidelines for recycled water.
Demand and reliability	Water demand (quantities of water) and reliability (constant supply of water) from source is not able to be met for the proposed water use. The supply of non-potable water is dependent on rainfall, groundwater inflow and storage availability.	Detailed water balance study has been undertaken to estimate operational water demand.	FSM Operational Water Balance Study
Financial feasibility	The economics of the proposed water source is not viable due to initial capital cost and ongoing operational costs and/or maintenance costs.	Undertake cost estimates during detailed design to determine cost of additional equipment required for capture, treatment and maintenance.	Economic consideration to determine costs and benefits.
Environmental	Use of recycled water containing elevated levels of contaminants resulting in an impact on soils, vegetation or surface water.	Undertake routine testing of reuse water prior to application in landscaping. Contamination assessment of groundwater to determine suitability prior to application in landscaping. Treatment of water prior to use.	Regular sampling and analysis of recycled water to determine compliance with relevant environmental guidelines for recycled water.
Energy and material	Additional energy requirements for pumping and treating non-potable water, and additional material required for non-potable water systems offsetting the sustainability benefits of reduced potable water consumption.	Determine actual quantities of potable water that would be replaced through a water balance study. Consider energy demand for treatment and movement of non-potable water.	FSM Operational Water Balance Study

4 EVALUATION OF WATER SOURCE AND REUSE OPTIONS

The following subsections outline the evaluation process in determining a preferred water source for operational water demands, including non-potable water. Four water sources were considered for operational water demand, including water mains supply, harvested rainwater, treated groundwater and captured stormwater. It is noted that there is no local recycled water network available to the Project, and as such, this has not been considered as a non-potable supply source.

4.1 Mains Supply Potable Water

Sydney Water Corporations mains connection is included in the utilities design for the Sydney Trains building. Water from the Sydney water network will supply the Sydney Trains building via a new connection from Harris Street to the Northwestern corner of the property where a hydrant booster is located.

The Sydney Water mains is considered suitable for all operational water uses, including taps and basins located in the Sydney Trains building amenities (cleaners sink, kitchen sink and amenity basins) for the purposes of drinking, rinsing and cleaning.

4.2 Rainwater Harvesting

Rainwater has been identified as a potential source of non-potable water for reuse during operation. Rainwater can be harvested from the following locations:

- Sydney Trains building roof.
- Bike storage shed roof.

It is noted that rainwater could also be harvested from the footbridge and concourse roof areas, however the Sydney Trains building roof and bike storage shed roof provide sufficient space to obtain the required volume of rainwater and are more easily accessible for maintenance if needed, as these buildings are not over the rail corridor.

Rainwater would be directed from roofs to the tank by guttering, pipes and drains to the respective stormwater drainage system. From the rainwater tank, a mechanical pumping system would be required to direct the water to the toilets and irrigation system.

The Project completed a feasibility assessment for the inclusion of an operational rainwater capture solution at the Stage 1 Concept Design (SDR) stage. It was determined that the solution would have limited cost benefit due to a small rainwater tank that would be empty most of the year and due to site spatial constraints.

At detailed design, the use of a rainwater harvesting system was re-considered. Sizing of the rainwater tank was based on the estimated demand for toilets and landscaping irrigation. The demand from taps and basins was not considered in the sizing due to the need for potable water from these aspects for drinking purposes. Based on the estimated operational demand, a 10kL rainwater tank was considered.

The following tables estimates quantities of water demand and estimated rainwater capture. This has been calculated based on available roof area and rainfall from local BOM weather station data. Full calculations for monthly harvestable rainfall from both the Sydney Trains building and bike storage shed are included in Appendix B.

Table 5 Estimated rainwater capture quantities for operational water demands

Location	Roof Area (m2)	Mean Annual Rainfall (mm) [1]	Annual harvestable rainfall (kL)	Minimum Monthly harvestable rainfall (kL)
Sydney Trains building	83.60	772.00	145.329	5.12 (May)
Bike storage shed	104.60			

1. Calculated from daily average rainfall volumes derived from Bureau of Meteorology (BOM) average annual rainfall for Erskine Park Reservoir between 2013 and 2023, the nearest bureau station to the FSM Project site.

Based on mean rainfall data, roof space and non-potable demand, installation of a 10 kL rainwater capture system would provide sufficient harvestable rainfall to meet the Project's non-potable water demand each month.

The reuse of harvested rainfall presents the following challenges for the project:

- Additional energy supply required for mechanical pumping system.
- Ongoing maintenance demand for the rainwater tank and mechanical pumping system.
- Spacing for the rainwater tank at the Sydney Trains building.

The option to include a rainwater tank in design was discussed in a meeting between LORAC, TfNSW and Arcadis on 7 December 2023. During the meeting it was considered that the operational energy demand to pump the water for the tank to the Sydney Trains building would offset the sustainability benefits of the tank. Furthermore, considering the relatively low non-potable water demand, it was considered the ongoing maintenance requirements would not be favourable from a financial feasibility perspective. As such, the option to include a rainwater tank in design was determined unfeasible and was not further explored.

4.3 Treated Groundwater

A Geotechnical Factual and Interpretive Report was undertaken for the Project site (80021029-06.0_St Marys enabling works_Geotechnical Interpretive Report, dated 20 January 2022). The investigation found that groundwater was encountered at between 2.6 m and 6.2 m below ground level at the site. Groundwater aggressivity testing included an assessment of chloride, soluble sulphate and magnesium concentrations in twelve samples. The results showed concentrations of chloride between 4100-5090mg/kg, soluble sulphate between 408-620mg/kg and magnesium between 250-317mg/kg. The results also showed Electrical Conductivity values of between 124 and 765 µS/cm which indicates the samples would be classified as freshwater.

The suitability of groundwater was considered for toilets in the Sydney Trains building and for landscaping irrigation. The demand from taps and basins was not considered due to the need for potable water from these aspects for drinking purposes. In addition to the considerations and criteria outlined in Section 3, the following factors were considered in determining the suitability of groundwater for these applications:

- Corrosion: dissolved solids in groundwater may cause corrosion in plumbing fixtures and pipes.

- Suitability for landscaping: the presence of dissolved solids in irrigation water may impact the growth and vitality of planted vegetation.

The use of treated groundwater presents the following challenges for the project:

- Capital costs for drilling, groundwater pumps and groundwater treatment systems.
- Ongoing maintenance requirements for groundwater pumping and treatment system and associated operational costs.
- Potential contamination issues and associated environmental and health impacts.

Based on the limitations detailed above and the relatively low non-potable water demand groundwater could supply, it was considered that groundwater was not a feasible non-potable water supply for the Project.

4.4 Stormwater Capture and Treatment

At the Stage 1 Concept Design (SDR level) and PDR design stages, the use of a 12.5 m^2 bioswale to capture and treat stormwater was considered for landscaping irrigation. However, detailed modelling undertaken at PDR demonstrated that a bioswale was insufficient for complying with relevant water attenuation and water quality requirements. Expansion of the bioswale footprint to meet these requirements would not be feasible due to landscaping and space-proofing constraints. Furthermore, the use of drought-tolerant native species with low irrigation requirements ensures that minimal water will be required for ongoing irrigation. As such, the use of a bioswale to capture and treat stormwater for irrigation was not deemed feasible for the Project.

5 FEASIBILITY ASSESSMENT

The following table summarises the assessment of water sources for operational water demands against the considerations and criteria detailed in Section 3.

Table 6 Water sources evaluation and feasibility assessment summary

Option/ Criteria	Health and Safety	Demand and Reliability	Financial	Environmental	Energy and Material	Feasibility
Mains Supply (potable)	✓ Mains water supply does not pose any health or safety risks for any operational demands.	✓ Sydney water network supplied via mains is a reliable water source and is sufficient to meet operational demands.	✓ Mains water connection is to be installed for taps and basins. Minimal ongoing maintenance or operational costs are expected.	✓ Mains water does not pose a risk of contamination impacting soils, vegetation or surface water.	✓ Minimal additional energy and material, as mains connection is included in the utilities design for the Sydney Trains building.	Feasible
Rainwater Harvesting	✓ Captured rainwater would be used for toilets and irrigation only and does not pose a human health risk.	✓ Assessment undertaken (Appendix B). determined 10 kL tank would provide sufficient supply for toilets and irrigation.	✗ Initial capital cost for installation of tanks, guttering and mechanical pumping system. Costs associated with ongoing operational and maintenance costs for tank and mechanical pumping system. Energy costs associated with pumping water from the tanks to the point of use.	✓ Rainwater does not pose a risk of contamination impacting soils, vegetation or surface water.	✗ Additional energy required for pumping water from the tanks to the point of use.	Not feasible
Treated Groundwater	✗ Groundwater may be contaminated, creating safety risk if	✗ The geotechnical investigation	✗ Dissolved solids in groundwater may cause corrosion in plumbing fixtures and pipes, resulting in	✗ The presence of dissolved solids in irrigation water may impact	✗ Additional energy required for pumping	Not feasible

Option/ Criteria	Health and Safety	Demand and Reliability	Financial	Environmental	Energy and Material	Feasibility
	personnel come in contact with water used for irrigation or flushing.	determined groundwater is present beneath the site, however further investigations would be required to determine if it would be a reliable supply.	operational and maintenance costs. Additional capital costs for drilling, extraction system and treatment system.	the growth and vitality of landscaping. Groundwater may be contaminated and impact soils, vegetation and surface water.	and treatment of groundwater. Significant additional materials required for groundwater extraction and treatment system.	
Stormwater Capture	✓ Bioswale would provide passive irrigation only, with no personnel contact required.	✓ Although supply would be variable, stormwater treated by a bioswale would likely be adequate for the low watering demand of site landscaping.	✗ Potential additional operational/maintenance costs associated with the bioswale, particularly in times of drought.	✗ Bioswale would not treat water to pollution reduction requirements due to size constraints. Depending on where stormwater has passed through, water that has not been sufficiently treated may be contaminated and pose a risk if used for irrigation.	✓ No additional materials or energy requirement.	Not feasible

6 CONCLUSION

This OWRS outlines how the FSM Project detailed design has addressed sustainability objectives through incorporation of features which will result in avoidance and reduction of potable water throughout its design life. The FSM Project's operational water demand is considered relatively low, comprising water for toilets and tap fixtures in the Sydney Trains building and for irrigation of landscaping.

Based on the evaluation criteria, none of the non-potable water sources considered were deemed suitable for implementation during operation of the FSM Project. The primary barriers to implementing these sources include:

- High capital and maintenance costs: the initial and ongoing costs associated with installing and maintaining the infrastructure for non-potable water systems are significant. These costs include tanks, pumps, treatment systems and regular maintenance to ensure water quality and system functionality. None of the non-potable water sources evaluated meet the criteria of 'financial feasibility'.
- Energy consumption: the energy required to pump and treat non-potable water would likely offset the sustainability benefits of reduced potable water given the low operational overall water demand. Of the non-potable water sources evaluated, only stormwater capture and treatment via a bioswale system meets the 'energy and material' criteria.

Furthermore, the physical space required for rainwater tanks, a bioswale or groundwater treatment system is limited, making is difficult to accommodate these systems within the FSM site.

Given the relatively low operational water demand of the Project and the water efficiency measures included in design, it was considered the Sydney Water mains supply (potable) would be the most suitable source for the operational water demands.

APPENDIX A WATER FIXTURE PRODUCT CERTIFICATES

Tap Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	T39903
Licence Number	0061
Brand	GALVIN
Model name	GalvinAssist Single Lever Basin Mixer
Model code	TM-BASCPL
Variants	Handle, Other (TM-BASCPDL)
Subtype	Mixing taps
Flow controller	Flow controller end-of-line
Nominal flow rate	4.48
WC to appear on label	4.5
Water efficiency star rating	6
Status	Registered
Expiry date	22/01/2024

Lavatory Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	L04692
Licence Number	0001
Brand	CAROMA
Model name	Care 800 CF WF CC 4S BE Suite
Model code	901900W
Variants	Toilet seat, Model code
Variant Model Codes	901900AG, 901900SB, 901910W, 901910AG, 901910SB, 901920W, 901920AG, 901920SB, 901940W, 901940AG, 901900BW, 901900BAG, 901900BSB, 901900BWSMO, 901900BAGSMO, 901910BW, 901910BAG, 901910BSB, 901920BW, 901920BAG, 901920BSB, 901920BAGSMO, 901920BAGSMO2, 901920ARAGNCLSM, 901920ARAGNCRSM, 901900BAGSMO1, 901920BAGSMO3
Subtype	Lavatory suite (inc combinations)
Flushing device	Cistern
Mounting	Wall mounted
Pan type	Floor mounted
null	Stub outlet
Full flush	4.5
Half flush	3
Nominal average flush	3.5
Average flush to appear on label	3.5
Water efficiency star rating	4
Status	Registered
Expiry date	22/01/2024

901900W, 901910W, 901920W Care 800 CF WF CC 4S BE Suite

** The above photo is shown as an illustration example (represent other variants with different toilet seats and colour variations).*

Tap Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	T09782
Licence Number	0140
Brand	GALVIN
Model name	35815
Model code	35815
Subtype	Single inlet tap (eg pillar tap/bib tap)
Flow controller	Flow controller in-line
Nominal flow rate	5.4
WC to appear on label	5.5
Water efficiency star rating	6
Status	Registered
Expiry date	22/01/2025

Wellbeing Leva 80mm Recess Wall Set with Standard Sink Spout

WLC80WSET

The Leva range combines outstanding quality with functional, beautiful design and enhanced hygiene with fewer gaps that can trap dirt and bacteria. For easy palm and wrist activated tapware, the Leva 80 series delivers an extensive choice with greater control, particularly for arthritis sufferers. For accessible applications Leva also delivers the benefits of easier reach, operation and control.

KEY FEATURES

- **Quarter-turn, contra-rotating 80mm lever handles**
- **Ceramic Disc**
- **WELS: 5 Star (5 L/min) laminar flow aerator supplied standard. 6 Star (4 L/min) laminar flow aerator available on request - specify when ordering**
- Swivel spout (SPC110)
- Ergonomic sleek design 80mm lever handle ensures ease of use either by palm or wrist
- Clear identification on all lever handles with blue, yellow or red coloured indicator collars
- Laminar flow aerator reducing the risk of airborne bacteria
- Robust construction for superior performance
- Australian designed and manufactured
- Extended spindles available

PRODUCT CODES

WLC80WSET	Wellbeing Leva 80mm Recess Wall Set with Standard Sink Spout

HYDROTAP G5 BCSHA100 5-IN-1 CLASSIC TAP WITH CLASSIC MIXER CHROME

BOILING CHILLED SPARKLING HOT & AMBIENT

FILTERED UNFILTERED

Order Code H51676Z00AU

Zip HydroTap Classic 5 in 1 Boiling, Chilled, Sparkling, Filtered water plus Hot and Cold washing up water from two separate taps. The system features a single under bench command centre including full colour interactive touch screen display with pin code protection and customisable settings including 2 boiling water safety modes, 3 energy saving modes including ON/OFF timers and sensor activated 'sleep when it's dark', 'Quiet' mode with automated intelligent fan speed adjustment, antimicrobial protection impregnated into key water paths for enhanced hygiene, 100% water efficient air cooled technology, and 0.2 micron water filtration. Easy to install integrated ventilation tray included.

Manufacturing Code	H51676Z00AU
Capacity	Commercial
Number of people	61-100
Boiling Cups per hour	240
Combined Chilled and Sparkling Cups per hour	175

Tap	Zip HydroTap CLASSIC Tap (Chrome)
Water Pressure	Min 300kPa - Max 700kPa
Water Connection	1/2" BSP (G1/2)
Water Supply Requirements	Cold
Water Valves	Integrated 500kPa Pressure limiting valve and Dual Check Valve
Power Rating	2.15kW 220-240V 50Hz
Booster Power Rating	Zip HydroTap Booster 2.2kW 220-240V 50/60Hz
Power Supply	2 x 10 Amp socket outlets
Dimensions	W395mm x D464mm x H333mm
Product Approvals	WaterMark, RCM, ARC
Wels Rating	6 Star, 3.0 litres
Warranty	5 years (appliance warranty 36 months plus additional 24 months tank warranty)

Installation Requirements

1. Installation and connection of your Zip HydroTap must be carried out by a qualified person, observing national and local regulations.

2. You will require suitable mains electrical and drinking water connections, plus waste water drainage all within 1 metre of the product.

3. Discrete cabinetry cut-outs are required for ventilation.

4. Installation on most bench tops is straightforward however some stone bench tops may require a specialised cutting service.

5. If you live in a hard water area, we recommend installation of a Zip scale filtration kit.

6. Installation by Zip Professional Service can be arranged with a phone call or through www.zipwater.com/book-service-visit

Installation Detail

APPENDIX B RAINWATER TANK CAPACITY CALCULATIONS

Rainwater Tank Calculations - FSM
Date: 20-May-2024

Rainwater Tank Calculations				
Month	**Mean rainfall (mm) - Erskine Park Reservoir**	**Harvestable Rainfall (kL) - ST Building**	**Harvestable Rainfall (kL) - Bike Shed**	**Harvestable Rainfall (kL)**
January	80.20	6.70	8.39	15.09
February	102.90	8.60	10.76	19.37
March	171.20	14.31	17.91	32.22
April	61.60	5.15	6.44	11.59
May	27.20	2.27	2.85	5.12
June	57.30	4.79	5.99	10.78
July	56.50	4.72	5.91	10.63
August	41.20	3.44	4.31	7.75
September	32.40	2.71	3.39	6.10
October	52.80	4.41	5.52	9.94
November	73.20	6.12	7.66	13.78
December	63.10	5.28	6.60	11.88
Annual	**819.60**	68.52	85.73	**154.25**

Rainwater Tank Capacity	
ST Roof Space (m2)	83.6
Bike shed roof space (m2)	104.6
Total Roof space (m2)	188.2
Tank Capacity (kL)	10