Upper South Creek

Advanced Water Recycling Centre and Pipelines PART B

CoA E92 Construction Water Reuse Strategy

Document No: USCP-JHG-PLN-ENV-0001
Revision No: A

Non-potable Water Source	Potential End Use	Evaluation of reuse option	Assessment timeframe/ implementation	Assessment Outcome	
				likelihood of generating uncontrolled sediment laden water and this waters potential to discharge to locally waterways (South Creek). This poses an unacceptable environmental impact to the surrounding environment that the Project must prohibit and as such the end use of testing water for irrigation purposes has been concluded unviable. • Compaction & Dust Suppression (**Under assessment**) – The Project is currently assessing the logistical limitations of retaining and reusing portions of the testing water within temporary detention basins that have no designed stormwater catchment for use in compaction and dust suppression activities. Noting the quantities for testing are greater than 80ML in total for the plant excluding pipelines, of which Project available space will be restricted to storing significantly less water at any one time. • Reuse of testing water in additional tests (**Under assessment**) - The Project will be assessing the possibility of seeking a deviation from the Sydney Water Civil specification and associated guidelines to permit retainment and possible reuse of testing water. Limitations yet to be resolved: o Water exposed to concrete and concrete-lined structures is subject to increasing pH as a result of the alkali minerals in cement. Water with a high pH (above the neutral pH of 7) can result in risks of corrosion, scaling (due to calcium and magnesium carbonate build up reducing water flow), chemical precipitation issues, disinfection challenges due to reduced effectiveness in chlorine-based disinfection agents, skin irritation to Project personnel and inability to safely discharge due to the potential for environmental impact. The Project is investigating if in-situ monitoring and treatment can be undertaken using pH correction chemicals to de-risk the potential reuse opportunity. o The staging of water retaining structures and asset testing, aimed at facilitating efficient water usage and movement, is restricted by the outcomes of prior tests and the readiness of designated areas. If a test fails or cannot be transferred to proceed with the next structure/asset, the water must be released. This enables re-testing, essential inspection to identify failure points, and access to assets for post-testing dry commissioning. For reference, John Holland's preliminary approach to water retention and reuse through staging can be found in Appendix D. **Pipelines Sites:** • Irrigation, compaction, and dust suppression (**Unviable**)- The staging of pipeline construction works inhibits the use of hydrostatic testing water for the purpose of compaction and dust suppression at pipeline sites. Trenching and compaction works required for pipeline installation must be completed prior to the commencement of hydrostatic testing. As a result, there is limited to no opportunity to utilise testing water for such end uses at the completion of testing. The opportunity to retain and reuse will furthermore be prohibited by the spatially constrained compounds of the pipeline sites and	

Non-potable Water Source	Potential End Use	Evaluation of reuse option	Assessment timeframe/ implementation	Assessment Outcome	
				the cost prohibitive nature of onboarding detention tanks with the capacity of holding water in quanitties in excess of 1 ML. Irrigation has the identical limitations of the AWRC site mentioned above, prohibiting the discharge to land for such a purpose. • Reuse of testing water in additional tests (**Under assessment**) – The Project will be assessing the viability of seeking deviation from the Sydney Water Civil specification that specifies the requirement to test and discharge water used in pipeline pressure testing in 1km sections. If a deviation to the specification is received the Project will assess if pipeline installation and testing staging aligns to allow water to be transferred between testing sections through pipeline air valves to limit the need for purging and refilling additional potable water per section.	
Drilling Fluid used in pipe jacking, horizonal directional drilling and under bores (*Consideration Ref: 7.1.11*)	Drilling fluid circulation	**Viable**	*Implementation:* During construction period.	**Pipelines Sites:** Reuse and recycling of drilling fluid in drill rig operations: The satellite sites used to stage and house the required drilling rigs for the treated and brine pipelines have been assessed meeting the spatial constraints to establish the necessary mixing and recycling unit to limit disposal and maximise reuse of drilling fluid in construction.	
	Distillation of drilling fluid	**Unviable**	***Implementation***: Not feasible for Project implementation	**Pipelines Sites:** Transport, detention, and treatment of drilling fluid post drilling: The logistical and technical requirements of transporting drilling fluid from drill sites to the main AWRC compound to a treatment plant capable of separating the two mixtures don't pose an acceptable cost, time or environmental risk the Project is willing to accept. The cost to onboard personnel with the expertise to manage a treatment plant capable of treating the waste, the space required to house the plant and the time to transport the material to the plant past licenced treatment facilities in the area present a negative whole-of-life cost and the water extracted for reuse and bentonite for application to land wouldn't be significant quantities to make the process viable.	

Non-potable Water Source	Potential End Use	Evaluation of reuse option	Assessment timeframe/ implementation	Assessment Outcome	
Capture of water from construction activities (Concrete activities, non-destructive digging, surface washing, grit blasting, washing vehicles) (*Consideration Ref: 7.1.2*)	Concrete activities, ERSED establishment and maintenance (spray grass, soil binder etc.) non-destructive digging, surface/cleaning washing, grit blasting, washing vehicles and plant.	**Unviable**	***Implementation***: Not feasible for Project implementation	**AWRC & Pipelines sites:** Concrete activities, non-destructive digging, surface/cleaning washing, grit blasting, washing vehicles and plant wastewater. Utilising the above identified wastewater (detailed in section 7.1.2) as a potential non-potable water source for re-use has been assessed by the Project and concluded as non-viable for both AWRC and pipelines for the following reasons: • Not a significant end use during the construction phase (<5%). Immaterial and inconsistent quantities based on the concrete design and construction staging make capture, storage, and treatment unviable for financial payback consistent with the construction period and if treated wouldn't provide a positive reduction in order of magnitude for the work delivered. • Logistically, establishment of a water treatment system/plant won't be possible due to spatial and staging constraints within areas of digging, washing, blasting, drilling, concrete pours and subsequent curing activities. Pumping of the remaining water to a treatment plant outside the work zone would be limited and inconsistent in the result as the majority of wastewater used will be absorbed and/or evaporate making capture and pumping prohibitive. • The small quantity of wastewater captured through washout processes in site designated washout areas in accordance with environmental management practices has been assessed as technically unviable for on-site treatment due to the inconsistent mixture and quality of the water. As such this will be removed to a licensed wastewater treatment facility with processes and systems in place to treat such water in accordance with relevant regional wastewater legislation. • Technically, the inconsistent quality of wastewater and requirement for high quality water for concrete curing as per batcher specifications, Project civil specifications and the Australian Standard and Project restrict the use to clean water. Wastewater or recycled water that was treated to anything short of the highest standard of quality wouldn't be a viable alternative.	

Table 7-5 Water reuse assessment site compound specific (Ancillary site indicative compound layouts provided in Appendix C)

Ancillary facility / site	Area (m^2)	Roof Space (m2)	Roof Capture Viable	Water sources	Estimated volumes of rooftop capture	Proposed reuse	Considerations/ constraints	Duration / timeframes
AWRC	3900	1750	Yes, ROI threshold achieved.	Rainwater capture through roof canopy and sediment basins. Captured runoff from road	**Monthly** =108.79 kL **Total** = 3263.75 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• Project personnel health risks associated with reusing water captured from the rooftop and stored in tanks. • Space constraints prevent water detention tank installation. • Financial payback greater than 30 months. – Achieved • Logistically and technically not possible to capture rooftop water due to the configuration of the Project offices, lunchrooms, and ablution blocks. • Limited access for water trucks for dust suppression and compaction purposes.	30 months
Pipelines - C5	3600	180	No, ROI threshold not met. No, ROI threshold not met.	Potable Mains	**Monthly** =11.14 kL **Total** = 133.68 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• Project personnel health for water captured from the rooftop and stored in tanks. • Space constraints and Project amenities need limit the amount of available roof space and the adequate space for a water detention tank installation. • Financial payback greater than 30 months. • Logistically and technically not possible to capture rooftop water due to the configuration of the Project offices, lunchrooms, and ablution blocks. • Space constraints prevent sediment basin establishment. • Legislative licencing and approval requirements from the EPA or DPE prevent capture and reuse. • Limited access for water carts to reuse water within sediment basin.	12 months

Pipelines - C6	27000	990	No, ROI threshold not met.	Potable Mains	**Monthly** =61.55 kL **Total** = 615.45 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• Project personnel health for water captured from the rooftop and stored in tanks. • Space constraints and Project amenities need limit the amount of available roof space and the adequate space for a water detention tank installation. • Financial payback greater than 30 months. • Logistically and technically not possible to capture rooftop water due to the configuration of the Project offices, lunchrooms, and ablution blocks. • Space constraints prevent sediment basin establishment. • Legislative licencing and approval requirements from the EPA or DPE prevent capture and reuse. • Limited access for water carts to reuse water within sediment basin. • Sub-contractor and supplier capability to supply recycled water or capture and reuse water during construction activities. • Health risks associated with reusing construction water or groundwater. • Sub-contractor and supplier capability to supply recycled water or capture and reuse water during construction activities. • Sub-contractors and suppliers will alter throughout the construction period providing intermittent sources and no steady supply based on changing scope of works as the Project progresses	10 months
Pipelines - C7	12640	250	No, ROI threshold not met.	Recirculating water from construction activities	**Monthly** =15.56 kL **Total** = 171.12 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• As above.	11 months

Pipelines - C11	4540	350	No, ROI threshold not met.	Potable Mains	**Monthly** = 21.88 kL **Total** = 262.59 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• As above	12 months
Pipelines - C21	5600	520	No, ROI threshold not met.	Potable Mains	**Monthly** =32.33 kL **Total** = 96.98 kL	Amenities/ Offices – Office & worker ablution urinal and toilet reuse. Construction activities - dust suppression, compaction, machinery/plant wash down or cleaning and erosion control watering (spray grass etc…).	• As above	3 months

8 Total Water Consumption

The initial water balance assessment for the project has been finalised, detailing the main water usage categories (refer to Appendix A for the comprehensive assessment). The analysis reveals that the primary consumption of water during the construction phase is associated with hydrostatic testing, site acceptance testing, and dust suppression.

Moving forward, the project will continue to evaluate the feasibility of various potential opportunities for water reuse, those which are currently under investigation. Those opportunities deemed feasible and viable, as indicated in Table 7-4, will be integrated. The project is committed to enhancing water reuse and minimising consumption by concentrating on the initiatives outlined in section 6, that address the three main water usage categories highlighted earlier.

After the completion of the feasibility assessment outlined in section 7.2 and the subsequent modelling of proposed water consumption, a refined version of this strategy will be presented to the Planning Secretary. This updated strategy will encompass the project's final stance on the potential for water reuse, derived from the culmination of these analyses.

Table 8-1 Summary of water consumption

Water Source	End-use	Volume (ML)
Mains Water (Potable)	Dust Suppression	73.69
Mains Water (Potable)	Hydrostatic Testing	89.42
Mains Water (Potable)	Wet Commissioning	23.88
Mains Water (Potable)	Non-destructive Digging	4.00
Mains Water (Potable)	Horizontal Directional Drilling (HDD)	5.27
Mains Water (Potable)	Concrete	1.83
Mains Water (Potable)	Street Sweeping	0.34
Mains Water (Potable)	Site Compounds - AWRC	5.85
Mains Water (Potable)	Site Compounds - Pipelines	0.41
Totals		
Base case water consumption		207.94 ML
Proposed water consumption		TBC – Pending final water reuse investigations
Base case water consumption from potable sources		207.94 ML
Potable water replacement from alternate sources		TBC – Pending final water reuse investigations
% Reduction in water consumption		TBC – Pending final water reuse investigations
% Alternate water source replacement		TBC – Pending final water reuse investigations

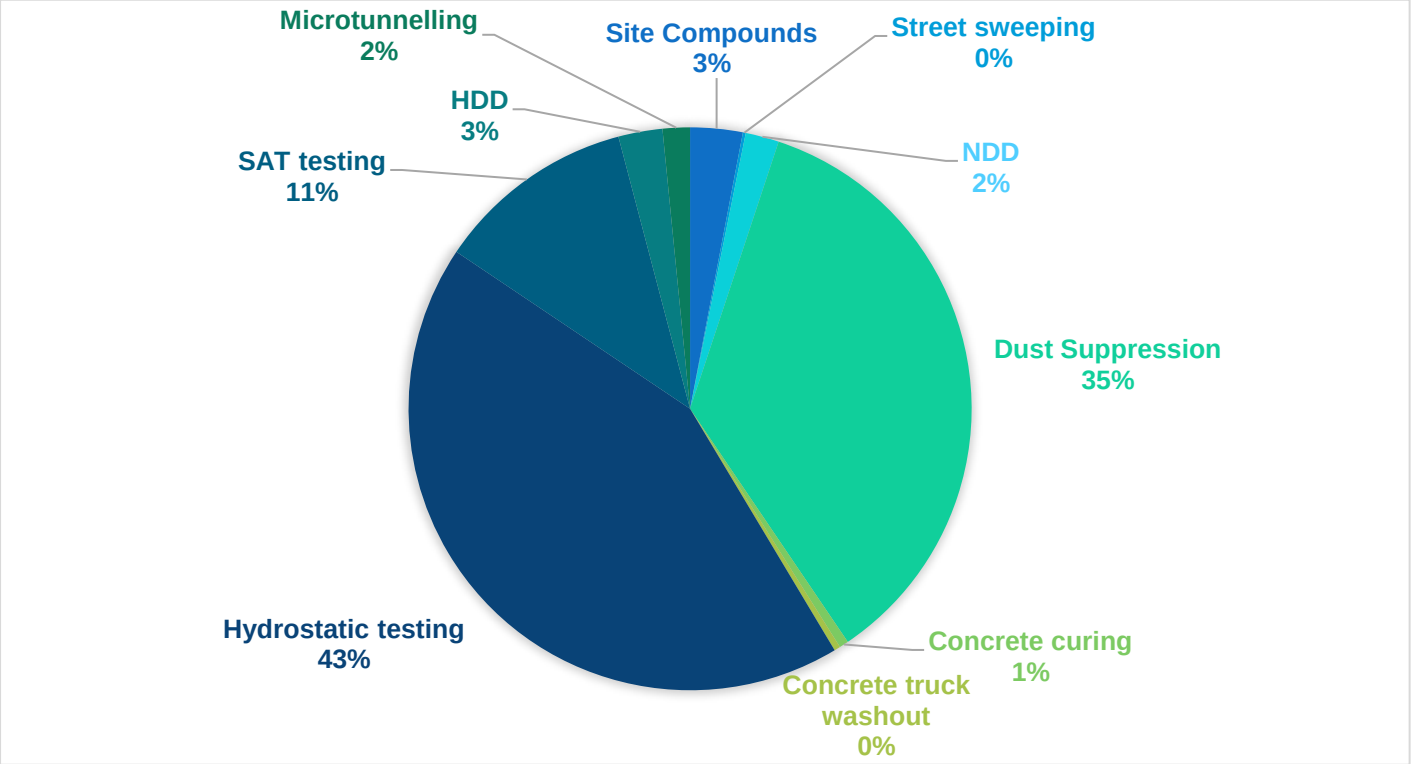


Figure 8-1 Percentage breakdown of water consumption per end use

9 Monitoring and management

The project's consumption of water summarised within Section 8 of this report will be regularly monitored and reported by John Holland through the establishment and implementation of a monitoring program managed by the project Sustainability Team and implemented by on-site construction personnel and sub-contractors.

The project Sustainability team will review all water use to ensure health and safety of project personnel and to monitor effectiveness of water avoidance and reuse strategies.

The project will monitor all water consumption sources (Table 9-1) throughout the construction phase to evaluate project performance towards ISC requirements and targets defined in Section 3.5.

Audits, inspections, and reviews of project performance, including water reuse, will be undertaken throughout project delivery and at the discretion of the Project Sustainability Manager as required.

Measurement and tracking will be through following measures:

- A permit system for reuse of any rainwater captured on site will be implemented in accordance with procedures set out in the Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001).
- Water meters and sub-meters at key water use points.
- Water cart load tracking and reuse estimates.
- Smart metering at key locations to allow site water consumption to be monitored and recorded; and
- Project collation and evaluation of data through data collection portals (sub-contractors), Sustainability data registers and dashboards.

Table 9-1 Water data capture sources to be monitored during the Project.

Resource Type		Source/s	Responsible Party	Frequency
Water	Potable water	Project invoices Subcontractor monthly reports	Sub-contractor, JH Commercial Team	Monthly
		Water meter reads and smart meter dashboard.	Site personnel & Environment & Sustainability team	Monthly
	Non-potable water	Water meter reads	Site personnel & Environment & Sustainability team	Monthly
		Modelled consumption estimates (where water meter reads are unavailable)	Sub-contractor, commercial Environment Team	Monthly
		Subcontractor monthly reports Water Discharge & Reuse Permits		Monthly
	Water discharge	Water meter reads	Site personnel & Environment & Sustainability team	Monthly
		Modelled estimates (where water meter reads are unavailable)		
		Water Discharge & Reuse Permits		

Sustainability performance will be reported as per the requirements of the Sydney Water Engineering and Construction Contract, the EIS and ISC v2.1 credit requirements. The sustainability reports will include details on objectives, targets, indicators, etc. and identify areas for improvement.

Reporting will be conducted as per the Upper South Creek Project reporting requirements (Table 9-2), reporting will be consolidated and reviewed by the Sustainability team and provided to the project client representative monthly though summary dashboards and the public annually by means of the project annual Sustainability Report. The ISC targets set by the project and detailed in Section 3.5 will be reported and project achievement towards documented within the Annual Sustainability Report and ISC rating submissions.

Table 9-2 Project's sustainability reporting requirements

Reporting Requirement	Description	Frequency
Client		
Monthly Sustainability Progress Reporting	A monthly summary of key deliverables, risks, innovations/opportunities and performance summary in meeting sustainability requirements and targets will be provided to Sydney Water, as well as data on carbon emissions, waste disposal, concrete, and steel quantities in the form of dashboards extracted from the Project Sustainability Assurance Platform/tool.	Monthly
Presentation to Project Leadership Team	During design and construction, a quarterly summary of performance against the sustainability objectives and targets stated in section 3.3.1 Project wide targets.	Quarterly
Public Reporting		
Annual Sustainability Report	An annual sustainability report will be prepared for John Holland and include a performance update of sustainability requirements, implementation of strategies, targets and initiatives, climate change risks assessments, greenhouse gas reduction initiatives, life cycle assessments, sustainability in procurement and corrective actions taken where non-conformances are identified. The report will be prepared annually and provided for public viewing within 6 months of the end of the reporting period the 21st of April each year.	Annual (within 6 months following 21 April each year)
Legislation		
NGERS Reporting	The Project is required to report sustainability data to John Holland Group to fulfil legislative reporting requirements under the National Greenhouse and Energy Reporting Act 2007 (NGER Act).	Annual (Financial Year)
Infrastructure Sustainability Council		
ISC rating submissions	John Holland is required to obtain a Gold ISC rating for the Project for the Design and As-Built phases. Sustainability data captured by John Holland will be used to support the preparation and evidence towards the Project ISC rating submissions.	End of Design and Construction phases

10 Conclusion

John Holland is committed to using non-potable water sources and reusing water wherever possible and when feasible. As detailed within this Construction Water Reuse Strategy, currently the project is committed to delivering and further assessing viable water reuse opportunities identified in Table 7-4. The following key limitations require further consideration and assessment prior to the project committing to the delivery of further stormwater harvesting and reuse opportunities:

- Logistical limitations of retaining and reusing portions of the testing water within temporary detention basins that have no design stormwater catchment for use in compaction and dust suppression activities.
- Finalisation and acquisition of the necessary approvals to extract and use surface water during construction from a local waterway or neighbouring property.
- Resolution of limitation in reference to coordinated staging, deviation from specification and quality restrictions, devising a monitoring and treatment regime to enable the reuse of hydrostatic testing and site acceptance testing water.
- Site-specific soil testing is yet to be undertaken to confirm the appropriate settlement rate for the Project HES basin and further inform the basins final sizing is yest to be undertaken. Once testing is complete the Project will be able to confirm the capacity and ability of the basin to provide a surface and stormwater runoff source of non-potable water for reuse on-site.

As the project design and construction progress, John Holland will continue to work collaboratively to find a successful outcome with Sydney Water and our construction partners to make all possible endeavours with project suppliers and sub-contractors through the procurement process, construction planning and onboarding and site establishment processes, to implement the options identified as under review within Table 7-4.

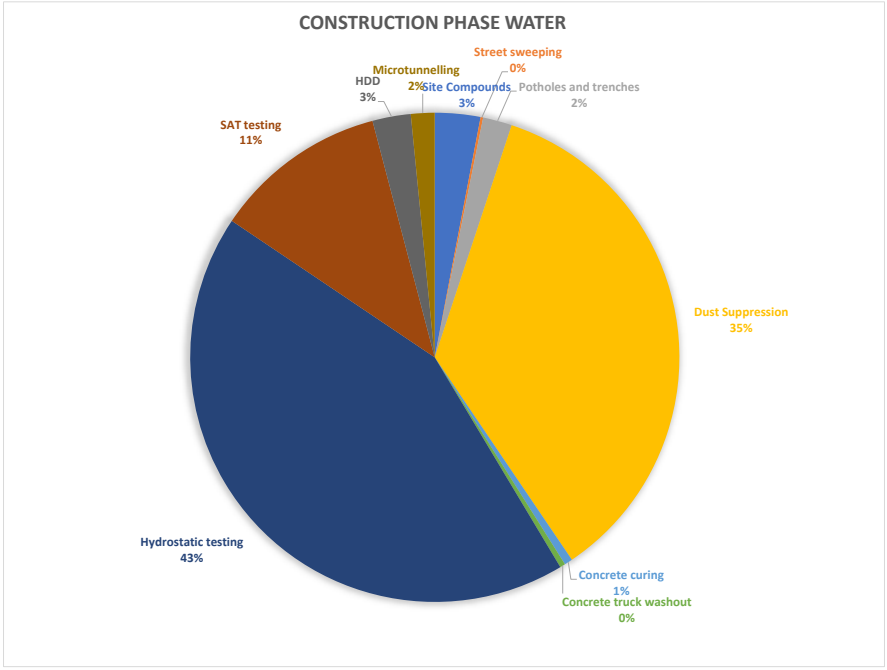
The project will continue to investigate any further identified water reuse options and will seek advice on those options from relevant stakeholders and agencies as needed.

A finalised version of this strategy will be presented to the Planning Secretary upon completion in alignment with the timeline of assessment in Table 7-4. This updated strategy will encompass the project's final stance on the potential for water reuse.

Appendix A: Water Balance Study

WAT-1 RESULTS SUMMARY

	Base Case	% Total Contribution	Proposed Case	% Total Contribution	% reduction
CONSTRUCTION PHASE WATER USE					
	Total (ML)	**(%)**	**Total (ML)**	**(%)**	**(%)**
Site Compounds	6.26	3%			
Street sweeping	0.34	0%			
Potholes and trenches	4.00	2%			
Dust Suppression	73.69	35%			
Concrete curing	1.10	1%			
Concrete truck washout	0.73	0%			
Hydrostatic testing	89.42	43%			
SAT testing	23.88	11%			
HDD	5.27	3%			
Microtunnelling	3.25	2%			
TOTAL Construction	**207.94**	**100%**	**0**	**0%**	**0%**
OPERATIONAL PHASE WATER USE					
	Total (ML/lifespan)	**(%)**	**Total (ML/lifespan)**	**(%)**	**(%)**
TBC					
TOTAL Operation	**0**	**0%**	**0**	**0%**	**0%**
TOTAL LIFECYCLE WATER USE	**207.94**				
LEVEL					



Upper South Creek
SITE COMPOUNDS

Results Summary

Wat-1	Base Case (ML)	Proposed Case (ML)	% Reduction	Comments
Site Compounds	6.26	4.32	31%	

Inputs and Assumptions

Mascot Site Office	Input	Unit	Source
Occupancy (hours)	40	hr/week	JHSW
Occupancy (days)	5	full days/week	JHSW
Duration of use	Whole construction Period, however, designers finish in early so capacity halves		JHSW
Number of staff			
Female staff on site at one time (average):	30		
Male staff on site at one time (average):	270		Staffing (JHSW)
Total staff on site at one time (average):	**300**		

Water Use Assumptions								
	Base Case				Proposed Case - TBC			
	Star Rating	Water Consumption	Unit	Source	Star Rating	Water Consumption	Unit	Source
Taps	WELS - 4 stars	7.5	L/min	Responsible Construction Leadership Guidelines (RCLG) and/or Green Star Potable Water Guide (2019) & Upper South Creek Base Case Proposal	RCLG - push button taps with aerat	3.5	L/min	Sustainability Specification, Base Case and RCLG min. requirements
Toilets	WELS - 3 stars	4	L/flush		RCLG - 3 stars	4	L/flush	
Urinals	WELS - 3 Stars	2	L/flush		RCLG - 3 stars	2	L/flush	
Showers	WELS	7.5	L/min		RCLG	7.5	L/min	
Dishwashers	3.5 Stars	1.35	L/place setting		4 Stars	1.35	L/place setting	

Fitting use assumptions									
General						Base Case		Proposed Case - TBC	
	No. uses	Unit	Time per use	Unit	Source	Base Case Daily Consumption	Unit	Proposed Case Daily Consumption	Unit
Wash Basin	3.3	per person per day	0.5	m per use	Responsible Construction	12.375	L per person per day	5.775	L per person per day
Toilets	1.3	per person per day	N/A	N/A	Leadership Guidelines (RCLG)	5.2	L per person per day	5.2	L per person per day
Urinals	2	per person per day	N/A	N/A	and/or Green Star Potable Water Guide (2019) & Upper South Creek Base Case Proposal	4	L per person per day	4	L per person per day
Showers	0.05	uses per person	5	m per use	Responsible Construction Leadership Guidelines (RCLG), & Upper South Creek Base Case Proposal and Green Star Industrial Potable Water Calculator Guide (2010) - Table 1	1.875	L per person per day	1.875	L per person per day
Dishwashers	0.05	per person per day	N/A	N/A	filled with 20 plates before wash	0.0675	L per person per day	0.0675	L per person per day
Kitchen Sink	1	per person per day	0.5	m per use	v1 Potable Water Calculator	3.75	L per person per day	1.75	L per person per day
Water Consumed	1	L per person per day	N/A	N/A	Assumption	1	L per person per day	1	L per person per day

Site data	AWRC Main Compound	C5	C6	C7	C11	C21
Installation Date:	Sep-23	Jan-24	Sep-23	Sep-23	Aug-23	Oct-23
End date:	Dec-25	Apr-24	Jul-24	Aug-24	Aug-24	Jan-24
Duration (months):	27.98	2.99	9.93	11.28	12.03	3.03
Duration (days):	851	91	302	343	366	92
Duration (weeks):	122	13	43	49	52	13
Duration (years):	2.33	0.25	0.83	0.94	1.00	0.25
Working days (6 days a week-2 weekshut down):	699.452055	75	248	282	301	76
Female staff on site at one time (average):	30	0	1	1	1	1
Male staff on site at one time (average):	270	0	10	10	30	5
Total staff on site at one time (average):	**300**	**0**	**11**	**11**	**31**	**6**

*C6 and C7 personnel based on 5 office workers and 15 site personnel (who I have assumed will only be using the facilities 1/3 of the time for prestart, smokos and lunch)

Calculations

	Base Case						
	AWRC Main Compound	C5	C6	C7	C11	C21	
Wash Basin (L/day)	3712.5	0	136.125	136.125	383.625	74.25	**No confirmed site compound at C5
Toilets female (L/day)	156	0	5	5	5	5	
Toilets male (L/day)	1404	0	52	52	156	26	
Urinals male (L/day)	1080	0	40	40	120	20	
Showers (L/day)	563	0					*No showers in satellite compounds
Dishwashers (L/day)	20	0	1	1	2	0	
Kitchen Sink (L/day)	1125	0	41	41	116	23	
Water Consumed (L/day)	300	0	11	11	31	6	
Total daily consumption (L/day)	8,360	-	286	286	814	154	
Total monthly consumption (L)	254,291		8,709	8,709	24,764	4,695	
Total construction phase consumption (ML)	**5.85**	-	**0.07**	**0.08**	**0.24**	**0.01**	

	Proposed Case - TBC						
	AWRC Main Compound	C5	C6	C7	C11	C21	
Wash Basin (L/day)	1732.5	0	63.525	63.525	179.025	34.65	**No confirmed site compound at C5
Toilets female (L/day)	156	0	5.2	5.2	5.2	5.2	
Toilets male (L/day)	1404	0	52	52	156	26	
Urinals male (L/day)	1080	0	40	40	120	20	
Showers (L/day)	562.5	0	0	0	0	0	*No showers in satellite compounds
Dishwashers (L/day)	20.25	0	0.7425	0.7425	2.0925	0.405	
Kitchen Sink (L/day)	525	0	19.25	19.25	54.25	10.5	
Water Consumed (L/day)	300	0	11	11	31	6	
Total daily consumption (L/day)	5,780	-	192	192	548	103	
Total construction phase consumption (ML)	**4.04**	-	**0.05**	**0.05**	**0.16**	**0.01**	

On site Rainwater Tank at AWRC Compound			
	Unit	Value	Source/ Assumptions
Tank connected to	No.	Toilets	Male toilet, femail toilets and urinals at AWRC
Number of tanks	No.	1	AWRC Site compound plans
Capacity total	L	15000	AWRC Site compound plans
Roof area available for water collection	m^2	1750	AWRC Site compound plans
Mean yearly Average Rainfall	mm	727.5	Bureau of Meteorology
Construction Period	months	30	Refer to Appendix B
Maximum potential rain capture per month	kL	108.7	Refer to Appendix B
Total rainfall captured over project	ML	3.261	Construction phase from Sep 23 to December 25
Total water required	ML	6.26	
Total water replaced	ML	2.64	AWRC site toilets
Total water replaced	%	42%	Formula

Upper South Creek
CONSTRUCTION WATER

Results Summary

Wat-1	Base Case (ML)	Proposed Case (ML) - TBC	% reduction	Comments
Street sweeping - AWRC	0.15			
Street sweeping - Pipelines	0.19			
Potholes and trenches	4.00			
Dust Suppression	73.69			
Concrete curing	1.10			
Concrete truck washout	0.73			
TOTAL	**79.86**			

Inputs and Calculations

Street sweeping - AWRC

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Source	Type	Potable Water				
Area to be swept	m2	10,000.00				Area provided by Construction team
	m2/day	1,666.67				
Total sweepers	No.	1.00				Water use per Sweeper
Duration	months	27.00				
	days	618.75				Assuming 5.5 working days a week and 50 weeks in a year (2 week shutdown)
Operation hours per day	hrs	8.00				Assume running from 8am to 4pm
Total street sweeper hours	hrs	4,950.00				
Spray per hour	L/hr	30.77				One street sweeper tank consumes approximately 200L of water across 6.5 hours
Total water consumption	**L**	152,307.69				
Total water consumption	**ML**	**0.15**				

Street sweeping - Pipelines

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Source	Type	Potable Water				
Area to be swept	m2	80,000.00				Area provided by Construction team
	m2/day	13,333.33				
Total sweepers	No.	1.00				Water use per Sweeper
Duration	Date	27.00				
	Days	618.75				Assuming 5.5 working days a week and 50 weeks in a year (2 week shutdown)
Operation hours per day	hrs	10.00				Assume running from 7am to 5pm
Total street sweeper hours	hrs	6,187.50				
Spray per hour	L/hr	30.77				One street sweeper tank consumpes approximately 200L of water across 6.5 hours
Total water consumption	**L**	190,384.62				
Total water consumption	**ML**	**0.19**				

Dust Suppression

DEMOLITION - AWRC

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Total Exposed Area to be dust suppressed	m2	15,000.00				Area provided by Construction Team
Demolition program	Weeks	3.00				Demolition Program
	Days	16.50				Assume 5.5 working days a week
Hours per day	Hrs/day	10.00				
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/week	1.33				
Days requiring dust suppression	days	12.53				
Water Cart used	L	15,000.00				Assume 15,000L Water cart
Daily Water use rate	L/day	45,000.00				Assumption - 3 fills of water cart per day
Water Consumption rate per day	L/m2	3.00				
Total Consumpotion (L)	**L**	**563,625.00**				
Total water consumption	**ML**	**0.56**				

Dust Suppression

SITE STRIPPING (TOPSOIL) - AWRC

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Site area cleared	m2	168,500.00				Source: Plant Programme - Inlet, Permanent OSD Basin, ACM, Bench.
Time Site Clearing Phase	months	3.00				Period of exposure prior to install of hardstand and application of spray seal and internal roads Souce: Plant Programme - August 2023 to November 2023. No 2 week shutdown.
	weeks	13.00				
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
Days requiring dust suppression	days	54.28				Assuming 5.5 working days a week - 700-1700 Monday to Friday and 800 - 1300 Saturday
Water Cart used	L/load	15,000.00				
Average Number of Refills per day	No.	5.00				Assume 5 refills of water cart per day
Daily Water use	L	75,000.00				
Water Consumption rate per day	L/m2	0.45				
Total Consumption (L)	**L**	**4,070,625.00**				
Total Consumpotion (ML)	**ML**	**4.07**				

Dust Suppression

STOCKPILES - AWRC

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Stockpiled material requiring dust suppression	m2	50,000.00				Area provided by Construction team
Water use rate for dust suppression (day)	L/m2	3.00				Based on water consumption rate per day for AWRC demolition dust supression. Based on 15,000L water carts and 3 refills per day
	years	2.00				
Period of Exposure	weeks	100.00				Assume 2 week shutdown per year
	days	550.00				Assume 5.5 working days a week
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
	days/week	0.82				
Days requiring dust suppression	days	99.18				Assume 1 x wet down of stockpiles per week
Total Consumption (L)	**L**	**14,876,964.29**				
Total Consumpotion (ML)	**ML**	**14.88**				

Dust Suppression

STOCKPILES - Pipelines

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Exposed area to be dust suppressed	m2	351.00				Source: C6 Site layout, stockpile area
Water use rate for dust suppression (day)	L/m2	0.45				Reference: Dust Management Plan, Meriton Site, URS, 2009
Period of exposure	months	10.00				Period of operation for C6
	weeks	43.33				
	days	238.33				
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
Days requiring dust suppression	days	180.92				
Total Consumption (L)	**L**	**28,264.87**				
Total Consumpotion (ML)	**ML**	**0.03**				

Dust Suppression

FILL/OPEN TRENCH - AWRC

	Unit	Base Case	Proposed Case	Reduction %	Replacement %	Notes
Total Exposed Area to be dust suppressed	m2	42,500.00				Source: Plant Programme
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
	months	12.00				

Period of exposure	days	250.00				12 months of work, assumption from "Copy of Water Reuse_MT", assume 5 working days a week and 2 weeks shutdown
Days requiring dust suppression	days	181.10				Total days in a year minus annaul rainfall days
Equipment capacity	L	30,000.00				Based off 3 water carts (10,000L each)
Daily usage	L/day	60,000.00				Assume 2 fill of water cart for 3 water carts per day
Water use rate for dust suppression (day)	L/m2	1.41				
Total Consumpotion (L)	**L**	**10,866,000.00**				
Total water consumption	**ML**	**10.87**				

Dust Suppression						
FILL/OPEN TRENCH - PIPELINES						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
Total Exposed Area to be dust suppressed	m2	120,000.00				Provided by Construction Manager and Team
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
Period of exposure	months	12.00				Construction Programme
	days	275.00				12 months of work from construction programme, assume 5.5 working days a week and 2 weeks shutdown
Days requiring dust suppression	days	206.10				Total days in a year minus annaul rainfall days
Equipment capacity	L	30,000.00				Based off 3 water carts (10,000L each)
Daily usage	L/day	60,000.00				Assume 2 fill of water cart for 3 water carts per day
Water use rate for dust suppression (day)	L/m2	0.50				
Total Consumpotion (L)	**L**	**12,366,000.00**				
Total water consumption	**ML**	**12.37**				

Dust Suppression						
BULK EARTHWORKS CUT TO FILL - AWRC						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
Total stockpile surface area	m2	61,400.00				Source: Plant Programme
Average days rainfall	days/annual	68.90				Source: BOM Mean number of days of rain >=1mm at Badgerys Creek
	days/month	5.74				
Period of exposure	months	24.00				Period of exposure assumption from "Copy of Water Reuse_MT) from Engineers and Site Supervisor
	days	550.00				
Days requiring dust suppression	days	412.20				
Equipment capacity	L	15,000.00				Assume water cart size of 15,000L
Daily usage	L/day	75,000.00				Assume 5 refills of water cart per day
Total Consumpotion (L)	**L**	**30,915,000.00**				
Total water consumption	**ML**	**30.92**				

TOTAL						
Total water consumption	**L**	73,686,479.16				
Total water consumption	**ML**	**73.69**				

POTHOLES & TRENCHES						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
No. of NDD trucks per day	no.	2.00				Construction Schedule
No. loads per day	no.	2.00				
	months	12.00				
Duration of Use	weeks	50.00				Assuming 2 week shutdown
	days	250.00				Assume no weekends
Equipment size	L	4,000.00				
Total Consumpotion (L)	**L**	**4,000,000.00**				
Total water consumption (ML)	**ML**	**4.00**				

Plant Equipment/ Construction Water Use						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
Water Source	Source	Potable				

Plant Equipment/ Construction Water Use						
CONCRETE CURING						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
Water Source	Source	Potable				
Volume of concrete	m3	22,000.00				Based on Project design
Total no. of pours	no.	220.00				Based on constructability programe
Water requirement per pour	L	5,000.00				Based on information provided by engineers in "Copy of Water Reuse_MT"
Total water consumption (L)	**L**	1,100,000.00				
Total water consumption (ML)	**ML**	**1.10**				

Plant Equipment/ Construction Water Use						
Concrete Truck Washout						
	Unit	**Base Case**	**Proposed Case**	**Reduction %**	**Replacement %**	**Notes**
Water Source	Source	Potable				
Volume of Concrete	m3	22,000.00				Base Case - Tender BOQ, Proposed Case - FDD BOQ
Total no. of trucks	no.	3,667.00				Confirmed JHSW
Water volume per truck	L	200.00				
Total water consumption	**L**	733,400.00		1.00	1.00	
Total water consumption (ML)	**ML**	**0.73**				

TOTAL						
Total water consumption (L)	**L**	1,833,400.00				
Total water consumption (ML)	**ML**	**1.83**				

Upper South Creek
HYDROSTATIC TESTING VALUES

Results Summary

Wat-1	Base Case (ML)	Proposed Case (ML) - TBC	% reduction	Comments
AWRC	89.41			
AWRC - SAT	23.88			
Pipelines	0.01			
TOTAL	**113.30**	-		

Inputs and Calculations

AWRC Hydrotesting
BASE CASE

Inlet Works	Program Start	24/05/2024		Program Finish	12/06/2024								
Inlet Works Test 1													
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Internal Wall Length	Internal Wall Width	Internal Wall Area	Total Area	Total Volume	**kL Required**
Receival Chamber	48.40	53.49	0.30	5.38	11.00	8.00	88.00	0.00	0.00		88.00	473.62	**473.62**
Primary Screens	49.40	53.79	0.30	4.68	20.70	24.00	496.80	99.20	0.40	39.68	457.12	2,140.24	**2,140.24**
TOTAL kL Required	**2,613.85**	kL											
Inlet Works Test 2													
	Height First Lift	Dia	Volume	Height second lift	Dia	Volume	Total	**Total kL**					
Grit Collector Below Sus Floor	2.50	1.50	8.84	0.90	7.40	77.42	684.02	**684.02**					
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	dia	Total circular	Length	Width	Volume	Total Volume	**Total kL**		
Grit Collector Above Sus Floor	49.40	51.39	0.30	2.29	7.40	196.72	10.40	2.50	59.46	256.18	**256.18**		
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Internal Wall Length	Internal Wall Width	Internal Wall Area	Total Area	Total Vol	**Total kL**
Fine Screens and Outlet	49.40	51.69	0.30	2.59	18.20	12.20	231.88	36.00	1.00	36.00	195.88	506.74	**506.74**
	Height	Length	Width	Volume	**Total kL**								
Grit Collector Inlet Channel	1.30	7.00	6.07	55.24	**55.24**								
TOTAL kL Required	**1,502.18**	kL											

Bioreactor	Program Start	45,414.00		Program Finish	45,450.00								
				Program Test 1 Finish	45,435.00								
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Internal Wall Length	Internal Wall Width	Internal Wall Area	Total Area	Total Volume	**kL Required**
Per Ox ditch (For planning purpose)	39.02	46.49	0.30	7.77	85.63	24.29	2,079.95	239.56	0.40	95.82	1,984.13	15,416.68	**15,416.68**
Entire Tank (3 chambers)													**46,250.04**
Total Volume	**46,250.04**	kL											
Membrane Tank	Program Start	See below		Program Finish	See below								
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Internal Wall Length	Internal Wall Width	Internal Wall Area	Total Area	Total Volume	**kL Required**
Inlet Chamber	41.00	45.29	0.30	4.59	33.25	3.08	102.41				102.41	470.06	**470.06**
Membrane Train (5 of 10 for one test)	43.83	47.86	0.30	4.33	17.40	15.00	261.00				261.00	1,130.39	**1,130.39**
Membrane Train Sump Allowance				0.90	30.00	0.90	27.00				27.00	24.30	**24.30**
Outlet Chamber	43.58	47.86	0.30	4.58	37.65	2.00	75.30				75.30	344.95	**344.95**
		Program St		**Program Finish**									
TEST Inlet	**470.06**	28/07/2023		13/08/2023									
TEST Main Tank	**2,285.08**	4/04/2024		17/04/2024									
TEST Even Trains (separating walls)	**1,142.54**	18/04/2024		29/04/2024									
TEST OUTLET	**344.95**	17/05/2024		1/06/2024									
TOTAL Volume	**4,242.63**	kL											

Digester Tank	Program Start	45,386.00		Program Finish	45,418.00		(program is both tanks overlapping but 150 days float in program - plan for 1 after the other)	
	Wall Height	Freeboard	300mm for stab	Effective Depth	Dia	Area	Volume (m^3)	**kL**
Conical Bottom (1 Tank)	2.50	0.00	0.30	2.80	25.00		458.15	**458.15**
Tank Volume (1 Tank)	12.50	0.50	0.30	12.30	25.00	490.87	6,037.75	**6,037.75**
Total 1 Tank							6,495.90	**6,495.90**
Total 2 Tanks							12,991.79	**12,991.79** Total for 2 tanks

Brine Tank	Program Start	45,476.00		Program Finish	45,520.00		(program is both tanks overlapping but 50 days float in program - plan for 1 after the other)	
	Wall Height	Freeboard	300mm for stab	Effective Depth	Dia	Area	Volume (m^3)	**kL**
Tank Volume (1 Tank)	12.70	0.30	0.30	12.70	32.00	804.25	10,213.95	**10,213.95**
Total 2 Tanks Water Vol							20,427.89	**20,427.89** Total for 2 tanks

First Flush Tank									
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Volume	**Total kL**
	35.50	39.70	0.30	4.50	12.00	7.00	84.00	378.00	**378.00**
Disinfection Chamber							8.00		
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Volume	**Total kL**
	38.60	41.40	0.30	3.10	5.60	2.00	11.20	34.72	**34.72**

Drainage Pumpstations x 3								
	Wall Height	Freeboard	300mm for stab	Effective Depth	Dia	Area	Volume (m^3)	**kL**
	6.00	0.30	0.30	6.00	4.00	12.57	75.40	**75.40**
Total for 3 tanks							226.19	**226.19**

Flow Splitter													
	Top of Base	Top of Water for Test	300mm for stab	Effective Water Depth	Length	Width	Area	Internal Wall Length	Internal Wall Width	Internal Wall Area	Total Area	Total Volume	**kL Required**
Inlet Chamber	38.80	47.06	0.30	8.56	16.00	6.05	96.80	20.70	0.50	10.35	86.45	739.84	**739.84**

AWRC Site Acceptance Testing (SAT) - Wet commissioning

Component	Total Water Use (kL)
MBR Trains	1969.7022
Digestor	6495.89731
Bioreactor	15416.68
Total	**23882.27951**

Pipelines Hydrotesting

Treated			
Water use for test (per 1 km)	0.63	kL	
Treated pipeline length	16.68	km	Pipeline design
Total water use	10.43	kL	

Brine			
Water Use for test (per 1km section)	0.10	kL	
Brine pipeline length	23.95	km	Pipeline design
Total Water use	2.40	kL	

Upper South Creek

TRENCHLESS - HDD and Microtunnelling

Results Summary

Wat-1	Base Case (ML)	Proposed Case (ML) - TBC	% reduction	Comments
Microtunnelling	3.25			
HDD	5.27			
TOTAL	**8.52**	-		

Inputs and Calculations

Pipelines Trenchless Crossings Summary

	Pipeline	Location	Crossing Type	Pipe Size (mm)	Pipe Type	Pit Size (m x m)	Length (m)	Maximum Depth IL (m)	Estimated Spoil Quantity (m3)	Program - Days	Per day approx (M3)	Water calculation (m3)	Water use (L)	Assumption
1	Brine	Elizabeth Dr - Western Road	HDD	DN450	PE100 PN20	2x2x2	366	11.15	180	20	8.98275		309,400.00	Received from subcontractor - SEE
2	Brine	Eastern Gas Pipeline	Micro Tunnelling	DN600 Jacking Pipe, DN450 Pipeline	RC (Jacking) PE100 PN20 (PVC)	6x3x6	140	5.72	429	25	17.14688	1286.016	1,286,016.00	Assume 3 m3 water used per m3 of spoil
3	Brine	Upper Canal	HDD	DN450	PE100 PN20	2x2x2	250	18.89	114	15	7.608333333		212,500.00	Received from subcontractor - SEE
4	Brine	M7	HDD	DN450	PE100 PN20	2x2x2	288	30.20	129	18	7.168888889		140,395.00	Received from subcontractor - UEA
5	Brine	Cowpasture Road/North Liverpool Rd	HDD	DN450	PE100 PN20	2x2x2	498	13.82	211	25	8.4586		243,612.00	Received from subcontractor - UEA
6	Brine	Elizabeth Dr	HDD	DN450	PE100 PN20	2x2x2	229	13.48	106	18	5.882361111		194,650.00	Received from subcontractor - SEE
7	Brine	Cabramatta Rd Culverts	HDD	DN450	PE100 PN20	2x2x2	236	10.68	109	15	7.242		212,500.00	Received from subcontractor - UEA
8	Brine	Cumberland Highway Crossing	Micro Tunnelling	DN450	PE100 PN20	2x2x2	150	10.47	75	10	7.4875	224.625	224,625.00	Quantity from Senior Project Engineer
9	Brine	Railway Crossing	HDD	DN400	PE100 PN20	2x2x2	271	16.88	122	16	7.64796875		109,874.00	Received from subcontractor - UEA
10	Brine	Lennox Reserve	HDD	DN450	PE100 PN20	2x2x2	178	15.90	86	15	5.724333333		151,300.00	Received from subcontractor - SEE
11	Brine	Prospect River	HDD	DN450	PE100 PN20	2x2x2	736	45.91	305	32	9.5275		357,591.00	Received from subcontractor - UEA
12	Treated Water	Badgery's Creek	HDD	DN1000	PE100 PN20	3x2x2	484	23.26	214	56	3.820892857		1,180,546.00	Received from subcontractor - UEA
13	Treated Water	Farm Dams - Elizabeth Dr	HDD	DN1000	PE100 PN20	3x2x2	322	26.06	150	40	3.759625		782,965.00	Received from subcontractor - UEA
14	Treated Water	The Northern Rd	Micro Tunnelling	DN1200 jacking, OD914	RC (Jacking), SCLSC FPBE	7x4x6	100	6.4	581	25	23.2525	1743.9375	1,743,937.50	Assume 3 m3 water used per m3 of spoil
15	Treated Water	Jerry's Creek	HDD	DN1000	PE100 PN20	3x2x2	302	19.25	595	37	16.07403649		589,123.00	Received from subcontractor - UEA
16	Treated Water	Nepean River	HDD	DN1000	PE100 PN20	3x2x2	400	32.5	716	51	14.04647059		781,570.00	Received from subcontractor - UEA
												HDD Total	**5,266,026.00**	
												Microtunnel Total	**3,254,578.50**	

Info from UEA (project subcontractor)

Crossing Location	Crossing Type	Pipe size (mm)	Cut size Inches	Cut size mm's	Expected Water usage (Litres)
Badgerys Creek	HDD	1000	49"	1246mm	1,180,546.00
Farm Dam	HDD	1000	49"	1246mm	782,965.00
Jerrys Creek	HDD	900	44"	1118mm	589,123.00
Nepean River	HDD	900	44"	1118mm	781,570.00
M7 Motorway	HDD	450	22"	558mm	140,395.00
Cowpastrure Road	HDD	450	22"	558mm	243,612.00
Cabramatta Rail	HDD	400	20"	508mm	109,874.00
Hume Highway/Prospect Creek	HDD	450	22"	558mm	357,591.00

Info from SEE (project subcontractor)

Brine Pipeline	Crossing type	Pipe dimensions			Pipe Type	Water usage (L)
Elizabeth Drive Crossing	HDD	2040	2404	364	DN450 PE100 PN20	309400
Upper Canal Crossing	HDD	7750	8000	250	DN450 PE100 PN20	212500
Monash PI / Montgomery Rd - Elizabeth Drive Crossing No2	HDD	14298	14527	229	DN450 PE100 PN20	194650
Lennox Reserve (along Willowbank Cres)	HDD	22925	23103	178	DN450 PE100 PN20	151300

Appendix B: Viability Analysis for Stormwater Harvesting of Ancillary Facility/ Compound Roof Canopy

Viability Analysis for Stormwater Harvesting of Ancillary Facility/ Compound Roof Canopy

Ancillary Facility/ Compound(Refer to Table 6-2 within CWRS)	Unit	AWRC Main Compound	C5	C6	C7	C11	C21
Ancillary Site Total Area	m2	3168.00	3595.93	26970.56	12636.93	4535.87	6580.00
Rooftop Capture Area (**Note* If 0, No facilities to be Installed**)	m2	1750.00	179.19	990.00	250.23	352.00	520.00
Period	Months	30.00	12.00	10.00	11.00	12.00	3.00
Mean Rainfall (***Note Extracted from EIS Appendix N**)	mm	746.00	746.00	746.00	746.00	746.00	746.00
Monthly Rainfall	mm	62.17	62.17	62.17	62.17	62.17	62.17
Max Potential Rainwater Capture Per Month	kL	108.79	11.14	61.55	15.56	21.88	32.33
Total Rainfall Capture of Period of Ancillary Facility/ Compound	kL	3263.75	133.68	615.45	171.12	262.59	96.98
Sydney Water Supply Cost (2023–24 charge)	$ a kL	2.67	2.67	2.67	2.67	2.67	2.67
Savings p/y (Syd Water cost * Max Potential Rainwater Capture)	$	3485.69	356.91	1971.90	498.41	701.12	1035.75
Years on hire	Years	2.50	1.00	0.83	0.92	1.00	0.25
Total Savings over Installaiton (Compound) Life	$	8714.21	356.91	1643.25	456.88	701.12	258.94
Plumber Quote for Instillation (14000Litre Tank and setup)	$	7134.00	7134.00	7134.00	7134.00	7134.00	7134.00
Net Profit (Savings - Total Cost of Install)	$	1580.21	-6777.09	-5490.75	-6677.12	-6432.88	-6875.06
Return on Investment (ROI) (net profit/total cost of install)	$	**22%**	**-95%**	**-77%**	**-94%**	**-90%**	**-96%**
Simple Payback in years	Years	**2.0**	**20.0**	**3.6**	**14.3**	**10.2**	**6.9**

**Note - Sydney Water kL price extracted from Sydney Water Website. - 2023*

**Note for Ancillary Sites where compound setout is still under development, a 15% spatial requirement for Project site sheds is assumed.*

Appendix C: Indicative Site Layouts