



Surface Water Quality Construction Monitoring Report August 2024 – July 2025

SMWSASSM-PLD-SWD-SW000-WA-RPT-000005

Parklife Metro D&C

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GLOSSARY/ABBREVIATIONS

Abbreviation	Expanded Text
ANZG	Australian and New-Zealand Guidelines 2018
BRD	Bradfield Station – formerly Aerotropolis Core Station (AEC)
Condition	Planning Minister’s Condition of Approval
Construction	Includes all work required to construct the CSSI as described in the documents listed in Conditions A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work.
DPHI	NSW Department of Planning, Housing and Infrastructure (formerly DPE)
EC	Electrical Conductivity
EIS	Environmental Impact Assessment
EPA	NSW Environmental Protection Authority – The Appropriate Regulatory Authority for project activities on NSW land (off-airport land), as defined in Section 6(2)(c) of the POEO Act 1997
EPL	Environmental Protection Licence
ER	Environmental Representative nominated by the Proponent and approved by the Planning Secretary in accordance with Condition A27
FRP	Form Reo Pour
Minister, the	NSW Minister for Planning and Public Spaces (or delegate)
NATA	National Association of testing authorities
Non-compliance	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with Infrastructure Approval or other licence, permit or legal requirements, but is not an incident.
Non-conformance	Observations or actions that are not in strict accordance with the CEMP and the aspect specific Sub-Plan
NTU	Nephelometric Turbidity unit
OHE	Orchard Hills Station
POEO Act	<i>Protection of the Environment Operations Act 1997.</i>
Parklife Metro (PLM)	Consortium comprising entities of Plenary, Siemens, RATP Dev and Webuild as the Applicant for the Sydney Metro Western Sydney Airport SSTOM Package.
Parklife Metro D&C	Parklife Metro Design and Construct. Consists of Webuild S.P.A, Siemens Mobility Pty Ltd and Richard Crookes Constructions Pty Ltd. Responsible for the construction of SSTOM Works
SBT	Station Boxes and Tunnelling (SBT) Works for Sydney Metro – Western Sydney Airport
SCAW	Surface, Civil and Alignment Works (SCAW) Works for Sydney Metro – Western Sydney Airport
SMWSA	Sydney Metro Western Sydney Airport
SSTOM	Stations, Systems, Trains, Operations and Maintenance
STM	St Marys Station
SWMP	Soil and Water Management Plan
the Project	Sydney Metro Western Sydney Airport
TWA	Trade Waste Agreement (Sydney Water)
WTP	Water Treatment Plant

1 Introduction

1.1 Background

Sydney Metro is Australia's biggest public transport program comprising four main packages of work including Metro North-West Line, Sydney Metro City and Southwest, Sydney Metro West, and Sydney Metro Western Sydney Airport (SMWSA, the Project). The SMWSA will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport and the growing region.

The Project involves the construction and operation of a new metro railway line around 23km in length that extends from the existing Sydney Trains suburban T1 Western Line at St Marys Station (STM) towards Orchard Hills Station (OHE) and the new Bradfield Station (BRD) in the south at Bringelly. The alignment includes a combination of tunnel, surface, bridges and viaduct sections, and comprises of six new metro stations between St Marys and the Bradfield precinct, as well as a stabling and maintenance facility and operational control centre to support the operation of the new metro railway line (see Figure 1).

Parklife Metro D&C (PLM) has been engaged to deliver the Stations, Systems, Trains, Operations and Maintenance (SSTOM) works. The scope of the SSTOM package comprises:

- construction of six new stations
- installation of tracks, signalling, mechanical and electrical systems
- supplying new driverless trains
- construction of stabling and maintenance facility at Orchard Hills
- operation and maintenance of the line and its assets, and
- handback of operations and maintenance at the end of term.

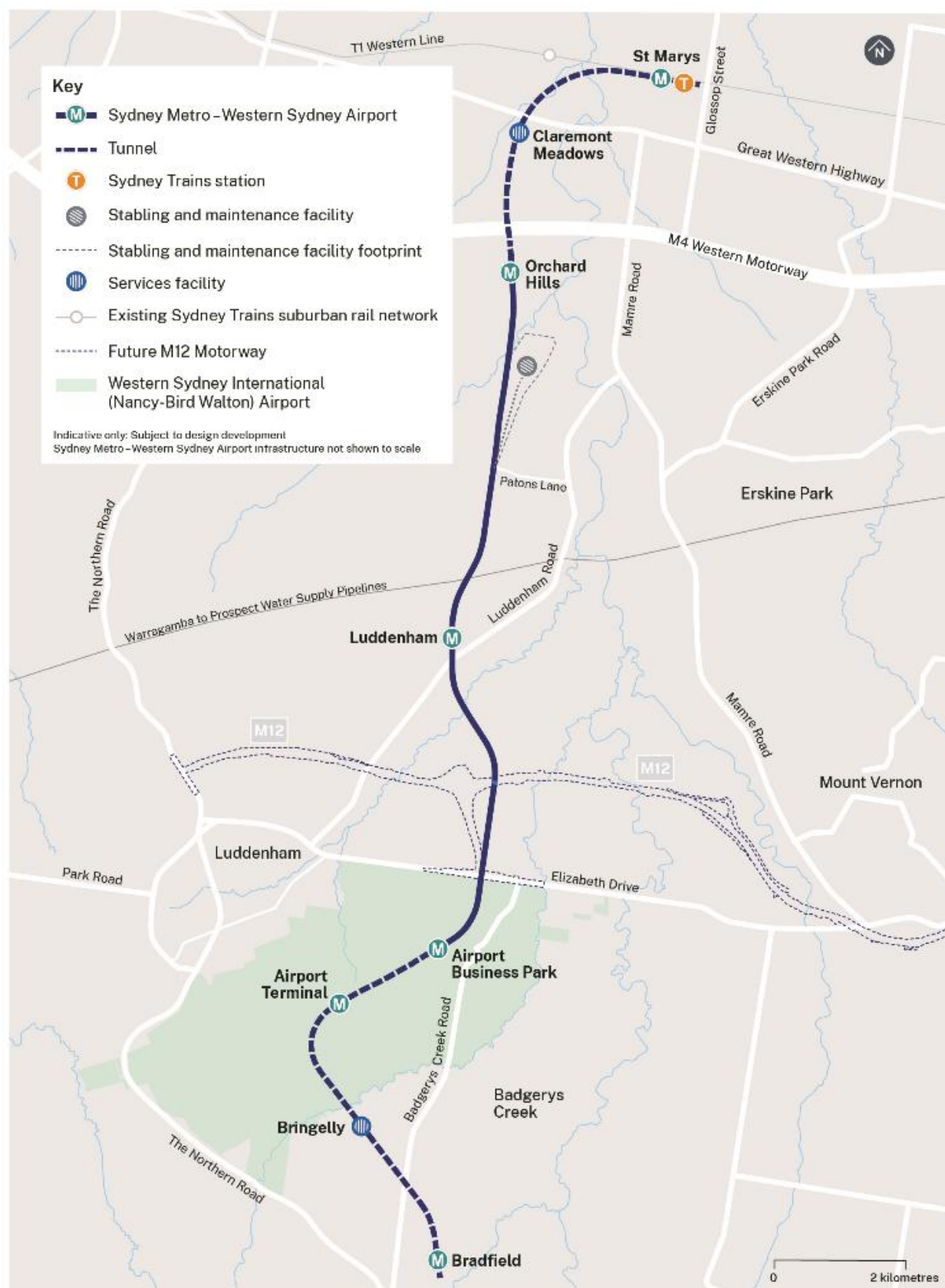


FIGURE 1 OVERVIEW OF SMWSA PROJECT

1.1.1 Scope of report

This Surface Water Quality Construction Monitoring Report (SWQMR) has been prepared for works approved under the Infrastructure Approval SSI-10051 associated with the delivery of the off-airport portion of the SMWSA SSTOM stage of works which commenced in August 2023 as outlined in Table 1.

This report provides the results of surface water quality monitoring undertaken as part of the Surface Water Quality Monitoring Program (Monitoring Program) during the reporting period from August 2024 to July 2025.

The monitoring report will be published online and will be provided to DPHI, ER and relevant agencies as per Section 6.3 of the Monitoring Program.

TABLE 1 REQUIREMENTS RELEVANT TO SURFACE WATER CONSTRUCTION MONITORING REPORT

Condition	Requirement
C14	Each Construction Monitoring Program must provide: a) details of baseline data available including the period of baseline monitoring; b) details of baseline data to be obtained and when; c) details of all monitoring of the project to be undertaken; d) the parameters of the project to be monitored; e) the frequency of monitoring to be undertaken; f) the location of monitoring; g) the reporting of monitoring results and analysis results against relevant criteria; h) details of the methods that will be used to analyse the monitoring data; i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts; j) a consideration of SMART principles; k) any consultation to be undertaken in relation to the monitoring programs; and
C22	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.

1.2 Project Activities undertaken during the reporting period

Construction activities undertaken during the reporting period are summarised in Table 2 below. Five sites, Orchard Hills Station, the Stabling and Maintenance Facility, Bringelly Service Facility, Linewide and Bradfield Station, have actively discharged water to the environment during the reporting period. These discharges occurred via EPL discharge points associated with sediment basins.

As part of the Project construction, two water treatment plants (WTP) are currently operational at St Marys Station and Claremont Meadows Service Facility, though are not discharging to the environment, but to sewer through Sydney Water Trade Waste Agreements. The WTP at Orchard Hills was handed over from the SBT contractor to SSTOM in December 2024. SSTOM have not utilised the WTP for water treatment or discharge and have since decommissioned this WTP. The WTP at Bradfield was decommissioned in January 2025, no water was discharged to the environment from this WTP. The Bringelly WTP was handed over from the SBT contractor to SSTOM in January 2025. No water was discharged to the environment from this WTP.

Erosion and sediment control plans (ESCPs) have been prepared for all sites. These are progressively updated as works progress to ensure controls are appropriate for the site conditions. All ESCPs are prepared or reviewed by a certified professional in erosion and sediment control (CPESC) and controls checked during weekly and pre and post rainfall (>20mm) inspections.

As outlined in Table 2, work areas were progressively handed over from forward working contractors from August 2023. Between August 2023 and the dates of SSTOM commencement, each work site continued to be managed by the forward works contractors SBT or SCAW.

TABLE 2 CONSTRUCTION ACTIVITIES DURING THIS REPORTING PERIOD

Site	Site Description	SSTOM Commencement	Construction Activities	Discharge offsite
St Marys Station	Site consists of the Station box, WTP, site offices/facilities and laydown. Majority of site is stabilised with concrete with runoff directed to WTP where possible.	28/09/2023	- Site establishment of office sheds, laydown areas and temporary stockpile areas - Tower crane pad construction - Station Box – FRP - Station Box – Water proofing - Station Box fitout - Precast beams	Yes, via Trade Waste Agreement (TWA) applicable from 18/12/23
Claremont Meadows Service Facility	Site consists of the tunnel shaft, WTP, sediment basins, site offices/facilities and laydown. Majority of site is stabilised with vegetation or stable material (e.g. DGB).	16/01/2025	- Site establishment - Tunnel fitout - Water treatment plant operation - Ventilation installation and commissioning	Yes, via Trade Waste Agreement (TWA) applicable from 08/01/2025

Site	Site Description	SSTOM Commencement	Construction Activities	Discharge offsite
Orchard Hills Station	Site consists of the Station box/dive structure, site offices/facilities, concrete batch plant, sediment basins and laydown. Majority of site is stabilised with concrete, vegetation or stable material (e.g. DGB).	16/10/2023	- General operation of ancillary facility - Site establishment (north) - Station Box – FRP - Batch plant operation - Precast beam delivery and installation - Rail activities	Yes, via EPL discharge point 3 and 7 from 14/02/24
Stabling Maintenance Facility	Site consists of site offices/facilities, sediment basins, laydown and stockpiling areas. Site is progressing towards permanent works including rail tie-ins, access roads, sub-station, maintenance and administration building and operational control centre.	16/08/2023	- Establishment of site amenities - Bulk earthworks - Basin excavation - Power supply installation - In-ground utility installation - FRP - Substation waterproofing and fit out - Detailed excavation, inground service trenches, FRP and tank installation for maintenance and administration, and operational control centre buildings - Structural building	Yes, via EPL discharge point 12 from 11/02/2025
Luddenham Station	Site consists of viaduct station, site offices/facilities, stockpiling and laydown areas. Large portions of the site are stabilised with vegetation, with access roads and laydown areas constructed with stable material (e.g. DGB).	05/05/2024	- General operation of ancillary facility - Bulk Earthworks - In-ground utility installation - Station structures FRP - Precinct works	No

Site	Site Description	SSTOM Commencement	Construction Activities	Discharge offsite
Bringelly Service Facility	Site consists of the tunnel shaft, WTP, sediment basin, site offices/facilities and laydown. Majority of site is stabilised with vegetation or stable material (e.g. DGB).	23/01/2025	• Site establishment • Tunnel fitout • Ventilation installation and commissioning	Yes, via EPL discharge point 14 from 09/05/2025
Bradfield Station	Site consists of the Station box, sediment basin, site offices/facilities, and laydown. Large portions of the site are stabilised with chipseal or concrete with permanent carpark works progressing.	06/01/2024	• General operation of ancillary facility • Station Box – Waterproofing • Station Box – FRP • Delivery of Equipment • Precast beam delivery and installation • Temporary car park works • Permanent car park earthworks	Yes, via EPL discharge point 1 from 14/11/2023
Linewide	Surface and viaduct alignment with scattered minor ancillary facilities, sediment basins, laydown and stockpiling areas. Majority of site is stabilised with vegetation with access roads and laydown areas constructed with stable material (e.g. DGB).	12/09/2024	• Site establishment • In-ground utility installation • Galvanised steel trough (GST) installation • FRP works • Rail activities	Yes, via EPL discharge point 13 and 16 from 14/04/2025

2 Monitoring

2.1 Methodology

In accordance with the Monitoring Program, quarterly surface water monitoring was undertaken during the reporting period as a tool to compare actual performance of the SSTOM Works against the predicted performance in the EIS and as an indicator of compliance with the water quality trigger values. The monitoring program will identify potential impacts on surface water within the catchment and waterways of the SSTOM Works alignment to determine the effectiveness of water quality and erosion and sediment controls on site. All surface water quality monitoring is undertaken in accordance with the methodology outlined in Section 5.3 of the Monitoring Program.

2.2 Weather during the reporting period

During the reporting period forecast monitoring was undertaken by reviewing meteorological conditions and communicating this to the construction team during prestarts.

As outlined in section 6.12.3 of the Soil and Water Management Plan (SWMP), weather data was reviewed from both Badgerys Creek AWS (station 067108) and Orchard Hills Treatment Works (station 067084). Due to gaps in data available from the Orchard Hills weather station, as shown in Figure 2, only Badgerys Creek rainfall data was used to trigger post rainfall sampling.

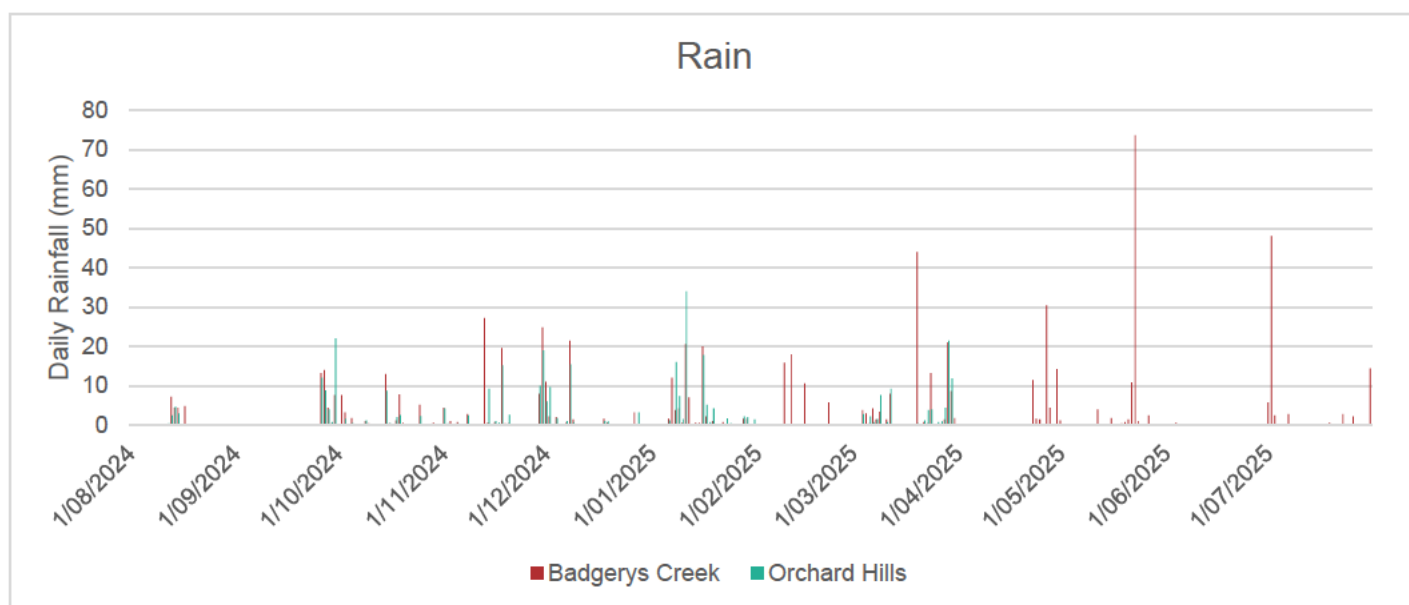


FIGURE 2 RAINFALL DURING THE REPORTING PERIOD, BADGERYS CREEK AWS (067108) AND ORCHARD HILLS TREATMENT WORKS (STATION 067084)

Higher than average rainfall was received in November 2024 (91.2mm), May 2025 (98.2mm) and July 2025 (79.8mm), with significantly lower than average rainfall received in June (1mm). The highest daily rainfall was experienced on 23 May 2025 with 73.6mm.

2.3 Sampling during the reporting period

In accordance with 5.2 of the Monitoring Program, surface water quality sampling is undertaken quarterly and once per quarter following significant rainfall (>20mm in a 24-hour period).

During this reporting period, three quarterly and four wet weather monitoring events were completed:

- 22 October 2024
- 2 December 2024 (wet weather, 25mm)
- 13 January 2025
- 31 March 2025 (wet weather, 31mm)
- 26 May 2025 (wet weather, 73.6mm)
- 16 June 2025
- 3 July 2025 (wet weather, 48mm)

The Q3 2025 quarterly monitoring is planned to occur following this reporting period and will be included in the next monitoring report.

One incident relating to surface water occurred during the reporting period triggering targeted sampling on 4 March 2025.

2.4 Monitoring Locations

The surface water sampling locations are detailed in Table 3 below and shown graphically in Figure 3 and Figure 4. The sampling locations were generally determined by forward working contractors, based on historical sampling locations within the catchment in relation to work areas, with PLM continuing monitoring at these locations as SSTOM works commenced. A number of sampling locations have extraneous factors limiting access, these sampling points are being reviewed and may be updated during the next reporting period.

TABLE 3 SURFACE WATER MONITORING LOCATIONS

ID	Waterway	Rationale	Coordinates
SW1	South Creek	SW1 is downstream for works at STM.	150.7636381 -33.7490971
SW2	South Creek	SW2 is upstream for works at STM.	150.7671040 -33.7655218
SW3	Blaxland Creek	SW3 is downstream for works at OHE and LDN.	150.7551871 -33.7966427
SW4	Blaxland Creek	SW4 is upstream for works between OHE and LDN.	150.7495448 -33.8006788
SW5	Cosgrove Creek	SW5 is downstream for works between LDN and surrounding alignment.	150.7596343 -33.8336685
SW6	Cosgrove Creek	SW6 is upstream for works at LDN and surrounding alignment.	150.7413515 -33.8507187
SW7	Badgerys Creek	SW7 is downstream for works on alignment between the WSA and Luddenham Rd.	150.7588010, -33.8556014
SW8	Badgerys Creek	SW8 is upstream for works on the alignment between the WSA and Luddenham Rd.	150.7548135 -33.8739078
SW9	Badgerys Creek	SW9 is downstream point for works at Bringelly Services Facility	150.7382262 -33.8988256
SW10	Badgerys Creek	SW10 is upstream point for works at Bringelly Services Facility	150.7168537 -33.9052766
SW11	Thompsons Creek	SW11 is downstream point for works at Bradfield Station.	150.7453689 -33.9238594
SW12	Thompsons Creek	SW12 is upstream for works at Bradfield Station.	150.7286829 -33.9339382

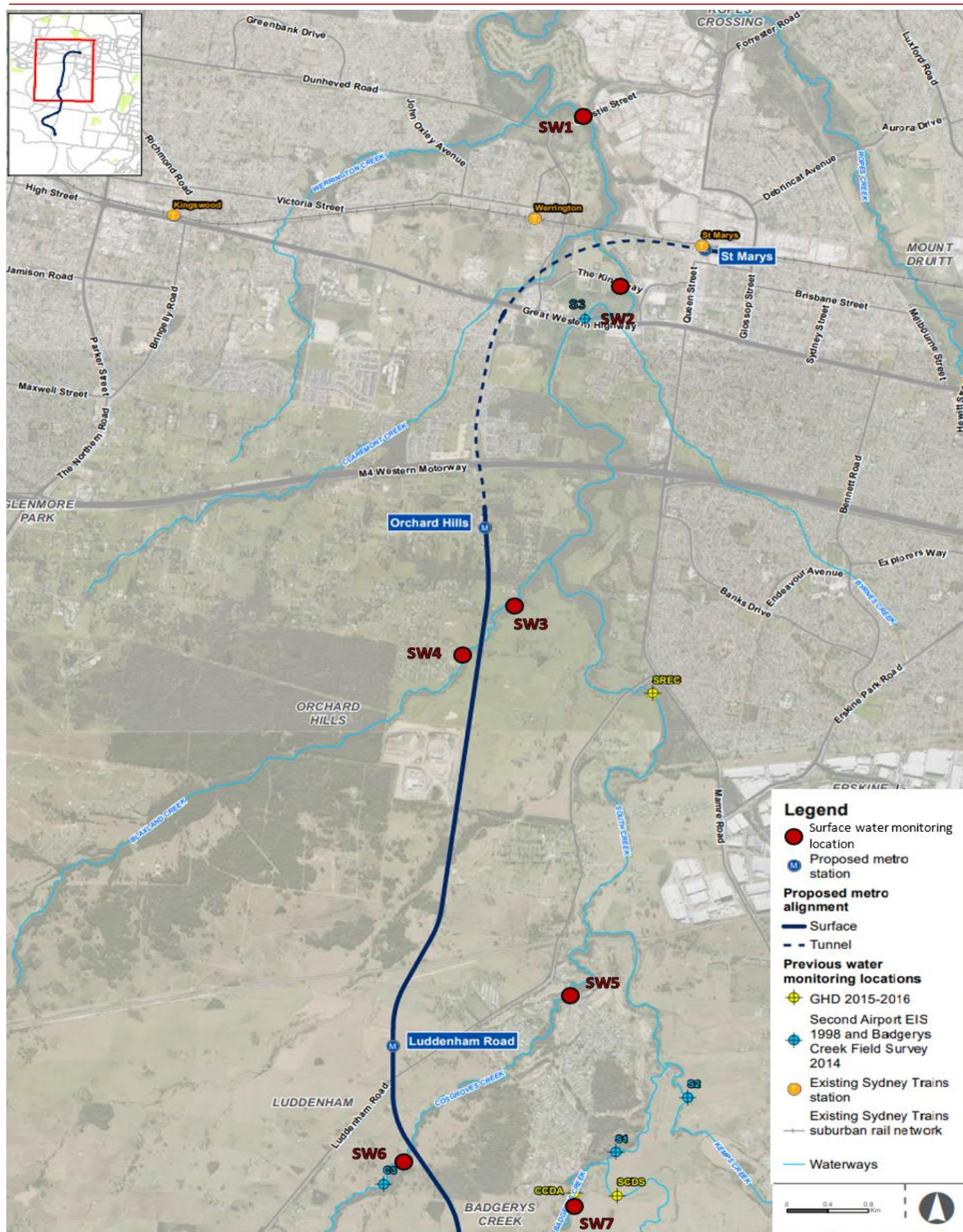


FIGURE 3 SMWSA PROJECT'S MONITORING LOCATIONS (NORTH)

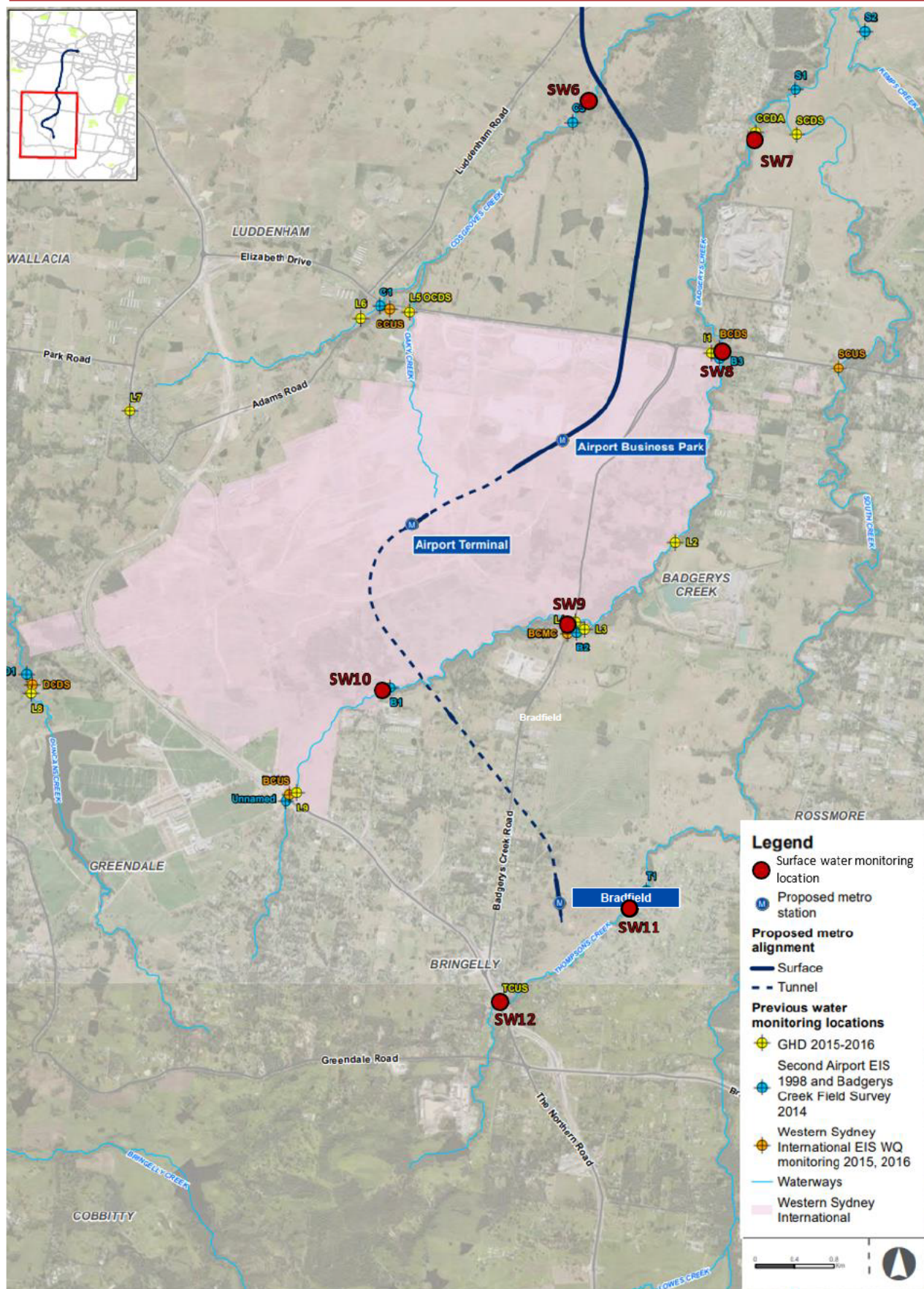


FIGURE 4 SMWSA PROJECT'S MONITORING LOCATIONS (SOUTH)

2.5 Parameters and trigger values

As outlined in the Monitoring Program, the surface water monitoring parameters adopted for the Project are detailed in Table 4 below, with relevant guidelines trigger values based on ANZG 2018 and ANZECC guidelines.

TABLE 4 SAMPLING PARAMETERS AND CORRESPONDING TRIGGER VALUES MEASURED DURING SURFACE WATER MONITORING

Category	Sampling Method	Parameters Measured	Units	Trigger Value
Physio-chemical parameters	In-field using a calibrated multi parameter probe.	Temperature	°C	NA
		Dissolved Oxygen	% saturation	85-110
		Electrical Conductivity / Salinity	µS/cm	125-2200
		Reduction-Oxidation Potential (Redox)	mV	NA
		pH	pH	6.5-8.5
		Turbidity	NTU	6-50
		Visible oil and grease	visible	None visible
	Laboratory testing	Total suspended solids	TSS	3-25
Metals	Laboratory testing	Cadmium	mg/L	0.0002
		Chromium (VI)	mg/L	0.001
		Copper	mg/L	0.0014
		Lead	mg/L	0.0034
		Nickel	mg/L	0.011
		Zinc	mg/L	0.008
Nutrients	Laboratory testing	Total Phosphorus (TP)	mg/L	0.025
		Total Nitrogen (TN)	mg/L	0.35
		Oxides of Nitrogen (NOx)	mg/L	0.04

3 Results

3.1 Surface Water Monitoring Summary

Full monitoring results are provided in Appendix A, with exceedances highlighted in red, and management responses to exceedances outlined and summarised below.

Two sampling locations (SW7 and SW10) were not accessible during the entire reporting period and one location (SW3) was not accessible for part of the reporting period due to property access constraints and unsafe ground conditions. Alternative representative points are being investigated for future monitoring events.

3.2 Surface Water Quality Results Discussion

Two locations were unable to be sampled during the entire reporting period. SW10 is an upstream site on Badgerys Creek with no impact from the project. SW9 is located along Badgerys Creek, downstream of Bringelly and has been able to be consistently monitored to review of the effectiveness of water quality and erosion and sediment controls, however with limited ability to compare up and downstream. SW7 is located downstream of Linewide works on the alignment between WSA and Luddenham Road. Earthworks in this area have been minor in nature, and no active discharges have occurred in the vicinity. SW5 and 6 are in close proximity and have been able to be consistently monitored throughout the SSTOM works, allowing for review of the effectiveness of water quality and erosion and sediment controls along the alignment. As outlined in section 3.1, SSTOM continue to investigate alternative representative points for future monitoring events.

One incident relating to surface water occurred during the reporting period triggering targeted sampling on 4 March 2025. Investigation and sampling indicated that there was negligible environmental impact as a result of the discharge and no material harm to the environment was caused. Results of the targeted monitoring are included in Appendix B.

A number of exceedances at downstream locations were identified during the August 2024 to July 2025 reporting period as shown in Appendix A. Many of these exceedances were within 30% of the site specific trigger values or consistent with upstream results and reflect the general condition and variation observed within the Creek(s).

Where exceedances of site specific trigger values were observed and not within general conditions of the Creek(s), an investigation of surrounding land use changes or activities that may be impacting surface water quality, and an inspection and evaluation of the existing erosion and sediment controls around site was undertaken to determine if the SSTOM works were contributing to the exceedance. Details for each downstream site are summarised below and are included in Appendix A.

At all sites, dissolved oxygen levels were observed outside of criteria on multiple occasions. Dissolved oxygen is easily influenced by a number of external factors such as (but not limited to) temperature, atmospheric pressure, hydrostatic pressure, salinity, organic biomass, light intensity and flow speed. All monitoring was found to be generally consistent with historical events (baseline and previous sampling including by FIW contractors), with SSTOM works determined to have minimal impact on dissolved oxygen levels.

SW1

At SW1, exceedances were observed for turbidity, metals (cadmium, copper, lead and zinc), nutrients (total nitrogen, nitrogen oxides, and total phosphorus) and pH.

On all occasions, turbidity results were either below or within 20% of the upstream value observed.

Only one cadmium exceedance was observed, with levels returning to below detection for all subsequent monitoring events. Copper and zinc exceedances were observed during all sampling events, with exceedances also observed at the corresponding upstream site. Two minor exceedances of lead were observed, within 30% of the criteria.

Nutrient levels exceeded criteria on all sampling events. Exceedances were either below upstream values on multiple occasions, and were generally consistent with the historical levels observed within the creek.

One pH reading was observed outside of the criteria, in line with the reading observed at the corresponding upstream site.

As noted in section 1.2, there are no discharges from St Marys to the environment. The site is mostly sealed and ERSED controls installed and confirmed to be operating effectively during weekly environmental inspections including treatment and discharge of water to sewer under a trade waste agreement, limiting runoff. No site influences likely to elevate nutrients or metals were identified on site. Other activity within the area including a golf course and industrial facilities were identified during as potential sources of exceedances. Due to the site conditions and works carried out during the period, all exceedances observed are not considered to be attributable to SSTOM.

SW3

At SW3, exceedances were observed for turbidity, metals (copper and zinc), and nutrients (total nitrogen, nitrogen oxides, and total phosphorus).

On all occasions, turbidity results were within 20% of the corresponding upstream result and TSS results were observed within criteria which is a more robust descriptor of water quality. All discharges to the environment from sediment basins have been conducted in accordance with project EPL.

Exceedances of copper and zinc were either below or consistent with values observed at corresponding upstream sites.

Nutrient exceedances were generally consistent with the historical levels observed within the creek, with no site influence likely to elevate nutrient levels. An offsite dam with contributing flows is showing signs of algal growth in aerial imagery and is likely to contribute to nutrient exceedances. All exceedances observed are not considered to be attributable to SSTOM.

SW5

At SW5, exceedances were observed for turbidity, metals (Copper and zinc), nutrients (total nitrogen, nitrogen oxides, and total phosphorus) and pH. For all parameters, results were below or in line with the corresponding upstream site.

Nearby earthworks activities on another site and a nearby golf course were also identified as potential sources of these exceedances. All exceedances observed are not considered to be attributable to SSTOM.

SW9

At SW9, exceedances were observed for turbidity, metals (copper and zinc) and nutrients. Handover of the Bringelly site occurred on 23 January 2025.

Site ERSED controls confirmed to be in place and operating effectively, with water captured on site within sediment basin prior to treatment and discharge in accordance with project EPL criteria.

Elevated metals and nutrients observed are in line with historical values observed at this site. No site influences are likely to elevate the identified analytes.

External sources within the creek catchment including market gardens, poultry farms and industrial facilities (including resource recovery centre) identified as potential sources of these exceedances. All exceedances observed are not considered to be attributable to SSTOM.

SW11

At SW11, exceedances were observed for turbidity, metals (copper and zinc), nutrients (total nitrogen, nitrogen oxides, and total phosphorus) and pH.

On most occasions, turbidity exceedances were below levels observed at the corresponding upstream site. ERSED controls at the Bradfield site were confirmed to be in place and operating effectively on site, with water captured on site within sediment basins prior to treatment and discharge in accordance with project EPL criteria.

Exceedances of copper and zinc were either below or consistent with values observed at corresponding upstream sites. Two minor exceedances of lead were observed, within 30% of the criteria.

Exceedances for nutrients were below or in line with upstream values on multiple occasions. No site influences are likely to elevate nutrients were identified.

One pH reading was observed outside of the criteria, this was in line with the reading observed at the corresponding upstream site.

External sources within the catchment including market gardens and neighbouring earthworks sites likely to contribute to these exceedances. Due to the site water and erosion and sediment management practices, works carried out during the period and identified external influences, all exceedances observed are not considered to be attributable to SSTOM.

3.3 Quality Assurance and Quality Control (QA/QC)

During sampling, sample containers were placed directly into ice filled coolers and transported to a NATA accredited laboratory with QA/QC process under Chain of Custody (COC) processes. Samples were submitted as soon as practicable to the laboratories to prevent loss while in storage or transit and analysed within recommended holding times, with samples documented as being received by the laboratory chilled and intact.

Following a review of the laboratory QA/QC results provided in the Quality Control Reports for each batch of samples, it is considered that the laboratory data quality objectives have been attained.

It is assessed the full suite of analytical results represent an acceptable representation of the water quality across the site and it is considered reliable for the purposes of this investigation and making decisions.

3.4 Conclusion

All monitoring was undertaken as required in accordance with the Surface Water Quality Monitoring Program. Water quality and erosion and sediment controls were determined to be working effectively to minimise impacts on surface water quality.

As outlined in the EIS and Soil and Water Management Plan, the existing water quality in the project corridor was considered poor due to the increasing urbanisation and vegetation clearance, largely influenced by point source water pollution (e.g., from stormwater drains, effluent) and diffuse water pollution (e.g., market gardens, cattle and sheep grazing, intensive agriculture such as poultry farming). Golf courses, industrial premises and developments in close proximity to sampling locations were also identified as a potential source of exceedances particularly for high nutrient and turbidity results near St Marys, Luddenham and Bradfield sites.

No observed exceedances were attributed to the SSTOM works during the reporting period.

Appendix A Surface Water Quality Monitoring Results



Appendix A Surface Water Quality Monitoring Results

Date	Type	Location	Parameters	Lab Results													Field Monitoring								Management Response
				Suspended Solids (SS)	Turbidity	Oil & Grease	Cadmium	Copper	Lead	Nickel	Zinc	Chromium VI	Total Nitrogen	Nitrogen Oxides	Total Phosphorus	Dissolved Oxygen	pH	Dissolved Oxygen	Electrical Conductivity	Temperature	Turbidity	Reduction-oxidation potential (Redox)	Oil and Grease		
				mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	% saturation	pH	% saturation	µS/cm	°C	NTU	mV	Visual		
				Limit of reporting	5	0.1	<5	0.0001	0.001	0.001	0.001	0.005	0.001	0.1	0.01	0.01	0.1*	0.01*	0.1*	10*	0.01*	0.1*	1*	-	
				Trigger Values	3 – 25	6 – 50	None visible	0.0002	0.0014	0.0034	0.011	0.008	0.001	0.35	0.04	0.025	85 – 110	6.5 – 8.5	85 – 110	125 - 2200	-	6 – 50	-	Not visible	
22/10/2024	Quarterly			21	18.9	<5	0.0003	0.003	0.002	0.004	0.011	<0.001	1.3	0.38	0.09	100	7.77	60	1440	18.98	38	206	Not visible	Elevated levels of nutrients and metals observed, no site influence likely to impact nutrients or metals identified and no discharges to the environment from St Marys Station site. Sampling location is downstream of golf course likely to contribute to these exceedances. Levels are also consistent with historic levels observed at this location	
		SW1 DS	D/S St Marys Station																					Access not available	
		SW2 US	U/S St Marys Station	16	14.9	<5	<0.0001	0.002	<0.001	0.002	0.016	<0.001	1.2	0.36	0.07	98.5	7.83	90	1000	18.83	41.5	207	Not visible	Upstream site, not impacted by project works	
		SW3 DS	D/S Orchard Hills/Luddenham																					Access not available	
		SW4 US	U/S Orchard Hills/Luddenham	<5	2	<5	<0.0001	<0.001	<0.001	0.002	0.009	<0.001	0.9	0.02	0.03	97.2	7.76		2880	15.74	4.6	179	Not visible	Upstream site, not impacted by project works	
		SW5 DS	D/S Luddenham Station	<5	4.8	<5	<0.0001	<0.001	<0.001	0.001	<0.05	<0.001	0.8	0.01	0.05	93.4	7.66	108	2390	16.97	10.3	201	Not visible	All exceedances are below or consistent with upstream values	
		SW6 US	U/S Luddenham Station	<5	5.9	<5	<0.0001	<0.001	<0.001	<0.001	0.027	<0.001	0.7	0.08	0.05	96.5	7.78	102	2830	17.5	10	196	Not visible	Upstream site, not impacted by project works	
		SW7 DS	D/S WSA/Luddenham																					Access not available	
		SW8 US	U/S WSA/Luddenham	43	47.2	<5	<0.0001	0.003	0.001	0.002	0.006	<0.001	1.8	0.08	0.22	95.9	7.92	141	1880	19.02	74	189	Not visible	Upstream site, not impacted by project works	
		SW9 DS	D/S Bringley Service Facility	<5	3	<5	<0.0001	<0.001	<0.001	0.001	0.015	<0.001	0.9	0.02	0.07	101	7.92	135	3840	19.04	6	194	Not visible	Handover of Bringley Service Facility from SBT has not yet occurred	
		SW10 US	U/S Bringley Service Facility																					Access not available	
		SW11 DS	D/S Bradfield Station	<5	4.1	<5	<0.0001	0.002	<0.001	0.001	0.005	<0.001	1.1	0.13	0.17	94.6	8.19	164	1720	20.29	9.2	175	Not visible	Elevated levels of nutrients and metals. No site influence likely to impact metals or nutrients identified. External sources such as market gardens likely to contribute to these exceedances	
SW12 US	U/S Bradfield Station	5	6.6	<5	<0.0001	<0.001	<0.001	0.002	0.007	<0.001	0.6	<0.01	0.03	98.8	8.53	138	3160	22.28	5.9	139	Not visible	Upstream site, not impacted by project works			
2/12/2024	Post Rainfall			32	51.7	<5	<0.0001	0.003	0.002	0.002	0.009	<0.001	1.7	0.54	0.15	87.9	6.34	82.3	1001	25.84	80.6	265	Not visible	All exceedances (except nutrients) are below or consistent with upstream values. No site influence likely to impact nutrients identified and no discharges to the environment from St Marys Station site, sampling location is downstream of golf course likely to contribute to these exceedances. Levels are also consistent with historic levels observed at this location	
		SW1 DS	D/S St Marys Station																					Access not available	
		SW2 US	U/S St Marys Station	33	51.6	<5	<0.0001	0.003	0.001	0.002	0.01	<0.001	1.2	0.25	0.11	92.5	6.35	109.2	1001	26.86	87.3	274	Not visible	Upstream site, not impacted by project works	
		SW3 DS	D/S Orchard Hills/Luddenham																					Access not available	
		SW4 US	U/S Orchard Hills/Luddenham	7	7	<5	<0.0001	0.007	<0.001	0.002	0.038	<0.001	1.3	0.29	0.15	83.2	3.46	78.1	840	25.49	11.3	179	Not visible	Upstream site, not impacted by project works	
		SW5 DS	D/S Luddenham Station	10	18.6	<5	<0.0001	0.002	<0.001	0.002	<0.005	<0.001	1.1	0.29	0.07	90.7	5.47	51.1	1180	23.45	29.8	65	Not visible	All exceedances are below or consistent with upstream values	
		SW6 US	U/S Luddenham Station	6	15.8	<5	<0.00001	0.003	<0.001	0.002	<0.005	<0.001	1.1	0.3	0.05	98.2	5.52	81.9	1130	24.29	24	62	Not visible	Upstream site, not impacted by project works	
		SW7 DS	D/S WSA/Luddenham																					Access not available	
		SW8 US	U/S WSA/Luddenham	18	21.3	<5	<0.0001	0.002	<0.001	0.002	<0.005	<0.001	1.3	0.1	0.16	84	6.48	100.1	2170	24.09	181	281	Not visible	Upstream site, not impacted by project works	
		SW9 DS	D/S Bringley Service Facility	30	71.8	<5	<0.0001	0.005	<0.001	0.002	<0.005	<0.001	1.3	0.24	0.2	115	5.74	169	1890	22.04	101	327	Not visible	Handover of Bringley Service Facility from SBT has not yet occurred	
		SW10 US	U/S Bringley Service Facility																					Access not available	
		SW11 DS	D/S Bradfield Station	18	133	<5	<0.0001	0.004	0.001	0.002	0.01	<0.001	1	0.04	0.09	94.8	6.39	63.3	1100	27.28	116	253	Not visible	Elevated levels of nutrients and metals. No site influence likely to impact metals or nutrients identified. External sources such as market gardens likely to contribute to these exceedances. Elevated levels observed for turbidity, ERSED controls confirmed to be in place and operating effectively on site, with water captured on site within sediment basins prior to treatment and discharge in accordance with project EPL criteria. External sources within the catchment including adjacent construction with substantial earthworks likely to contribute to these exceedances	
SW12 US	U/S Bradfield Station	8	11	<5	<0.0001	0.004	<0.001	0.001	0.008	<0.001	0.5	0.06	0.09	107	6.42	129	1140	28.99	15.5	241	Not visible	Upstream site, not impacted by project works			
13/01/2025	Quarterly			136	149	<5	<0.0001	0.004	0.004	0.002	0.028	<0.001	1	0.21	0.26	95.3	7.91	89.2	1070	25.53	286	158	Not visible	Elevated levels observed for turbidity, nutrients and metals, no site influence likely to impact nutrients or metals identified and no discharges to the environment from St Marys Station site. Sampling location is downstream of golf course likely to contribute to these exceedances. Levels are also consistent with historic levels observed at this location	
		SW2 US	U/S St Marys Station	113	173	<5	<0.0001	0.003	0.003	0.003	0.012	<0.001	1.1	0.3	0.09	90.6	7.77	58.7	1090	25.72	342	166	Not visible	Upstream site, not impacted by project works	
		SW3 DS	D/S Orchard Hills/Luddenham	21	25.3	<5	<0.0001	0.001	<0.001	0.002	0.007	<0.001	1.4	0.15	0.1	91.2	7.69	59.2	2130	24.68	42.2	166	Not visible	Elevated levels of nutrients observed, no site influence likely to impact nutrients identified and no recent discharges to the environment from Orchard Hills. Offsite dam with contributing flows showing signs of algal growth in aerial imagery.	
		SW4 US	U/S Orchard Hills/Luddenham	9	8.7	<5	<0.0001	<0.001	<0.001	0.002	0.007	<0.001	0.9	<0.01	0.06	92.3	7.91	68.4	1490	26.36	12.9	163	Not visible	Upstream site, not impacted by project works	
		SW5 DS	D/S Luddenham Station	16	23.6	5	<0.0001	<0.001	<0.001	0.001	<0.005	<.001	0.7	0.11	0.06	97.9	7.71	270.8	972	24.42	47.2	176	Not visible	All exceedances (except oil and grease detection) are below or consistent with upstream values. No oil and grease observed during field sampling and no spills reported or identified on site.	
		SW6 US	U/S Luddenham Station	24	26.5	<5	<0.0001	0.001	<0.001	0.002	0.01	<0.001	0.8	0.11	0.07	98.8	7.74	135.4	973	25.4	35.7	173	Not visible	Upstream site, not impacted by project works	
		SW7 DS	D/S WSA/Luddenham																					Access not available	
		SW8 US	U/S WSA/Luddenham	19	24.4	<5	<0.0001	0.004	<0.001	0.003	0.006	<0.001	1.5	0.07	0.18	97	8.05		1850	25.91	42.2	161	Not visible	Upstream site, not impacted by project works	
		SW9 DS	D/S Bringley Service Facility	15	19.3	<5	<0.0001	0.008	<0.001	0.002	0.007	<0.001	1.2	0.02	0.06	93.6	8.21	93.6	1420	25.04	36	152	Not visible	Handover of Bringley Service Facility from SBT has not yet occurred	
		SW10 US	U/S Bringley Service Facility																					Access not available	
		SW11 DS	D/S Bradfield Station	16	41.5	<5	<0.0001	0.004	<0.001	0.002	0.009	<0.001	1.3	0.07	0.13	88.1	7.63		757	23.64	41.4	155	Not visible	All exceedances observed are lower than upstream site	
		SW12 US	U/S Bradfield Station	62	160	<5	<0.0001	0.005	0.002	0.004	0.037	<0.001	3.4	2.4	0.14	95.1	7.64		149						



Appendix A Surface Water Quality Monitoring Results

Date	Type	Location	Parameters	Lab Results														Field Monitoring								Management Response
				Suspended Solids (SS)	Turbidity	Oil & Grease	Cadmium	Copper	Lead	Nickel	Zinc	Chromium VI	Total Nitrogen	Nitrogen Oxides	Total Phosphorus	Dissolved Oxygen	pH	Dissolved Oxygen	Electrical Conductivity	Temperature	Turbidity	Reduction-oxidation potential (Redox)	Oil and Grease			
				mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	% saturation	pH	% saturation	µS/cm	°C	NTU	mV	Visual			
				Limit of reporting	5	0.1	<5	0.0001	0.001	0.001	0.001	0.005	0.001	0.1	0.01	0.01	0.1*	0.01*	0.1*	10*	0.01*	0.1*	1*	-		
Trigger Values	3 – 25	6 – 50	None visible	0.0002	0.0014	0.0034	0.011	0.008	0.001	0.35	0.04	0.025	85 – 110	6.5 – 8.5	85 – 110	125 - 2200	-	6 – 50	-	Not visible						
26/05/2025	Post Rainfall			24	61.3	<5	<0.0001	0.004	0.001	0.002	0.011	<0.001	1.8	0.41	0.22	102	7.38	117.9	793	12.66	62.7	261	Not visible	Elevated metals and nutrients observed. Nutrient and metal values all below or in line with upstream values. Sampling location is downstream of golf course likely to contribute to these exceedances. Slightly elevated turbidity readings observed, consistent with upstream results. Site ERSED controls confirmed to be in place and operating effectively with majority of site runoff directed towards the west of site to another tributary of South Creek. Nearby earthwork activities on nearby construction sites with potential to impact this sampling location		
		SW5 DS	D/S Luddenham Station																							
		SW6 US	U/S Luddenham Station	19	53.1	<5	<0.0001	0.003	0.001	0.002	0.008	<0.001	1.9	0.38	0.29	101	7.69	143.5	852	12.84	49.3	249	Not visible	Upstream site, not impacted by project works		
		SW7 DS	D/S WSA/Luddenham																						Access not available	
		SW8 US	U/S WSA/Luddenham	40	82.8	<5	<0.0001	0.005	0.002	0.002	0.008	<0.001	1.9	0.56	0.29	105	7.67	87.8	1210	12.92	96	232	Not visible	Upstream site, not impacted by project works		
			20	72.2	<5	<0.0001	0.004	0.002	0.002	0.008	<0.001	2.2	0.85	0.41	104	7.67	75.3	1190	12.74	64.9	230	Not visible	Elevated metals and nutrients observed in line with historical values observed at this site. No site influence likely to impact these analytes identified. Site ERSED controls confirmed to be in place and operating effectively, with water captured on site within sediment basin prior to treatment and discharge in accordance with project EPL criteria. External sources within the creek catchment including market gardens, poultry farms and industrial facilities (including resource recovery centre) likely to impact these analytes at this location			
	SW9 DS	D/S Bringley Service Facility																								
	SW10 US	U/S Bringley Service Facility																							Access not available	
	SW11 DS	D/S Bradfield Station	14	41.5	<5	<0.0001	0.002	<0.001	0.001	0.007	<0.001	0.8	0.05	0.06	104	7.85	128.7	880	13.08	28.7	239	Not visible	All exceedances observed are in line or lower than upstream site			
	SW12 US	D/S Bradfield Station	6	29.3	<5	<0.0001	<0.001	<0.001	<0.001	<0.005	<0.001	0.7	0.07	0.04	105	8.05	179.6	768	12.82	17.3	234	Not visible	Upstream site, not impacted by project works			
	16/06/2025	Quarterly	SW1 DS	D/S St Marys Station	29	52.9	<5	<0.0001	0.005	0.002	0.003	0.016	<0.001	2.1	1.21	0.13	106	7.88	134.1	1220	10.71	67.6	174	Not visible	All exceedances observed are in line or lower than upstream site	
SW2 US			U/S St Marys Station	26	56.6	<5	<0.0001	0.007	0.002	0.002	0.019	0.002	3.6	2.27	0.14	104	7.76	138.5	1160	11.06	51	198	Not visible	Upstream site, not impacted by project works		
				20	16	<5	<0.0001	0.002	<0.001	0.003	0.009	0.002	4.6	3.65	0.02	104	7.84	114.2	1650	9.89	7.6	220	Not visible	Elevated levels of metals and nutrients. Exceedances observed are in line or lower than upstream site for metals. No site influence likely to impact nutrients identified, offsite dam with contributing flows showing signs of algal growth in aerial imagery likely to contribute to these exceedances		
SW4 US			U/S Orchard Hills/Luddenham	6	5.3	<5	<0.0001	<0.001	<0.001	0.002	0.007	<0.001	8.6	8.55	0.03	105	7.99	162.6	1920	10.62	5.9	106	Not visible	Upstream site, not impacted by project works		
SW5 DS			D/S Luddenham Station	13	14.7	<5	<0.001	0.002	<0.001	0.002	<0.005	<0.001	1.6	0.2	0.08	102	7.93	116.5	1150	9.55	10.1	205	Not visible	All exceedances observed are in line or lower than upstream site		
SW6 US			U/S Luddenham Station	10	9.9	<5	<0.0001	0.002	<0.001	0.002	0.009	<0.001	3.2	1.88	0.04	104	7.92	209.9	1770	9.89	7.2	197	Not visible	Upstream site, not impacted by project works		
SW7 DS			D/S WSA/Luddenham																						Access not available	
SW8 US			U/S WSA/Luddenham	27	32.9	<5	<0.0001	0.004	0.001	0.003	0.009	<0.001	1.2	0.17	0.15	106	7.64	182	1940	8.56	42.8	170	Not visible	Upstream site, not impacted by project works		
				12	11.4	<5	<0.0001	0.002	<0.001	0.001	<0.005	<0.001	1	0.08	0.1	107	7.65	89.7	2110	8.07	7.4	205	Not visible	Elevated metals and nutrients observed in line with historical values observed at this site. No site influence likely to impact these analytes identified. Site ERSED controls confirmed to be in place and operating effectively. External sources within the creek catchment including market gardens, poultry farms and industrial facilities (including resource recovery centre) likely to impact these analytes at this location.		
SW9 DS			D/S Bringley Service Facility																						Access not available	
SW10 US			U/S Bringley Service Facility																							
3/07/2025			Post Rainfall	SW11 DS	D/S Bradfield Station	60	65.3	<5	<0.0001	0.005	0.001	0.002	0.014	<0.001	1.9	0.31	0.14	103	7.46	174	1600	8.42	46.6	164	Not visible	Elevated levels observed for turbidity, and metals, though these are lower than those observed at upstream site. Elevated levels of nutrients observed, no site influences likely to impact nutrients identified, external sources within the catchment including market gardens likely to contribute to these exceedances.
	SW12 US	U/S Bradfield Station		37	120	<5	<0.0001	0.007	0.002	0.004	0.025	<0.001	1.2	0.13	0.1	107	7.3	75.4	1470	8.43	83.9	199	Not visible	Upstream site, not impacted by project works		
				158	209	<5	<0.0001	0.009	0.004	0.003	0.029	<0.001	2.1	2.13	0.89	98.8	7.24	105.5	926	10.66	295	221	Not visible	Elevated levels of nutrients and metals. No site influence likely to impact these parameters identified and no discharges to the environment from St Marys Station site. Sampling location is downstream of golf course likely to contribute to these exceedances. Slightly elevated turbidity and suspended solids readings observed, site ERSED controls confirmed to be in place and operating effectively at St Marys, with the site mostly sealed, limiting turbid runoff. Resource recovery centre within industrial area near sampling location observed with potential to impact turbidity at this location		
	SW1 DS	D/S St Marys Station																								
	SW2 US	U/S St Marys Station		104	176	<5	<0.0001	0.006	0.002	0.002	0.019	<0.001	2	1.99	0.74	99.5	7.45	103.3	875	10.43	261	228	Not visible	Upstream site, not impacted by project works		
	SW3 DS	D/S Orchard Hills/Luddenham		20	63.3	<5	<0.0001	0.004	<0.001	0.002	0.01	<0.001	<0.5	0.34	<0.05	100	7.62	103.4	331	10.96	60.2	220	Not visible	All exceedances observed are in line or lower than upstream site		
	SW4 US	U/S Orchard Hills/Luddenham		14	56.7	<5	<0.0001	0.005	<0.001	0.002	0.008	<0.001	<0.5	0.3	<0.05	100	7.51	106	278	11.2	41.7	221	Not visible	Upstream site, not impacted by project works		
	SW5 DS	D/S Luddenham Station		34	68.8	<0.5	<0.001	0.005	0.002	0.002	0.013	<0.001	<0.5	0.47	<0.05	99.7	7.69	103.2	732	11.51	81.8	216	Not visible	All exceedances observed are in line or lower than upstream site		
	SW6 US	U/S Luddenham Station		33	62.3	<5	<0.0001	0.005	0.002	0.002	0.014	0.002	<0.5	0.44	0.06	99	7.54	117.8	798	11.48	70	216	Not visible	Upstream site, not impacted by project works		
	SW7 DS	D/S WSA/Luddenham																							Access not available	
	SW8 US	U/S WSA/Luddenham		40	74.7	<5	<0.0001	0.006	0.002	0.002	0.012	<0.001	<0.5	0.21	<0.05	100	7.93	104	1090	12.93	98.2	214	Not visible	Upstream site, not impacted by project works		
				44	102	<5	<0.0001	0.008	0.002	0.003	0.013	<0.001	0.8	0.85	0.67	97.9	7.86	137.7	911	11.55	106	206	Not visible	Elevated metals and nutrients observed in line with historical values observed at this site. No site influence likely to impact these analytes identified. Site ERSED controls confirmed to be in place and operating effectively, with water captured on site within sediment basin prior to treatment and discharge in accordance with project EPL criteria. External sources within the creek catchment including market gardens, poultry farms and industrial facilities (including resource recovery centre) likely to impact these analytes at this location.		
SW9 DS	D/S Bringley Service Facility																						Access not available			
SW10 US	U/S Bringley Service Facility																									
		45	129	<5	<0.0001	0.005	0.002	0.002	0.012	<0.001	<0.05	0.18	<0.05	98.9	7.61	109.7	646	11.73	145	213	Not visible	Elevated levels of nutrients and metals. No site influence likely to impact metals or nutrients identified. External sources such as market gardens likely to contribute to these exceedances. Elevated levels observed for turbidity. ERSED controls confirmed to be in place and operating effectively on site, with water captured on site within sediment basins prior to treatment and discharge in accordance with project EPL criteria. External sources within the catchment including adjacent construction with substantial earthworks likely to contribute to these exceedances				
SW11 DS	D/S Bradfield Station																									
SW12 US	D/S Bradfield Station	26	70.5	<5	<0.0001	0.004	0.004	0.002	0.013	<0.001	<0.5	0.21	<0.5	99.3	7.88	106.1	482	11.92	68.7	210	Not visible	Upstream site, not impacted by project works				

Exceedance of Trigger Value <30%

Exceedance of Trigger Value >30%

Bold values - 2nd (or more) consecutive exceedance occurrence

Italic values - exceedances for more than half results within the period

*Indicates a reading resolution not a limit of reading

Appendix B Incident Surface Water Quality Monitoring Results

Appendix B Incident Surface Water Quality Monitoring Results

Date	Type	Location	Parameters	Field Monitoring							Management Response
				pH	Dissolved Oxygen	Electrical Conductivity	Temperature	Turbidity	Reduction-oxidation potential (Redox)	Oil and Grease	
			Units	pH	% saturation	µS/cm	°C	NTU	mV	Visual	
			Limit of reporting	0.01*	0.1*	10*	0.01*	0.1*	1*	-	
			Trigger Values	6.5 – 8.5	85 – 110	125 - 2200	-	6 – 50	-	Not visible	
4/03/2025	Incident	OHE - Within sump		8.31	168.5	1210	14.78	284	209	Not visible	Turbidity of the water observed within the sump is lower than that located in the outside drain. The entire flow path between the sump and the outside drain is stabilised, indicating the source of the increase in turbidity in the outside drain is likely fromthe diversion pipe underneath site from Kent Road. While some site water may have migrated off site, there would be negligible environmental impact as a result of the discharge and no material harm to the environment was caused
		OHE - Outside drain		8.28	288.9	1740	25.28	483	174	Not visible	Most of the water in the drain outside the project boundary was flowing from the diversion pipe running underneath the site from Kent Rd.
		Exceedance of Trigger Value <30%									
Exceedance of Trigger Value >30%											

Bold values - 2nd (or more) consecutive exceedance occurrence
Italic values - exceedances for more than half results within the period
*indicates a reading resolution not a limit of reading