



# Construction Monitoring Report March – August 2020

Sydney Metro City & Southwest – Line-wide Works

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## Contents

<b>1. Introduction.....</b>	<b>3</b>
1.1 Project Summary .....	3
1.2 Planning Approval Requirements .....	3
<b>2. Water Quality Monitoring .....</b>	<b>5</b>
2.1 Water Treatment Plant .....	5
<b>3. Noise and Vibration.....</b>	<b>6</b>
3.1 Noise Monitoring.....	6
3.2 Vibration Monitoring.....	6
<b>Appendix A: Systems Connect Permit to Discharge and Water Quality Monitoring Register.....</b>	<b>7</b>
<b>Appendix B: Systems Connect Noise Monitoring Register .....</b>	<b>9</b>
<b>Appendix C: Systems Connect Vibration Monitoring Register .....</b>	<b>11</b>

## 1. Introduction

### 1.1 Project Summary

The Sydney Metro City & Southwest (SMCSW) is the second portion of the new standalone rail network known as the Sydney Metro, which is Australia's largest public transport infrastructure project and a priority rail project for the NSW Government. The project will extend Sydney Metro Northwest to the CBD and beyond to Bankstown. The project is being delivered through a suite of contracts for the tunnels, stations, Line-wide infrastructure and systems. Line-wide is a key component of the SMCSW, with works taking place over the full length of the project as shown in Figure 1 below:

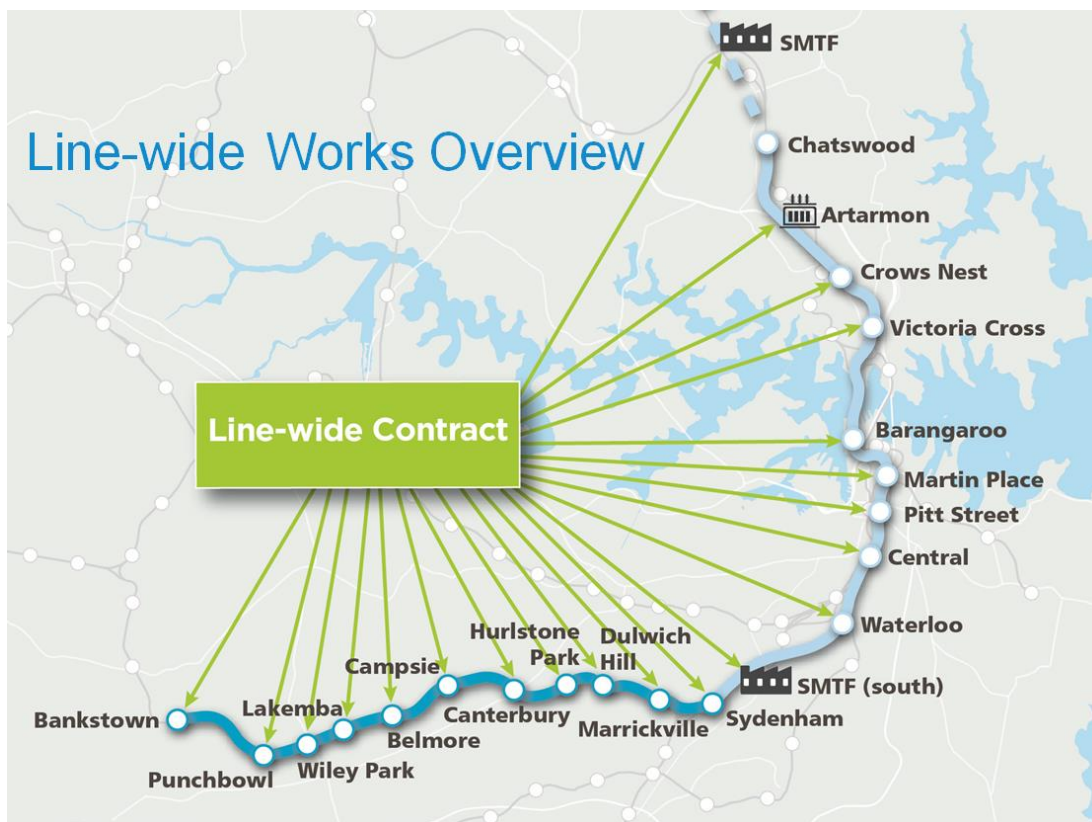


Figure 1: Line-wide Locations

### 1.2 Planning Approval Requirements

The Sydney Metro Authority received planning approval to construct the project from the Department of Planning, Industry and Environment. The Conditions of Approval CSSI 7400 cover the works from Chatswood to Sydenham and the Conditions of Approval CSSI 8256 cover the works from Marrickville to Bankstown.

A Construction Environmental Management Plan and sub-plans were developed for the project to address all environmental aspects, including construction monitoring. Approval of the plans enabled commencement of construction on 04 March 2020. The plans for the Line-wide works were developed to address the requirements of both planning approvals in each plan or sub-plan. Construction monitoring requirements are detailed in the Soil, Water and Groundwater Management Sub-Plan C2B and the Construction Noise and Vibration Management Plan – C2B. The plans can be accessed at the Systems Connect Project website:

<https://www.sclww.com.au/>

The objectives for this report are to provide construction monitoring results for the first 6 months of works on the Line-wide Project, from the start of March to the end of August 2020. This report is provided for information to the Department of Planning, Industry and Environment. It is intended to address the requirements of Conditions C16 of CSSI 7400 and C14 of CSSI 8256.

## 2. Water Quality Monitoring

The Soil, Water and Groundwater Management Sub-Plan C2B requires that water quality monitoring will be undertaken for controlled discharges offsite to watercourses and stormwater drainage to ensure compliance with discharge criteria. The discharge criteria are shown in Table 1 below:

Table 1: Discharge Criteria

Parameter	Measurement and Assessment			Discharge Criteria
	Percentile Concentration Limit	Sample Method & Frequency	Units	
<b>pH</b>	100	Probe/ grab sample Prior to discharge	pH	6.5-8.5
<b>Total Suspended Solids</b>	100	Probe/ grab sample Prior to discharge	mg/L	<50
<b>Oil and Grease</b>	100	Visual Prior to discharge	mg/L	<10 and no visible trace

Systems Connect have an internal Permit to Pump system, which ensures compliance with discharge criteria at all times. Monitoring is done prior to each dewatering event. During the reporting period, very small volumes (individual 1000 litre IBCs of clean water) were discharged from trenching works in Campsie. The Systems Connect Permit to Discharge and Water Quality Monitoring Register is provided in Appendix A. This demonstrates that discharge criteria were met for all discharges.

### 2.1 Water Treatment Plant

On 1 August 2020, Systems Connect took possession of a portion of the Chatswood Dive site from the Tunneling and Station Excavation Contractor. The portion contains the Chatswood Water Treatment Plant, which is now operated by Systems Connect. It collects surface water from the Chatswood Dive site, station box water from Crows Nest station, and tunnel water from between Victoria Cross Station and the Chatswood Dive.

A WTP Checklist is completed by the WTP operator daily (working days), where a range of WTP observations, parameters and chemical levels are noted. This includes water discharge parameters required for regulatory compliance. The compliance results from the checklists are described in Table 2 below:

Table 2: WTP Compliance Results

Date	pH	Turbidity (NTU)	Oil and Grease
01/08/20 to 31/08/20	7.61 – 8.21	0.4 – 4.0	None visible

### 3. Noise and Vibration

The Construction Noise and Vibration Management Plan – C2B includes the Construction Noise and Vibration Monitoring Program. This program requires that the results of construction noise and vibration monitoring will be reported every six months. The results are included in this report.

#### 3.1 Noise Monitoring

Attended monitoring of construction noise levels will be undertaken as follows:

- At the first opportunity following the commencement of construction activity to confirm the effectiveness of actions and measures determined in CNVIS process
- Repeated as described in the CNVIS, as part of the audit cycle to ensure that noise and vibration levels in the adjacent community remain consistent with the predicted levels in the CNVIS
- Where appropriate in response to a noise related complaint(s) (determined on a case-by-case basis)
- During sensitive periods (i.e. night works)
- As directed by an authorised officer of the EPA.

Monitoring would be undertaken at the potentially most exposed receivers in proximity to construction activities. Noise monitoring locations should be consistent with the distances/ locations identified in the CNVIS and will consider factors including:

- The location of previous monitoring sites
- The proximity of the receiver to a worksite
- The sensitivity of the receiver to noise
- Background noise levels
- The expected duration of the impact.

Results of attended noise monitoring conducted by Systems Connect in the reporting period are provided in Appendix B (Systems Connect Noise Monitoring Register), demonstrating compliance with project requirements.

#### 3.2 Vibration Monitoring

The Construction Noise and Vibration Management Plan – C2B explains that the requirement for real time vibration monitoring will be determined on a site by site basis and identified in the CNVIS for LW worksites between Chatswood and Sydenham. Real time vibration monitoring will be deployed to manage vibration impacts from ‘high risk’ sites, where the CNVIS vibration predictions identify there is a high risk of annoyance (or potential building damage) from construction vibration.

During the reporting period, there was only one location requiring vibration monitoring. This was identified in the CNVIS, where works needed to be undertaken within minimum working distances. The works requiring monitoring were trenching for the bulk power supply route in Canterbury. Results demonstrating compliance with vibration criteria are included in Appendix C (Systems Connect Vibration Monitoring Register).

## Appendix A: Systems Connect Permit to Discharge and Water Quality Monitoring Register

## Systems Connect Permit to Discharge and Water Quality Monitoring Register

Permit to Discharge	Date	Location	Detailed Location	Single or Continuous	Reason	Discharge Point	Water Quality Analyser	pH	Turbidity NTU	Oil & Grease
Permit to Pump LWW-016	3/08/2020 - 03/09/2020	Chatswood Dive	Chatswood WTP	Continuous	For discharge approval	Stormwater pit - CD-2	WTP			
Permit to Pump LWW-017	12/08/2020	BPS Campsie	IBC 1	Single	For discharge approval	Canterbury Road stormwater drain	Horiba U-52 P70M24N9	6.79	36.3	None visible
Permit to Pump LWW-017	12/08/2020	BPS Campsie	IBC 2	Single	For discharge approval	Canterbury Road stormwater drain	Horiba U-52 P70M24N9	7.71	20.5	None visible
Permit to Pump LWW-017	12/08/2020	BPS Campsie	IBC 3	Single	For discharge approval	Canterbury Road stormwater drain	Horiba U-52 P70M24N9	7.94	28.7	None visible
Permit to Pump LWW-018	11/08/2020	BPS Campsie	IBC 1	Single	For discharge approval	Cooks Avenue stormwater drain	Horiba U-52 P70M24N9	7.54	38.9	None visible
Permit to Pump LWW-019	12/08/2020	BPS Campsie	IBC 1	Single	For discharge approval	Cooks Avenue stormwater drain	Horiba U-52 P70M24N9	7.31	7.40	None visible
Permit to Pump LWW-019	13/08/2020	BPS Campsie	IBC 2	Single	For discharge approval	Cooks Avenue stormwater drain	Horiba U-52 P70M24N9	7.73	6.4	None visible



## Appendix B: Systems Connect Noise Monitoring Register

**Systems Connect Noise Monitoring Register**

Date	Location	Detailed Monitoring Location	NCA	Predicted Noise Level	Measured $L_{Aeq}$	Comments
2/05/2020	Northern Connection	15 Nelson Street, Chatswood, southern façade	CDS_03	49	52.5	LW Works compliant, traffic dominant noise source
2/05/2020	Northern Connection	3 Raleigh Street, Artarmon	CDS_03	61	57.2	LW Works compliant
15/06/2020	BPS Campsie	Lilian Lane (rear of 13-15 Anglo Road, Campsie)	S2B_06	80	69.0	LW Works compliant
15/06/2020	BPS Campsie	Lilian Lane (rear of 13-15 Anglo Road, Campsie)	S2B_06	70	68.2	LW Works compliant
17/06/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	80	79.8	LW Works compliant
17/06/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	80	77.4	LW Works compliant
17/06/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	70	67.1	LW Works compliant, traffic dominant noise source
18/06/2020	BPS Campsie	38 Gould Street, Canterbury	S2B_05	55	57.1	LW Works compliant, traffic dominant noise source
14/07/2020	BPS Campsie	77 Gould Street, Canterbury	S2B_05	68	63.2	LW Works compliant
14/07/2020	BPS Campsie	34 Gould Street, Canterbury	S2B_05	56	50.4	LW Works compliant
14/07/2020	BPS Campsie	38 Gould Street, Canterbury	S2B_05	74	64.9	LW Works compliant
18/07/2020	Northern Connection	4 Hopetoun Avenue, Chatswood	CDS_04	68	56.5	LW Works compliant
18/07/2020	Northern Connection	9 Drake Street, Artarmon	CDS_05	71	50.5	LW Works compliant
18/07/2020	Northern Connection	7-11 Nelson Street, Chatswood	CDS_03	68	51.1	LW Works compliant
20/07/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	81	70.1	LW Works compliant
21/07/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	89	73.6	LW Works compliant
21/07/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	89	72.4	LW Works compliant
29/07/2020	Surry Hills	310 Elizabeth St, Surry Hills	CS_G	80	81.8	LW Works compliant, traffic dominant noise source
29/07/2020	Surry Hills	342 Elizabeth St, Surry Hills	CS_G	55	72.1	LW Works compliant, traffic dominant noise source
29/07/2020	BPS Campsie	352-356 Canterbury Road, Canterbury	BPS_01	81	71.2	LW Works compliant
29/07/2020	BPS Campsie	79 Gould Street, Canterbury	S2B_05	80	60.3	LW Works compliant
5/08/2020	Waterloo Station	209 Cope St, Waterloo	WS_02	60	56.5	LW Works compliant
5/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	60	68.7	LW Works compliant, traffic dominant noise source
5/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	60	69.9	LW Works compliant, traffic dominant noise source
7/08/2020	Waterloo Station	104 Raglan St, Waterloo	WS_02	51	51.4	LW Works compliant
7/08/2020	Waterloo Station	125 Raglan St, Waterloo	WS_01	51	55.3	LW Works compliant. Traffic noise constant.
7/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	57	62.1	LW Works compliant, traffic dominant noise source
7/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	57	64.7	LW Works compliant, traffic dominant noise source
10/08/2020	Waterloo Station	149 Cope St, Waterloo	WS_01	56	65	Traffic noise constant and dominant noise source.
11/08/2020	Waterloo Station	209 Cope St, Waterloo	WS_02	50	59.4	Traffic constant.
11/08/2020	Waterloo Station	104 Raglan St, Waterloo	WS_02	50	59.2	Traffic noise constant.
12/08/2020	Waterloo Station	125 Raglan St, Waterloo	WS_01	56	56.4	LW works compliant. Traffic noise constant.
12/08/2020	Waterloo Station	149 Cope St, Waterloo	WS_01	57	57.5	LW works compliant. Traffic noise constant.
12/08/2020	Waterloo Station	104 Raglan St, Waterloo	WS_02	58	57.4	LW works compliant. Traffic noise constant.
12/08/2020	Waterloo Station	209 Cope St, Waterloo	WS_02	57	59.3	LW Works compliant
17/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	57	65	LW Works compliant, traffic dominant noise source
17/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	57	68.4	LW Works compliant, traffic dominant noise source
18/08/2020	Waterloo Station	62 Botany Rd, Alexandria	WS_04	57	67.2	LW Works compliant, traffic dominant noise source
18/08/2020	BPS Campsie	8 Napier St, Canterbury (Canterbury South Public School)	OSR	68	59.4	LW Works compliant
18/08/2020	BPS Campsie	8 Napier St, Canterbury (Canterbury South Public School)	OSR	68	66.5	LW Works compliant
25/08/2020	BPS Campsie	341-343 Canterbury Rd, Canterbury	S2B_05	78	70.9	LW Works compliant
25/08/2020	BPS Campsie	352-356 Canterbury Rd, Canterbury	BPS_01	81	67.7	LW Works compliant
26/08/2020	Crows Nest Station	400 Pacific Highway	CN_04	57	65.4	LW Works compliant, traffic dominant noise source
26/08/2020	Crows Nest Station	39 Hume Street	CN_02	57	61.4	LW Works compliant, helicopter flew overhead and pushed noise levels up.
26/08/2020	Crows Nest Station	39 Hume Street	CN_02	57	46.6	LW Works compliant
31/08/2020	Crows Nest Station	22 Clarke Street	CN_01	59	57.5	LW Works compliant
31/08/2020	Crows Nest Station	39 Hume Street	CN_02	51	51.4	LW Works compliant
31/08/2020	Crows Nest Station	374 Pacific Highway	CN_04	54	67	LW Works compliant, traffic dominant noise source
1/09/2020	BPS Campsie	352-356 Canterbury Rd, Canterbury	BPS_01	81	73.0	LW Works compliant
7/09/2020	BPS Campsie	1 Cooks Avenue, Canterbury	BPS_01	78	63.5	Traffic dominant noise source
7/09/2020	BPS Campsie	344-350 Canterbury Rd, Canterbury	BPS_01	78	70.7	Traffic dominant noise source
7/09/2020	BPS Campsie	2 Cooks Avenue, Canterbury	BPS_01	78	57.4	LW Works compliant

## Appendix C: Systems Connect Vibration Monitoring Register

**Systems Connect Vibration Monitoring Register**

Start Date	End Date	Location	Detailed Monitoring Location	Attended or Continuous	Vibration Criteria mm/s	Within Vibration Criteria Y/N
5/08/2020	14/08/2020	BPS Campsie	High Street and Anzac Street, Canterbury	Attended	7.5	Y