



Environmental Monitoring Data

Project:	Sydney Metro City & Southwest– TSE Works
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01	10/11/2020	R. Muir	R. Muir	K. Vajda	For publication

Project Summary

The Sydney Metro City and Southwest 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. John Holland CPB Ghella (JHCPBG) have been contracted by Transport for New South Wales to design and construct the Tunnel and Stations Excavation Works Project (TSE Works) of the Sydney Metro City & Southwest between Chatswood and Sydenham. Figure 1 provides an overview of the Project.



Figure 1: Project Overview

Environmental Protection Licence and Reporting Requirements

John Holland Pty Ltd obtained the Environment Protection Licence (EPL No. 20971) from the NSW Environment Protection Authority for the Tunnel and Station Excavation (TSE) Works on behalf of the John Holland CPB Ghella (JHCPBG) Joint Venture. The licence is for construction works relating to Rail Systems Activities and Concrete Works as defined under Schedule 1 of the *Protection of the Environment Operations Act, 1997* (PEO Act).

The licence describes monitoring and reporting requirements for the TSE Works, and specifically provides discharge criteria for water treatment plant and sediment basin water quality. The following report details environmental monitoring undertaken during this reporting month conducted in accordance with the EPL.

The EPL can be found by following the link below to the EPA’s website:

<https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=191415&SYSUID=1&LICID=20971>

Discharge Water Monitoring

Testing and discharge was undertaken during this reporting period. Table 1 contains the discharge monitoring results.

Noise and Vibration Monitoring

Noise and vibration monitoring was undertaken during this reporting period. Table 2 contains the vibration monitoring results, and Table 3 contains the noise monitoring results.

Real-Time Noise and Vibration Monitoring

Real-time noise and vibration monitors were operating at Martin Place, Victoria Cross and Pitt Street during the October reporting period. Table 4.1 and 4.2 contains summarised real-time noise monitoring results and real-time vibration data is displayed in Table 5.

Table 1: Discharge Water Monitoring Data.

Monitoring Point	Identifier ¹	Dates Sampled	Parameter/ Criteria/ Measured Value						Oil & Grease (None Visible)	Comments
			pH (6.5 – 8.5)			Turbidity (<35 NTU)				
			Min	Max	Average	Min	Max	Average		
2	BN_02	01/10/2020 to 31/10/2020	6.5	8.4	8.1	0.5	32.7	6.1	Nil	Compliant
2	BL_02	01/10/2020 to 31/10/2020	6.8	8.4	7.4	0.0	35.0	6.4	Nil	Compliant
2	MD_03	01/10/2020 to 31/10/2020	6.5	8.5	7.5	0.1	35.0	13.3	Nil	Compliant
2	VC_3	09/10/20	7.91	7.91	7.91	8.5	8.5	8.5	Nil	Compliant
2	VC_3	15/10/20	7.5	7.5	7.5	5.3	5.3	5.3	Nil	Compliant
2	VC_3	20/10/20	8.19	8.19	8.19	10.2	10.2	10.2	Nil	Compliant
2	VC_3	23/10/20	6.8	6.8	6.8	10	10	10	Nil	Compliant
2	VC_3	27/10/20	7.92	7.92	7.92	8.1	8.1	8.1	Nil	Compliant

¹ As per discharge point identified in Sydney Metro City and Southwest Temporary Basin and Water Treatment Discharge Point Schedule

Table 2: Vibration Monitoring Data.

Monitoring location	Monitoring Date	Attended or Continuous Monitoring	Measured VDV (m/s ^{1.75})	VDV Target (m/s ^{1.75})	VDV Compliant	Measured PPV (mm/s)	PPV Target (mm/s)	PPV Compliant
65 Berry Street, North Sydney	16/10/2020	Attended	0.11	0.4	Compliant	0.16	25	Compliant

Table 3: Noise Monitoring Data

Monitoring Location (Noise-Catchment Area, Street, Suburb)	Monitoring Date	Attended or Continuous Monitoring	Parameter	Measured Value dB(A)	Goals / Targets dB(A)	Comments
VC_07, 79-81 Berry Street, North Sydney	01/10/2020	Attended	LAeq(15-min)	56.9	57	TSE Works Compliant
VC_03, 243 Miller Street, North Sydney	08/10/2020	Attended	LAeq(15-min)	65.3	78	TSE Works Compliant
VC_05, 237 Miller Street, North Sydney	08/10/2020	Attended	LAeq(15-min)	63.1	61	TSE Works Compliant - Traffic dominant noise source
VC_07, 79-81 Berry Street, North Sydney	08/10/2020	Attended	LAeq(15-min)	62.0	68	TSE Works Compliant - Traffic dominant noise source
VC_07, 79-81 Berry Street, North Sydney	08/10/2020	Attended	LAeq(15-min)	62.2	57	TSE Works Compliant - Traffic dominant noise source
PS_02, 308 Pitt Street, Sydney.	09/10/2020	Attended	LAeq(15-min)	65.6	58	TSE Works Compliant - Traffic Dominant Noise
VC_03, 243 Miller Street, North Sydney	09/10/2020	Attended	LAeq(15-min)	62.0	50	TSE Works Compliant – TSE works inaudible
VC_03, 243 Miller Street, North Sydney	09/10/2020	Attended	LAeq(15-min)	60.0	50	TSE Works Compliant – TSE works inaudible
VC_07, 65 Berry Street, North Sydney	14/10/2020	Attended	LAeq(15-min)	54.1	55	TSE Works Compliant
VC_07, 65 Berry Street, North Sydney	16/10/2020	Attended	LAeq(15-min)	50.2	55	TSE Works Compliant
VC_03, 243 Miller Street, North Sydney	19/10/2020	Attended	LAeq(15-min)	60.5	50	TSE Works Compliant – TSE works inaudible
PS_02, 308 Pitt Street, Sydney.	19/10/2020	Attended	LAeq(15-min)	64.1	58	TSE Works Compliant - Traffic Dominant Noise
MDS_01, 65 Edinburgh Rd, Marrickville	26/10/2020	Attended	LAeq(15-min)	58.5	55	TSE Works Compliant - Traffic Dominant Noise
PS_05, 137-139 Bathurst St, Sydney NSW 2000	27/10/2020	Attended	LAeq(15-min)	69.0	71	TSE Works Compliant - Traffic Dominant Noise

Table 4-1 Summary Table of Real Time Noise Data Compliance Compared Against EPL Condition E1.1.

Real-Time Noise Monitoring Results										
Date	65 Berry Street		Castlereagh Boutique Hotel		Edinburgh Castle Hotel		50 Martin Place		60 Castlereagh Street	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
01/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
02/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
03/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
04/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
05/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
06/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
07/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
08/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
09/10/2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
11/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
12/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
13/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
14/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
15/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
16/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
17/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
18/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
19/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
20/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
21/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
22/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
23/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
24/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
25/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
26/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
27/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
28/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
29/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
30/10/2020	Yes	Yes	-	-	-	-	-	-	-	-
31/10/2020	Yes	Yes	-	-	-	-	-	-	-	-

Table 4-2: Real-Time Noise Monitoring Data

Report for Condition E1.1 on 01/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	4	Yes
	Lower	39	26	Yes
Castlereagh Boutique Hotel	Upper	26	26	Yes
	Lower	39	31	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	2	Yes
	Lower	39	4	Yes
Report for Condition E1.1 on 02/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	8	Yes
	Lower	39	25	Yes
Castlereagh Boutique Hotel	Upper	26	20	Yes
	Lower	39	28	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	4	Yes

Report for Condition E1.1 on 03/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	16	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	1	Yes
	Lower	39	1	Yes
Report for Condition E1.1 on 04/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	0	Yes

Report for Condition E1.1 on 05/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 06/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	8	Yes
	Lower	39	26	Yes
Castlereagh Boutique Hotel	Upper	26	20	Yes
	Lower	39	35	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	8	Yes
	Lower	39	12	Yes

Report for Condition E1.1 on 07/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	24	Yes
Castlereagh Boutique Hotel	Upper	26	19	Yes
	Lower	39	30	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	1	Yes
	Lower	39	3	Yes
Report for Condition E1.1 on 08/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	1	Yes
	Lower	39	26	Yes
Castlereagh Boutique Hotel	Upper	26	23	Yes
	Lower	39	28	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	10	Yes
	Lower	39	14	Yes

Report for Condition E1.1 on 09/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	21	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	6	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	2	Yes
	Lower	39	2	Yes
Report for Condition E1.1 on 10/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	9	Yes
Report for Condition E1.1 on 11/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes

Report for Condition E1.1 on 12/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	3	Yes
	Lower	39	27	Yes
Report for Condition E1.1 on 13/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	7	Yes
	Lower	39	26	Yes
Report for Condition E1.1 on 14/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	28	Yes
Report for Condition E1.1 on 15/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	31	Yes
Report for Condition E1.1 on 16/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	1	Yes
	Lower	39	33	Yes

Report for Condition E1.1 on 17/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	20	Yes
Report for Condition E1.1 on 18/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 19/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	26	Yes
Report for Condition E1.1 on 20/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	33	Yes
Report for Condition E1.1 on 21/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	27	Yes

Report for Condition E1.1 on 22/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	26	Yes
Report for Condition E1.1 on 23/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	3	Yes
	Lower	39	26	Yes
Report for Condition E1.1 on 24/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	2	Yes
	Lower	39	21	Yes
Report for Condition E1.1 on 25/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 26/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	10	Yes
	Lower	39	31	Yes

Report for Condition E1.1 on 27/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	30	Yes
Report for Condition E1.1 on 28/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	34	Yes
Report for Condition E1.1 on 29/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	1	Yes
	Lower	39	26	Yes
Report for Condition E1.1 on 30/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	28	Yes
Report for Condition E1.1 on 31/10/2020				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
65 Berry St	Upper	26	0	Yes
	Lower	39	22	Yes

Real Time Noise Results Comments:

Compliance with condition E1.1 was met at all monitoring locations during the reporting period.

Note:

1. Due to the ambient internal noise levels within 50 Martin Place (without construction) generally ranging between 60 dBA Leq(15min) and 70 dBA Leq(15min) during operation hours an alternative to noise level monitoring has been undertaken to measure compliance. To ensure compliance with condition E1.1 is achieved at all times rock braking activities adjacent to 50 Martin Place have been restricted to 6.5 hours per day.
2. Real time Noise monitors were removed on the 9 October 2020 from Castlereagh Boutique Hotel, Edinburgh Castle Hotel, 60 Castlereagh Street and 50 Martin Place as bulk excavation was completed at Pitt Street North, Pitt Street South and Martin Place South.

Table 5: Real-Time Vibration Monitoring Data (Maximum recorded value per day)

Day	65 Berry Street, North Sydney	50 Martin Place, Sydney	60 Castlereagh Street (Basement), Sydney	Castlereagh Boutique Hotel	211-217 Castlereagh Street, Sydney
Criteria (mm/s)	25	7.5	25	7.5	25
01/10/2020	1.34	0.38	0.19	0.3	0.1
02/10/2020	1.66	0.31	0.16	0.22	0.1
03/10/2020	0.94	0.18	0.15	0.11	0.1
04/10/2020	0.18	0.09	0.23	0.05	0.1
05/10/2020	0.17	0.22	4.67	0.08	0.1
06/10/2020	1.27	0.47	0.87	0.19	0.15
07/10/2020	1.34	0.3	1.51	0.62	0.15
08/10/2020	1.17	0.11	0.38	0.51	0.1
09/10/2020	0.45	0.09	0.2	5.49	0.48
10/10/2020	1	-	-	-	-
11/10/2020	0.2	-	-	-	-
12/10/2020	1.82	-	-	-	-
13/10/2020	1.72	-	-	-	-
14/10/2020	1.06	-	-	-	-
15/10/2020	1.28	-	-	-	-
16/10/2020	1.01	-	-	-	-
17/10/2020	1.03	-	-	-	-
18/10/2020	0.67	-	-	-	-
19/10/2020	0.85	-	-	-	-
20/10/2020	0.93	-	-	-	-
21/10/2020	0.79	-	-	-	-
22/10/2020	0.64	-	-	-	-
23/10/2020	0.77	-	-	-	-
24/10/2020	0.41	-	-	-	-
25/10/2020	0.83	-	-	-	-
26/10/2020	0.62	-	-	-	-
27/10/2020	0.99	-	-	-	-
28/10/2020	1.34	-	-	-	-
29/10/2020	0.84	-	-	-	-
30/10/2020	1.68	-	-	-	-
31/10/2020	0.51	-	-	-	-

Real Time Vibration Results Comments:

Note:

1. Real time Vibration monitors were removed on the 9 October 2020 from Castlereagh Boutique Hotel, Edinburgh Castle Hotel, 60 Castlereagh Street and 50 Martin Place as bulk excavation was completed at Pitt Street North, Pitt Street South and Martin Place South.