



Environmental Monitoring Data

Project:	Sydney Metro City & Southwest– TSE Works
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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/SearchResult.aspx?SearchTag=licence&searchrange=licence&range=licence>

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 Barangaroo, Crows Nest, Martin Place, Pitt Street and Victoria Cross 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	CD_02	01/10/2019 to 31/10/2019	6.7	8.4	7.4	0.1	31.9	7.3	Nil	Compliant
3	VC_03	01/10/2019 to 31/10/2019	6.7	8.5	7.7	0.1	34.7	17.4	Nil	Compliant
2	BN_02	01/10/2019 to 31/10/2019	6.5	8.5	7.5	0.1	34.9	6.4	Nil	Compliant
2	BL_02	01/10/2019 to 31/10/2019	7.3	7.4	7.4	0.1	34.6	7.9	Nil	Compliant
1	MDS_01	01/10/2019 to 31/10/2019	6.5	8.5	7.6	0.1	34.9	3.7	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
86 Goulburn St, Sydney	01/10/2019	Attended	N/A	N/A	N/A	0.15	7.5	Y
143-147 Liverpool St, Sydney	01/10/2019	Attended	N/A	N/A	N/A	0.27	7.5	Y
281 Elizabeth St, Sydney	01/10/2019	Attended	N/A	N/A	N/A	0.13	25	Y
111 Elizabeth St, Sydney	01/10/2019	Attended	N/A	N/A	N/A	0.22	7.5	Y
77 Castlereagh St, Sydney	15/10/2019	Attended	N/A	N/A	N/A	0.10	25	Y
111 Elizabeth St, Sydney	30/10/2019	Attended	N/A	N/A	N/A	0.16	7.5	Y
90 Pacific Hwy, Nth Sydney	31/10/2019	Attended	N/A	N/A	N/A	0.28	25	Y

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
CDS_04_1784, 12 Hopetoun Ave, Chatswood	01/10/2019	Attended	LA _{eq} (15-min)	49.1	55	TSE works compliant.
PS_04, 86 Goulburn St, Sydney	01/10/2019	Attended	LA _{eq} (15-min)	46.8	55	TSE works compliant.
PS_04, 143-147 Liverpool St, Sydney	01/10/2019	Attended	LA _{eq} (15-min)	50	55	TSE works compliant.
PS_04, 281 Elizabeth St, Sydney	01/10/2019	Attended	LA _{eq} (15-min)	46.2	55	TSE works compliant.
PS_05, 317 Castlereagh St, Haymarket	01/10/2019	Attended	LA _{eq} (15-min)	40.5	35	TSE works inaudible. Activity in complex was dominant noise source.
BN_03, 73 Kent St, Millers Point	01/10/2019	Attended	LA _{eq} (15-min)	54.8	55	TSE works compliant.
CDS_06_1047, 344 Mowbray Rd, Chatswood	03/10/2019	Attended	LA _{eq} (15-min)	68.3	84	TSE works compliant.
PS_01, 389 Pitt St, Sydney	04/10/2019	Attended	LA _{eq} (15-min)	42.5	35	TSE works inaudible. Activity in hotel was dominant noise source.
CN_01, 599 Pacific Hwy, St Leonards	05/10/2019	Attended	LA _{eq} (15-min)	32.7	55	TSE works compliant.
CN_03, 9A Alexander St, Crows Nest	06/10/2019	Attended	LA _{eq} (15-min)	38.3	55	TSE works compliant.
MP_01, 27-39 Castlereagh St, Sydney	10/10/2019	Attended	LA _{eq} (15-min)	55.0	89	TSE works compliant.
CDS_04_1784, 12 Hopetoun Ave, Chatswood	11/10/2019	Attended	LA _{eq} (15-min)	34.7	60	TSE works compliant.
MP_01, 77 Castlereagh St, Sydney	15/10/2019	Attended	LA _{eq} (15-min)	66.0	55	TSE works inaudible. Activity in complex was dominant noise source.
PS_02, 104 Bathurst St, Sydney	17/10/2019	Attended	LA _{eq} (15-min)	71.6	80	TSE works compliant.
MDS_02, 358 Edgeware Road, Newtown	19/10/2019	Attended	LA _{eq} (15-min)	58.5	62	TSE works compliant.

CN_03, 104 West St, Crows Nest	24/10/2019	Attended	LA _{eq} (15-min)	38.6	55	TSE works compliant.
CN_03, 54 Hayberry St, Crows Nest	28/10/2019	Attended	LA _{eq} (15-min)	44.7	60	TSE works compliant.
MP_01, 111 Elizabeth St, Sydney	30/10/2019	Attended	LA _{eq} (15-min)	54.6	60	TSE works compliant.
VC_01, 90 Pacific Hwy, Nth Sydney	31/10/2019	Attended	LA _{eq} (15-min)	45.6	55	TSE works compliant.

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

Real-Time Noise Monitoring Results																
Date	10 to 12 Clarke Street		65 Berry Street		Castlereagh Boutique Hotel		Edinburgh Castle Hotel		50 Martin Place		25A Hickson Road		50 McLaren St		60 Castlereagh Street (Basement)	
	Noise Limit	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	
01/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
02/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
03/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
04/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
05/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
06/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
07/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
08/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
09/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31/10/2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4-2: Real-Time Noise Monitoring Data

Report for Condition E1.1 on 01/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	30	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	1	Yes
	Lower	39	7	Yes
Edinburgh Castle Hotel	Upper	26	1	Yes
	Lower	39	41	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	3	Yes
Report for Condition E1.1 on 02/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	20	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	1	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	11	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	5	Yes

Report for Condition E1.1 on 03/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	11	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	2	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	15	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	8	Yes
Report for Condition E1.1 on 04/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	16	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	4	Yes
Edinburgh Castle Hotel	Upper	26	3	Yes
	Lower	39	35	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	2	Yes
	Lower	39	8	Yes

Report for Condition E1.1 on 05/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	0	Yes
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	5	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	1	Yes
Report for Condition E1.1 on 06/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	0	Yes
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	1	Yes
	Lower	39	5	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	1	Yes

Report for Condition E1.1 on 07/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	0	Yes
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	3	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	1	Yes
Report for Condition E1.1 on 08/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	9	Yes
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	5	Yes
	Lower	39	9	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	10	Yes
	Lower	39	19	Yes

Report for Condition E1.1 on 09/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	32	Yes
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	4	Yes
	Lower	39	16	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	6	Yes
Report for Condition E1.1 on 10/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	25	Yes
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	3	Yes
	Lower	39	36	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	2	Yes
	Lower	39	18	Yes

Report for Condition E1.1 on 11/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	28	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	2	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	29	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	6	Yes
Report for Condition E1.1 on 12/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	12	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	1	Yes
Edinburgh Castle Hotel	Upper	26	1	Yes
	Lower	39	7	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	10	Yes

Report for Condition E1.1 on 13/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	0	Yes
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	1	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	2	Yes
Report for Condition E1.1 on 14/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	5	Yes
	Lower	39	31	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	1	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	21	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	17	Yes

Report for Condition E1.1 on 15/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	2	Yes
	Lower	39	34	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	3	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	17	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	8	Yes
Report for Condition E1.1 on 16/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	8	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	1	Yes
Edinburgh Castle Hotel	Upper	26	6	Yes
	Lower	39	44	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	6	Yes
	Lower	39	12	Yes

Report for Condition E1.1 on 17/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	9	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	3	Yes
Edinburgh Castle Hotel	Upper	26	0	Yes
	Lower	39	49	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	6	Yes
	Lower	39	7	Yes
Report for Condition E1.1 on 18/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	19	Yes
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	4	Yes
	Lower	39	42	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	3	Yes
50 McLaren St	Upper	26	2	Yes
	Lower	39	2	Yes

Report for Condition E1.1 on 19/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	2	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	2	Yes
Edinburgh Castle Hotel	Upper	26	4	Yes
	Lower	39	21	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 20/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	0	Yes
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	2	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	13	Yes
	Lower	39	16	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes

Report for Condition E1.1 on 21/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	9	Yes
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	4	Yes
	Lower	39	35	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	26	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 22/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	1	Yes
	Lower	39	8	Yes
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	1	Yes
	Lower	39	36	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	5	Yes
50 McLaren St	Upper	26	1	Yes
	Lower	39	2	Yes

Report for Condition E1.1 on 23/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	9	Yes
65 Berry St	Upper	26	0	Yes
	Lower	39	0	Yes
Castlereagh Boutique Hotel	Upper	26	0	Yes
	Lower	39	1	Yes
Edinburgh Castle Hotel	Upper	26	3	Yes
	Lower	39	40	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	9	Yes
50 McLaren St	Upper	26	2	Yes
	Lower	39	3	Yes
Report for Condition E1.1 on 24/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	23	Yes
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	1	Yes
	Lower	39	38	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	2	Yes
	Lower	39	15	Yes
50 McLaren St	Upper	26	1	Yes
	Lower	39	3	Yes

Report for Condition E1.1 on 25/10/2019				
Location	Noise Goal	15-min periods in exceedance		Has condition been met?
		Permitted	Exceeded	
10 to 12 Clarke Street	Upper	26	0	Yes
	Lower	39	7	Yes
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	2	Yes
	Lower	39	31	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	28	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 26/10/2019				
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	1	Yes
	Lower	39	36	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	7	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes

Report for Condition E1.1 on 27/10/2019				
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	3	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	0	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	0	Yes
Report for Condition E1.1 on 28/10/2019				
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	4	Yes
Edinburgh Castle Hotel	Upper	26	4	Yes
	Lower	39	34	Yes
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	5	Yes
	Lower	39	12	Yes
50 McLaren St	Upper	26	3	Yes
	Lower	39	4	Yes

Report for Condition E1.1 on 29/10/2019				
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	1	Yes
Edinburgh Castle Hotel	Upper	26	6	Yes
	Lower	39	41	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	13	Yes
	Lower	39	25	Yes
50 McLaren St	Upper	26	3	Yes
	Lower	39	3	Yes
Report for Condition E1.1 on 30/10/2019				
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	1	Yes
Edinburgh Castle Hotel	Upper	26	3	Yes
	Lower	39	40	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	12	Yes
50 McLaren St	Upper	26	0	Yes
	Lower	39	1	Yes

Report for Condition E1.1 on 31/10/2019				
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	16	Yes
	Lower	39	48	No
25A Hickson Road	Upper	26	0	Yes
	Lower	39	0	Yes
60 Castlereagh St (Basement)	Upper	26	0	Yes
	Lower	39	3	Yes
50 McLaren St	Upper	26	1	Yes
	Lower	39	5	Yes

Real Time Noise Results Comments:

Edinburgh Castle Hotel

1 OCTOBER 2019

A review of site operations confirmed that TSE works had completely ceased at approx. 4.45pm on this shift. 37 logging periods above 50dBA occurred up to 4:45pm, the additional 5 logging periods above 50dBA occurred once works had ceased and are attributed to an external noise source. It is concluded that an exceedance was not recorded on this occasion.

16 OCTOBER 2019

A review of site operations and the recorded noise data confirmed that the dominant noise source of the logging periods from 4.30pm was attributable to hotel patrons within the Edinburgh Castle beer garden. The site operations ceased at 5.15pm with the further 6 logging periods recorded above 50dBA attributable to Edinburgh Castle. It is concluded that an exceedance did not occur on this occasion.

17 OCTOBER 2019

A review of site operations confirmed that TSE works had ceased at 5.30pm. 39 logging periods above 50dBA occurred up to 5.30pm. The additional 10 logging periods above 50dBA are attributed to Edinburgh Castle external noise sources. It is concluded that an exceedance did not occur on this occasion.

18 OCTOBER 2019

A review of site operations confirmed that TSE works has completely ceased at 6pm on this shift. 34 logging periods above 50dBA occurred up to 6pm, the additional 8 logging periods above 50dBA occurred once works had ceased and are attributed to an external noise source. It is concluded that an exceedance did not occur on this occasion.

23, 29 30 & 31 OCTOBER 2019

A review of site operations confirmed that TSE works had ceased prior to or at the 39 logging periods being recorded logging periods above 50dBA. Additional logging periods above 50dBA once works had ceased are attributed to external noise source. It is concluded that exceedances did not occur on these occasions.

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

Day	10 to 12 Clarke Street, Crows Nest	65 Berry Street, North Sydney	25A Hickson Road, Millers Point	50 Martin Place, Sydney	60 Castlereagh Street (Basement), Sydney	Castlereagh Boutique Hotel	211-217 Castlereagh Street, Sydney	50 McLaren St, North Sydney
Criteria (mm/s)	25	25	25	7.5	25	7.5	25	25
01/10/2019	0.89	0.35	0.56	0.39	0.85	2.86	0.34	
02/10/2019	2.17	0.25	0.13	0.45	1.75	2.4	0.29	
03/10/2019	0.66	0.27	0.48	0.39	0.82	7.82	0.43	
04/10/2019	0.46	0.35	1.97	0.45	1.03	1.37	0.92	
05/10/2019	3.76	0.13	0.1	0.27	0.21	1.27	0.08	
06/10/2019	0.19	0.13	0.26	0.27	0.21	1.88	0.09	
07/10/2019	0.19	0.41	0.23	0.27	0.23	2.46	0.1	
08/10/2019	0.69	0.24	4.17	0.27	0.77	3.55	0.09	
09/10/2019	0.87	0.29	0.18	0.45	1.18	3.76	0.92	
10/10/2019	0.66	0.27	0.5	0.42	2.16	7.48	0.79	
11/10/2019	0.97	0.31	1.94	0.29	1.34	2.79	1.81	
12/10/2019	0.28	0.22	0.11	0.28	0.95	1.86	0.82	
13/10/2019	0.38	0.21	0.08	0.27	0.28	4.68	0.06	
14/10/2019	1.1	0.27	0.2	0.34	1.08	5.5	2.96	2.03
15/10/2019	0.87	0.27	0.26	0.34	1.31	2.75	3.08	0.43
16/10/2019	0.33	0.29	0.25	0.34	0.93	2.37	2.74	0.11
17/10/2019	0.51	0.42	0.08	0.34	3.5	3.09	0.83	1.57
18/10/2019	0.3	0.75	0.6	0.29	0.77	2.26	0.43	0.13
19/10/2019	0.54	0.16	0.13	0.53	2.11	3.02	1.14	0.08
20/10/2019	0.24	0.16	0.13	0.27	0.72	3.67	0.08	0.08
21/10/2019	1.38	0.44	0.08	0.57	1.52	1.91	1.56	0.11
22/10/2019	0.38	0.3	0.35	1.19	2.39	2.85	2.43	0.65
23/10/2019	1.48	0.35	0.43	1.75	1.67	3.74	2.79	0.84
24/10/2019	1.35	1.62	3.33	1.43	2.06	3.54	2.38	0.56
25/10/2019	2.74	0.52	0.43	1.41	1.05	1.45	1.37	0.53
26/10/2019		0.3	0.25	0.74	0.93	0.91	0.98	0.11
27/10/2019		0.11	0.13	0.27	0.36	0.17	0.06	0.11
28/10/2019		0.32	0.23	1.7	1	1.39	1.78	0
29/10/2019		0.47	0.1	1.09	0.62	0.74	2.65	0
30/10/2019		0.3	0.08	1.51	1.11	1.25	2.08	0.53
31/10/2019		0.29	0.53	1.27	1.21	3.23	2.11	0.56

Real-Time Vibration Results Comments:

Castlereagh Boutique Hotel

On 3 October, an alert was received from vibration monitor located at 50 Martin Place regarding vibration level exceedance. Upon investigation, it was found that this exceedance was not attributable to TSE works. Maintenance staff from Castlereagh Boutique Hotel confirmed that they were performing vibratory-type work in close proximity of the monitor.