REPORT

MTR Corporation Limited

MTR South Island Line (East) (SIL(E)):
Fixed Plant Noise Audit Report

November 2016

Reference 0132172

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Date:	18 November 2016

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1 INTRODUCTION

Following the approval of the South Island Line (East) (hereafter referred to as the SIL(E) Project) Environmental Impact Assessment (EIA) Report (1) under the *Environmental Impact Assessment Ordinance (EIAO)* on 26 October 2010, an Environmental Permit (EP-407/2010) was granted for the SIL(E) Project on 8 December 2010. The EP has been varied and the latest EP (EP-407/2010/F) was issued on 19 October 2016 to include updated maximum sound power levels for the fixed plant noise sources as presented in the Environmental Review Report (ERR) for supporting the Variation of EP.

Condition 2.31 in Part C of the current EP (EP-407/2010/F) requires that "*At least one month before commencement of operation of the Project, the Permit Holder shall carry out fixed plant noise audit and deposit with the Director four hard copies and one electronic copy of an audit report showing that the design of the fixed plant noise sources associated with the Project complies with the maximum sound power levels determined in the approved EIA Report (Register No.AEIAR-155/2010) and all relevant documents in the Register, or otherwise approved by the Director in compliance with the requirements in "Technical Memorandum on Environmental Impact Assessment Process" having due regard to the characteristics of tonality, impulsiveness and intermittency. The audit report shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report.*".

Further to the *ERR* submitted for the application of Variation of EP, a *Proposal for Updating Maximum Allowable Sound Power Levels of Fixed Plant Noise Sources* (*Proposal for Updating SWLs*) incorporated some further updates is submitted for EPD's approval.

ERM-Hong Kong, Limited (ERM) was appointed by MTRCL to prepare the fixed plant noise audit report for the noise measurement at the fixed plant noise sources to check the compliance of the maximum sound power levels (SWLs) and to undertake noise measurement at the identified representative Noise Sensitive Receivers (NSRs) for investigation of any tonal, impulsive and intermittent characteristics from the fixed plant noise sources installed at the the SIL(E) Project.

This *Report* presents the noise measurement methodology and results of noise measurement at the fixed plant noise sources of installed at Admiralty Station (ADM), Hong Kong Park Ventilation Building (HKB), Nam Fung Portal Ventilation Building (NFB), Ocean Park Station (OCP), Wong Chuk Hang Station (WCH) and Wong Chuk Hang Depot (WCD), LET-TVF (near Sham Wan Tower), Entrance A of Lei Tung Station (LET A), Entrance B of Lei Tung Station (LET B), South Horizons Station (SOH) and Lee Nam Road Plant Building (SOH Plant Building) and Lee Wing Street Plant Building (LWB), and check compliance by comparing the results with the maximum sound power

(1) South Island Line (East) Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-155/2010) (SIL(E)EIA Report)

levels determined in the *Proposal for Updating Maximum Allowable Sound Power Levels of Fixed Plant Noise Sources* .

2 COMPLIANCE CRITERIA AND NOISE CRITERIA

2.1 NOISE MEASUREMENT TO OBTAIN THE SWLS OF FIXED PLANT NOISE SOURCES

Fixed plant sources, including ventilation fans, chillers and coolers, would generally be located within plant rooms and the noise from these fixed plant sources would be emitted from these source items directly or through louvers; whilst some fixed plant sources, such as chillers and coolers, would be located outdoor. The measured SWLs of each source or louver during the commissioning test shall comply with the maximum allowable SWLs as summarised in *Table 2.1* which is based on *Table 2.2* of the Proposal for Updating SWLs. Layout and section plans of the fixed plant sources are shown in *Annex A1*. Appropriate corrections in tonal, impulsive or intermittent characteristics should be applied, where applicable, in accordance with the *Technical Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites (IND-TM)* during the commissioning test.

Table 2.1 ***Summary of Updated Maximum Allowable SWLs for Fixed Plant Sources***

Plant Item[(a)(b)]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
ADM			
ADM A1	Exhaust Ventilation Shaft (Block A)	86	76
ADM A2	Exhaust Ventilation Shaft (Block A)	86	76
ADM A3	Exhaust Ventilation Shaft (Block A)	86	76
ADM A4	Exhaust Ventilation Shaft (Block A)	84	74
ADM B1	Station and Trackside Ventilation Shafts (Block B)	86	76
ADM B3	Station and Trackside Ventilation Shafts (Block B)	85	75
ADM B4	Station and Trackside Ventilation Shafts (Block B)	85	75
ADM B5	Station and Trackside Ventilation Shafts (Block B)	86	76
ADM B6	Station and Trackside Ventilation Shafts (Block B)	86	76
ADM C1	Station Ventilation Shafts (Block C)	90	80
ADM C3	Station Ventilation Shafts (Block C)	86	76
ADM C4	Station Ventilation Shafts (Block C)	89	79
ADM C5	Station Ventilation Shafts (Block C)	86	76
ADM D1	Trackside Ventilation Shaft (Block D)	92	82
ADM D1a	Trackside Ventilation Shaft (Block D)	92	82
ADM D2	Trackside Ventilation Shaft (Block D)	86	76
ADM D3	Trackside Ventilation Shaft (Block D)	84	74
ADM D3a	Trackside Ventilation Shaft	92	82

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
	(Block D)		
ADM D4	Trackside Ventilation Shaft (Block D)	91	81
ADM D6	Trackside Ventilation Shaft (Block D)	84	74
ADM D7	Trackside Ventilation Shaft (Block D)	83	73
ADM D8	Trackside Ventilation Shaft (Block D)	85	75
ADM D9	Trackside Ventilation Shaft (Block D)	81	71
ADM D10	Trackside Ventilation Shaft (Block D)	81	71
ADM E1	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	91	81
ADM E2	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	90	80
ADM E3	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	90	80
ADM E4	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	89	79
ADM E7	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	90	80
ADM E8	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	84	74
ADM E9	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	91	81
ADM E10	Air Intake Opening and Exhaust Ventilation Shafts (Block E)	83	73
ADM F1	Exhaust Ventilation Shaft (Block F)	91	81
ADM F2	Exhaust Ventilation Shaft (Block F)	91	81
ADM J1	Cooling Tower, Intake and Exhaust Openings (Block J)	102	92
ADM J5	Cooling Tower, Intake and Exhaust Openings (Block J)	95	85
ADM J7	Cooling Tower, Intake and Exhaust Openings (Block J)	87	77
ADM M1	Intake and Exhaust Ventilation Shafts (Block M)	99	89
ADM M2	Intake and Exhaust Ventilation Shafts (Block M)	87	77
ADM M3	Intake and Exhaust Ventilation Shafts (Block M)	90	80
ADM N1	Intake Ventilation Shaft (Block N)	84	74
ADM S1[c]	Intake and Exhaust Openings for SEE at Harcourt Garden	89	79
ADM S3[c]	Intake and Exhaust Openings for SEE at Harcourt Garden	100	90
ADM S4[c]	Intake and Exhaust Openings for SEE at Harcourt Garden	99	89
ADM S5[c]	Intake and Exhaust Openings for SEE at Harcourt Garden	90	80
ADM S6[c]	Intake and Exhaust Openings for SEE at Harcourt Garden	100	90
ADM ML1	Air intake Opening (SE façade)	101	91
ADM ML2	Air Intake Openings (SW façade)	104	94
ADM ML3	Air Intake Openings (SW façade)	98	88
ADM ML4	Air Intake Openings (SW façade)	100	90
HKB			
HKP 01[b]	Fresh Air Intake for Staircase Pressurisation	91	--
HKP 05	Exhaust from Transformer Rooms	97	86

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
HKP 06	Fresh Air Intake for Transformer Rooms	98	85
HKP 08	Exhaust for Building	96	85
HKP 09	Vent Shaft (SIL)	96	89
HKP 10	Fresh Air Intake for Fire Control Room	97	76
HKP 11	Vent Shaft (SIL)	95	88
HKP 12	Fresh Air Intake for Transformer Rooms	96	86
HKP 13	Pressure Relief Damper	96	89
HKP 14	Fresh Air Intake for Building	96	86
HKP 15[b]	Fresh Air Intake for Staircase Pressurisation	86	--
HKP 16	Exhaust from Transformer Rooms	90	85
PRD01[b]	PRD	96	--
PRD02[b]	PRD	95	--
PCU01	PCU	85	80
PCU02	PCU	85	77
PCU03	PCU	85	77
PCU04	PCU	85	77
PCU05	PCU	85	77
HKP-Add. 1[b]	Fresh Air Intake for Staircase Pressurization System	85	--
NFB			
NAM 01[a]	Staircase Pressurisation Fan Room	--	--
NAM 02[b]	Staircase Pressurisation Fan Room	88	--
NAM 03	Air Plenum (V08)	99	95
NAM 04	Air Plenum (V07)	100	90
NAM 05[b]	Ventilation Shaft for air release	99	--
NAM 06	Air Plenum (V09)	99	95
NAM 10	BEVS	89	80
NAM 11[a]	Ventilation for HEC RM	--	--
NAM 12	BEVS	89	84
NAM 13	Ventilation for HEC RM	100	84
NAM 14	Ventilation for HEC RM	100	84
NAM 15	Fresh Air intake for Station supply vent shaft	89	75
NAM 16[b]	Staircase Pressurisation Fan	78	--
NAM 17	Variable Refrigerant Volume Indoor Unit	100	83
NAM 18	T-box	100	92
NAM-Add. 1a[b]	Air release for staircase pressurization system (emergency)	99	--
NAM-Add. 1b[b]	Pressure relief for staircase pressurization system	99	--
NAM-Add. 2[b]	Ventilation for HEC room	100	--
NAM-Add. 3	Air release for staircase pressurization system (emergency)	99	84
VCU-006	Split Type AC unit	91	82
PCU-002	Split Type AC unit	91	78
PCU-003	Split Type AC unit	91	82
PCU-004	Split Type AC unit	94	94
OCP			
Item 1	Ventilation Fan	81	71
OCP 10	Fresh Air Intake for Common Telecom equipment room	92	82
OCP 12	Fresh Air Intake for Common Telecom equipment room	92	82
OCP 14	Exhaust for Signalling and Telecom equipment room	84	74

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
OCP 17	Fresh Air Intake for Split Type AC unit	74	64
OCP 18	Fresh Air Intake for Under Platform Supply Duct	81	71
OCP 19	Exhaust for Under Platform Supply Duct	78	68
OCP 21	Exhaust for Low Voltage Main Switch Room	86	76
OCP 22	Transfer for LV Switch Room	84	74
OCP 23	Exhaust for Low Voltage Main Switch Room	89	79
OCP 24	Station Ventilation	74	64
OCP 28	Fresh Air Intake for Fire Control Room	76	66
OCP 29	Exhaust for Elec. Room	77	67
OCP 30	Station Ventilation	79	69
OCP 31-a	Exhaust for Maintenance In-house Store	76	66
OCP 31-b	Exhaust for Electrical Room	74	64
OCP 31-c	Exhaust for General Store	73	63
OCP 32	Exhaust Louver for Split Type AC unit	82	72
OCP 33	Exhaust for Electrical Room	89	79
OCP 34	Exhaust for 1500DC Switchgear Room	89	80
OCP 35	Station Ventilation	88	78
OCP 36	Exhaust for Refuse Collection Room	81	71
OCP 37	Exhaust for Transformer Room	85	75
OCP 38[b]	Exhaust for Transformer Room	78	--
OCP 39[b]	Exhaust for Transformer Room	78	--
OCP 40[b]	Exhaust for Transformer Room	79	--
OCP 42[b]	Discharge for Smoke Extraction	74	--
OCP 43	Exhaust for Transformer Room	81	71
OCP 45	Exhaust for Low Voltage Switch Room	79	74
OCP 47	Exhaust for Concession	77	67
OCP 48[b]	Discharge for Smoke Extraction	87	--
OCP Cooling Unit 1	Cooling Unit	89	79
OCP 58	Exhaust for Common Telecom equipment room	84	74
OCP 59	Exhaust for Common Telecom equipment room	83	73
VCU101	Split Type AC unit	82	72
VCU401	Split Type AC unit	78	68
VCU402	Split Type AC unit	82	72
VCU403	Split Type AC unit	89	79
WCH and WCD			
WCH 01	Exhaust for Environmental Control Room & Motor Control Center	86	86
WCH 02	Fresh Air Intake for Environmental Control Room & Motor Control Center	93	93
WCH 03	Split AC PAU/SEF smoke extraction fan	78	78
WCH 04	Split AC PAU/SEF smoke extraction fan	84	84
WCH 05	Split AC PAU/SEF smoke extraction fan	74	74
WCH 06	Exhaust for Signalling and	81	81

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
	Telecom Equipment Room		
WCH 07	Exhaust for Common Telecom equipment room	84	84
WCH 08	Fresh Air Intake for Common Telecom equipment room	83	83
WCH 09	Fresh air duct for general store room	68	68
WCH 10	Exhaust for Trackside Low Voltage Switch Room	70	70
WCH 11	Fresh air intake for trackside Low Voltage switch room	69	69
WCH 12	Intake for APG room	73	73
WCH 13	Exhaust for Electrical Room	75	75
WCH 15	Fresh air intake	86	86
WCH 16	Exhaust for Under Platform Supply Duct	98	98
WCH 17	Fresh air intake for Transformer Room	91	91
WCH 18	Exhaust for Transformer Room	97	97
WCH 19	Exhaust for Transformer Room	98	98
WCH 20	Fresh air intake for Transformer Room	88	88
WCH 21	Exhaust for General Store	70	70
WCH 22	Exhaust for Concession	77	77
WCH 23	Exhaust for Electrical Room	77	77
WCH 24a	Exhaust for Toilet/Concession	79	79
WCH 24b	Exhaust for Toilet/Concession	79	79
WCH 24c	Exhaust for Toilet/Concession	79	79
WCH 25	Discharge for Smoke Extraction/Exhaust for Free Cooling	97	97
WCH 26	Station Ventilation	82	82
WCH 27	Fresh Air Intake for Air Handling Unit	94	88
WCH 28	UEF Plenum	95	95
WCH 29	Fresh Air Intake for Air Handling Unit	86	86
WCH 30[b]	Discharge for Smoke Extraction	89	--
WCH 31	Exhaust for Packed Condenser Unit/Exhaust for Free Cooling	87	87
WCH 32a	Ventilation for store room	83	83
WCH 32b	Ventilation for store room	83	83
WCH 33	Exhaust for Electrical Room	71	71
WCH-Add. 1a	PCU	93	87
WCH-Add. 1b	PCU	93	87
WCH-Add. 2	PCU	93	90
WCH-Add. 3	PCU	82	82
WCH-Add. 4	Intake for FCR	71	71
WCH-Add. 5	Transfer for LV switch room	74	74
WCH-Add. 6	Ventilation for store room	80	80
VCU-301	Split Type AC unit	90	90
WCD 01	Ventilation shaft for air intake	69	69
WCD 02	Ventilation shaft for air intake	68	68
WCD 03	Ventilation shaft for air intake	69	69
WCD 04	Ventilation shaft for air intake	69	69
WCD 05	Ventilation shaft for air intake	76	76
WCD 06	Ventilation shaft for air intake	98	86
WCD 07	Ventilation shaft for air intake	88	79

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
WCD 08	Ventilation shaft for air intake	74	74
WCD 09	Ventilation shaft for Smoke Extraction & Normal Exhaust	69	69
WCD 11	Ventilation shaft for Smoke Extraction & Normal Exhaust	72	72
WCD 12	Ventilation shaft for Smoke Extraction & Normal Exhaust	72	72
WCD 13	Ventilation shaft for Smoke Extraction & Normal Exhaust	78	78
WCD 14	Smoke Extraction & Normal Exhaust	71	71
WCD 15	Smoke Extraction & Normal Exhaust	72	72
WCD 17	Smoke Extraction & Normal Exhaust	83	83
WCD 18	Smoke Extraction & Normal Exhaust	70	70
WCD 19	Smoke Extraction & Normal Exhaust	68	68
WCD 20	Smoke Extraction & Normal Exhaust	69	69
WCD 21	Ventilation shaft for air intake	68	68
WCD 22	Ventilation shaft for air intake	69	69
WCD 23	Ventilation shaft for air intake	64	64
WCD 24	Ventilation shaft for air intake	64	64
WCD 25	Ventilation Opening (depot façade)	88	81
WCD 26	Ventilation Opening (depot façade)	92	84
WCD 27	Ventilation Opening (depot façade)	93	85
WCD 28	Ventilation Opening (depot façade)	96	88
WCD 29	Ventilation Opening (depot façade)	94	93
WCD 30	Ventilation Opening (depot façade)	87	87
WCD 32	Ventilation Opening (depot façade)	83	83
WCD 33	Ventilation Opening (depot façade)	80	80
LET-TVF			
LET 49	Tunnel Ventilation Louver	104	94
LET 50	Tunnel Ventilation Louver	104	94
LET A			
LET 01[b]	Staircase Pressurization Fan (Intake)	75	--
LET 02[a]	Ventilation for louver door	--	--
LET 03	Fresh Air Intake	76	73
LET 04	Smoke Extraction Fan	89	78
LET 06[b]	Pressure Relief Damper	80	--
LET 07[a]	Station Ventilation	--	--
LET 29	Station Ventilation	88	76
LET 30	Intake for Cleansing pump room	74	69
LET 31	Exhaust for Cleansing pump room	86	74
LET 32	Intake for FS transfer pump room	74	70
LET 33[a]	Ventilation Fan (Exhaust)	--	--
LET 34	Ventilation Fan (Exhaust)	91	79
LET 35[a]	Intake for water meter room	--	--

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
	(no duct)		
LET 36[a]	Exhaust for Flush pump room (with duct)	--	--
LET 37	Ventilation Fan (Exhaust)	73	64
LET 38[a]	Ventilation at lobby	--	--
LET 39-1[a]	Ventilation for meter room	--	--
LET 39-2[a]	Ventilation for meter room	--	--
LET-Add. 1[b]	Staircase Pressurization Fan	81	--
LET-Add. 2[b]	Staircase Pressurization Fan	77	--
LET B			
LET 08[a]	Ventilation Fan (Exhaust)	--	--
LET 09	Ventilation Fan (Exhaust)	90	81
LET 13a	TSF Vent Shaft	91	73
LET 13b	TSF Vent Shaft	91	73
LET 14a	Ventilation for Station supply vent shaft room	91	73
LET 14b	Ventilation for Station supply vent shaft room	91	73
LET 14c	Ventilation for Station supply vent shaft room	91	73
LET 14d	Ventilation for Station supply vent shaft room	91	73
LET 15[a]	Staircase Pressurization fan room	--	--
LET 16	TEF Vent Shaft	95	85
LET 17	TEF Vent Shaft	96	86
LET 18	BOH Exhaust Vent Shaft	86	72
LET 20	Ventilation Fan (Exhaust)	87	80
LET 21	Ventilation Fan (Exhaust)	87	75
LET 22	Ventilation Fan (Exhaust)	88	75
LET 23	Ventilation Fan (Exhaust)	88	78
LET 25[a]	Ventilation for HEC RMU	--	--
LET 26	Ventilation for Staircase	91	73
LET 27a	TSF Vent Shaft	91	73
LET 27b	TSF Vent Shaft	91	73
LET 28	Staircase Pressurization Fan	83	78
LET 41	Staircase Pressurization Fan	84	75
LET 42	Ventilation for Plant room	91	89
LET 43	Ventilation Fan (Exhaust)	79	72
LET 44	Fresh Air Intake	80	80
LET 45	Intake for HEC transfer room	88	75
LET 46	Fresh Air Intake	88	75
LET 47	Intake for HEC transformer room	88	75
LET 48[a]	Intake for Transformer Room	--	--
LET-Add. 3	Staircase Pressurization Fan	89	73
LET-Add. 4	Staircase Pressurization Fan	89	72
LET-Add. 5	PCU	83	77
LET-Add. 6	Staircase Pressurization Fan	80	67
LET-Add. 7	Transfer Air Grille	87	74
SOH and SOH Plant Building			
SOH01	Ventilation Fan (Exhaust)	94	84
SOH02	Exhaust for BOH Exhaust Vent Shaft	84	74
SOH39	Exhaust for Smoke Extraction Fan	86	76
SOH03[b]	Intake for Staircase pressurization fan	85	--
SOH04a[b]	Staircase Pressurization System (Air Release Duct)	85	--
SOH04b[b]	Staircase Pressurization	92	--

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
	System (Air Release Duct)		
SOH09[b]	Intake for Staircase pressurization fan	72	--
SOH10-1	Intake for Station supply vent shaft	83	73
SOH10-2	Intake for Station supply vent shaft	73	63
SOH10-3	Intake for Station supply vent shaft	73	63
SOH12[b]	Pressure Relief	75	--
SOH15	Ventilation Fan (Exhaust)	79	79
SOH18	Ventilation Fan/Smoke extraction fan (Exhaust)	85	82
SOH19	TEF Vent Shaft	86	82
SOH20	Ventilation Fan (Exhaust)	86	79
SOH22	Air Handling Unit (Intake)	87	80
SOH23	BOH exhaust vent shaft	85	78
SOH24[b]	Staircase Pressurization System (Air Release Duct)	86	--
SOH25	Intake for Station supply vent shaft	87	80
SOH26	Transfer air grille	85	82
SOH27	Transfer air grille	88	82
SOH28	Transfer air grille	88	81
SOH29	Ventilation Fan (Exhaust)	79	79
SOH30	Ventilation Fan (Exhaust)	73	70
SOH32	Transfer air grille	71	65
SOH33	Ventilation Fan (Exhaust)	74	73
SOH34	Ventilation Fan (Exhaust)	75	70
SOH35	Transfer air grille	71	65
SOH36	BOH exhaust vent shaft (Exhaust)	87	77
SOH37	Ventilation Fan (Exhaust)	87	77
SOH38	Ventilation Exhaust for HEC Tx Rm	70	61
SOH40	Station supply vent shaft (Intake)	72	68
SOH41	Intake for Staircase pressurization fan	82	68
SOH42[b]	Intake for Staircase pressurization fan	84	--
SOH43	Transfer air grille	79	75
SOH44	Transfer air grille	79	75
SOH45	Transfer air grille	84	77
SOH46[b]	Staircase pressurization fan	84	--
SOH47	Station Ventilation	86	79
SOH48-1	TSF Vent Shaft	86	79
SOH48-2	TSF Vent Shaft	86	82
SOH48-3	TSF Vent Shaft	86	81
SOH48-4	TSF Vent Shaft	86	83
SOH49[b]	Transfer air grille	84	--
SOH51	Transfer air grille	78	76
PCU-401[b]	Split Type AC unit	78	--
SOH-Add. 1a	Pressure relief for staircase pressurization system	76	76
SOH-Add. 1b	Pressure relief for staircase pressurization system	77	77
LWB			
LWB01	TVF Vent Shaft	103	93
LWB02	TVF Vent Shaft	103	93
LWB03	Ventilation Fan (Intake)	103	93
LWB04	Ventilation Fan (Exhaust)	103	93

Plant Item[a][b]	Description	Maximum Allowable SWL, dB(A)	
		Day and Evening Time	Night-time
LWB05[a]	Station Ventilation	--	--
LWB07	Ventilation Fan (Intake)	103	93
LWB08	Ventilation Fan (Exhaust)	103	93
LWB09	Ventilation Fan (Intake)	102	92
LWB10	Ventilation Fan (Intake)	103	93
LWB11	Ventilation Fan (Exhaust)	103	93
LWB12	Ventilation Fan (Intake)	102	92
LWB13	Transfer air grille	102	92
LWB14	Ventilation Fan (Intake)	103	93
LWB15	Ventilation Fan (Exhaust)	103	93
LWB16	Ventilation Fan (Intake)	102	92
LWB17	Ventilation Fan (Intake)	102	92
LWB18	Ventilation Fan (Intake)	103	93
LWB19	Ventilation Fan (Intake)	103	93
LWB20	Ventilation Fan (Exhaust)	103	93
LWB21	Ventilation for HEC RMU RM	103	93
LWB22	Exhaust for HEC RMU	103	93
LWB23	Intake for HEC RMU	103	93
LWB24	Intake for HEC RMU	103	93
LWB25	TVF Vent Shaft	103	93
LWB26	TVF Vent Shaft	102	92
LWB27[a]	TVF Vent Shaft	--	--
LWB28	Staircase Ventilation	100	90
LWB29	Ventilation Fan (Exhaust)	98	88
LWB30	Ventilation Fan (Exhaust)	102	92
LWB31	Ventilation Fan (Exhaust)	99	89
LWB32	Ventilation Fan (Exhaust)	100	90
LWB33	Ventilation Fan (Exhaust)	102	92
LWB34	Ventilation Fan (Exhaust)	103	93
LWB35	TVF Vent Shaft	101	91
LWB36	TVF Vent Shaft	104	94
LWB37	TVF Vent Shaft	104	94
LWB38	Cooling Tower	98	88
LWB39	Cooling Tower	100	90
LWB40	Cooling Tower	97	87
LWB41	Split Type AC unit	98	88

Notes:

(a) These noise sources have been removed as no noise source is connected to the louvre or noise source is not belonged to SIL(E).

(b) No noise source is connected to these louvres during night-time period.

(c) The louvres at SEE at Harcourt Garden will not be in operation at the commencement of operation of SIL(E) and it will be in operation by the end of 2017 tentatively.

3 MEASUREMENT METHODOLOGY

3.1 NOISE MEASUREMENT TO OBTAIN THE SWLS OF FIXED PLANT NOISE SOURCES

Noise measurements to obtain the SWLs of the fixed plant noise sources are undertaken by Wilson Acoustics Limited (WAL), Mason Industries (Hong Kong) Limited (Mason) and Gammon Construction Limited (GCL). Details of the measurement methodology, calibration certificates of equipment and sample photographs showing the measurement locations are shown in *Annexes A2* to *A4*, respectively.

3.1.1 *Measurement Equipment*

The sound level meters and calibrators used for noise measurements are listed in the *Table 3.1*. The instruments used for the noise measurements comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) or equivalent international standards. The calibration certificates of equipment are shown in *Annex A3*.

Table 3.1 Noise Measurement Equipment

Equipment	Model	Serial Number
Sound Level Meter	Rion NL-52	00564841
	Svantek Svan 958	14210
	Svantek Svan 958	20890
	Svantek Svan 958	23412
	Svantek Svan 959	11228
Calibrator	Rion NC-74	35125848
	Svantek SV30A	10814
	Svantek SV30A	29088

Note:
(a) The valid period of calibration certificates of sound level meters is 2 years, while that of calibrators is 1 year.

Before and after each series of measurements, a sound calibrator was applied to the microphone to verify the calibration of the measuring system. The difference between the readings made before and after each series of measurements shall be less than or equal to 1.0 dB.

3.1.2 *Measurement Date and Time*

The noise measurements were all carried out during night-time period at the fixed plant noise sources. The noise measurement schedule is shown in *Table 3.2*.

Table 3.2 Measurement Schedule

Location	Date
ADM	13 September, 12-15 & 26-27 October 2016
HKP	26 & 30 August & 23 September 2016

Location	Date
NFB	25 August 2016, 1 September & 3 September 2016
OCP	12 August, 1-2 September & 23 September 2016
WCH and WCD	26 February, 30 March, 18 May, 3-4 June, 17 July, 12 August, 1 September, 9 September, 22-23 September, 26-27 September & 6 October 2016
LET-TVF	13 September 2016
LET A	29-31 August, 7 September, 9 September & 23 September 2016
LET B	29-31 August, 7 September, 9 September & 25 October 2016
SOH and SOH Plant Building	23-24 August & 14 October 2016
LWB	19 August & 26 August 2016

3.2 *NOISE MEASUREMENT TO CONFIRM ANY TONAL, IMPULSIVE AND INTERMITTENT CHARACTERISTICS FROM THE FIXED PLANT NOISE SOURCES AT NSRS*

3.2.1 *Measurement Equipment*

The sound level meters and calibrators used for noise measurements are listed in the *Table 3.3*. The instruments used for the noise measurements comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) or equivalent international standards. The calibration certificates of equipment are shown in *Annex B1*.

Table 3.3 ***Noise Measurement Equipment***

Equipment	Model	Serial Number
Sound Level Meter	01dB-Stell Solo	65225
	01dB-Stell Solo	65226
	Svantek Svan 959	11238
	NTi XL2-TA	A2A-08670-E0
	Casella CEL-633C	0442197
	Rion NA-27	00201194
	Svantek Svan 958	20890
	Svantek Svan 958	23412
Calibrator	01dB-Stell CAL21	34113607(2011)
	Svantek SV 30A	7441
	Svantek SV 30A	10814
	Rion NC-73	10786708

Note:
(a) The valid period of calibration certificates of sound level meters is 2 years, while that of calibrators is 1 year.

Before and after each series of measurements, a sound calibrator was applied to the microphone to verify the calibration of the measuring system. The difference between the readings made before and after each series of measurements shall be less than or equal to 1.0 dB.

3.2.2 *Measurement Parameters*

With reference made to the *IND-TM*, the noise measurements were conducted in terms of the A-weighted equivalent continuous sound pressure level over 30 minutes, $L_{Aeq\ (30\ min)}$, in one-third octave band, for two scenarios:

- Scenario 1 – worst case scenario for normal operation mode & emergency mode to check against noise criteria during day and evening time periods
- Scenario 2 – worst case scenarios for normal operation mode & emergency mode to check against the noise criteria during night-time period.

These scenarios cover the "normal mode" of railway operation, "traffic congestion mode" for trains halted in tunnels, and the regular maintenance of ventilation fans for "emergency mode" which will be turned on in case of emergency.

The fixed plant noise sources will be operated steadily and continuously, and therefore no intermittency and impulsiveness are expected at the NSRs. However, the characteristics of intermittency and impulsiveness will be recorded, if any, based on observation during measurement.

2 sets of background noise level, $L_{Aeq\ (5\ min)}$, in one-third octave band, were measured at each measurement location when all fixed plant equipment were shut down without extraneous noise.

3.2.3 *Measurement Location*

Fixed plant noise measurements were carried out at the first layer of NSRs for the concerned areas. The measurement locations were selected with direct line of sight to the noise sources and hence considered sufficient to be representative. The measurement locations are summarised in *Table 3.4* and shown in *Figures 3.1 to 3.10*. Photographs of measurement locations are shown in *Annex B2*.

Table 3.4 ***Noise Measurement Locations***

Works Area	NSR ID	Description	Type	Measurement Height
ADM	PH	Paget House	Residential	~5m above ground level
HKB	RP	Regent on the Park	Residential	~10m above ground level
NFB	EX2	Ex-Canadian Hospital Site (Planned NSR)	G/IC	~3 m above ground level along Nam Fung Road
	YSM2	TWGHs Yeung Shing Memorial Long Stay Care Home	Convalescent Home	Roof of the building

Works Area	NSR ID	Description	Type	Measurement Height
OCP	OCP 1	G/IC zone	G/IC	~10.2 m above ground level
	OCP 2	G/IC zone	G/IC	~10.2 m above ground level
	OCP 3	G/IC zone	G/IC	~10.2 m above ground level
WCH & WCD	PC1	Wong Chuk Hang Police R&F Married Quarters – Block A	Residential	~1.2m above podium
	SIS2	Planned Singapore International School (Extensions)	Educational	Lower Roof of the building
	CPS	San Wui Commercial Society of HK Chan Pak Sha School	Educational	Roof of the building
	SMH2	Little Sisters of the Poor St. Mary's Home for the Aged	Home for the Elderly	Roof of the building
	T5-2	WCH Residential Zone (Planned NSR)	Residential	~10m above roof of WCH Depot
	T6-1	WCH Residential Zone (Planned NSR)	Residential	~8m above roof of WCH Station
	T7-2	WCH Residential Zone (Planned NSR)	Residential	~10m above roof of WCH Depot
	T8-1	WCH Residential Zone (Planned NSR)	Residential	~10m above roof of WCH Depot
	T12-1	WCH Residential Zone (Planned NSR)	Residential	~10m above roof of WCH Depot
	T13-2	WCH Residential Zone (Planned NSR)	Residential	~10m above roof of WCH Depot
LET-TVF	SMB	Sun Ming Building	Residential	Roof of the building
LET-A	SFB	Shun Fung Building	Residential	Roof of the building
LET-B	LTE4/LDN	Lei Tung Estate - Tung Mau House / Lei Tung Lutheran Day Nursery (G/F of Tung Mau House)	Residential/Nursery	~5m above ground level
	LTE5/NEC	Lei Tung Estate - Tung Sing House / Lei Tung Neighbour Elderly Centre (G/F of Tung Shing House)	Residential/Elderly Centre	~5m above ground level
SOH	SOH 6	South Horizons Phase III – Mei Ka Court (Block 23A)	Residential	~5m above ground level
	SOH 8	South Horizons Phase IV – Dover Court (Block 25)	Residential	~10m above ground level
	SOH 7	South Horizons Phase IV – Cambridge Court (Block 33A)	Residential	~5m above stairway

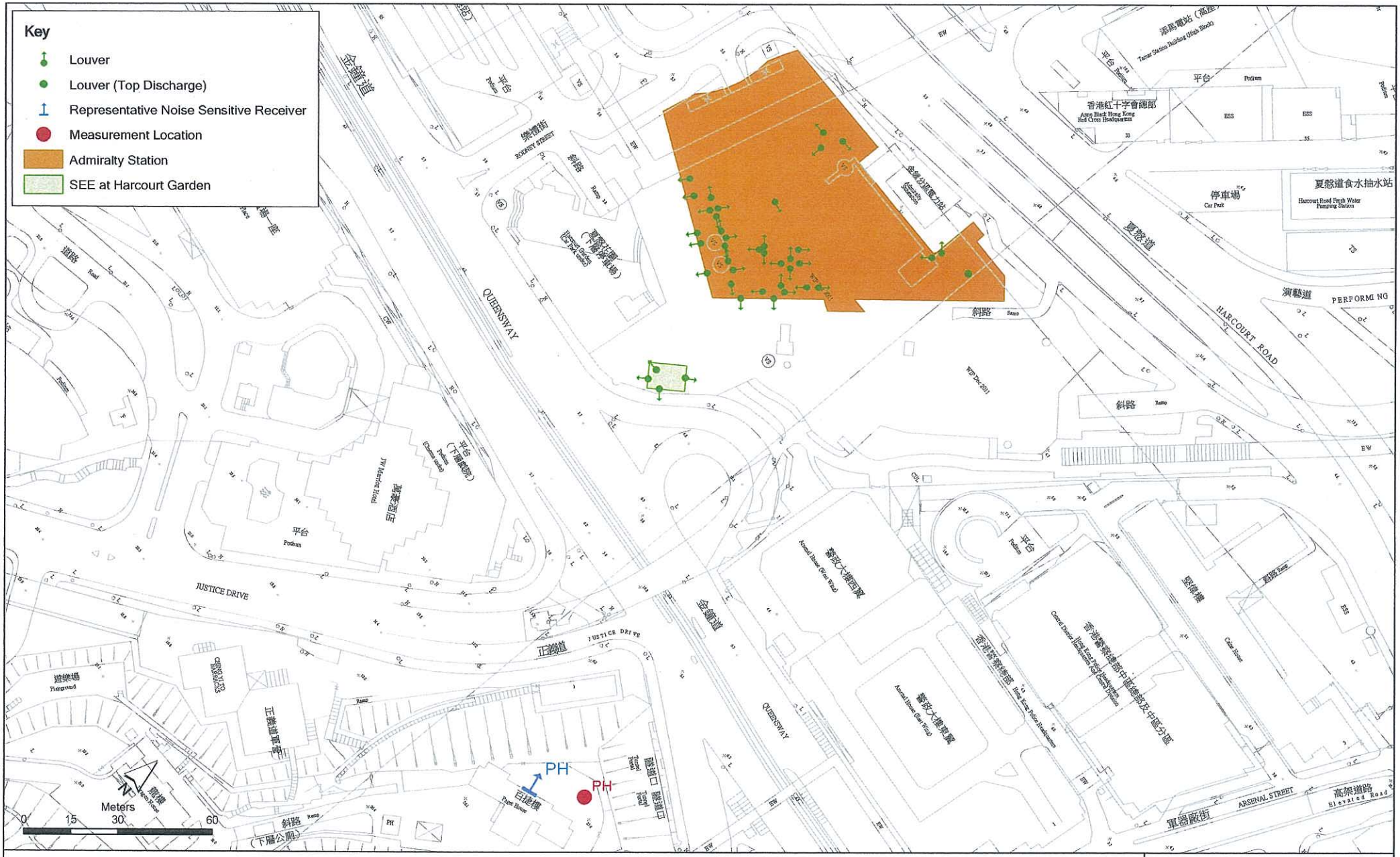

Figure 3.1

Fixed Plant Noise Measurement Location at ADM

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_ADM_OP_Stage.mxd
Date: 25/10/2016

Environmental Resources Management

ERM

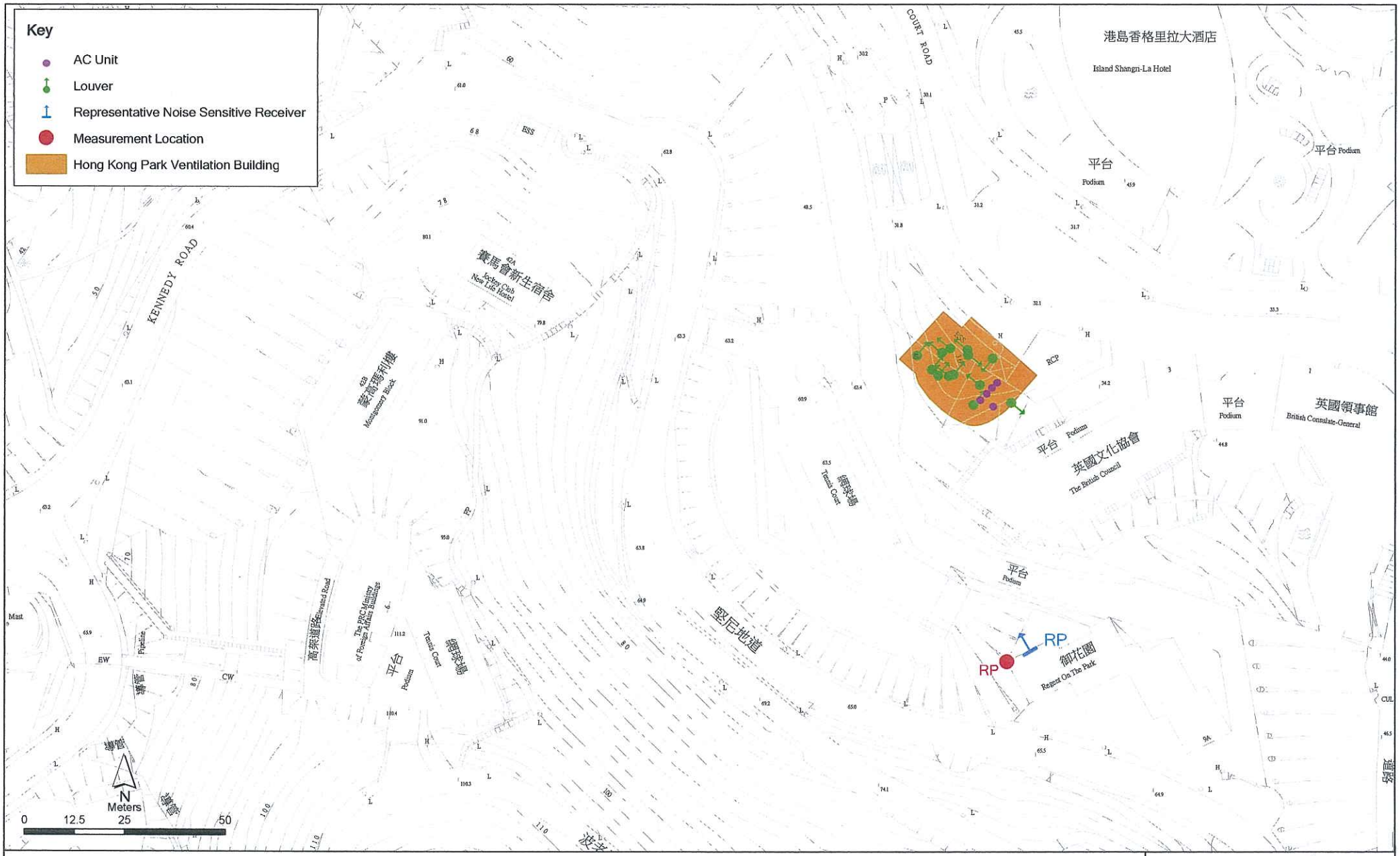

Figure 3.2

Fixed Plant Noise Measurement Location at HKB

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_HKB_OP_Stage.mxd
Date: 25/10/2016

Environmental Resources Management

ERM

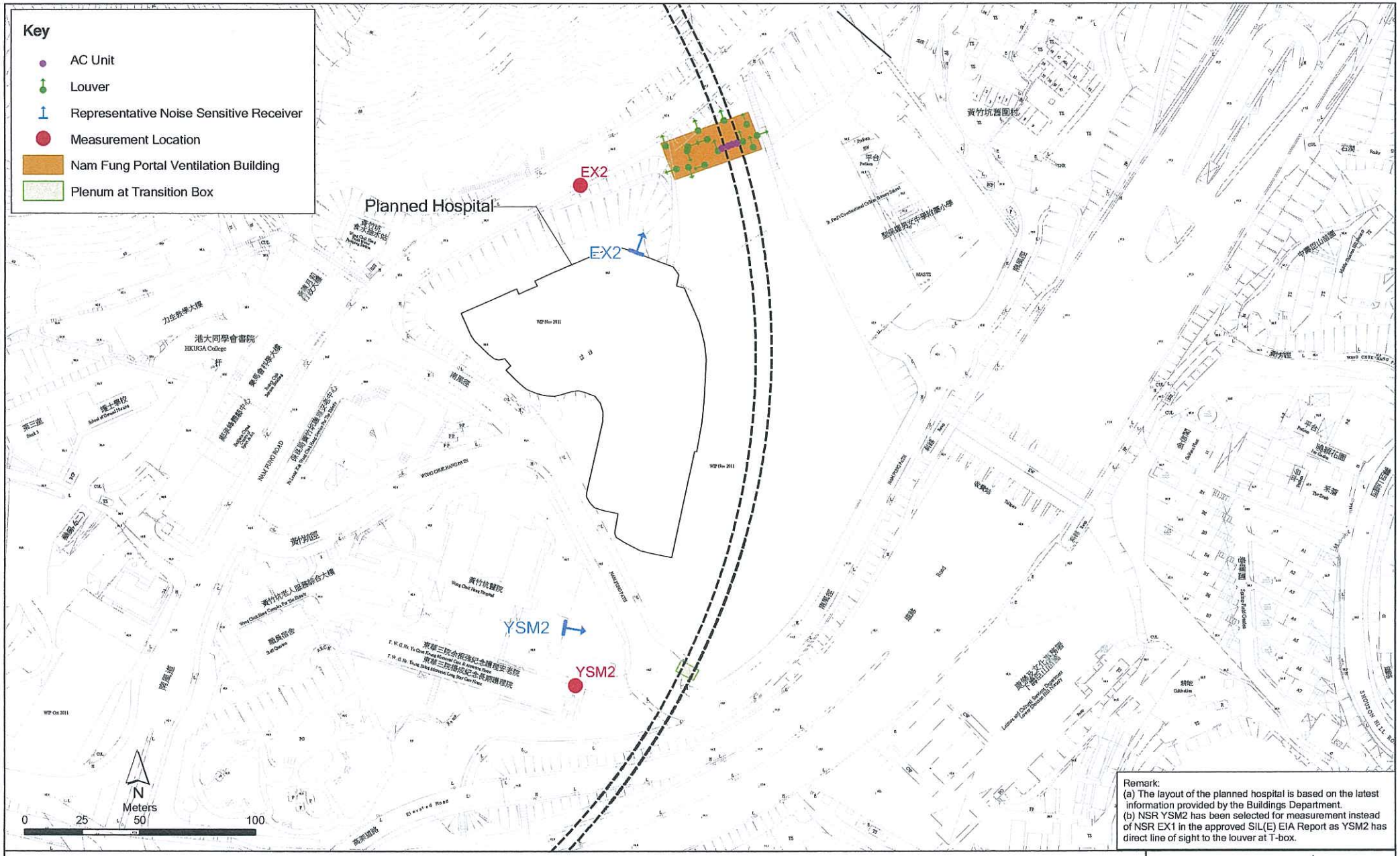

Figure 3.3

Fixed Plant Noise Measurement Location at NFB

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_NFB_OP_Stage.mxd
Date: 25/10/2016

Environmental Resources Management

ERM

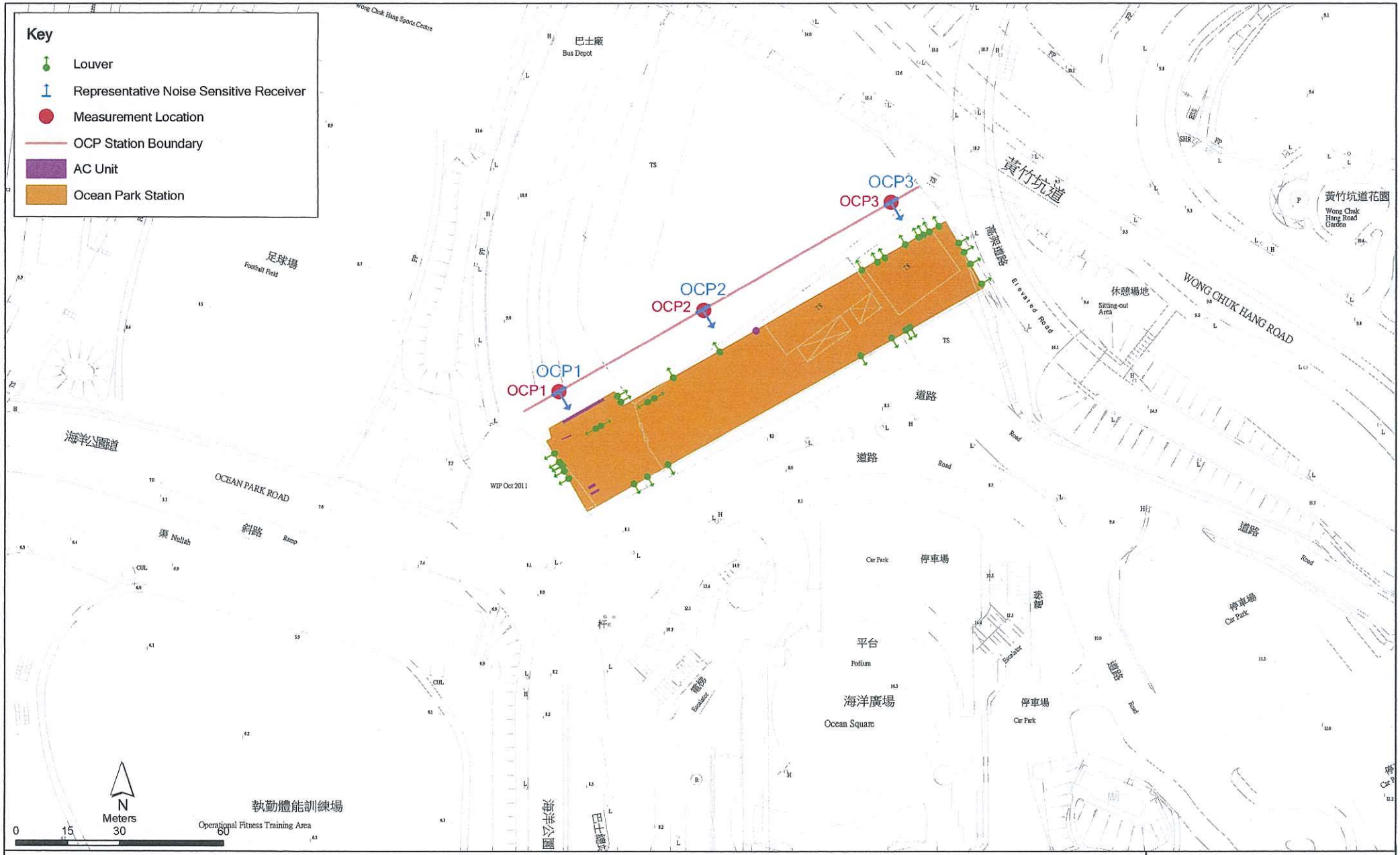

Figure 3.4

Fixed Plant Noise Measurement Location at OCP

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_OCP_OP_Stage.mxd
Date: 25/10/2016

Environmental Resources Management

ERM

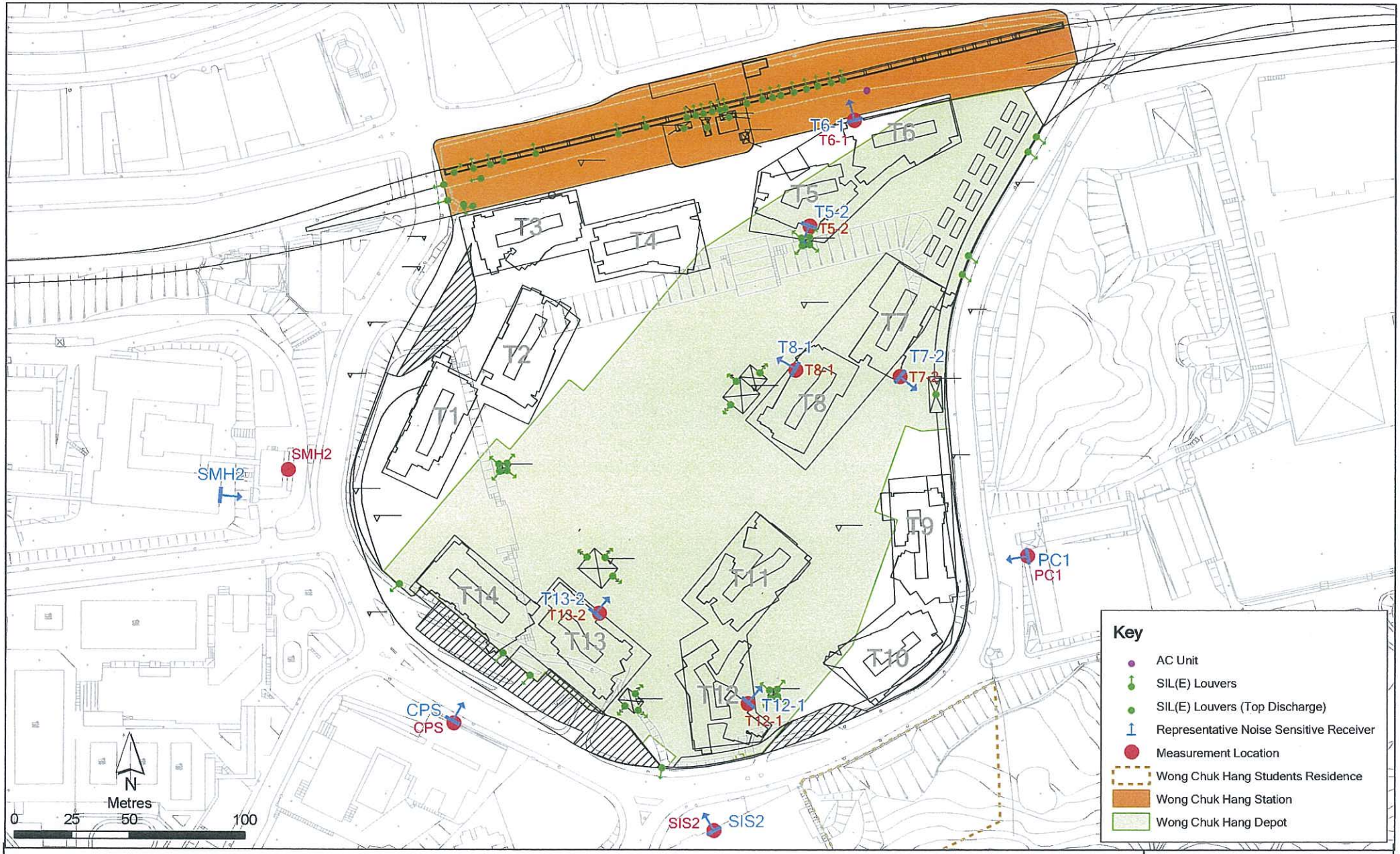

Figure 3.5

Fixed Plant Noise Measurement Location at WCH and WCD

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_WCH_OP_Stage.mxd
Date: 25/10/2016

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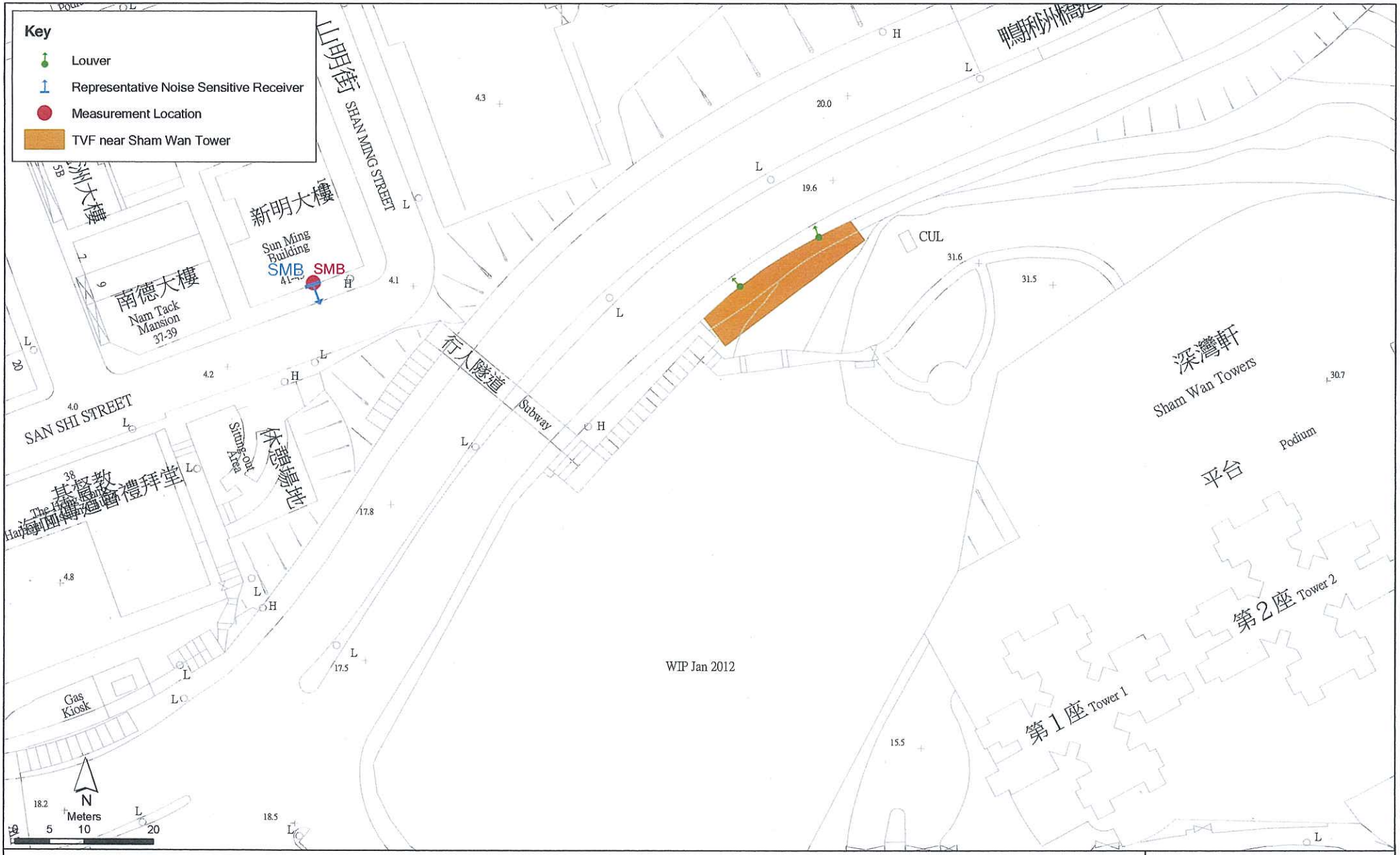


Figure 3.6

Fixed Plant Noise Measurement Location at LET-TVF

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_LET_TVF_OP_Stage.mxd
Date: 20/10/2016

Environmental Resources Management

ERM

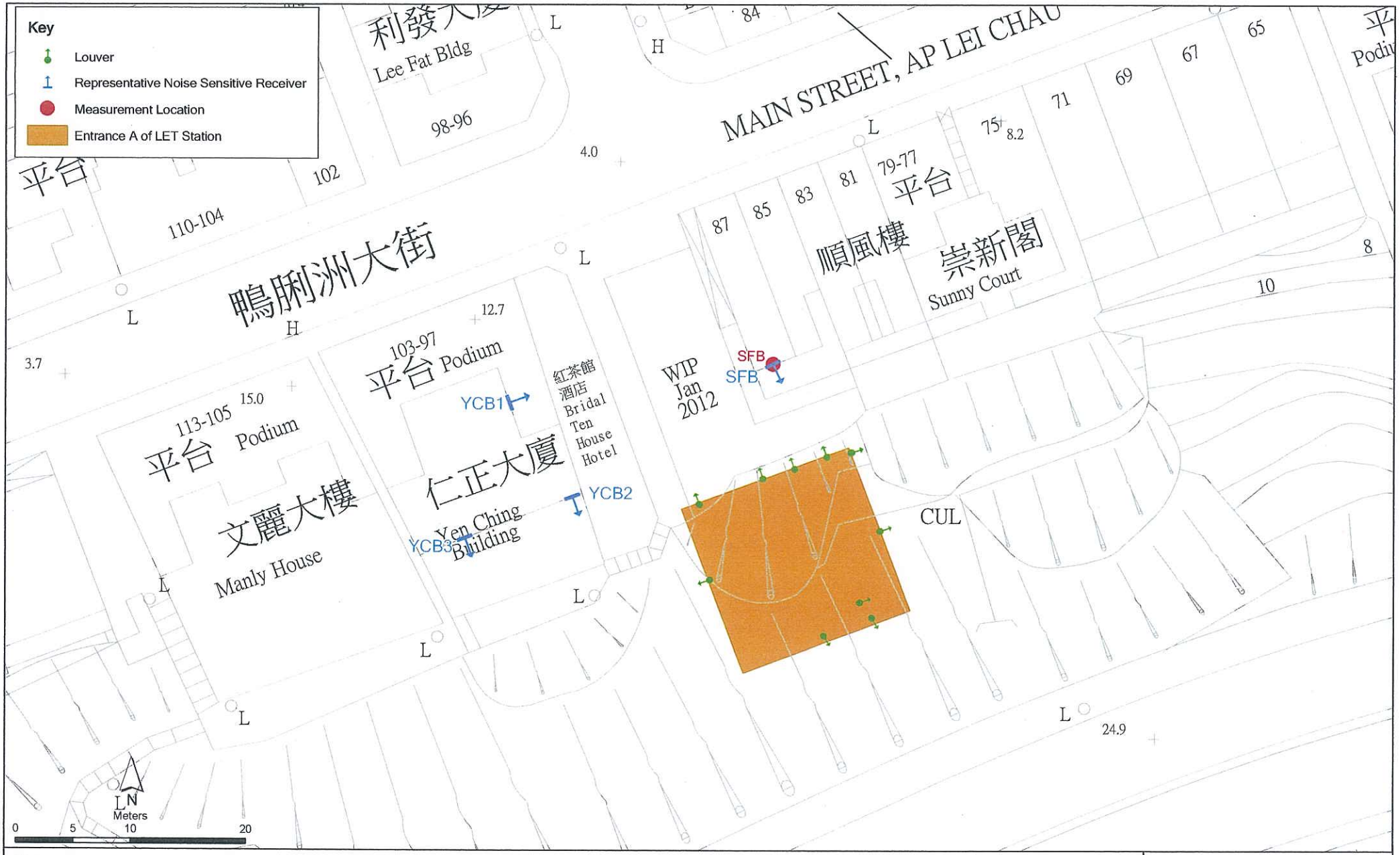


Figure 3.7

Fixed Plant Noise Measurement Location at LET-A

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_LET_A_OP_Stage.mxd
Date: 20/10/2016

Environmental Resources Management

ERM

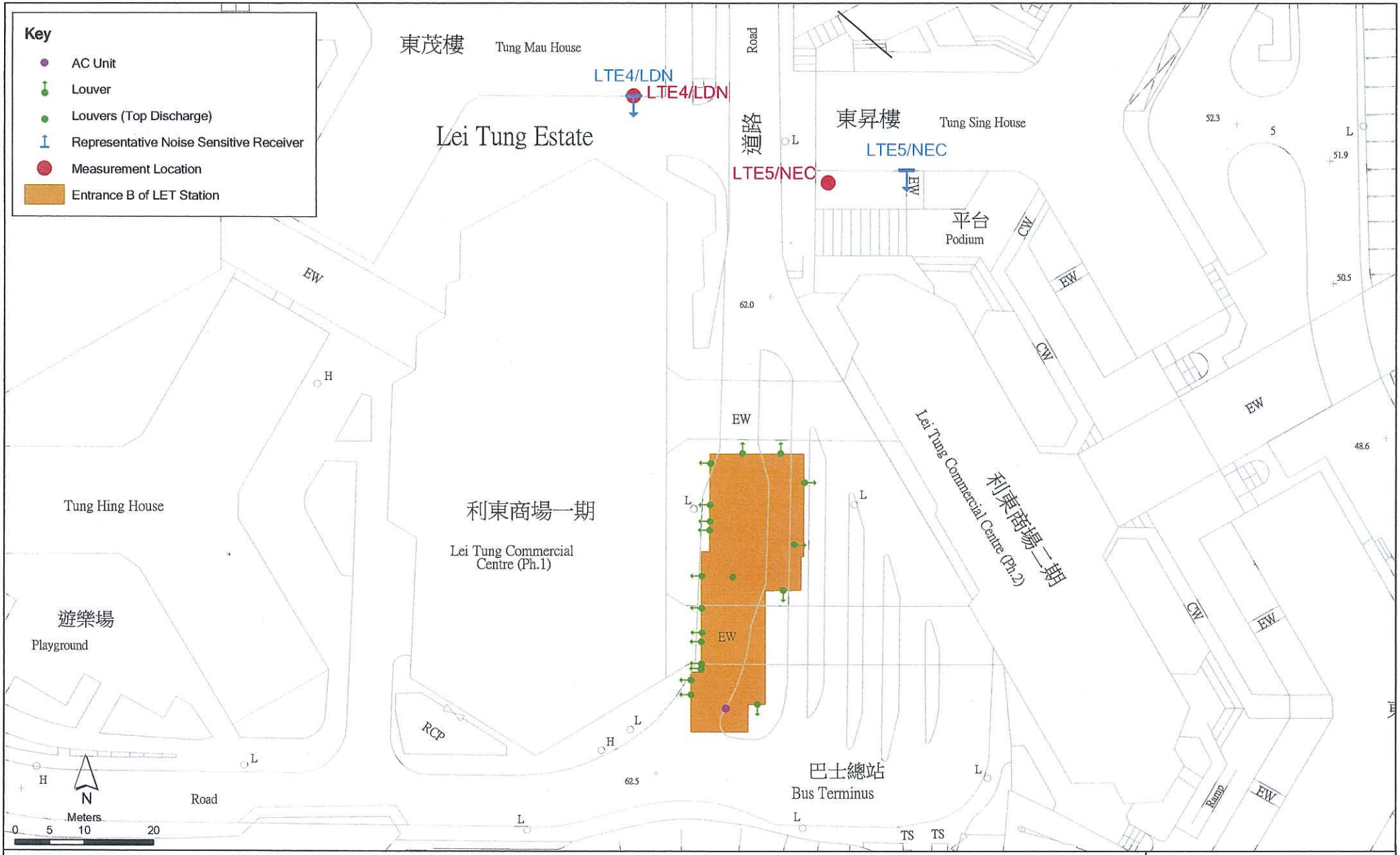


Figure 3.8

Fixed Plant Noise Measurement Location at LET-B

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_LET_B_OP_Stage.mxd
Date: 20/10/2016

Environmental Resources Management

ERM

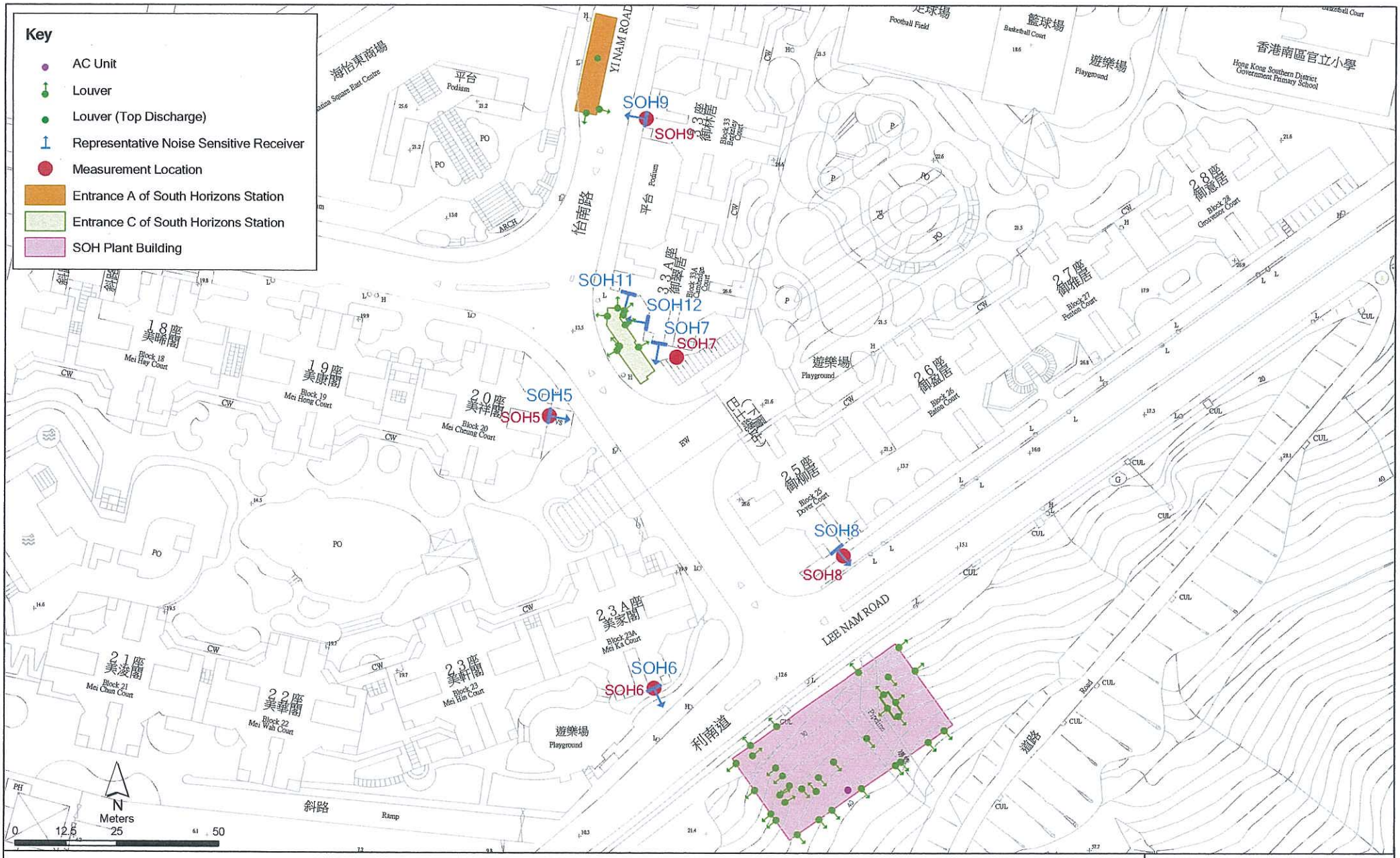


Figure 3.9

Fixed Plant Noise Measurement Location at SOH

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_SOH_OP_Stage.mxd
Date: 25/10/2016

Environmental Resources Management

ERM

Figure 3.10

Fixed Plant Noise Measurement Location at LWB

File: T:\GIS\CONTRACT\0132172\Mxd\SIL\0132172_RNSR_LWB_OP_Stage.mxd
Date: 26/10/2016

Environmental Resources Management

ERM

Works Area	NSR ID	Description	Type	Measurement Height
	SOH 5	South Horizons Phase III – Mei Cheung Court (Block 20)	Residential	~5m above ground level
	SOH 9	South Horizons Phase IV – Berkeley Court (Block 33)	Residential	~5m above ground level
LWB	AKPS	Apleichau Kaifong Primary School (facing South)	Educational	6/F (~1.2m above floor)

3.2.4 *Measurement Date and Time*

The noise measurements were carried out for *Scenario 1* and *Scenario 2* at the monitoring locations of concerned areas. The measurement schedule is presented in *Table 3.5*.

Table 3.5 *Measurement Schedule*

Location	Date
ADM	25-26 October 2016
HKP	30 September – 1 October 2016
NFB	26-27 September & 6-7 October 2016
OCP	24-25 October 2016
WCH and WCD	3-5 October 2016
LET-TVF	29-30 September 2016
LET A	29-30 September 2016
LET B	30 September – 1 October 2016
SOH and SOH Plant Building	28-29 September 2016
LWB	23-24 September 2016

4 MEASUREMENT RESULTS

4.1 NOISE MEASUREMENT TO OBTAIN THE SWLS OF FIXED PLANT NOISE SOURCES

The measured SWLs of worst case scenario during day and evening time, and night-time periods are presented in *Table 4.1*. Details of the measurement results are shown in *Annex A5*.

Table 4.1 Summary of Measured SWLs for Fixed Plants

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
ADM	ADM A1	76	76	86	76	Y	Y
	ADM A2	75	75	86	76	Y	Y
	ADM A3	76	76	86	76	Y	Y
	ADM A4	73	73	84	74	Y	Y
	ADM B1	75	75	86	76	Y	Y
	ADM B3	74	74	85	75	Y	Y
	ADM B4	75	75	85	75	Y	Y
	ADM B5	75	75	86	76	Y	Y
	ADM B6	75	75	86	76	Y	Y
	ADM C1	80	80	90	80	Y	Y
	ADM C3	76	76	86	76	Y	Y
	ADM C4	79	79	89	79	Y	Y
	ADM C5	76	76	86	76	Y	Y
	ADM D1	81	81	92	82	Y	Y
	ADM D1a	82	82	92	82	Y	Y
	ADM D2	76	76	86	76	Y	Y
	ADM D3	73	73	84	74	Y	Y
	ADM D3a	82	82	92	82	Y	Y
	ADM D4	80	80	91	81	Y	Y
	ADM D6	73	73	84	74	Y	Y
	ADM D7	72	72	83	73	Y	Y
	ADM D8	75	75	85	75	Y	Y
	ADM D9	70	70	81	71	Y	Y
	ADM D10	70	70	81	71	Y	Y
	ADM E1	80	80	91	81	Y	Y
	ADM E2	80	80	90	80	Y	Y
	ADM E3	79	79	90	80	Y	Y
	ADM E4	79	79	89	79	Y	Y
	ADM E7	79	79	90	80	Y	Y
	ADM E8	74	74	84	74	Y	Y
	ADM E9	80	80	91	81	Y	Y
	ADM E10	73	73	83	73	Y	Y
	ADM F1	81	81	91	81	Y	Y
	ADM F2	81	81	91	81	Y	Y
	ADM J1	91	91	102	92	Y	Y
	ADM J5	85	85	95	85	Y	Y
	ADM J7	76	76	87	77	Y	Y
	ADM M1	88	88	99	89	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	ADM M2	77	77	87	77	Y	Y
	ADM M3	80	80	90	80	Y	Y
	ADM N1	73	73	84	74	Y	Y
	ADM ML1	91	91	101	91	Y	Y
	ADM ML2	93	93	104	94	Y	Y
	ADM ML3	87	87	98	88	Y	Y
	ADM ML4	90	90	100	90	Y	Y
HKB	HKP01	79	--	91	--	Y	--
	HKP05	85	85	97	86	Y	Y
	HKP06	83	83	98	85	Y	Y
	HKP08	84	84	96	85	Y	Y
	HKP09	87	87	96	89	Y	Y
	HKP10	75	75	97	76	Y	Y
	HKP11	87	87	95	88	Y	Y
	HKP12	86	86	96	86	Y	Y
	HKP13	88	88	96	89	Y	Y
	HKP14	77	77	96	86	Y	Y
	HKP15	82	--	86	--	Y	--
	HKP16	74	74	90	85	Y	Y
	PRD01	68	--	96	--	Y	--
	PRD02	67	--	95	--	Y	--
	PCU01	79	79	85	80	Y	Y
	PCU02	77	77	85	77	Y	Y
	PCU03	76	76	85	77	Y	Y
	PCU04	77	77	85	77	Y	Y
	PCU05	75	75	85	77	Y	Y
	HKP-Add. 1	84	--	85	--	Y	--
NFB	NAM 02	83	--	88	--	Y	--
	NAM 03	94	94	99	95	Y	Y
	NAM 04	90	90	100	90	Y	Y
	NAM 05	59	--	99	--	Y	--
	NAM 06	95	95	99	95	Y	Y
	NAM 10	80	80	89	80	Y	Y
	NAM 12	83	83	89	84	Y	Y
	NAM 13	63	63	100	84	Y	Y
	NAM 14	59	59	100	84	Y	Y
	NAM 15	75	75	89	75	Y	Y
	NAM 16	78	--	78	--	Y	--
	NAM 17	56	56	100	83	Y	Y
	NAM 18	86	86	100	92	Y	Y
	NAM-Add. 1a	67	--	99	--	Y	--
	NAM-Add. 1b	65	--	99	--	Y	--
	NAM-Add. 2	56	--	100	--	Y	--
	NAM-Add. 3	59	59	99	84	Y	Y
	VCU-006	69	69	91	82	Y	Y
	PCU-002	74	74	91	78	Y	Y
	PCU-003	63	63	91	82	Y	Y
	PCU-004	91	91	94	94	Y	Y
OCP	Item 1	71	71	81	71	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	OCP 10	82	82	92	82	Y	Y
	OCP 12	82	82	92	82	Y	Y
	OCP 14	73	73	84	74	Y	Y
	OCP 17	64	64	74	64	Y	Y
	OCP 18	70	70	81	71	Y	Y
	OCP 19	68	68	78	68	Y	Y
	OCP 21	76	76	86	76	Y	Y
	OCP 22	74	74	84	74	Y	Y
	OCP 23	78	78	89	79	Y	Y
	OCP 24	64	64	74	64	Y	Y
	OCP 28	66	66	76	66	Y	Y
	OCP 29	67	67	77	67	Y	Y
	OCP 30	69	69	79	69	Y	Y
	OCP 31-a	66	66	76	66	Y	Y
	OCP 31-b	64	64	74	64	Y	Y
	OCP 31-c	62	62	73	63	Y	Y
	OCP 32	72	72	82	72	Y	Y
	OCP 33	79	79	89	79	Y	Y
	OCP 34	80	80	89	80	Y	Y
	OCP 35	77	77	88	78	Y	Y
	OCP 36	70	70	81	71	Y	Y
	OCP 37	74	74	85	75	Y	Y
	OCP 38	78	--	78	--	Y	--
	OCP 39	77	--	78	--	Y	--
	OCP 40	78	--	79	--	Y	--
	OCP 42	73	--	74	--	Y	--
	OCP 43	70	70	81	71	Y	Y
	OCP 45	79	74	79	74	Y	Y
	OCP 47	67	67	77	67	Y	Y
	OCP 48	86	--	87	--	Y	--
	OCP Cooling Unit 1	79	79	89	79	Y	Y
	OCP 58	74	74	84	74	Y	Y
	OCP 59	73	73	83	73	Y	Y
	VCU101	72	72	82	72	Y	Y
	VCU401	68	68	78	68	Y	Y
	VCU402	71	71	82	72	Y	Y
	VCU403	79	79	89	79	Y	Y
WCH	WCH 01	85	85	86	86	Y	Y
and	WCH 02	92	92	93	93	Y	Y
WCD	WCH 03	78	78	78	78	Y	Y
	WCH 04	84	84	84	84	Y	Y
	WCH 05	74	74	74	74	Y	Y
	WCH 06	81	81	81	81	Y	Y
	WCH 07	83	83	84	84	Y	Y
	WCH 08	82	82	83	83	Y	Y
	WCH 09	67	67	68	68	Y	Y
	WCH 10	69	69	70	70	Y	Y
	WCH 11	68	68	69	69	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	WCH 12	73	73	73	73	Y	Y
	WCH 13	75	75	75	75	Y	Y
	WCH 15	85	85	86	86	Y	Y
	WCH 16	98	98	98	98	Y	Y
	WCH 17	91	91	91	91	Y	Y
	WCH 18	97	97	97	97	Y	Y
	WCH 19	98	98	98	98	Y	Y
	WCH 20	88	88	88	88	Y	Y
	WCH 21	69	69	70	70	Y	Y
	WCH 22	77	77	77	77	Y	Y
	WCH 23	77	77	77	77	Y	Y
	WCH 24a	76	76	79	79	Y	Y
	WCH 24b	73	73	79	79	Y	Y
	WCH 24c	72	72	79	79	Y	Y
	WCH 25	97	97	97	97	Y	Y
	WCH 26	82	82	82	82	Y	Y
	WCH 27	82	82	94	88	Y	Y
	WCH 28	92	92	95	95	Y	Y
	WCH 29	75	75	86	86	Y	Y
	WCH 30	88	--	89	--	Y	--
	WCH 31	86	86	87	87	Y	Y
	WCH 32a	81	81	83	83	Y	Y
	WCH 32b	76	76	83	83	Y	Y
	WCH 33	71	71	71	71	Y	Y
	WCH-Add. 1a	85	85	93	87	Y	Y
	WCH-Add. 1b	87	87	93	87	Y	Y
	WCH-Add. 2	66	66	93	90	Y	Y
	WCH-Add. 3	82	82	82	82	Y	Y
	WCH-Add. 4	70	70	71	71	Y	Y
	WCH-Add. 5	73	73	74	74	Y	Y
	WCH-Add. 6	80	80	80	80	Y	Y
	VCU-301	90	90	90	90	Y	Y
	WCD 01	65	65	69	69	Y	Y
	WCD 02	64	64	68	68	Y	Y
	WCD 03	65	65	69	69	Y	Y
	WCD 04	66	66	69	69	Y	Y
	WCD 05	71	71	76	76	Y	Y
	WCD 06	75	75	98	86	Y	Y
	WCD 07	73	73	88	79	Y	Y
	WCD 08	71	71	74	74	Y	Y
	WCD 09	66	66	69	69	Y	Y
	WCD 11	69	69	72	72	Y	Y
	WCD 12	69	69	72	72	Y	Y
	WCD 13	75	75	78	78	Y	Y
	WCD 14	70	70	71	71	Y	Y
	WCD 15	72	72	72	72	Y	Y
	WCD 17	76	76	83	83	Y	Y
	WCD 18	69	69	70	70	Y	Y
	WCD 19	68	68	68	68	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	WCD 20	66	66	69	69	Y	Y
	WCD 21	64	64	68	68	Y	Y
	WCD 22	65	65	69	69	Y	Y
	WCD 23	61	61	64	64	Y	Y
	WCD 24	61	61	64	64	Y	Y
	WCD 25	78	78	88	81	Y	Y
	WCD 26	67	67	92	84	Y	Y
	WCD 27	79	79	93	85	Y	Y
	WCD 28	78	78	96	88	Y	Y
	WCD 29	93	93	94	93	Y	Y
	WCD 30	87	87	87	87	Y	Y
	WCD 32	83	83	83	83	Y	Y
	WCD 33	79	79	80	80	Y	Y
LET-TVF	LET 49	89	89	104	94	Y	Y
	LET 50	90	90	104	94	Y	Y
LET A	LET 01	68	--	75	--	Y	--
	LET 03	72	72	76	73	Y	Y
	LET 04	88	78	89	78	Y	Y
	LET 06	63	--	80	--	Y	--
	LET 29	59	59	88	76	Y	Y
	LET 30	68	68	74	69	Y	Y
	LET 31	71	71	86	74	Y	Y
	LET 32	69	69	74	70	Y	Y
	LET 34	59	59	91	79	Y	Y
	LET 37	64	64	73	64	Y	Y
	LET-Add. 1	81	--	81	--	Y	--
	LET-Add. 2	77	--	77	--	Y	--
LET B	LET 09	81	81	90	81	Y	Y
	LET 13a	67	67	91	73	Y	Y
	LET 13b	70	70	91	73	Y	Y
	LET 14a	68	68	91	73	Y	Y
	LET 14b	68	68	91	73	Y	Y
	LET 14c	69	69	91	73	Y	Y
	LET 14d	70	70	91	73	Y	Y
	LET 16	85	85	95	85	Y	Y
	LET 17	86	86	96	86	Y	Y
	LET 18	72	72	86	72	Y	Y
	LET 20	80	80	87	80	Y	Y
	LET 21	74	74	87	75	Y	Y
	LET 22	75	75	88	75	Y	Y
	LET 23	75	75	88	78	Y	Y
	LET 26	67	67	91	73	Y	Y
	LET 27a	72	72	91	73	Y	Y
	LET 27b	69	69	91	73	Y	Y
	LET 28	77	77	83	78	Y	Y
	LET 41	75	75	84	75	Y	Y
	LET 42	88	88	91	89	Y	Y
	LET 43	71	71	79	72	Y	Y
	LET 44	79	79	80	80	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	LET 45	65	65	88	75	Y	Y
	LET 46	71	71	88	75	Y	Y
	LET 47	73	73	88	75	Y	Y
	LET-Add. 3	70	70	89	73	Y	Y
	LET-Add. 4	72	72	89	72	Y	Y
	LET-Add. 5	76	76	83	77	Y	Y
	LET-Add. 6	67	67	80	67	Y	Y
	LET-Add. 7	72	72	87	74	Y	Y
SOH and SOH Plant Building	SOH01	66	66	94	84	Y	Y
	SOH02	66	66	84	74	Y	Y
	SOH39	85	69	86	76	Y	Y
	SOH03	69	--	85	--	Y	--
	SOH04a	67	--	85	--	Y	--
	SOH04b	64	--	92	--	Y	--
	SOH09	68	--	72	--	Y	--
	SOH10-1	64	64	83	73	Y	Y
	SOH10-2	63	63	73	63	Y	Y
	SOH10-3	62	62	73	63	Y	Y
	SOH12	72	--	75	--	Y	--
	SOH15	79	79	79	79	Y	Y
	SOH18	85	82	85	82	Y	Y
	SOH19	81	81	86	82	Y	Y
	SOH20	78	78	86	79	Y	Y
	SOH22	66	66	87	80	Y	Y
	SOH23	74	74	85	78	Y	Y
	SOH24	64	--	86	--	Y	--
	SOH25	73	73	87	80	Y	Y
	SOH26	82	82	85	82	Y	Y
	SOH27	66	66	88	82	Y	Y
	SOH28	65	65	88	81	Y	Y
	SOH29	78	78	79	79	Y	Y
	SOH30	69	69	73	70	Y	Y
	SOH32	65	65	71	65	Y	Y
	SOH33	73	73	74	73	Y	Y
	SOH34	70	70	75	70	Y	Y
	SOH35	64	64	71	65	Y	Y
	SOH36	72	72	87	77	Y	Y
	SOH37	69	69	87	77	Y	Y
	SOH38	59	59	70	61	Y	Y
	SOH40	67	67	72	68	Y	Y
	SOH41	82	68	82	68	Y	Y
	SOH42	83	--	84	--	Y	--
	SOH43	65	65	79	75	Y	Y
	SOH44	60	60	79	75	Y	Y
	SOH45	76	76	84	77	Y	Y
	SOH46	81	--	84	--	Y	--
	SOH47	73	73	86	79	Y	Y
	SOH48-1	79	79	86	79	Y	Y

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	SOH48-2	81	81	86	82	Y	Y
	SOH48-3	80	80	86	81	Y	Y
	SOH48-4	83	83	86	83	Y	Y
	SOH49	76	--	84	--	Y	--
	SOH51	76	76	78	76	Y	Y
	PCU-401	78	--	78	--	Y	--
	SOH-Add1a	76	76	76	76	Y	Y
	SOH-Add1b	76	76	77	77	Y	Y
LWB	LWB01	91	91	103	93	Y	Y
	LWB02	91	91	103	93	Y	Y
	LWB03	70	70	103	93	Y	Y
	LWB04	74	74	103	93	Y	Y
	LWB07	71	71	103	93	Y	Y
	LWB08	74	74	103	93	Y	Y
	LWB09	80	80	102	92	Y	Y
	LWB10	82	82	103	93	Y	Y
	LWB11	78	78	103	93	Y	Y
	LWB12	79	79	102	92	Y	Y
	LWB13	78	78	102	92	Y	Y
	LWB14	80	80	103	93	Y	Y
	LWB15	84	84	103	93	Y	Y
	LWB16	91	91	102	92	Y	Y
	LWB17	88	88	102	92	Y	Y
	LWB18	79	79	103	93	Y	Y
	LWB19	79	79	103	93	Y	Y
	LWB20	77	77	103	93	Y	Y
	LWB21	58	58	103	93	Y	Y
	LWB22	59	59	103	93	Y	Y
	LWB23	60	60	103	93	Y	Y
	LWB24	60	60	103	93	Y	Y
	LWB25	91	91	103	93	Y	Y
	LWB26	92	92	102	92	Y	Y
	LWB28	90	90	100	90	Y	Y
	LWB29	83	83	98	88	Y	Y
	LWB30	92	92	102	92	Y	Y
	LWB31	89	89	99	89	Y	Y
	LWB32	89	89	100	90	Y	Y
	LWB33	92	92	102	92	Y	Y
	LWB34	92	92	103	93	Y	Y
	LWB35	91	91	101	91	Y	Y
	LWB36	93	93	104	94	Y	Y
	LWB37	94	94	104	94	Y	Y
	LWB38	88	88	98	88	Y	Y
	LWB39	89	89	100	90	Y	Y
	LWB40	86	86	97	87	Y	Y
	LWB41	75	75	98	88	Y	Y

Notes:

(a) Measured SWL for day and evening time, and night-time periods are based on Scenario 1 and Scenario 2 stated in Section 3.2.2 respectively.

Works Area	Plant Item	Measured SWL, dB(A) [a]		Maximum allowable SWL, dB(A) [b]		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time

(b) The maximum allowable SWLs are given in Table 2.1.
(c) The louvres at SEE at Harcourt Garden will not be in operation at the commencement of operation of SIL(E) and it will be in operation by the end of 2017 tentatively.

4.2 *NOISE MEASUREMENT TO CONFIRM TONAL, IMPULSIVE AND INTERMITTENT CHARACTERISTICS OF FIXED PLANT NOISE SOURCES AT NSRS*

The measured noise levels for 2 Scenarios, ie during day and evening time, and night-time periods are summarised in *Table 4.2*. In each scenario, the difference in the measured noise levels with and without operation of fixed plant noise sources were less than 3.0 dB(A). Two sets of $L_{Aeq\ (30\ min)}$ noise measurements in one-third octave band were carried out to double confirm the difference was less than 3.0 dB(A). That means the fixed plant noise sources from the SIL Project are not considered as significant noise sources at the NSRs. The noise environment in the vicinity was dominated by the community noise and road traffic noise. Detailed results of noise measurements are presented in *Annex B3*.

Table 4.2 Noise Measurement Results at NSRs

Works Area	NSR ID	Scenario	Measured Noise Level $L_{Aeq(30min)}$, dB(A), (measurement time) [a]	Averaged Background Level $L_{Aeq(5min)}$, dB(A), (measurement time) [a]		Difference between Measured Noise Level and Background Level, dB(A) (< 3.0 or >= 3.0)
ADM	PH	1 & 2	64.3 (23:07 - 23:37)	64.5	(23:07 - 00:29)	< 3.0
			64.2 (23:37 - 00:07)	64.5		< 3.0
HKB	RP	1	61.2 (22:00 - 22:30)	61.3	(21:32 - 23:00)	< 3.0
			61.0 (22:30 - 23:00)	61.3		< 3.0
		2	60.2 (23:08 - 23:38)	58.7	(23:08 – 00:40)	< 3.0
			60.0 (23:38 - 00:08)	58.7		< 3.0
NFB	EX2	1	65.5 (22:19 - 22:49)	66.0	(21:27 - 23:20)	< 3.0
			65.3 (22:50 - 23:20)	66.0		< 3.0
		2	65.3 (23:19 - 23:49)	65.6	(23:19 - 00:54)	< 3.0
			66.9 (23:52 - 00:22)	65.6		< 3.0
	YSM2	1	62.6 (22:17 - 22:47)	62.6	(21:25 - 23:18)	< 3.0
			62.6 (22:48 - 23:18)	62.6		< 3.0
		2	61.3 (23:32 - 00:02)	61.1	(23:32 - 00:53)	< 3.0
			58.7 (00:02 - 00:32)	61.1		< 3.0
OCP	OCP 1	1	62.5 (21:41 - 22:11)	60.7	(20:50 - 22:41)	< 3.0
			58.9 (22:11 - 22:41)	60.7		< 3.0
		2	59.5 (23:00 - 23:30)	61.5	(23:00 - 00:35)	< 3.0
			62.8 (23:30 - 00:00)	61.5		< 3.0
	OCP 2	1	62.0 (21:42 - 22:12)	60.0	(21:15 - 22:42)	< 3.0
			61.6 (22:12 - 22:42)	60.0		< 3.0
		2	59.9 (23:00 - 23:30)	62.5	(23:00 - 00:30)	< 3.0
			61.6 (23:30 - 00:00)	62.5		< 3.0
	OCP 3	1	62.0 (21:44 - 22:14)	61.4	(21:16 - 22:44)	< 3.0
			62.0 (22:14 - 22:44)	61.4		< 3.0
		2	60.6 (23:00 - 23:30)	59.8	(23:00 - 00:57)	< 3.0

Works Area	NSR ID	Scenario	Measured Noise Level $L_{Aeq(30min)}$, dB(A), (measurement time) [a]	Averaged Background Level $L_{Aeq(5min)}$, dB(A), (measurement time) [a]		Difference between Measured Noise Level and Background Level, dB(A) (< 3.0 or >= 3.0)
			61.2 (23:49 - 00:19)	59.8		< 3.0
WCH & WCD	PC1	1	60.9 (21:46 - 22:16)	61.4	(21:13 - 22.46)	< 3.0
			59.9 (22:16 - 22:46)	61.4		< 3.0
		2	59.7 (23:12 - 23:42)	60.0	(23:12 - 00:53)	< 3.0
			59.9 (23:44 - 00:14)	60.0		< 3.0
	SIS2[b]	1	61.6 (21:48 - 22:18)	61.7	(21:05 - 22.49)	< 3.0
			60.4 (22:19 - 22:49)	61.7		< 3.0
	CPS[b]	1	64.7 (21:35 - 22:05)	64.7	(20:57 - 22:35)	< 3.0
			64.4 (22:05 - 22:35)	64.7		< 3.0
	SMH2	1	64.2 (21:35 - 22:05)	64.1	(20:47 - 22:36)	< 3.0
			64.6 (22:06 - 22:36)	64.1		< 3.0
		2	63.7 (23:29 - 23:59)	61.5	(23:00 - 00:40)	< 3.0
			62.2 (00:00 - 00:30)	61.5		< 3.0
	T5-2	1	57.2 (21:44 - 22:14)	56.2	(21:28 - 23:01)	< 3.0
			57.2 (22:14 - 22:44)	56.2		< 3.0
		2	57.4 (23:19 - 23:49)	57.2	(23:19 - 00:47)	< 3.0
			57.8 (23:54 - 00:24)	57.2		< 3.0
	T7-2	1	56.6 (21:46 - 22:16)	55.7	(21:24 - 23:00)	< 3.0
			55.8 (22:16 - 22:46)	55.7		< 3.0
		2	55.8 (23:25 - 23:55)	54.5	(23:25 - 00:48)	< 3.0
			56.1 (23:56 - 00:26)	54.5		< 3.0
	T8-1	1	55.3 (21:36 - 22:06)	55.0	(20:57 - 22:37)	< 3.0
			55.0 (22:07 - 22:37)	55.0		< 3.0
		2	54.9 (23:30 - 00:00)	53.6	(23:00 - 00:31)	< 3.0
			54.2 (00:01 - 00:31)	53.6		< 3.0
	T12-1	1	58.5 (21:47 - 22:17)	57.0	(20:55 - 23:01)	< 3.0
			56.9 (22:17 - 22:47)	57.0		< 3.0
		2	57.3 (23:21 - 23:51)	55.6	(23:21 - 00:45)	< 3.0
			57.7 (23:51 - 00:21)	55.6		< 3.0
	T13-2	1	59.0 (21:37 - 22:07)	58.5	(21:00 - 22:37)	< 3.0
			58.9 (22:07 - 22:37)	58.5		< 3.0
		2	58.3 (23:31 - 00:01)	57.1	(23:00 - 00:31)	< 3.0
			55.9 (00:01 - 00:31)	57.1		< 3.0
	T6-1	1	57.4 (21:37 - 22:07)	56.1	(20:59 - 22:54)	< 3.0
			57.0 (22:07 - 22:37)	56.1		< 3.0
		2	57.7 (23:30 - 00:00)	55.8	(23:00 - 00:30)	< 3.0
			57.7 (00:00 - 00:30)	55.8		< 3.0
LET-TVF	SMB	1	73.3 (21:16 - 21:46)	71.4	(20:40 - 22:33)	< 3.0
			68.9 (21:46 - 22:16)	71.4		< 3.0
		2	68.7 (23:00 - 23:30)	67.1	(23:00 - 00:18)	< 3.0
			68.4 (23:30 - 00:00)	67.1		< 3.0
LET-A	SFB	1	60.9 (21:20 - 21:50)	60.0	(20:59 - 22:28)	< 3.0
			60.2 (21:50 - 22:20)	60.0		< 3.0
		2	59.2 (23:00 - 23:30)	57.7	(23:00 - 00:17)	< 3.0
			60.0 (23:30 - 00:00)	57.7		< 3.0
LET-B	LTE4 /LDN	1	65.3 (21:35 - 22:05)	66.0	(20:50 - 22:48)	< 3.0
			65.9 (22:05 - 22:35)	66.0		< 3.0
		2	65.6 (23:10 - 23:40)	64.9	(23:10 – 00:29)	< 3.0
			64.5 (23:40 - 00:10)	64.9		< 3.0
	LTE5 /NEC[b]	1	66.5 (21:36 - 22:06)	67.9	(21:07 - 22:47)	< 3.0
			66.8 (22:06 - 22:36)	67.9		< 3.0
		2	66.8 (23:10 - 23:40)	65.4	(23:10 - 00:31)	< 3.0

Annex A

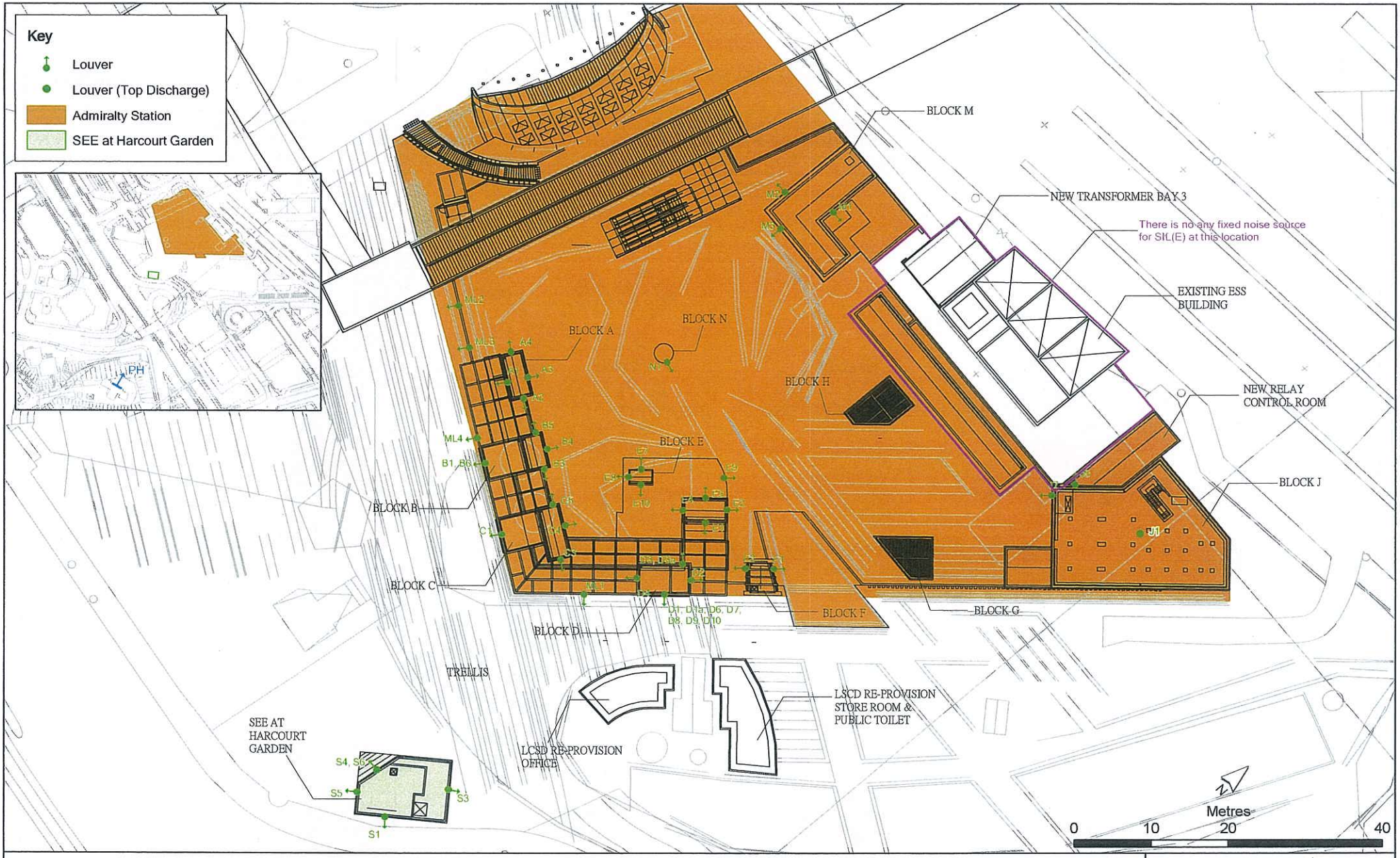
Noise Measurement to Obtain the Sound Power Levels of Fixed Plant Noise Sources (by WAL, Mason and GCL)

Annex A1

Updated Layout and Section Plans of Fixed Sources

Annex A1a

Updated Layout and Section Plans of Fixed Sources (ADM)



Annex A1a-1

Updated Layout Plan of Fixed Sources at ADM

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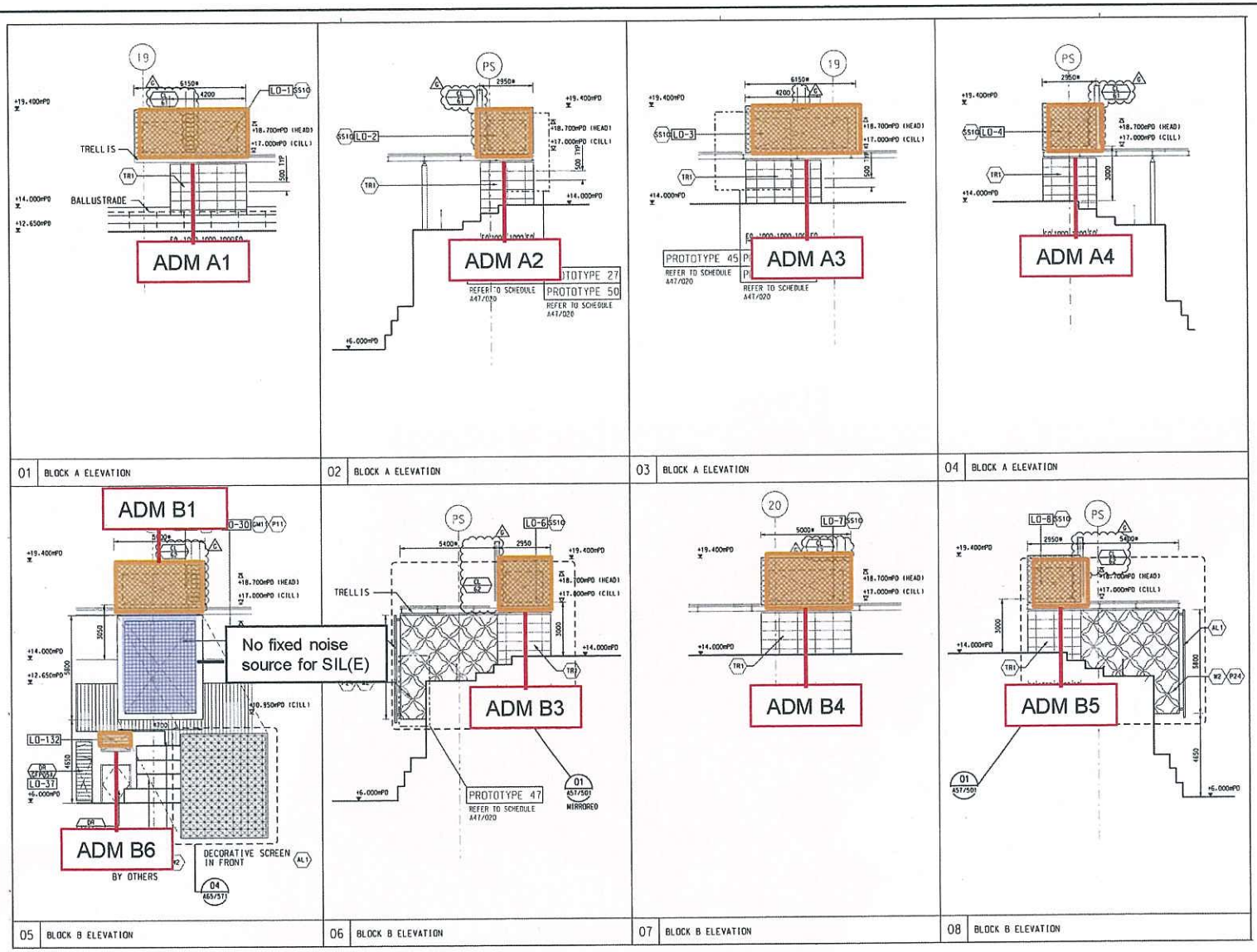
Date: 25/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

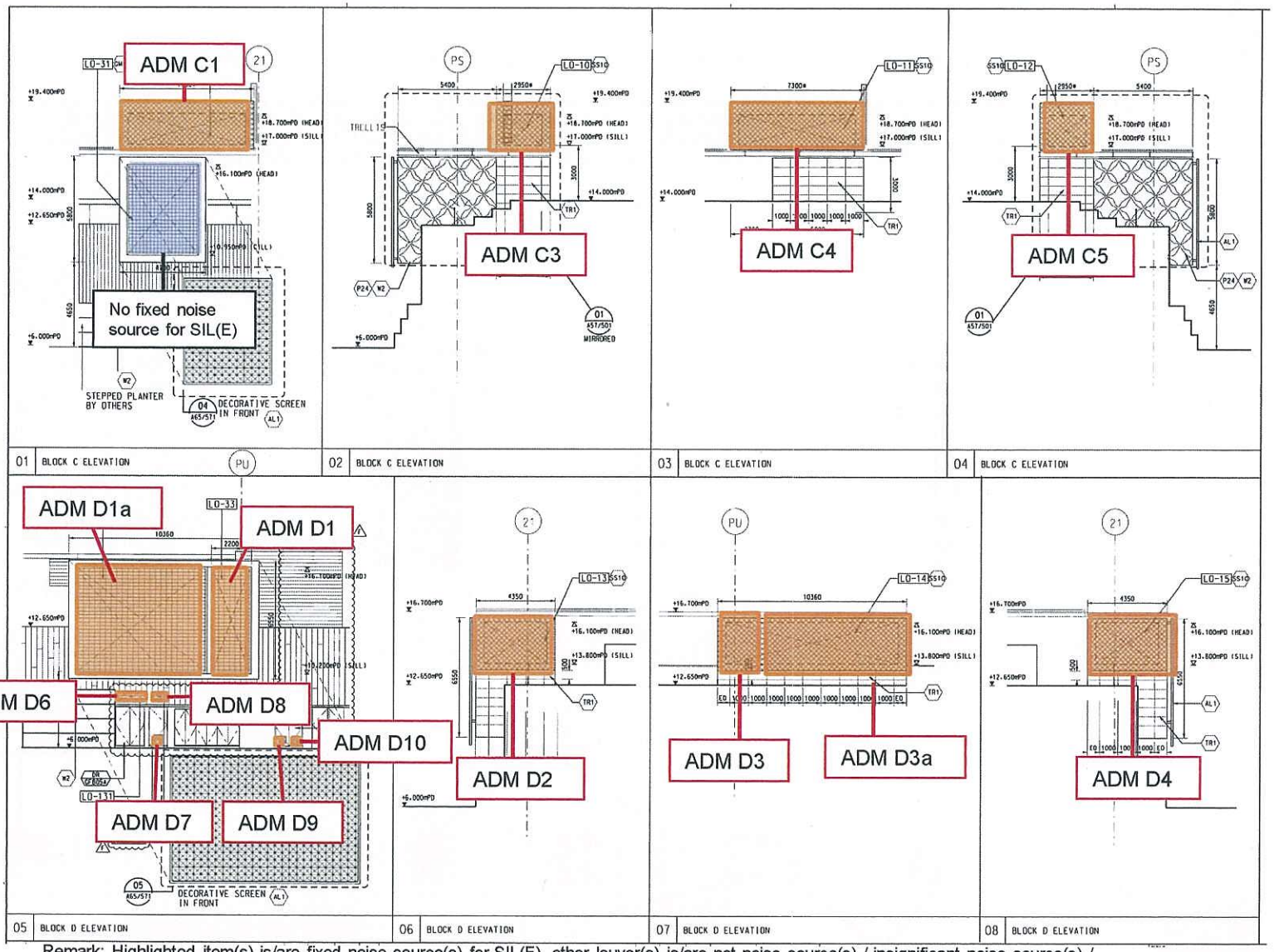
Annex A1a-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

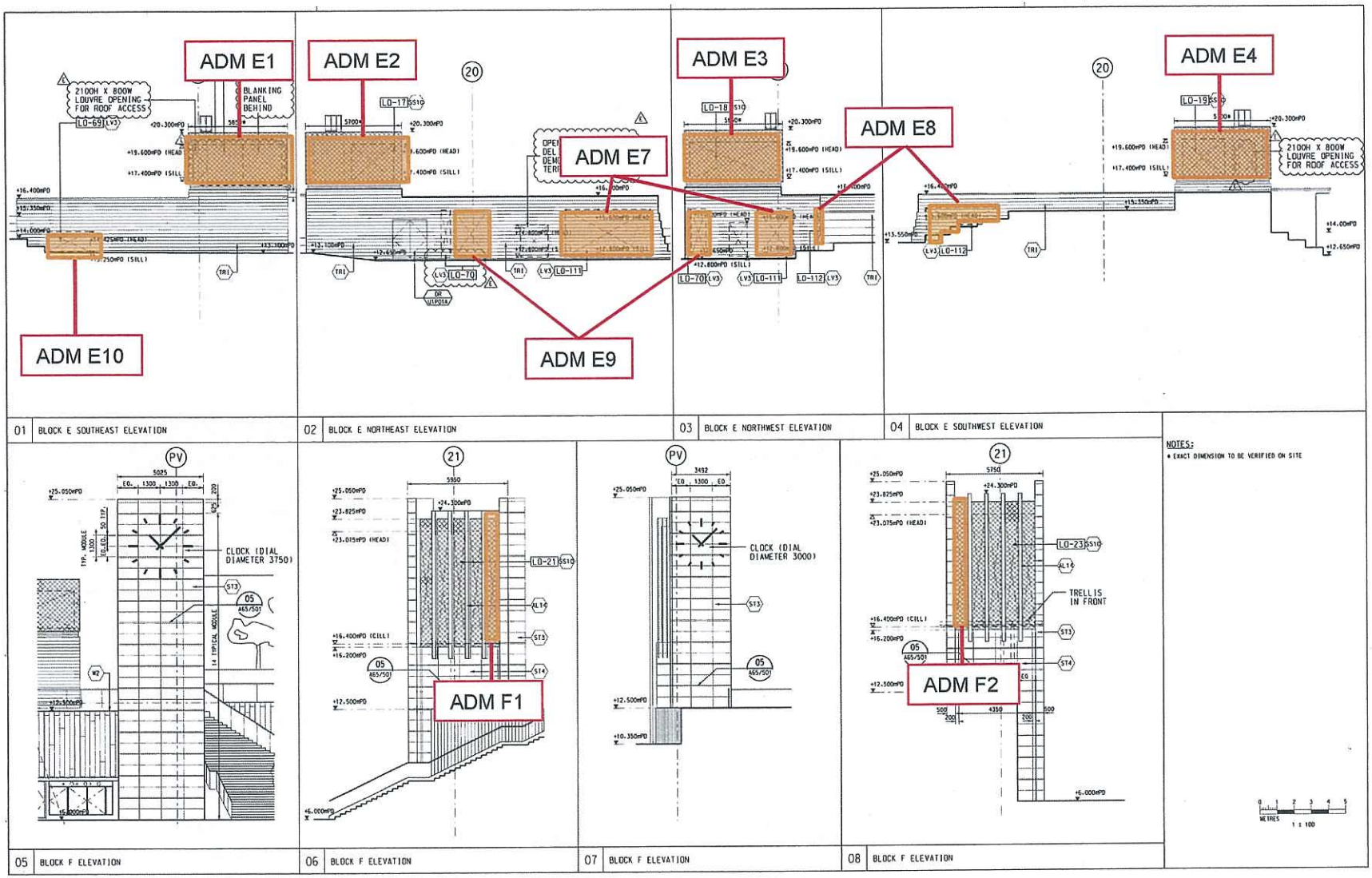
Annex A1a-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

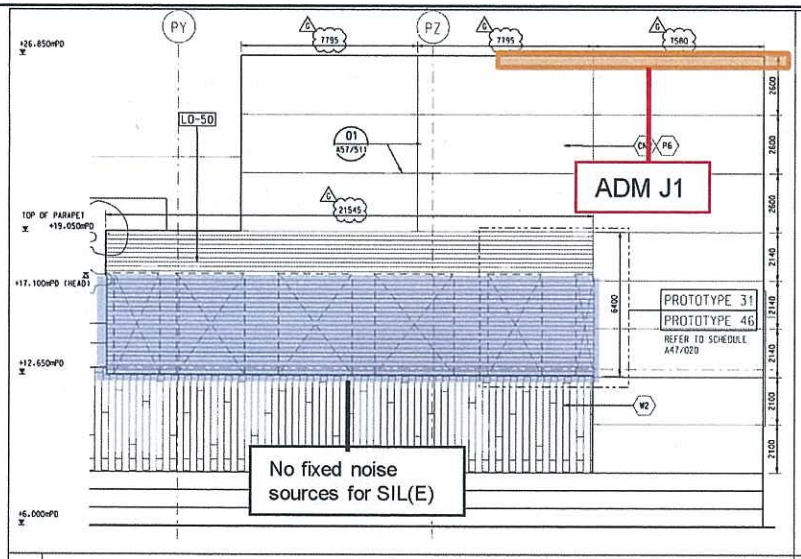
Annex A1a-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



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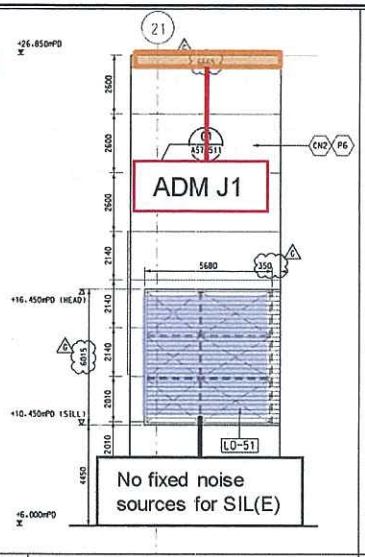

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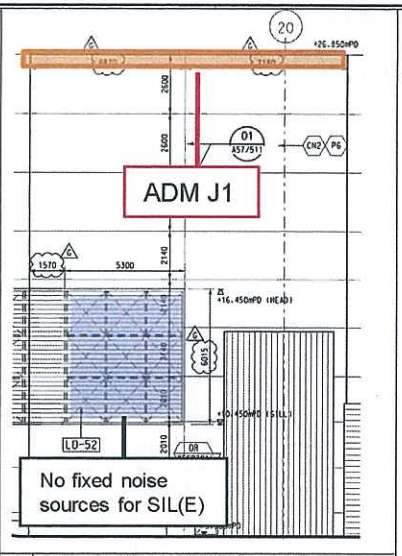

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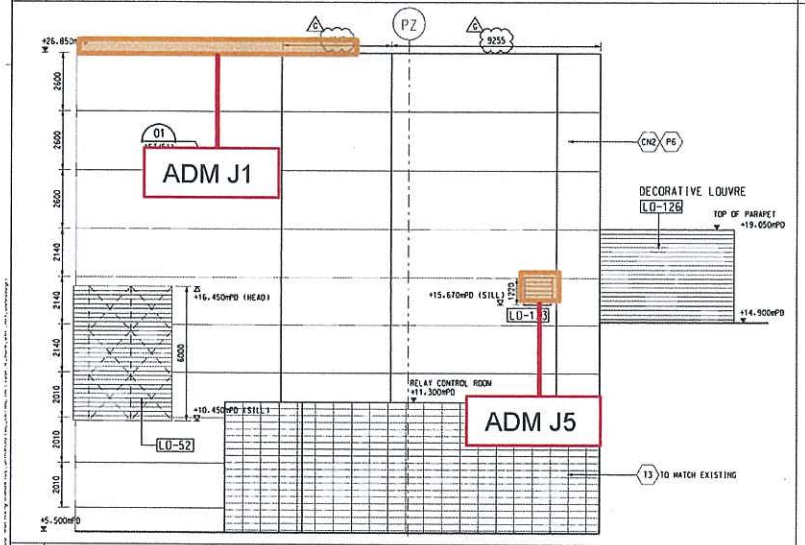
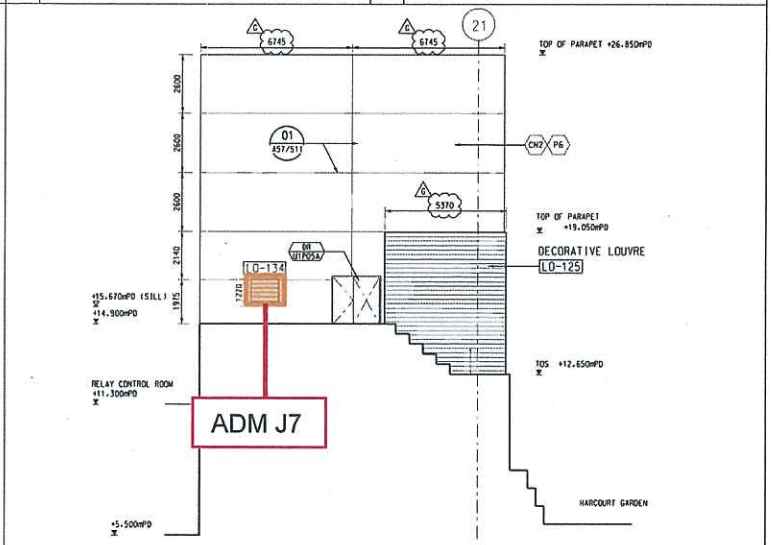


04 BLOCK J ELEVATION



05 BLOCK J ELEVATION

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

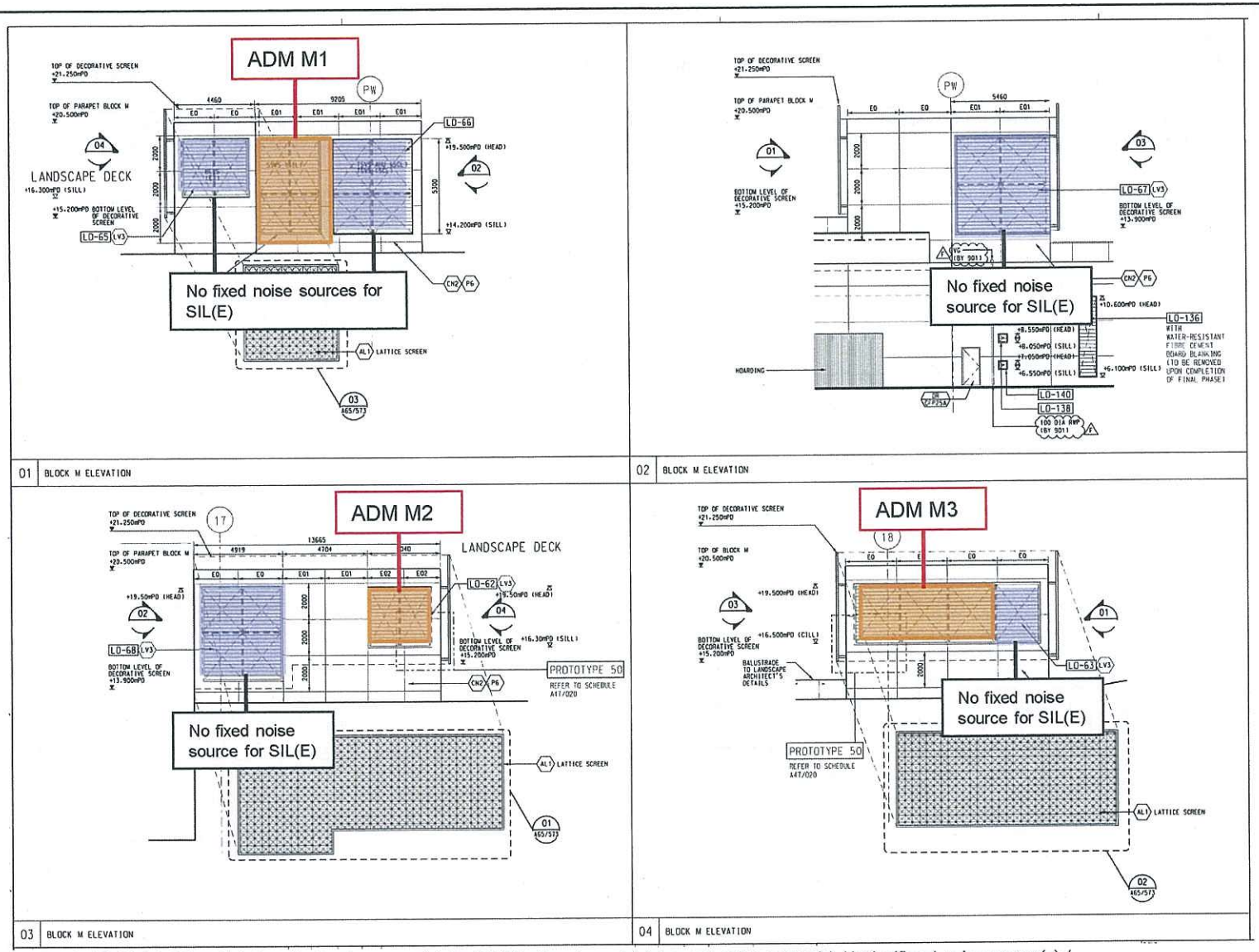
Annex A1a-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

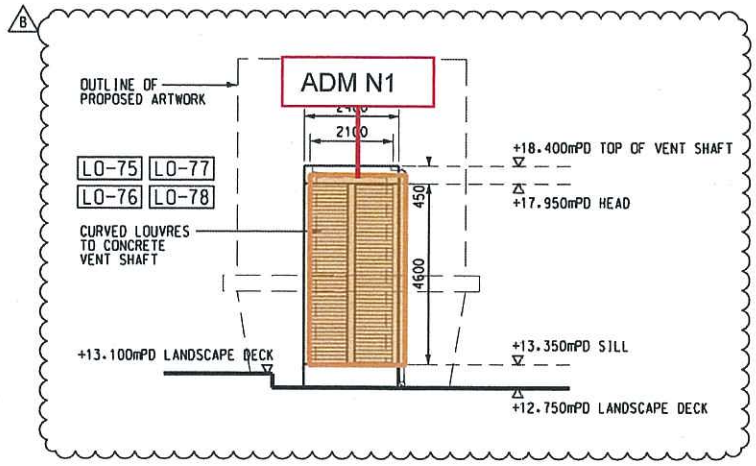
Annex A1a-6

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



01	BLOCK N ELEVATION

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

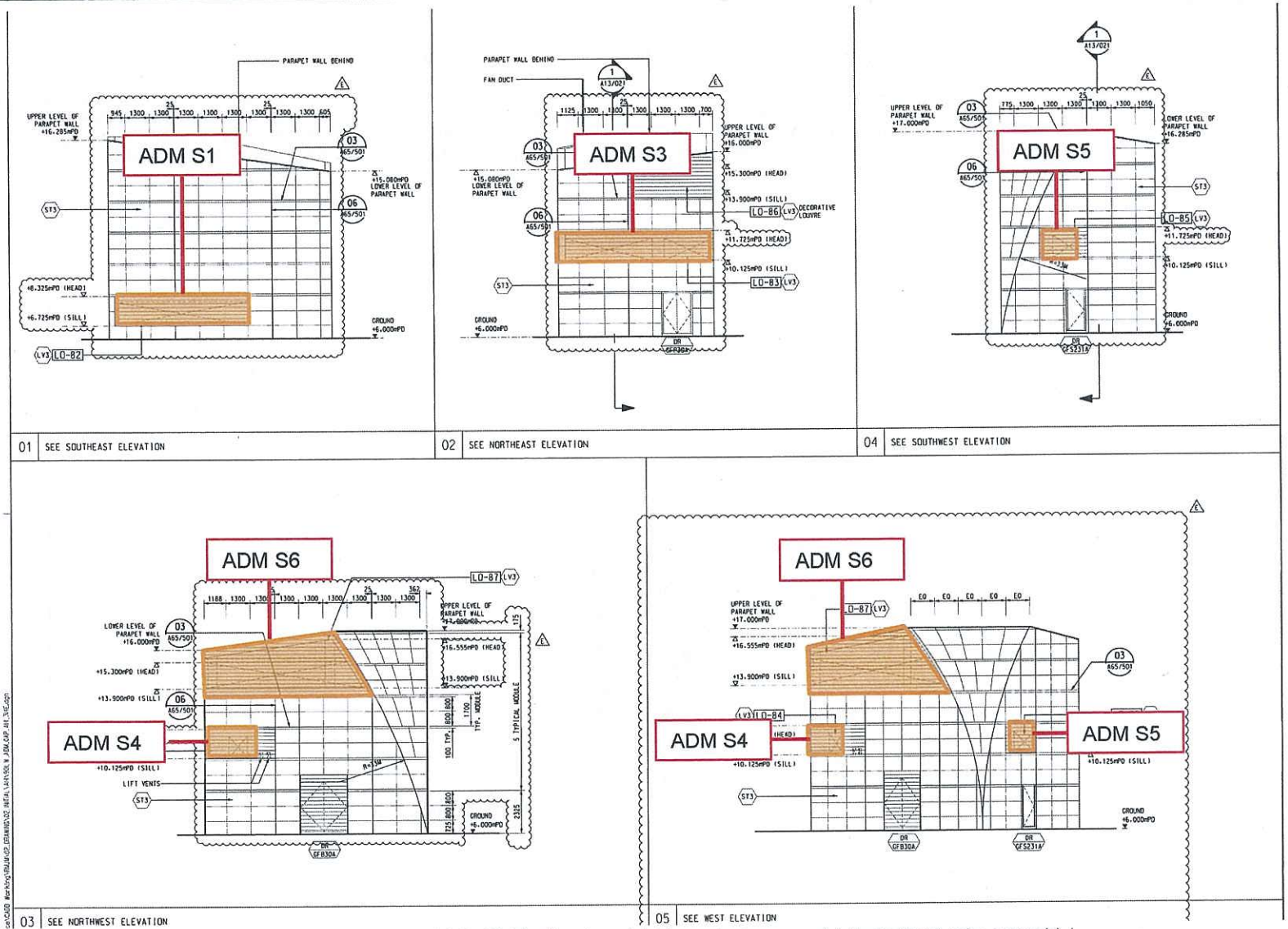
Annex A1a-7

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

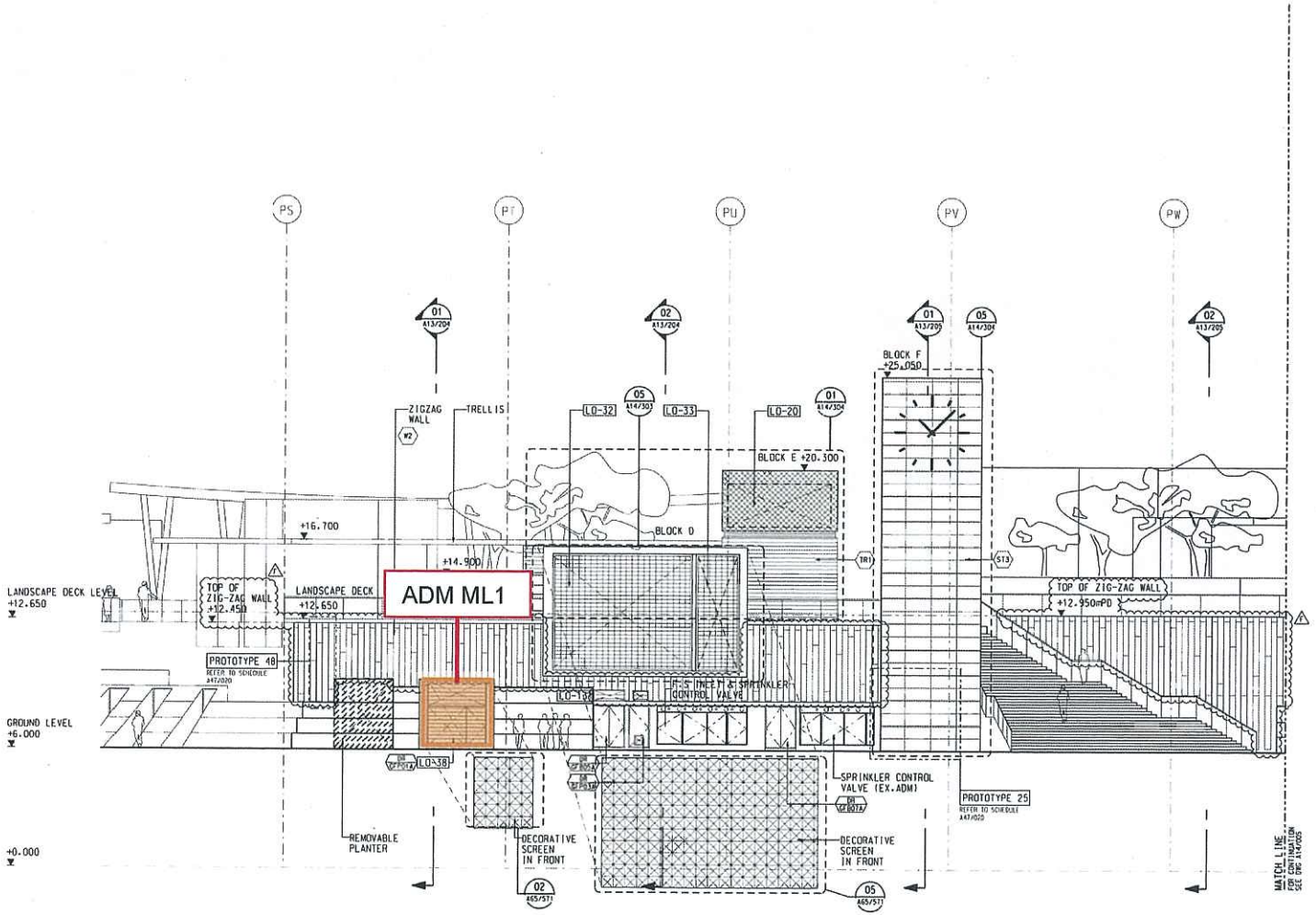
Annex A1a-8

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

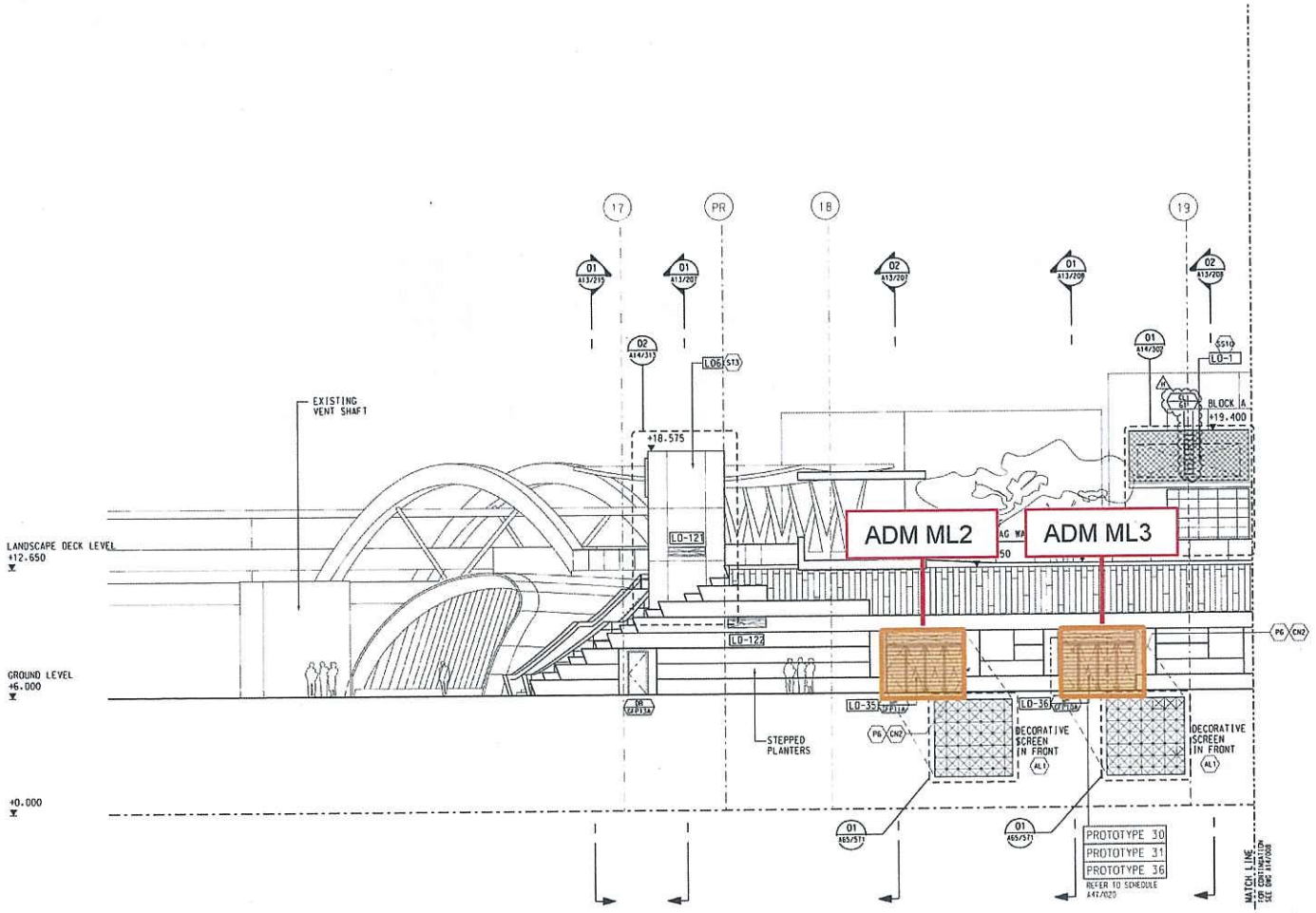
Annex A1a-9

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

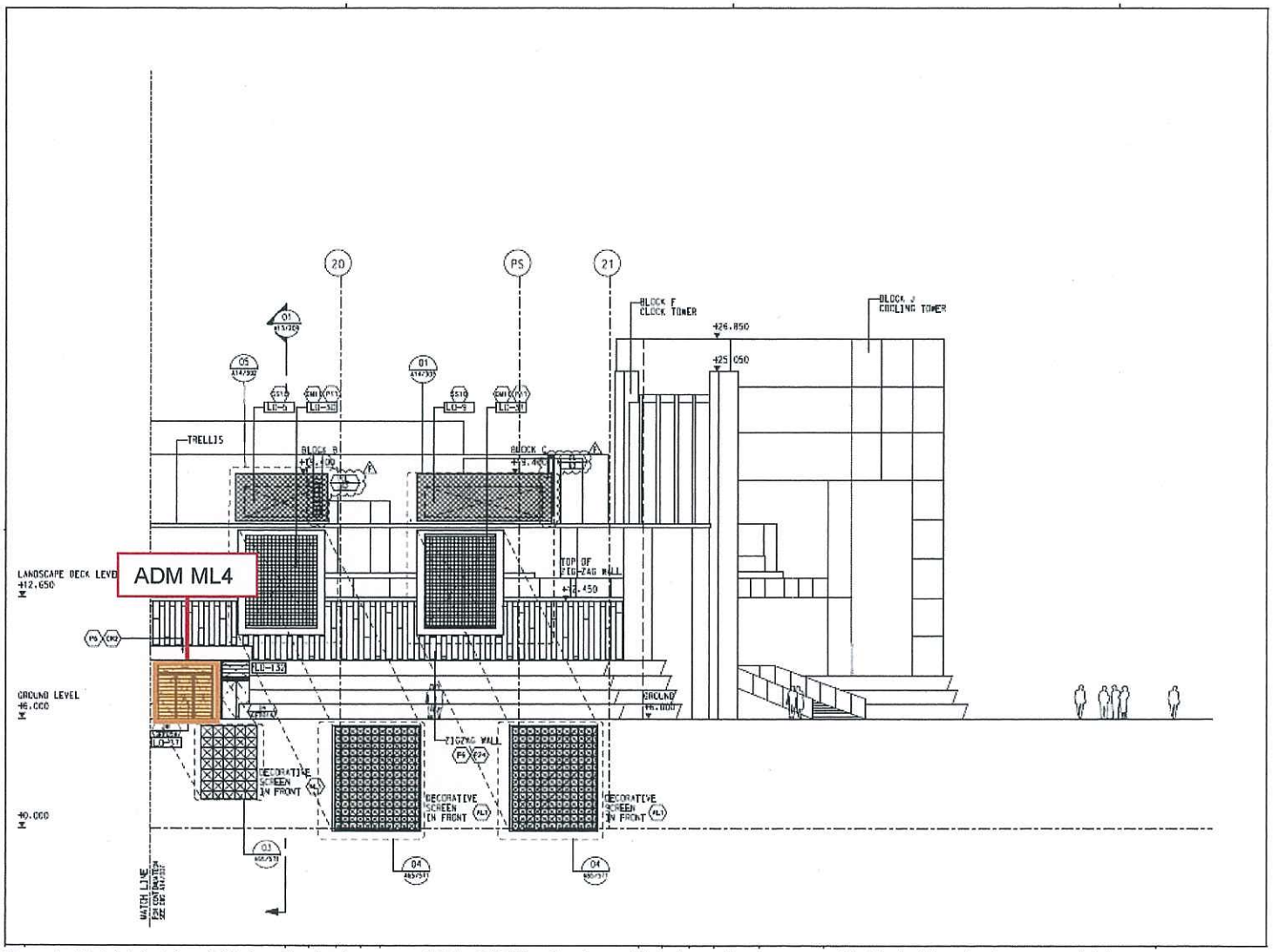
Annex A1a-10

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1a-11

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at ADM

DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1b

Updated Layout and Section Plans of Fixed Sources (HKB)

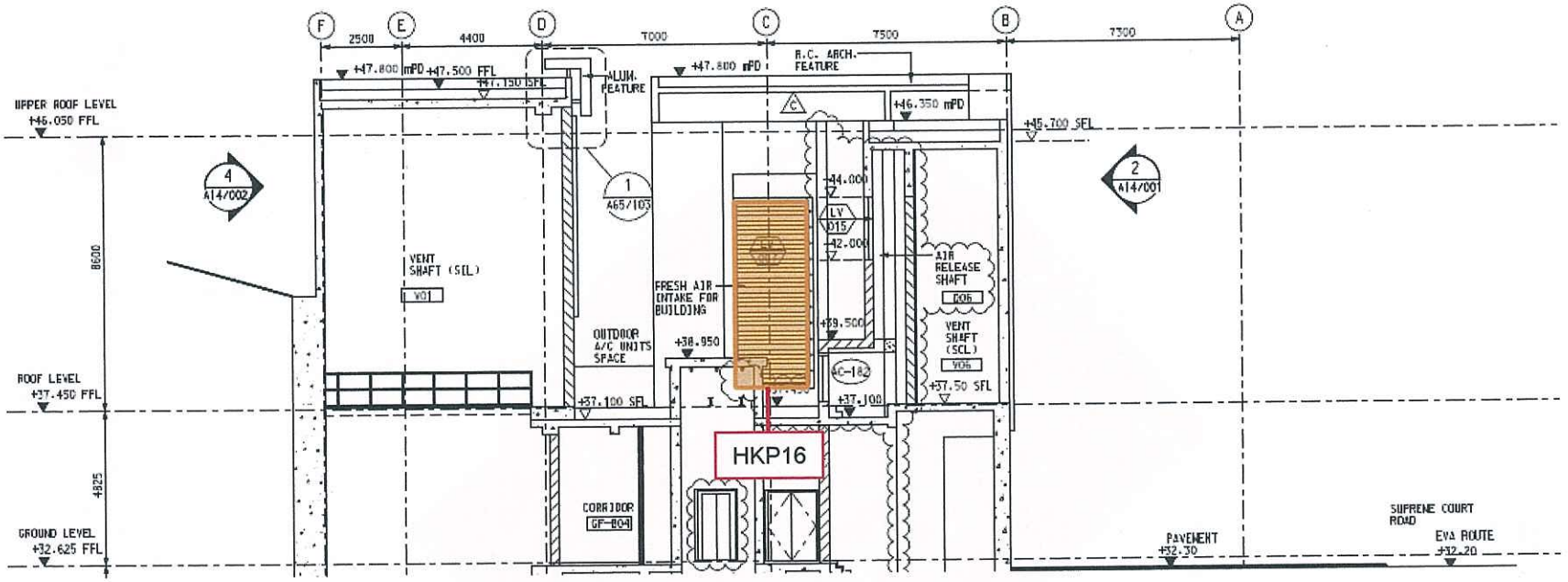
Annex A1b-1

Updated Layout Plan of Fixed Sources at HKB

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_HKB.mxd
Date: 25/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

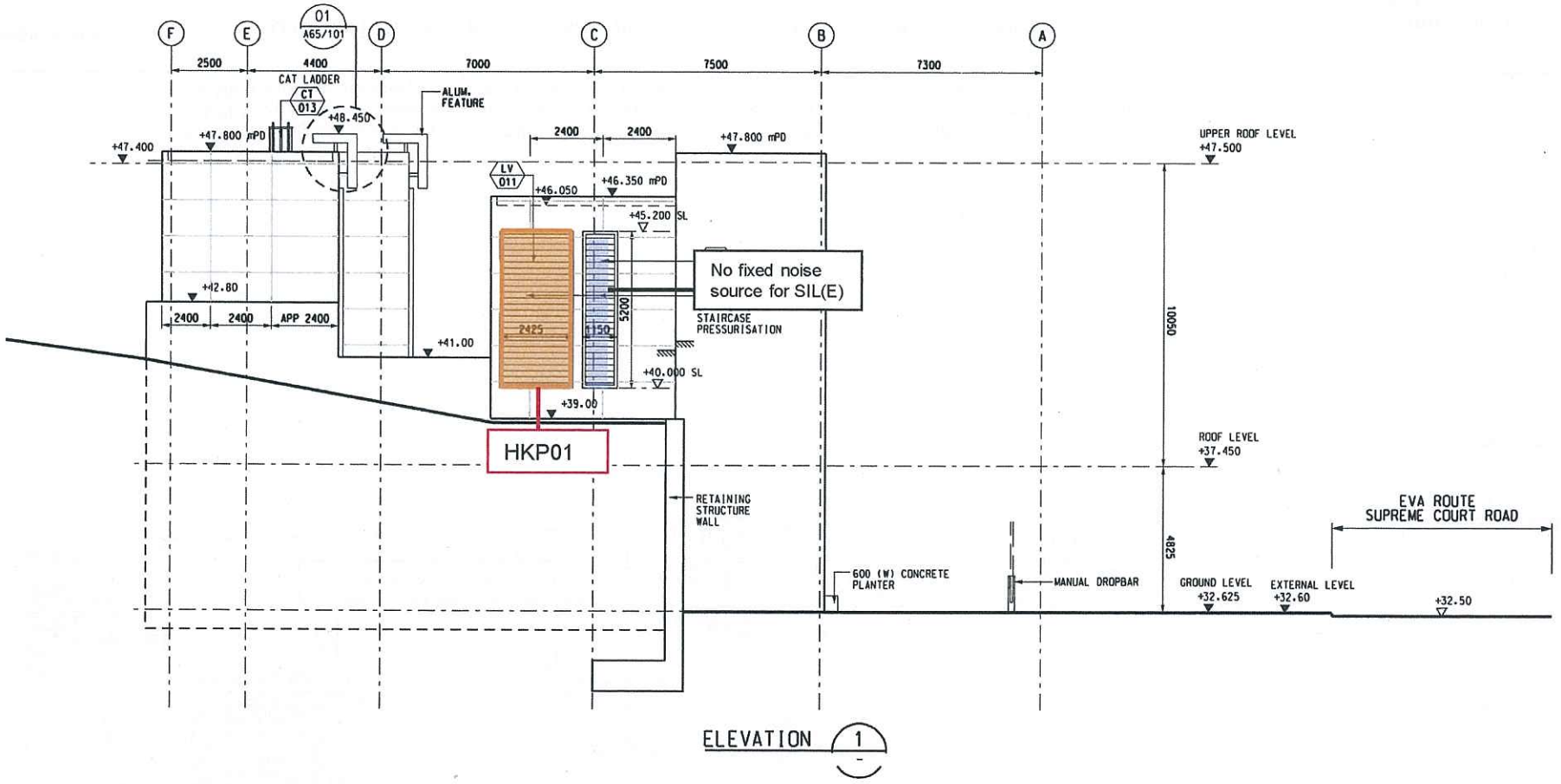
Annex A1b-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s), ie LV012, is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

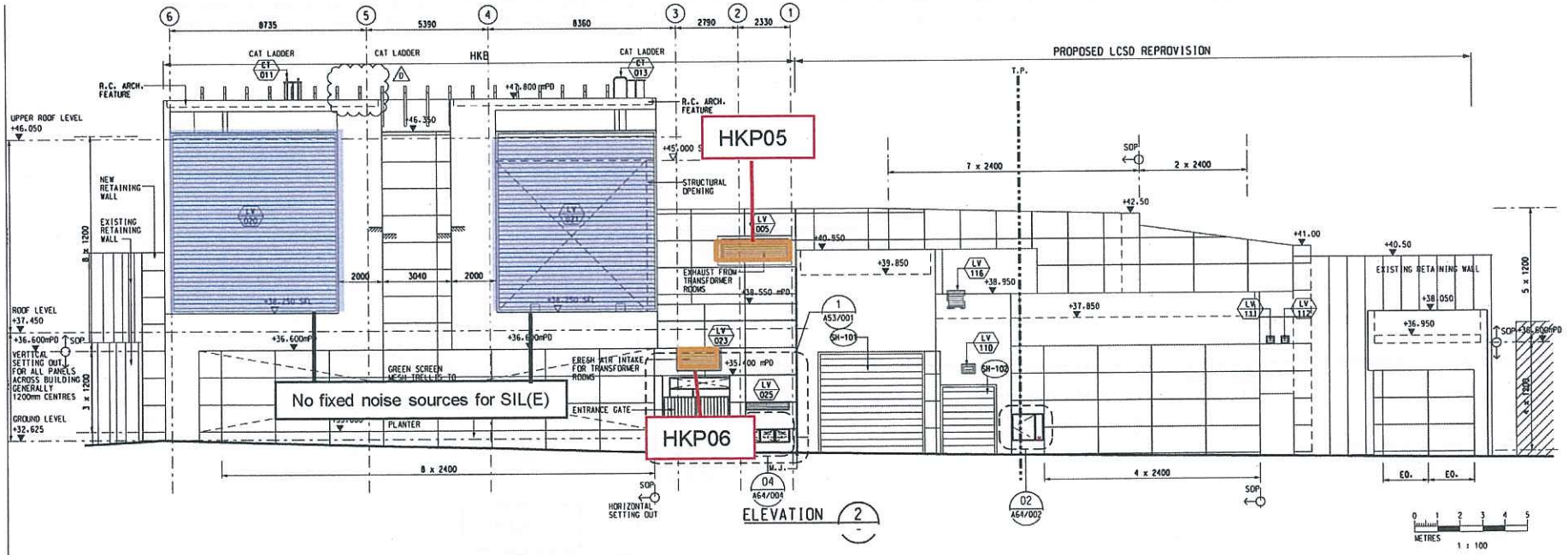
Annex A1b-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

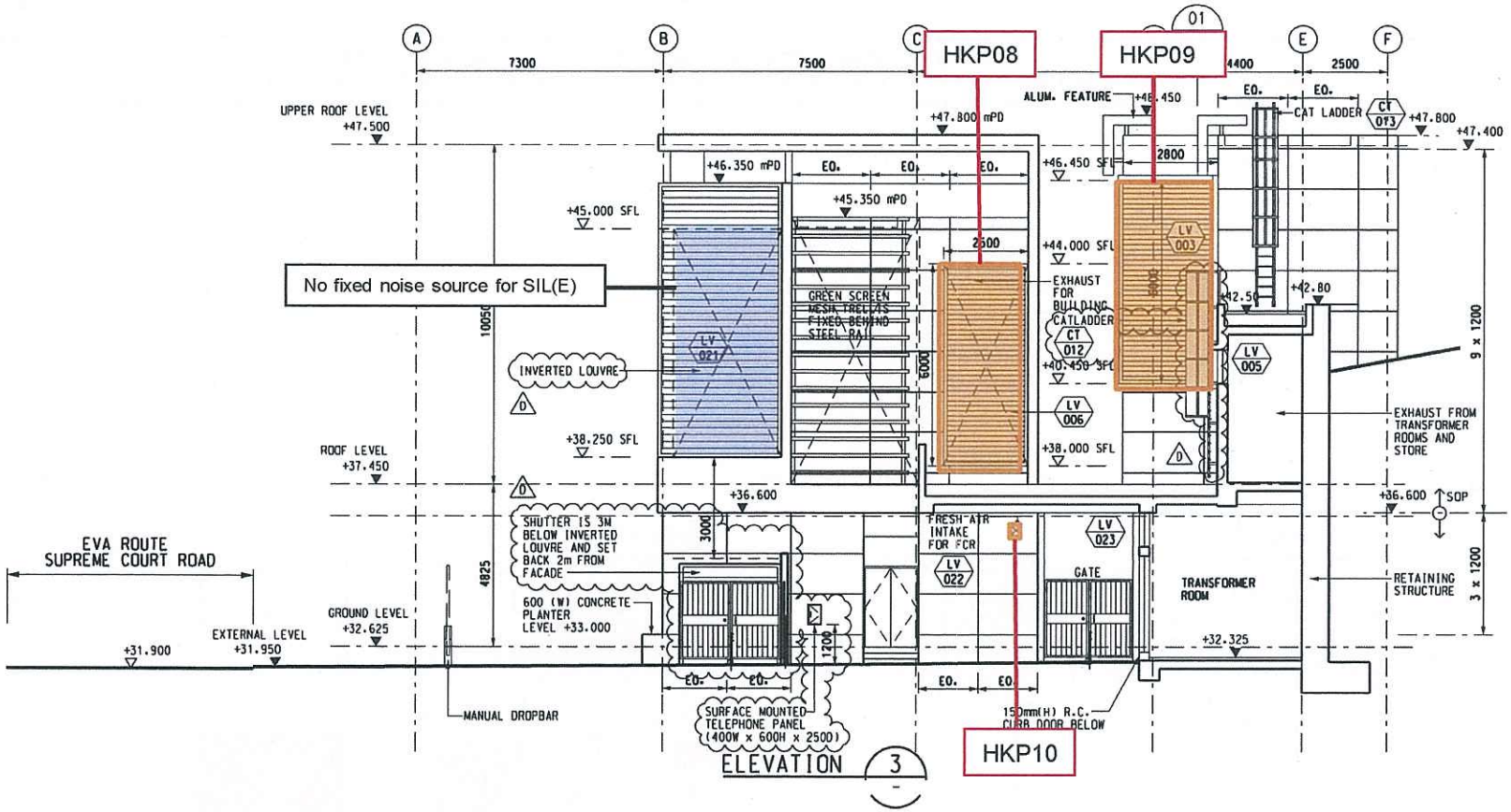
Annex A1b-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

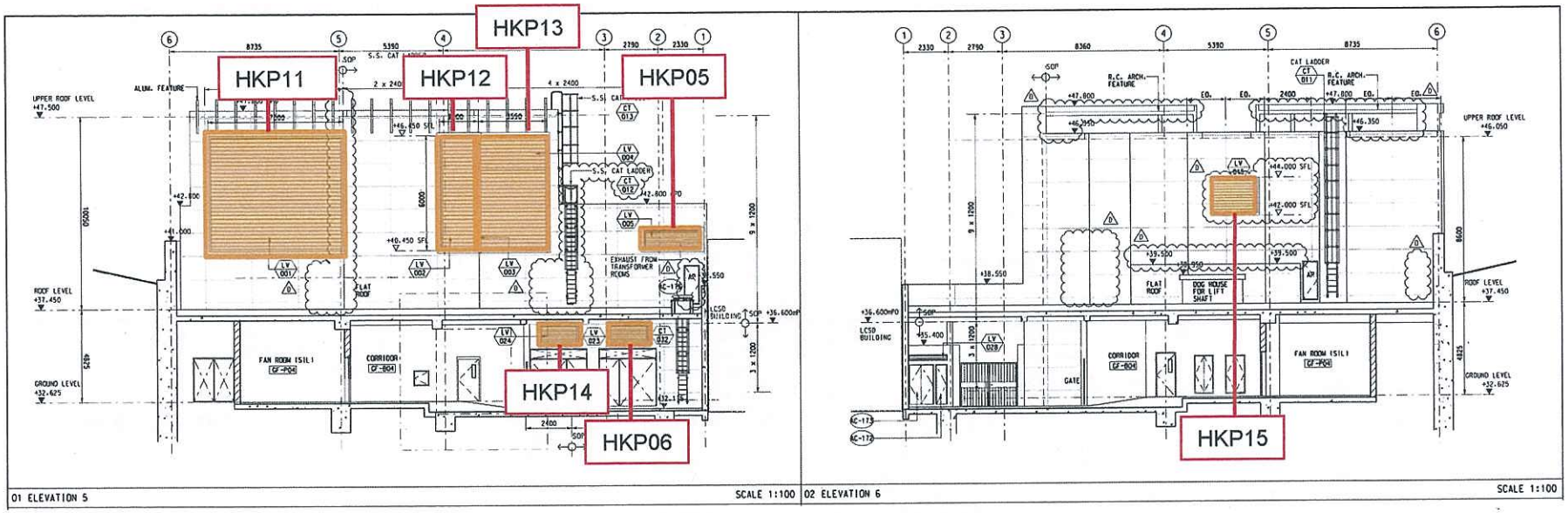
Annex A1b-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

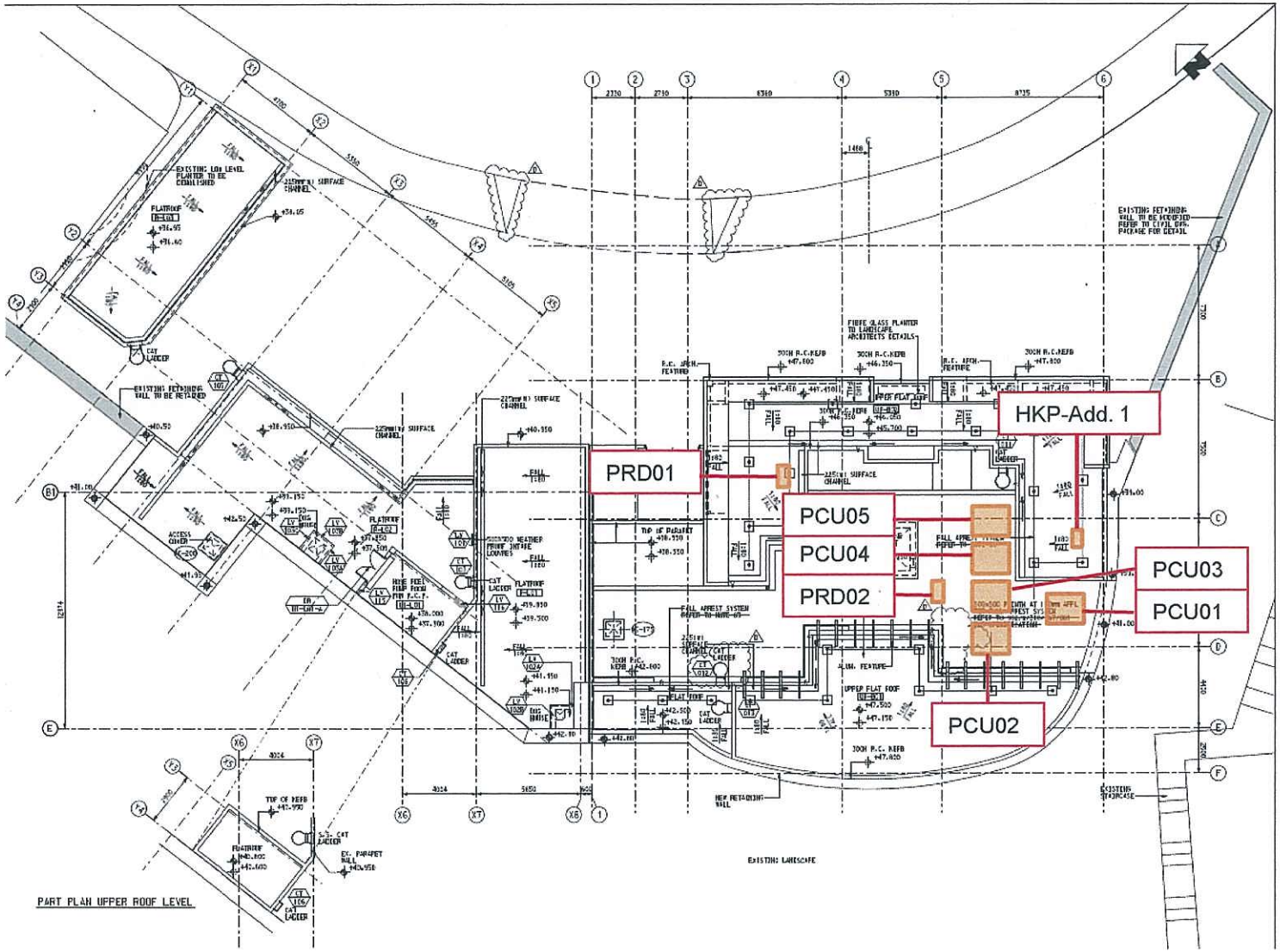
Annex A1b-6

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1b-7

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at HKB

DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1c

Updated Layout and Section Plans of Fixed Sources (NFB)

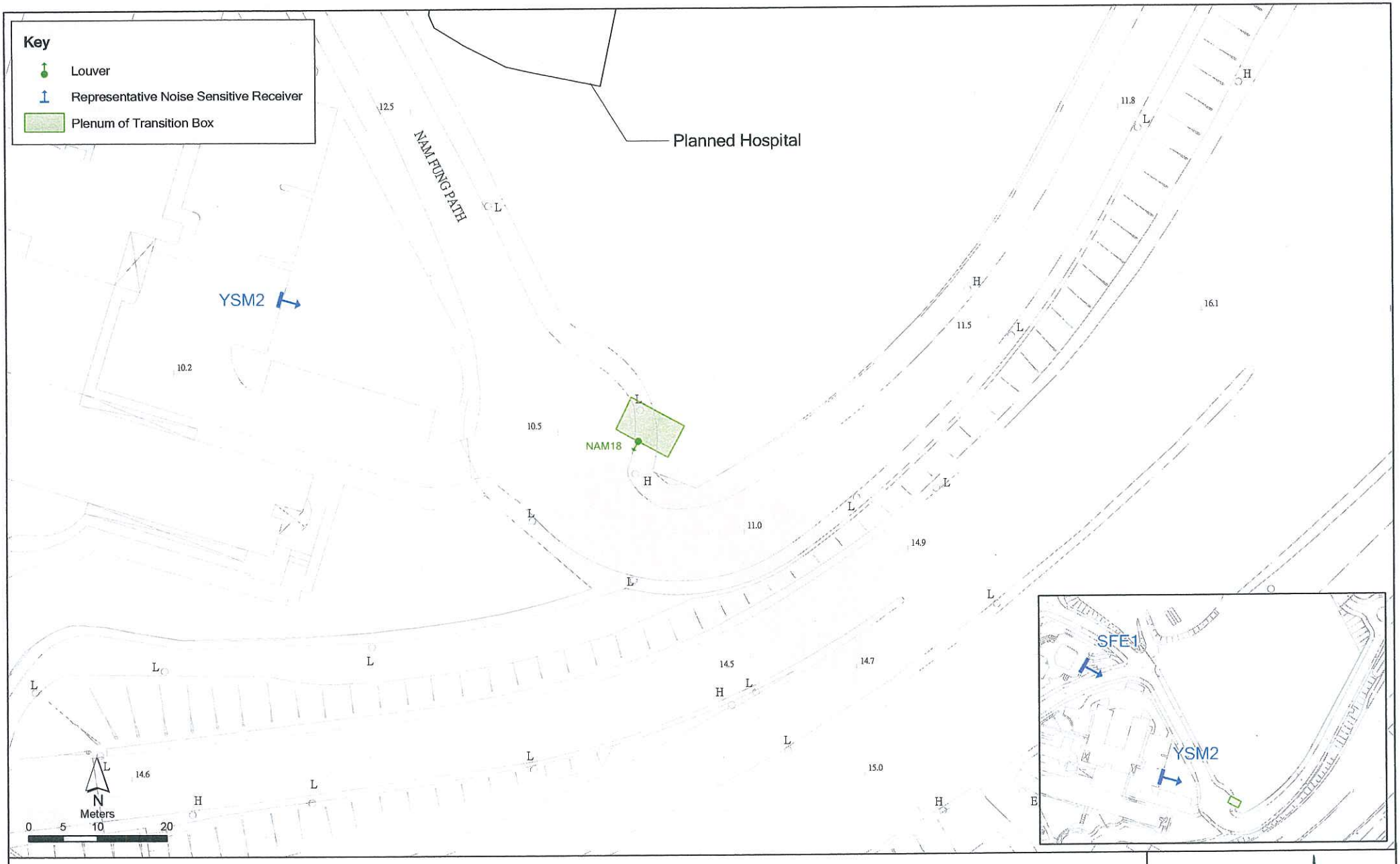
Annex A1c-1

Updated Layout Plan of Fixed Sources at NFB

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_NFB.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



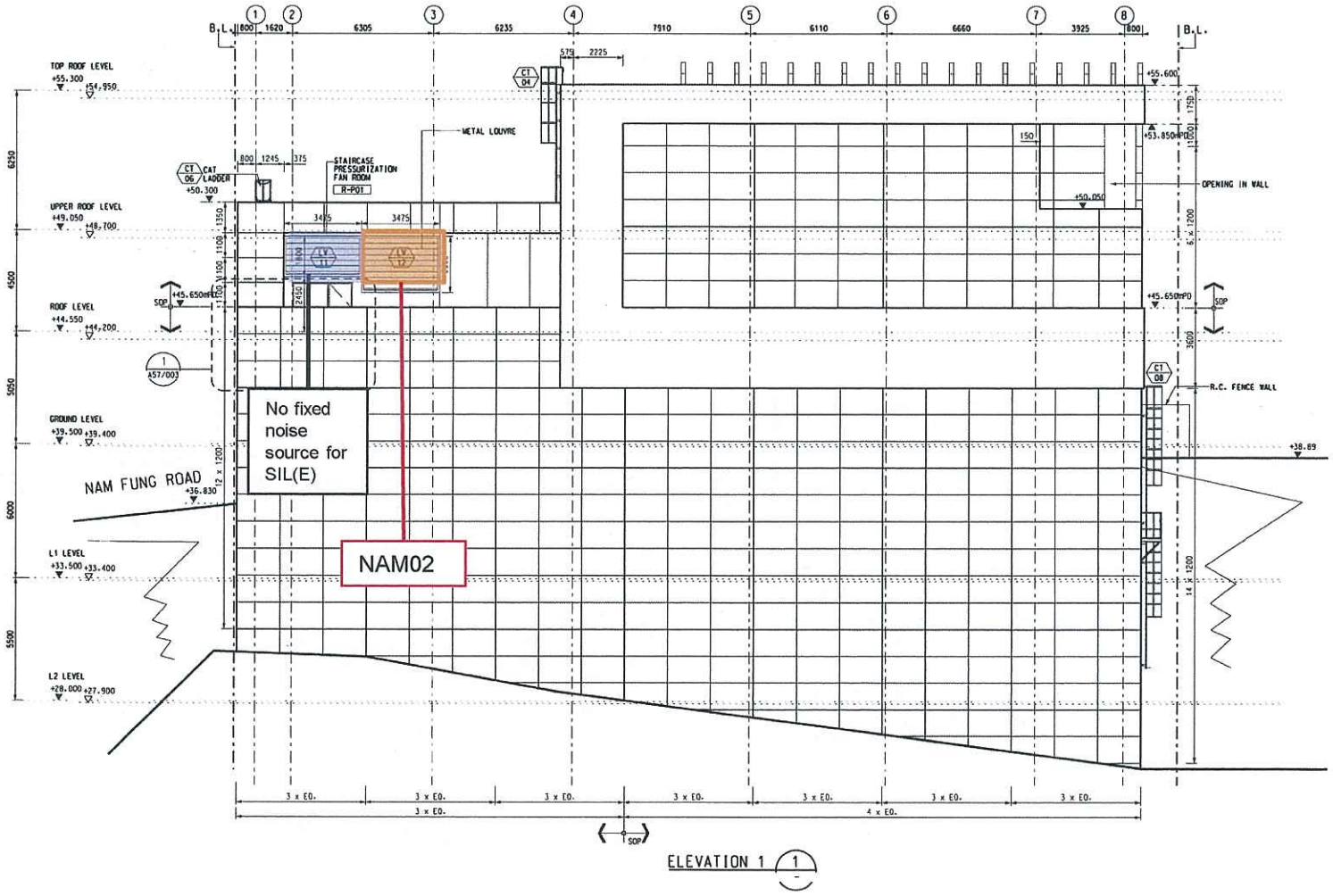
Annex A1c-2

Updated Layout of Fixed Sources at NFB

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_NFB_Tbox.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

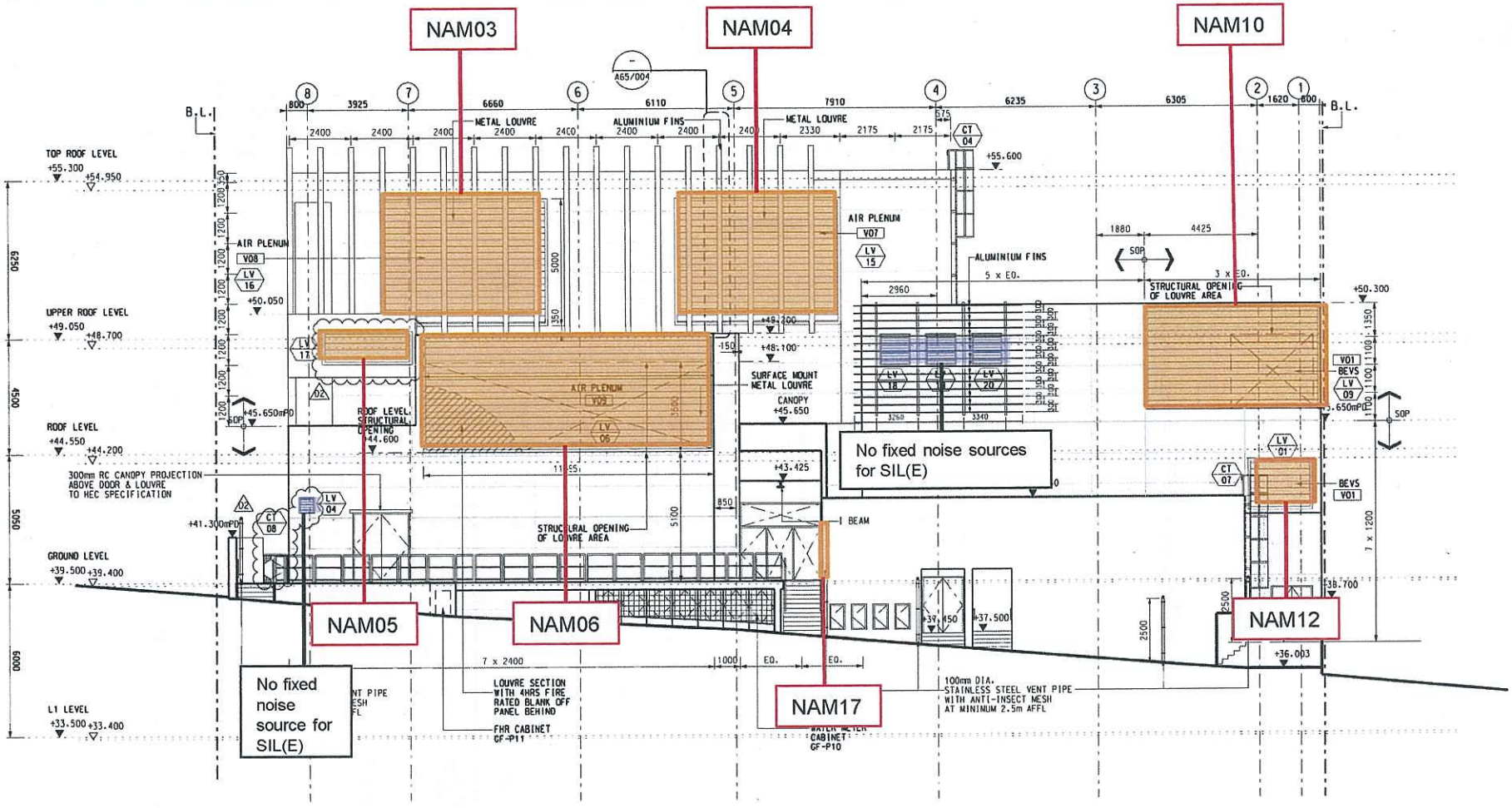
Annex A1c-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at NFB

DATE: 20/10/2016

Environmental Resources Management

ERM



ELEVATION 2 (2)

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

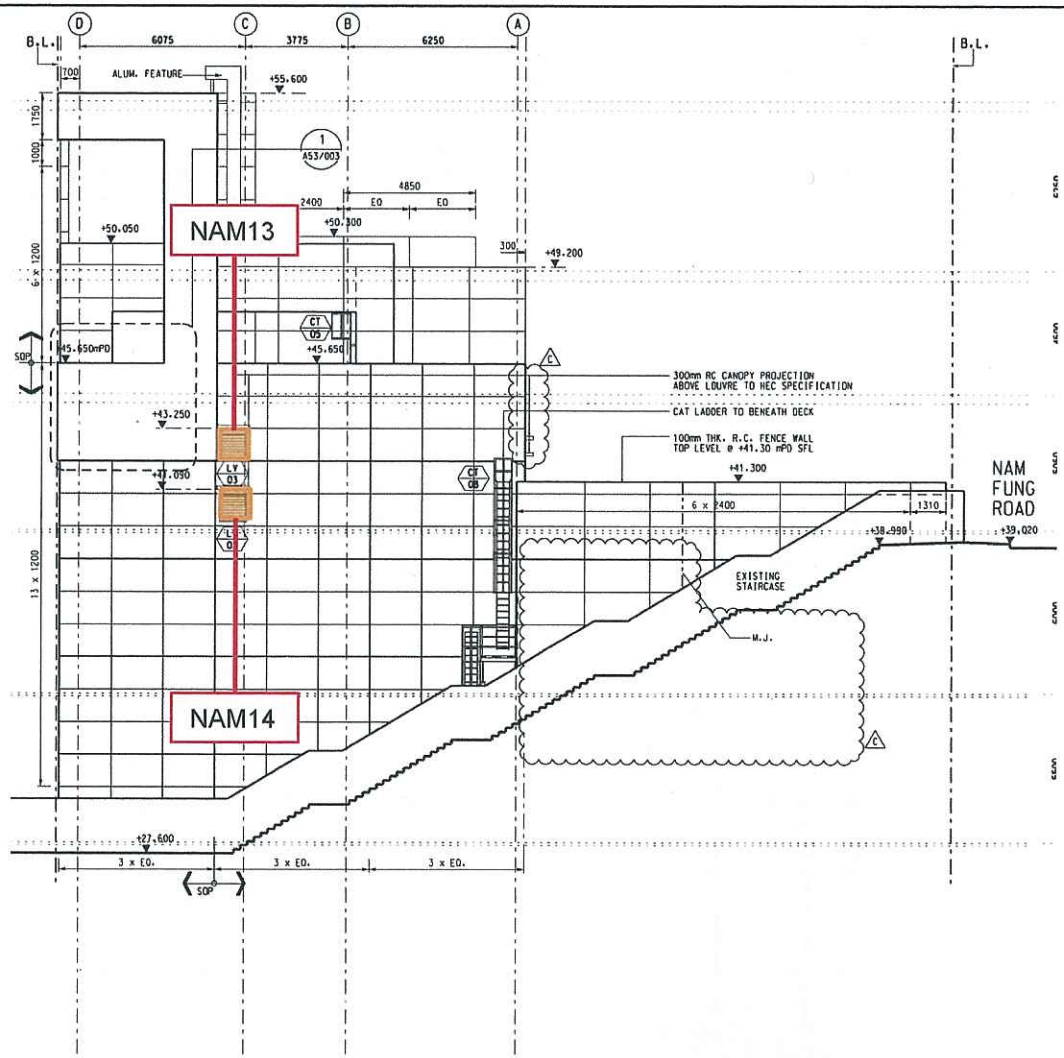
Annex A1c-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at NFB

DATE: 20/10/2016

Environmental Resources Management

ERM



ELEVATION 3 (1)

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

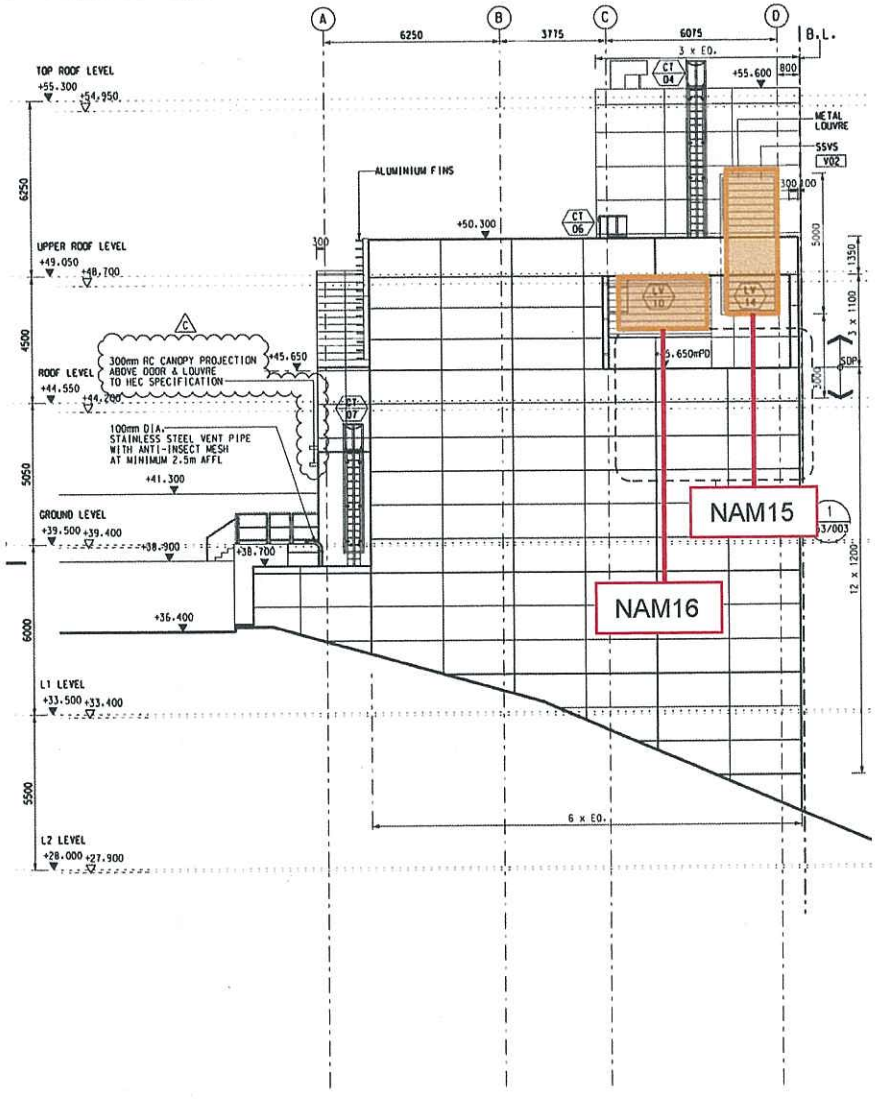
Annex A1c-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at NFB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

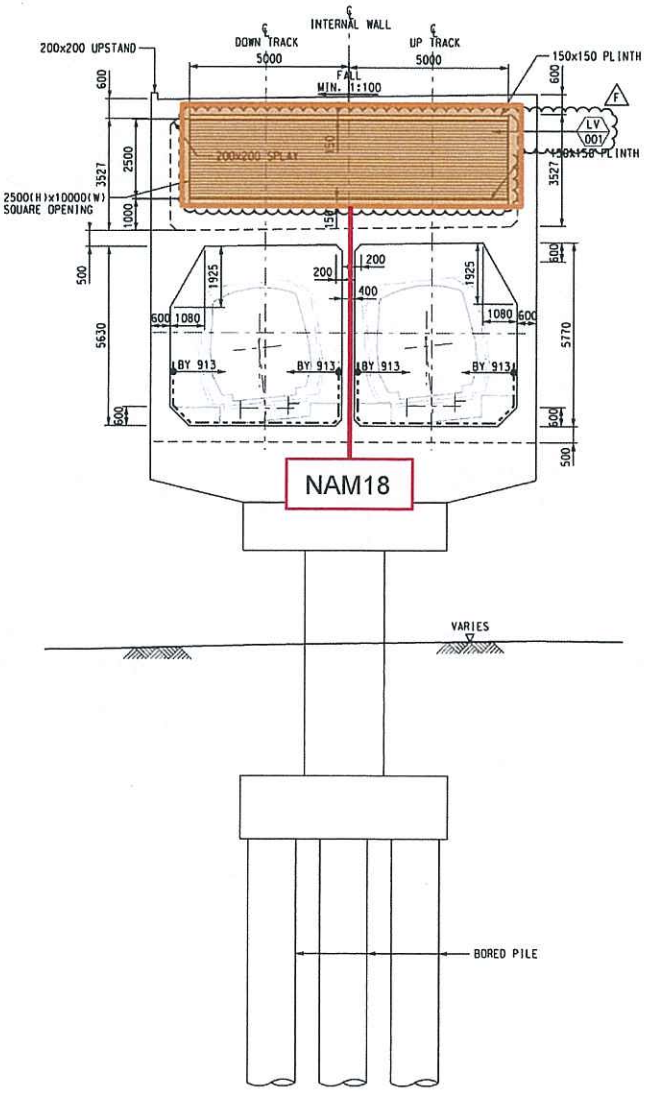
Annex A1c-6

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at NFB

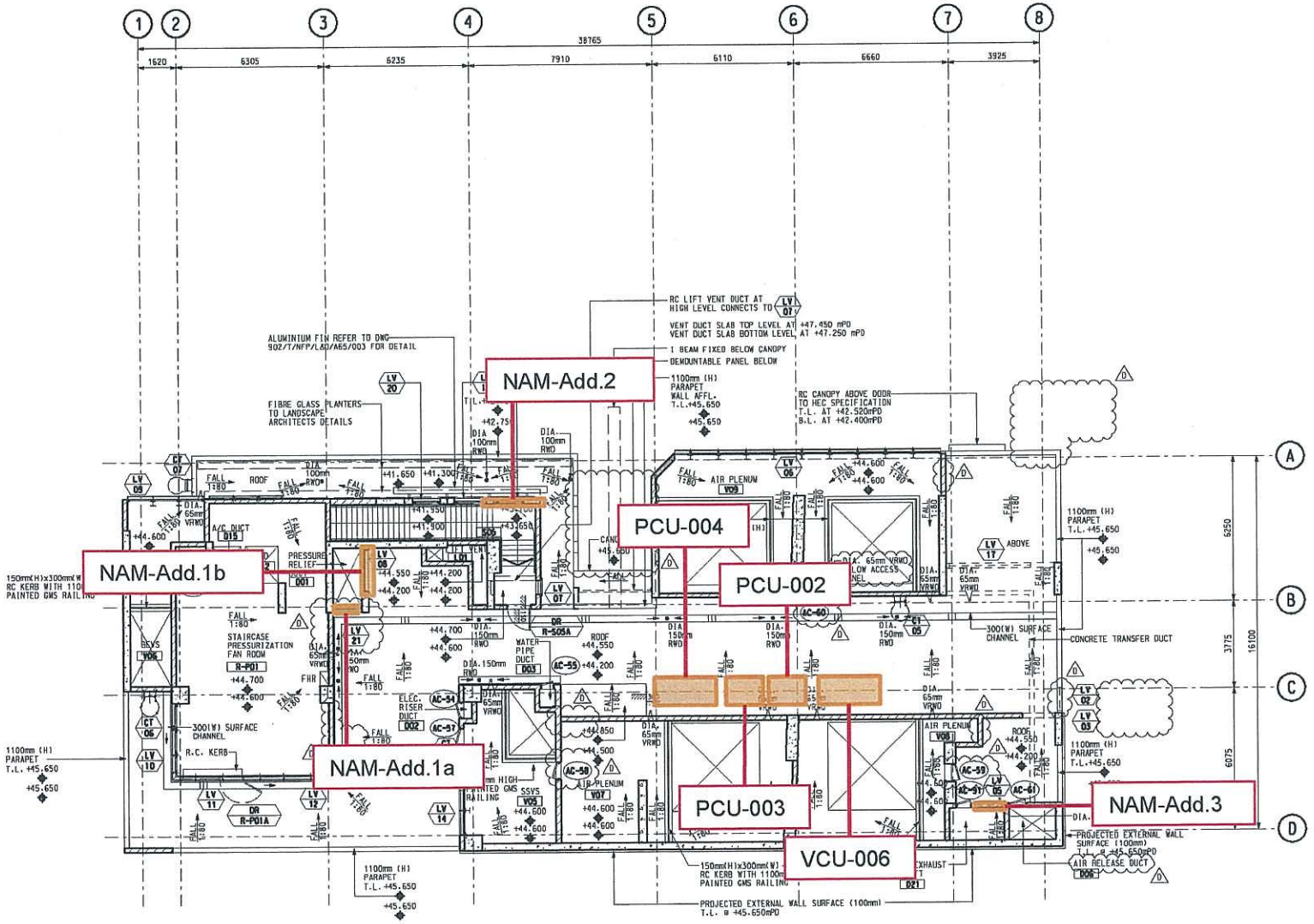
DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1c-8

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at NFB

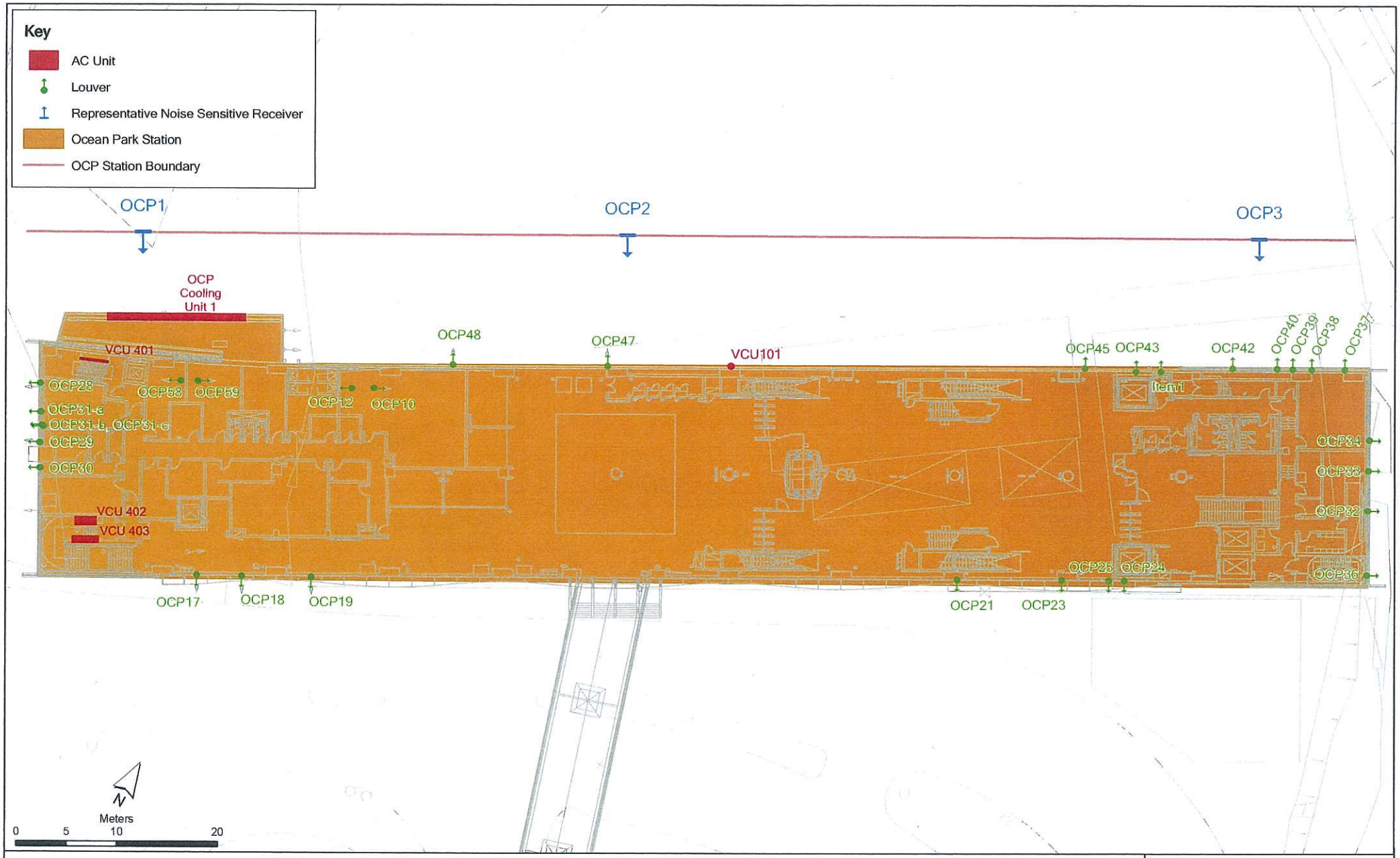
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1d

Updated Layout and Section Plans of Fixed Sources (OCP)



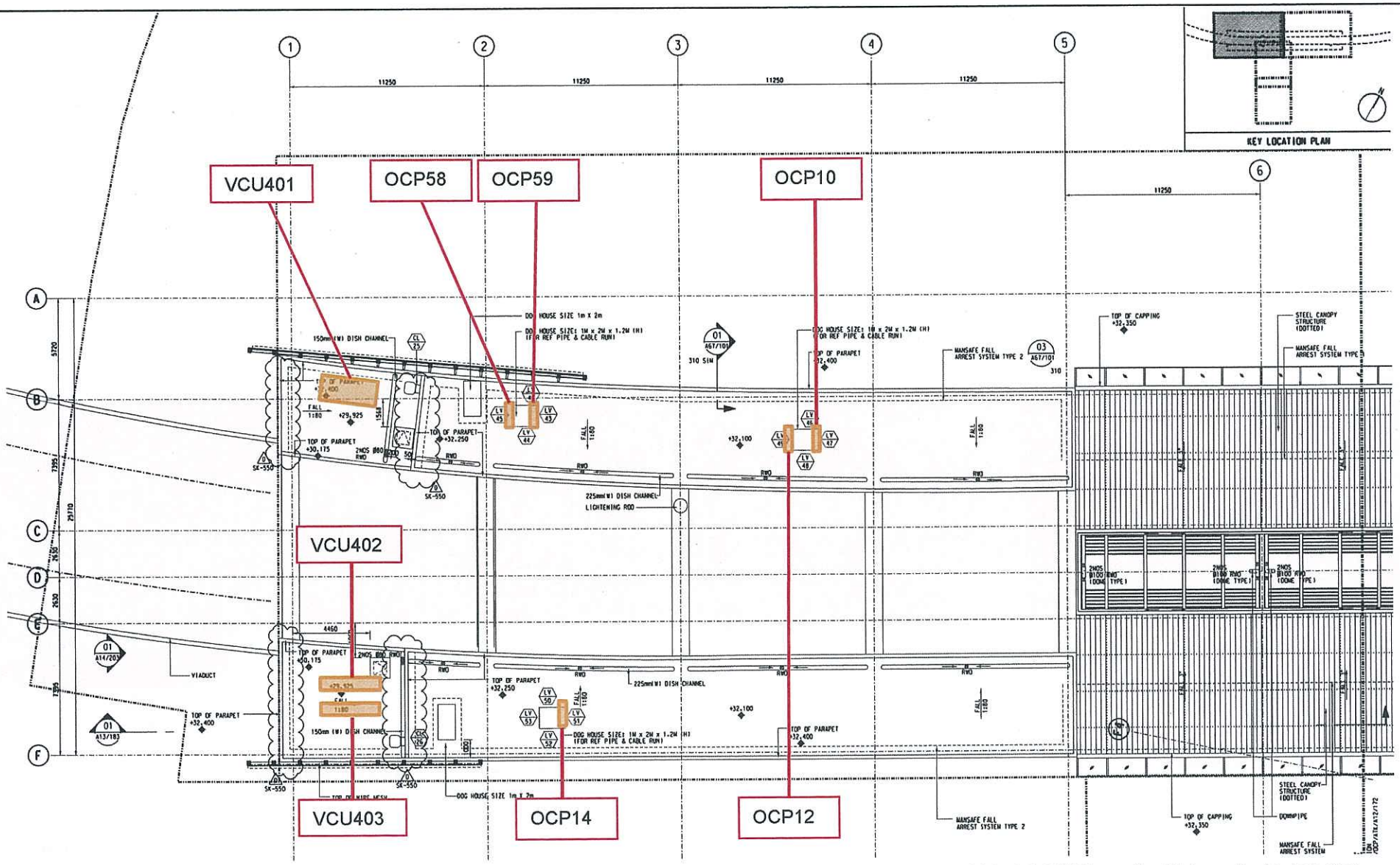
Annex A1d-1

Updated Layout Plan of Fixed Sources at OCP

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_OCP.mxd
Date: 25/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

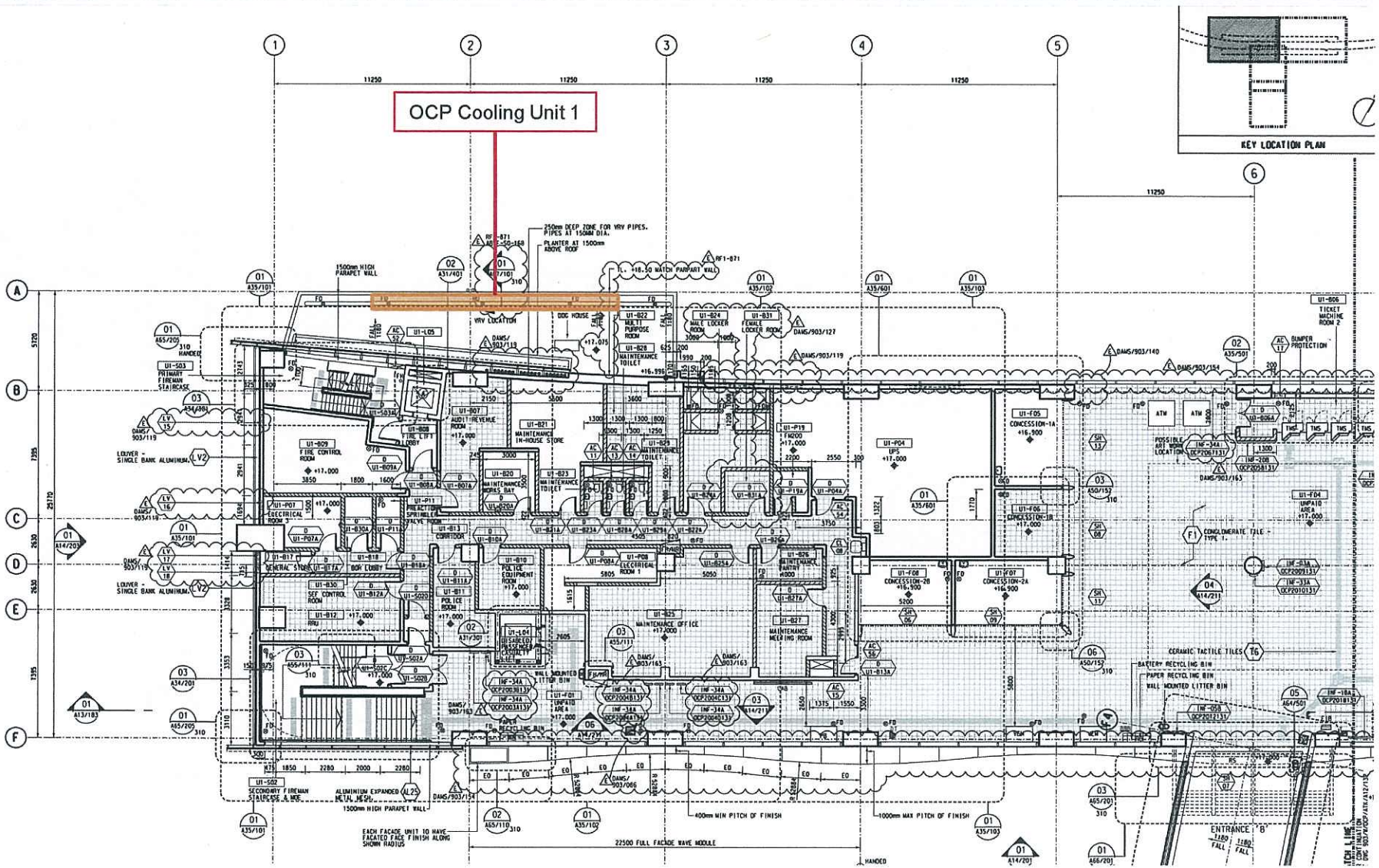
Annex A1d-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

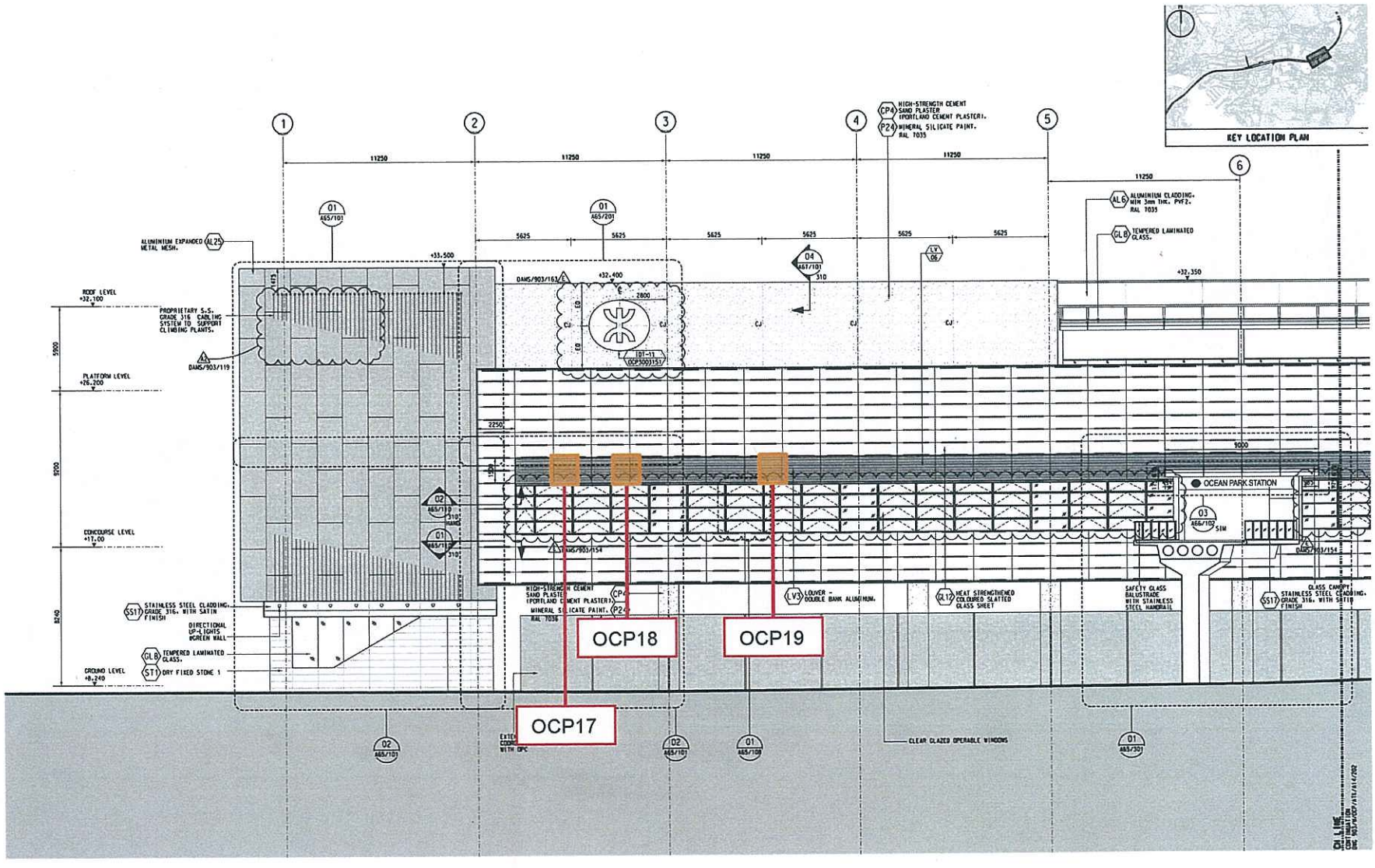
Annex A1d-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

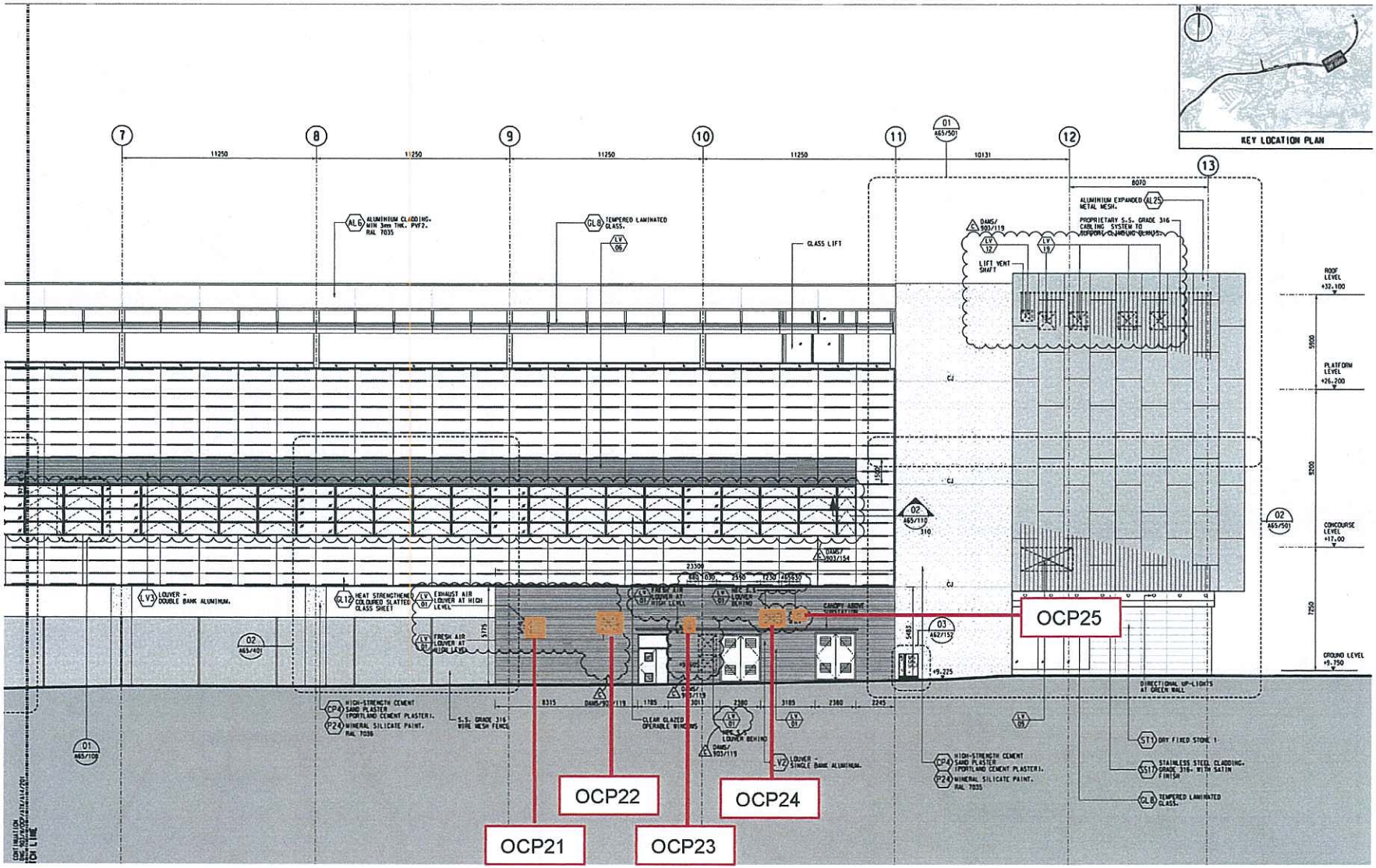
Annex A1d-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

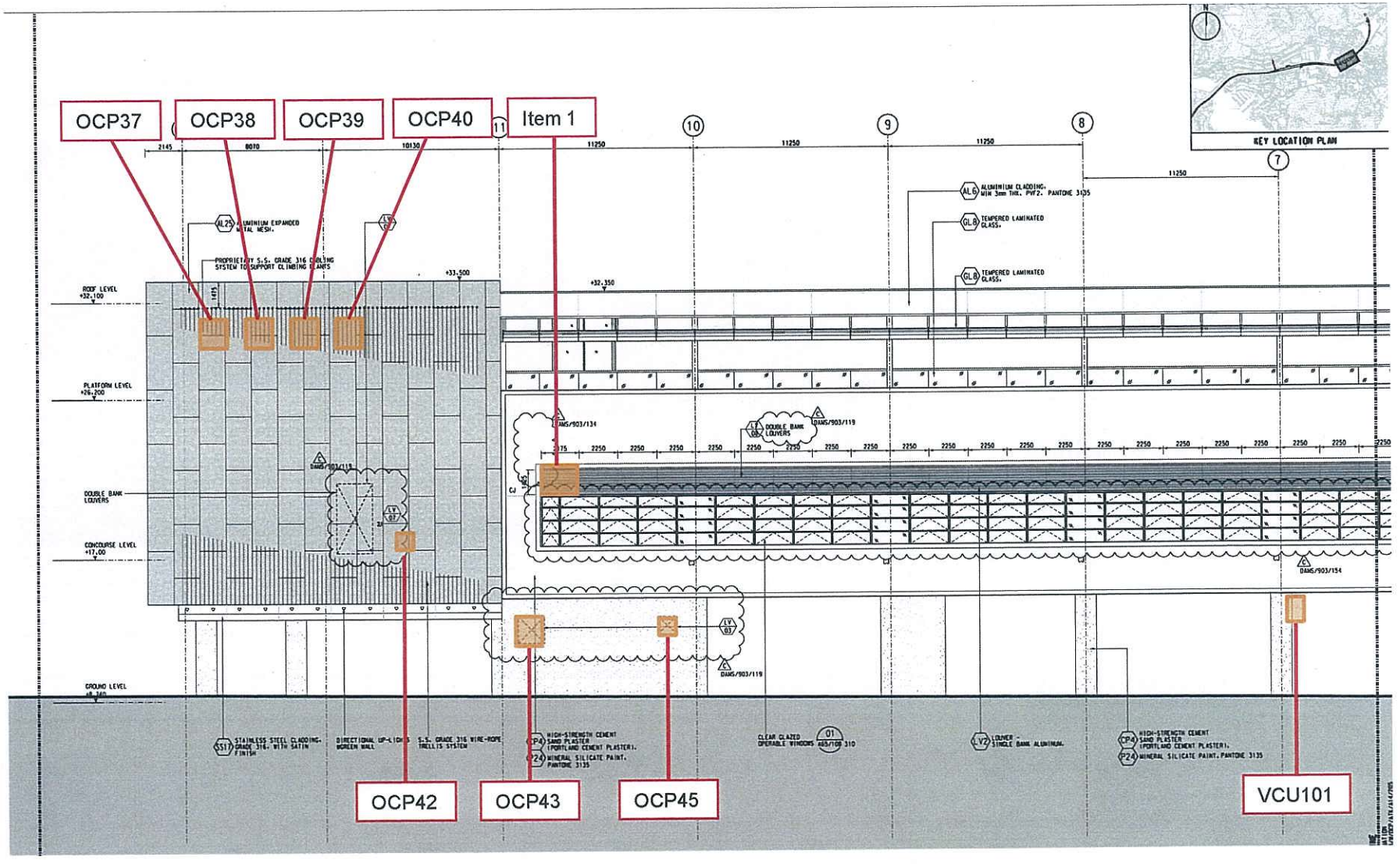
Annex A1d-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

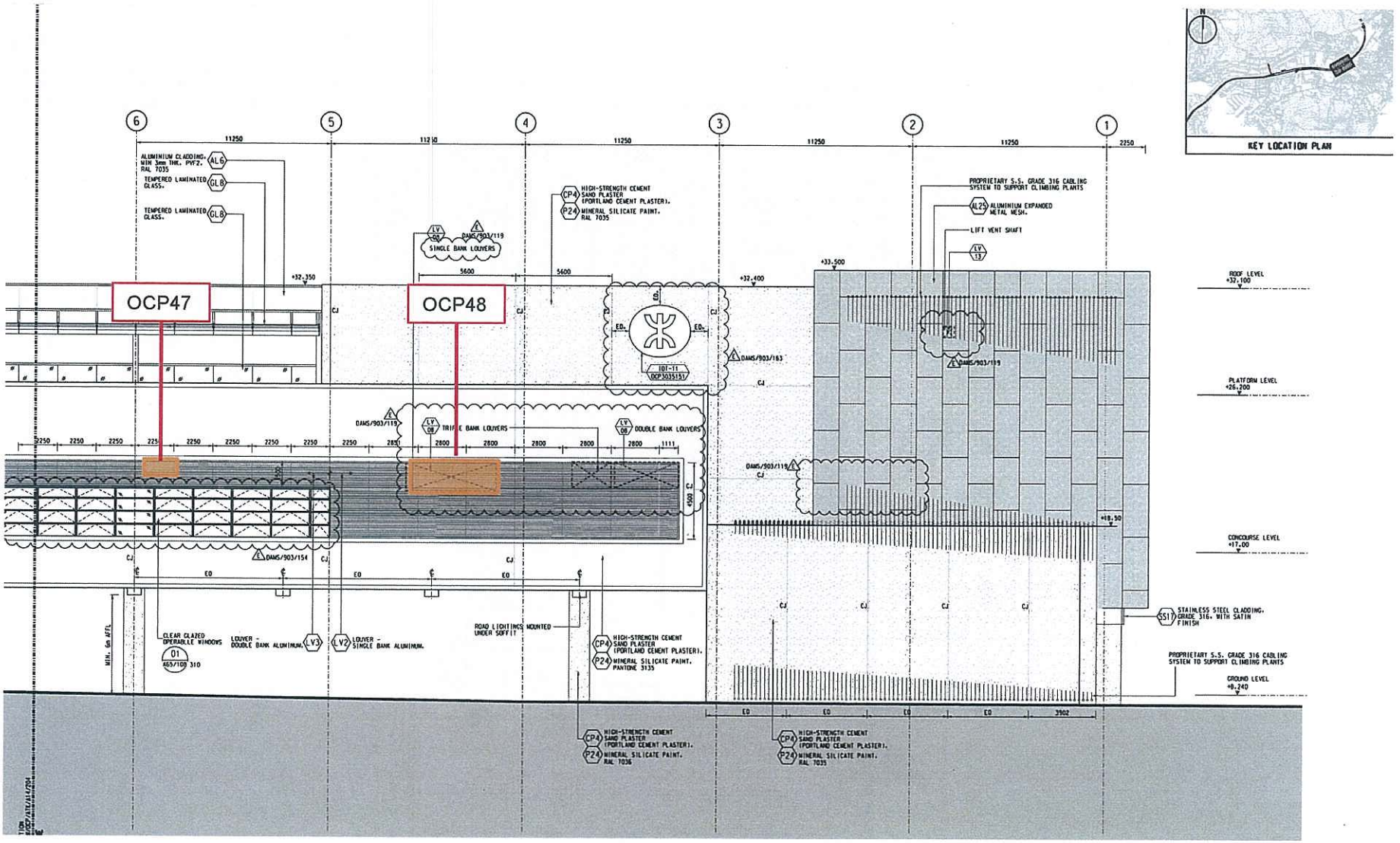
Annex A1d-6

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

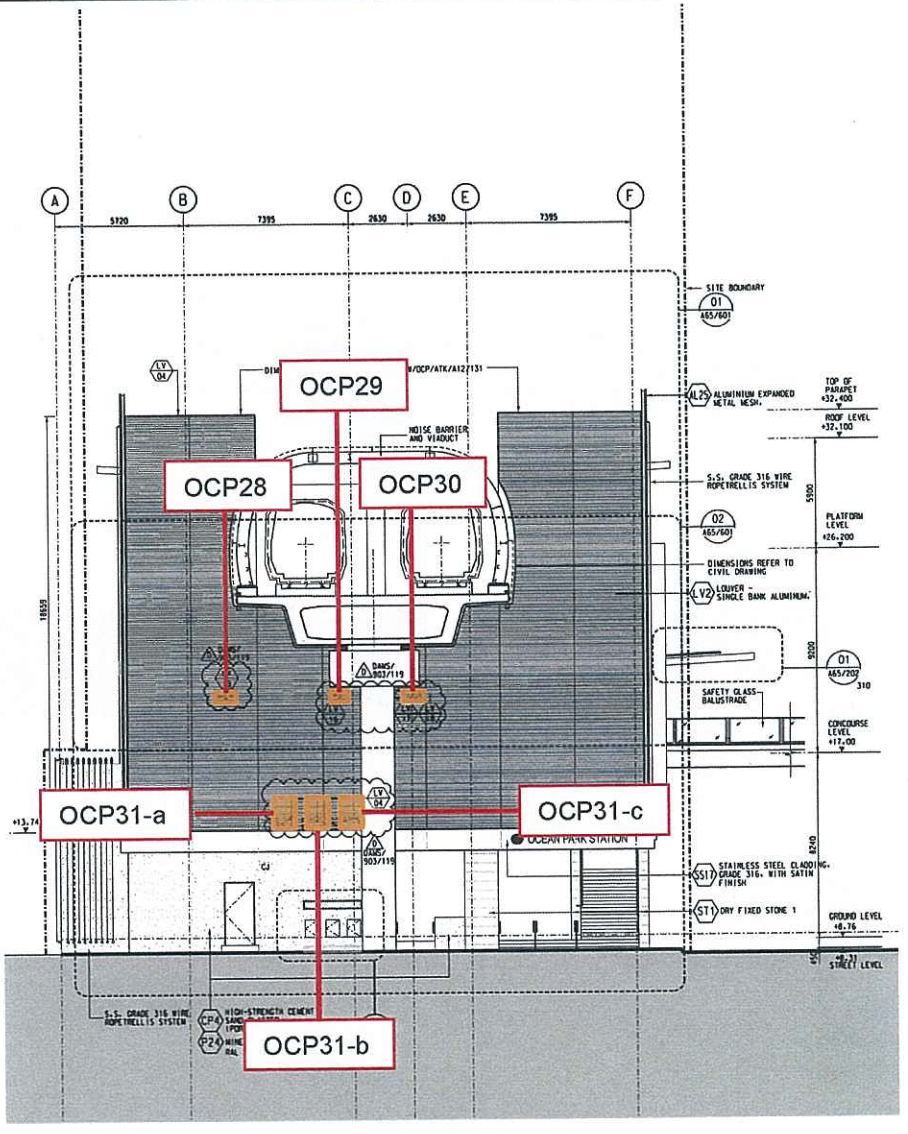
Annex A1d-7

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

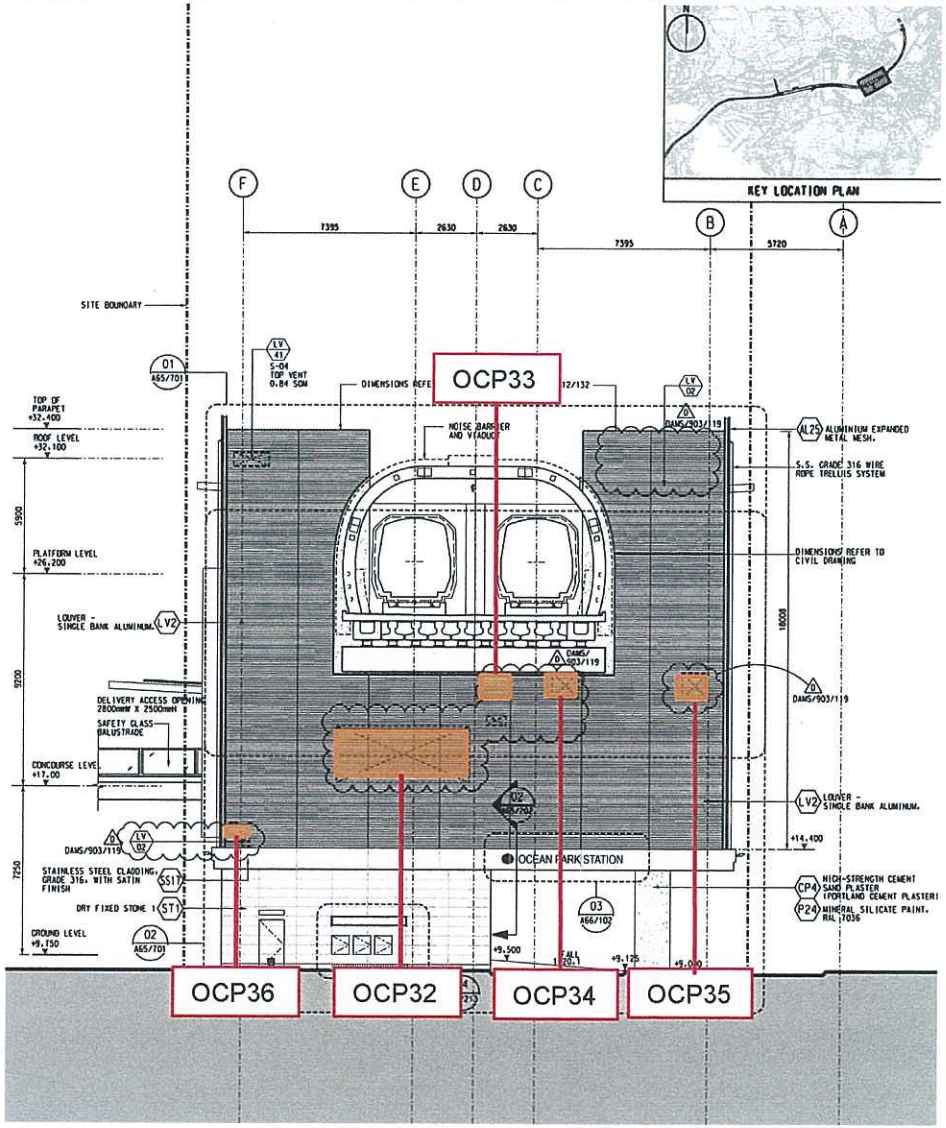
Annex A1d-8

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1d-9

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at OCP

DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1e

Updated Layout and Section Plans of Fixed Sources (WCH & WCD)

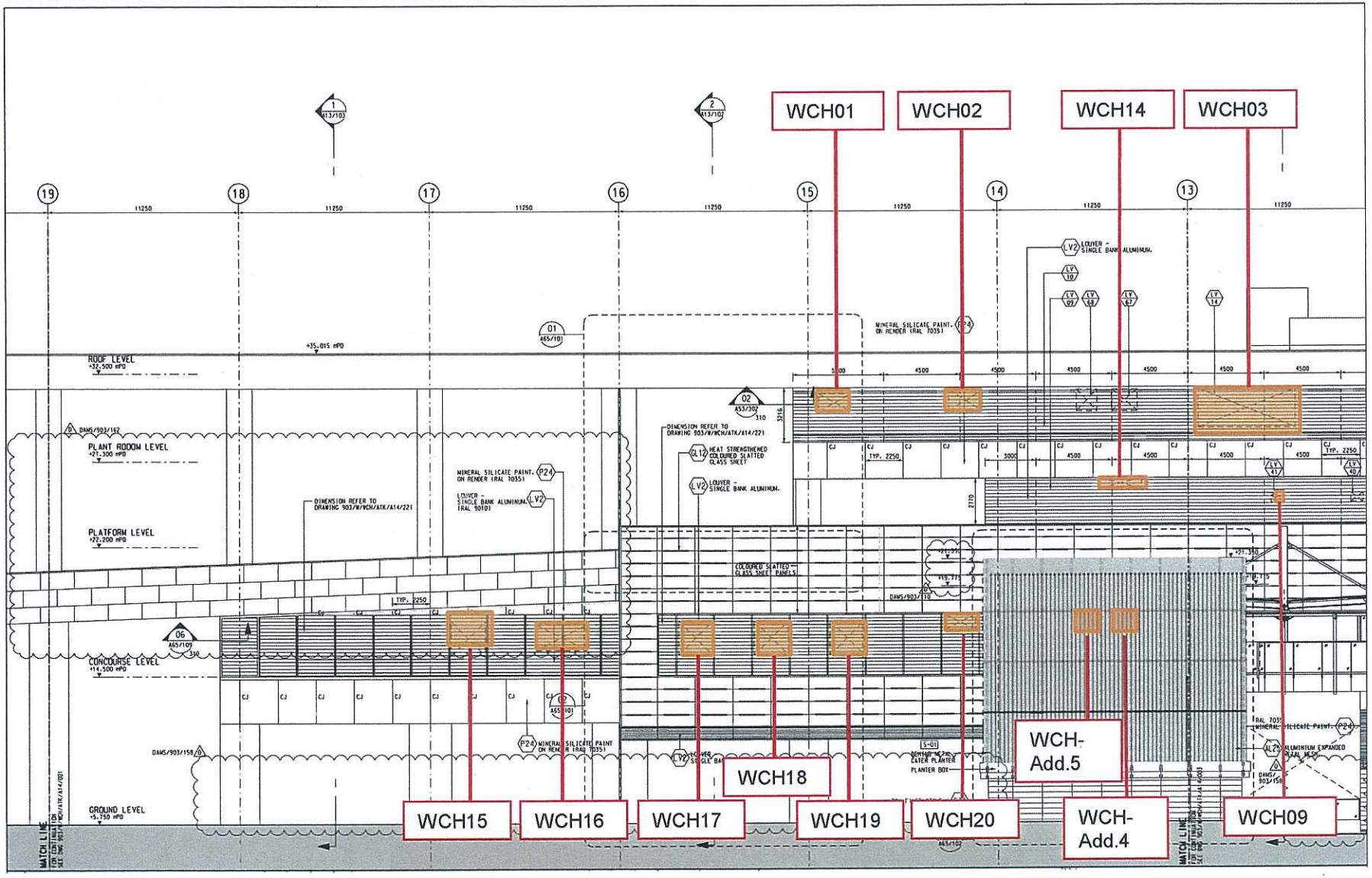
Annex A1e-1

Updated Layout Plan of Fixed Sources at WCH and WCD

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_WCH.mxd
Date: 25/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

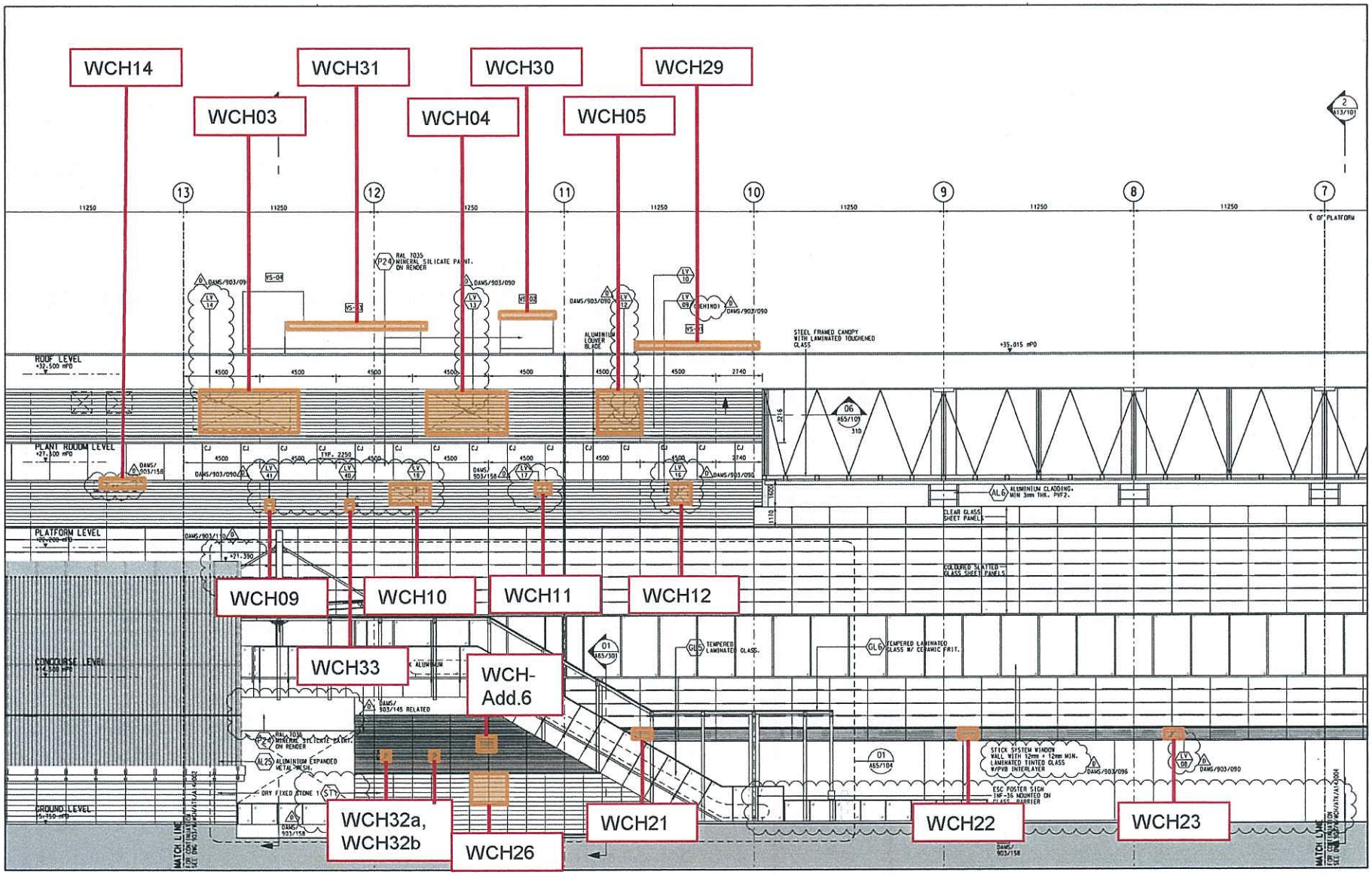
Annex A1e-2

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

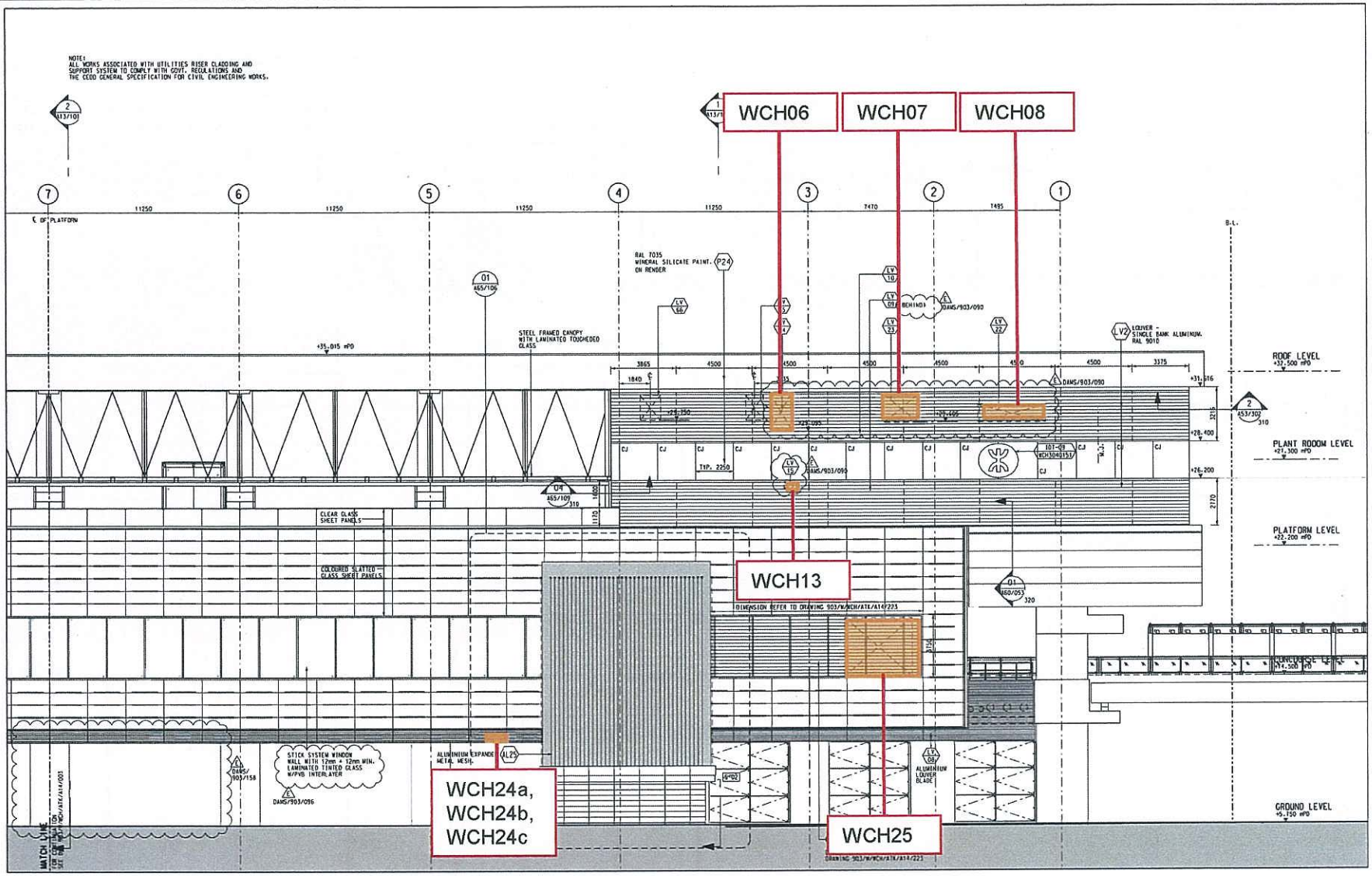
Annex A1e-3

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

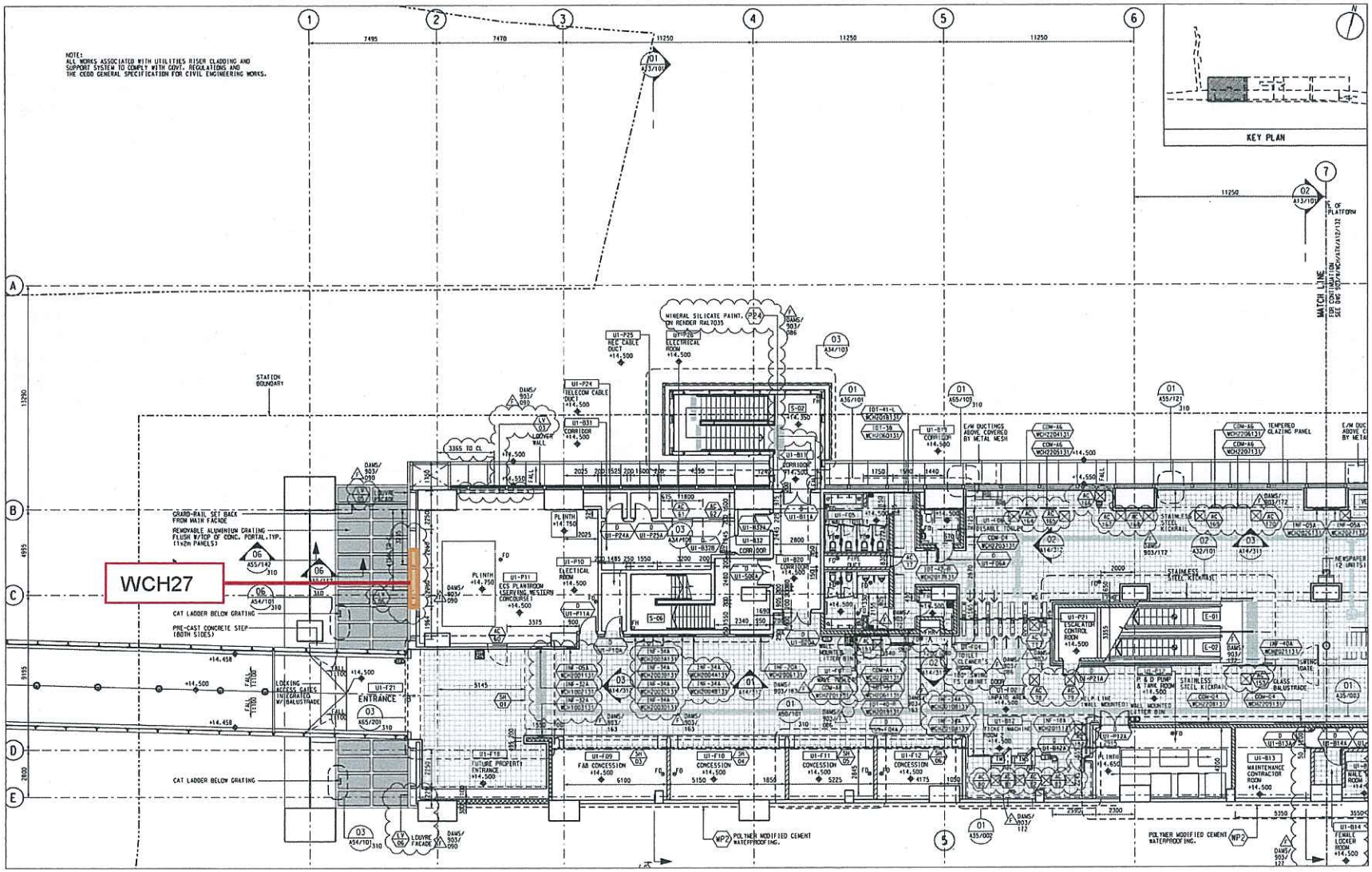
Annex A1e-4

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

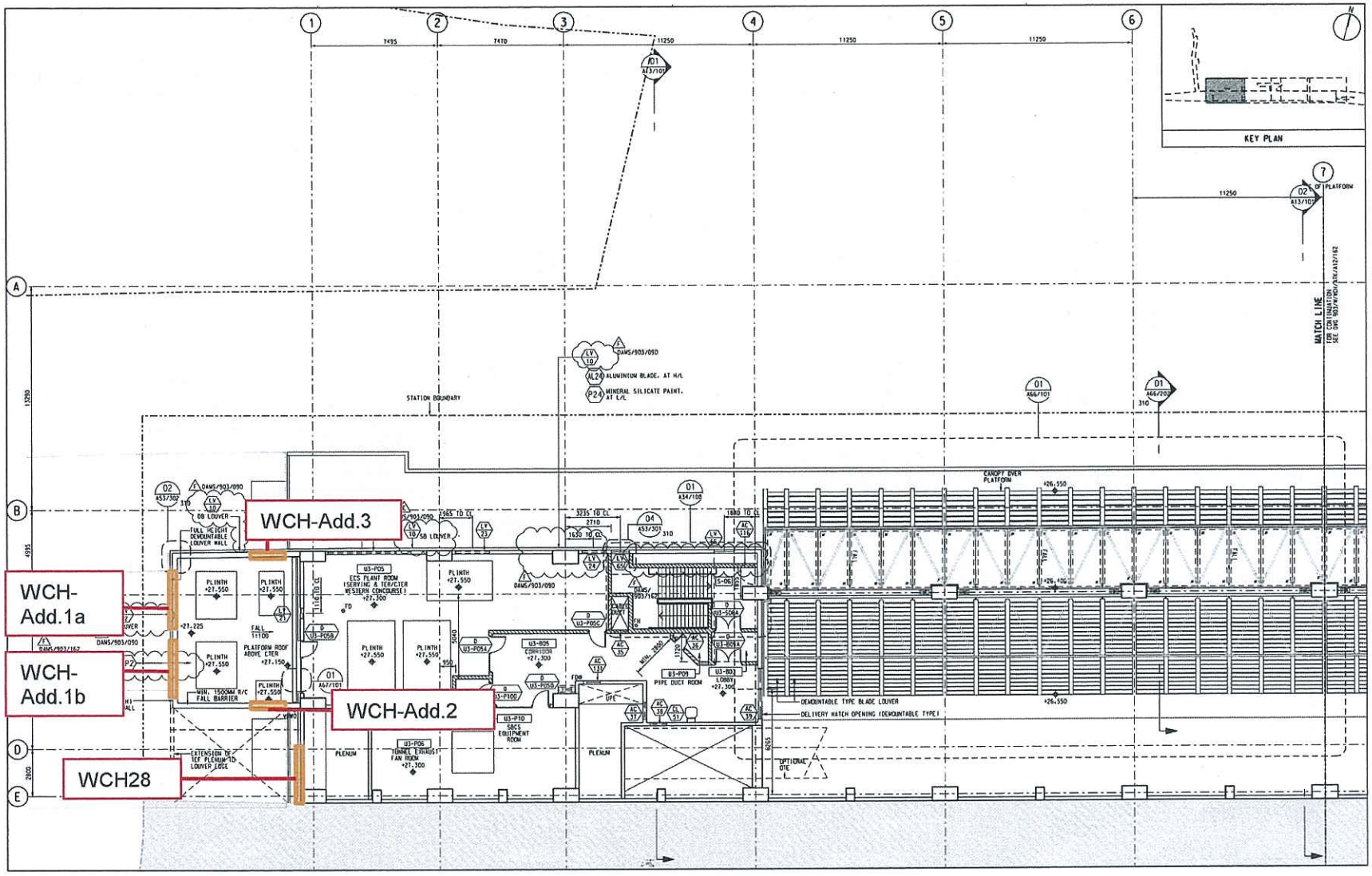
Annex A1e-5

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

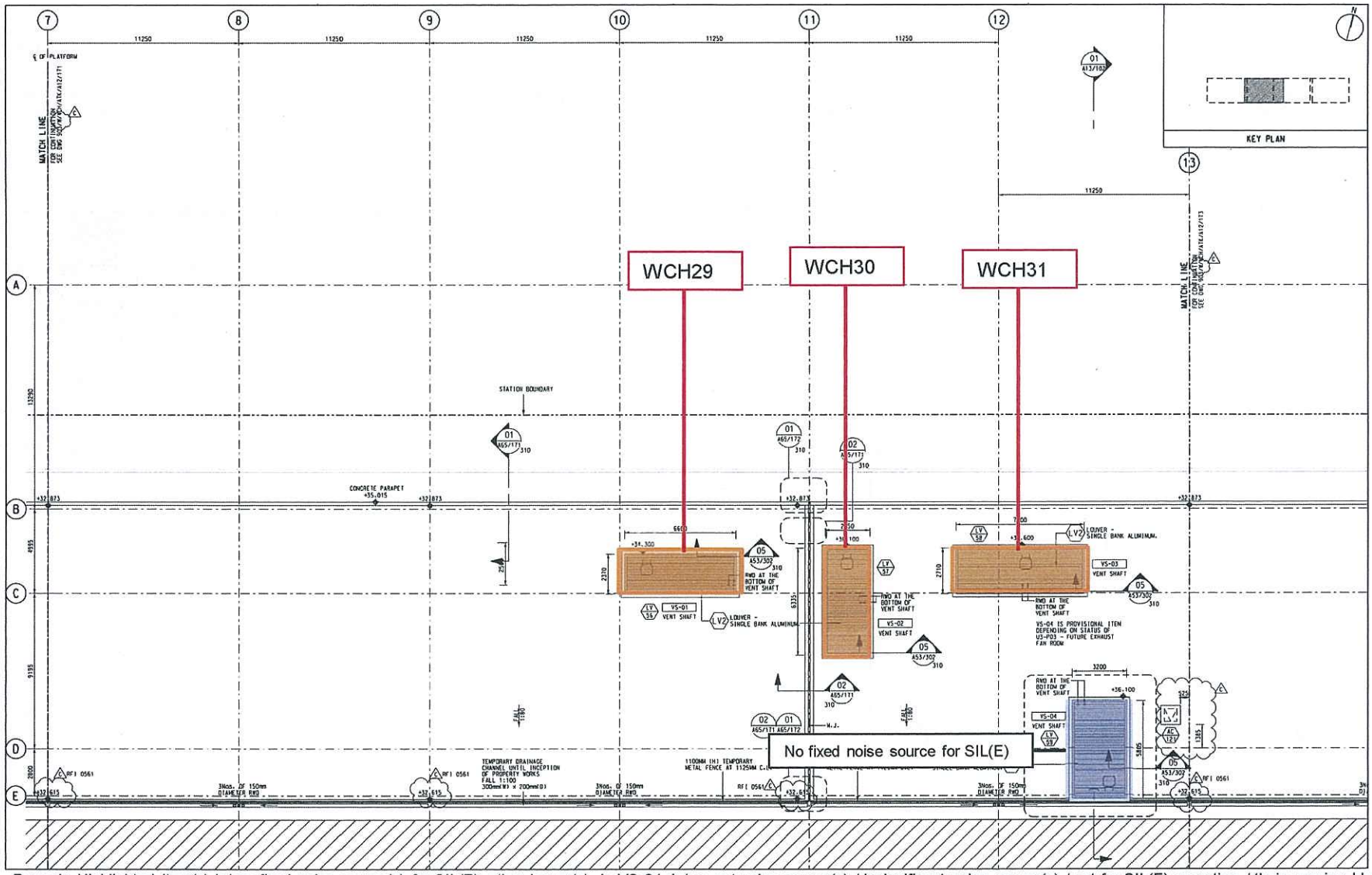
Annex A1e-6

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s), ie VS-04, is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

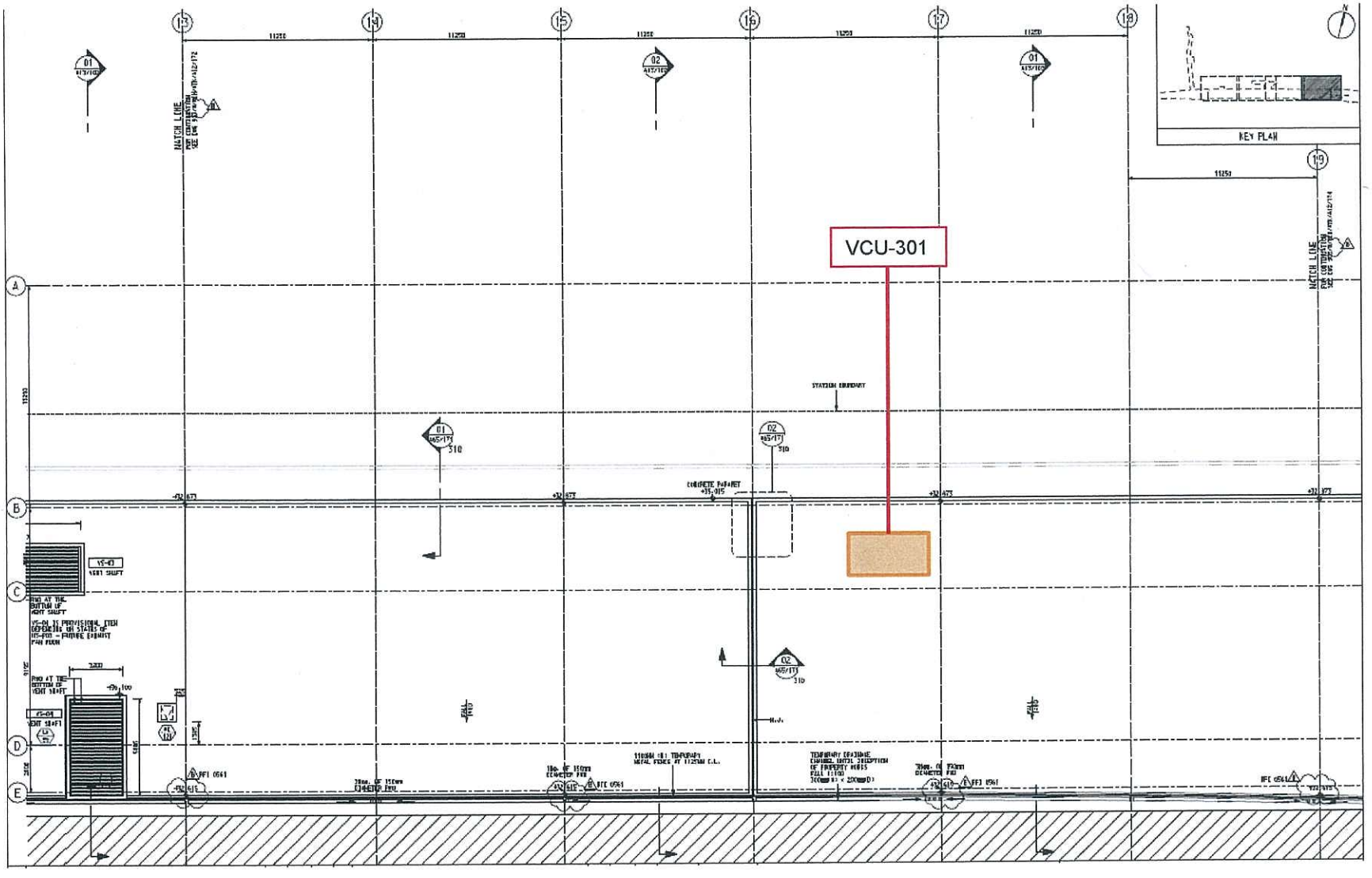
Annex A1e-7

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

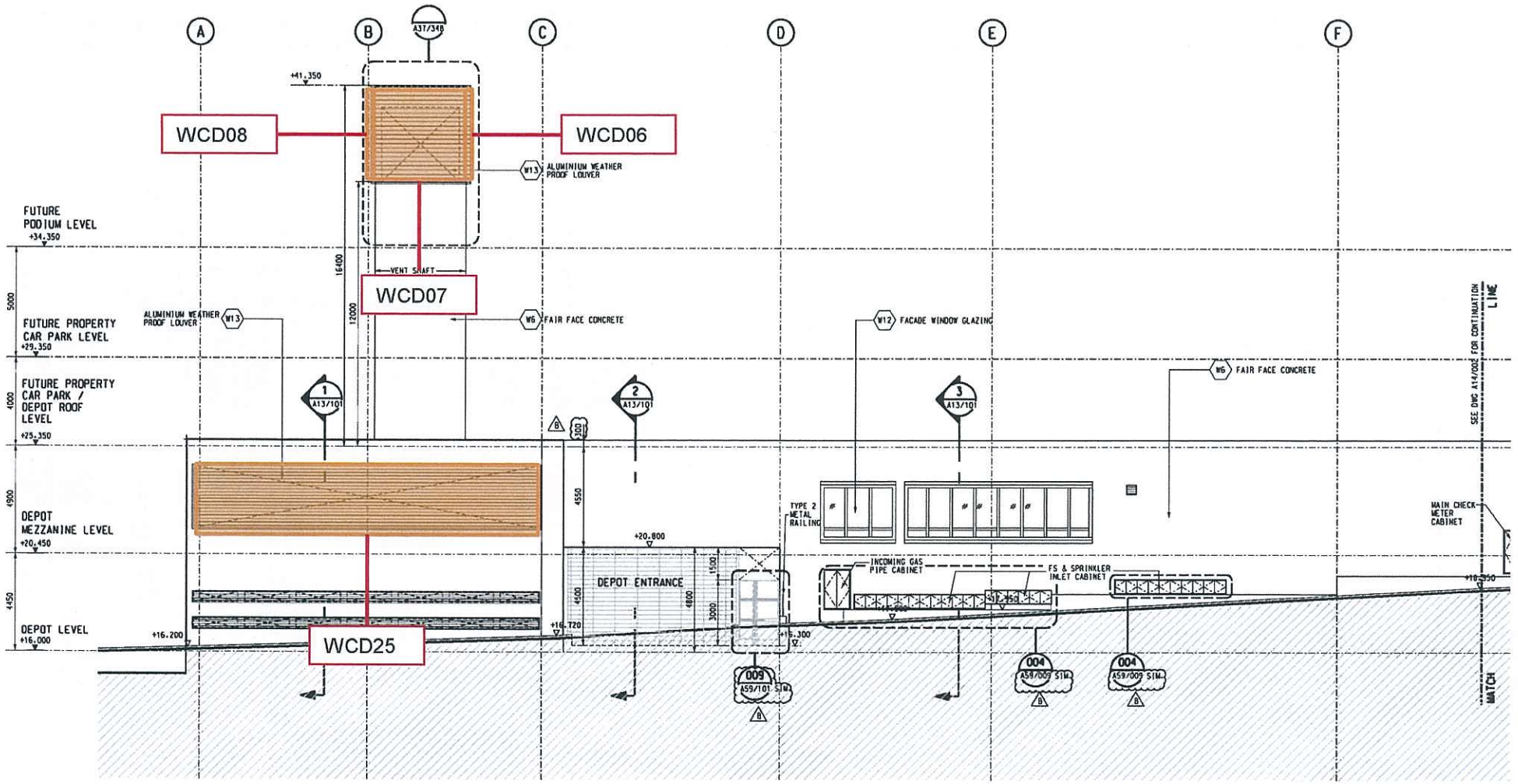
Annex A1e-8

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

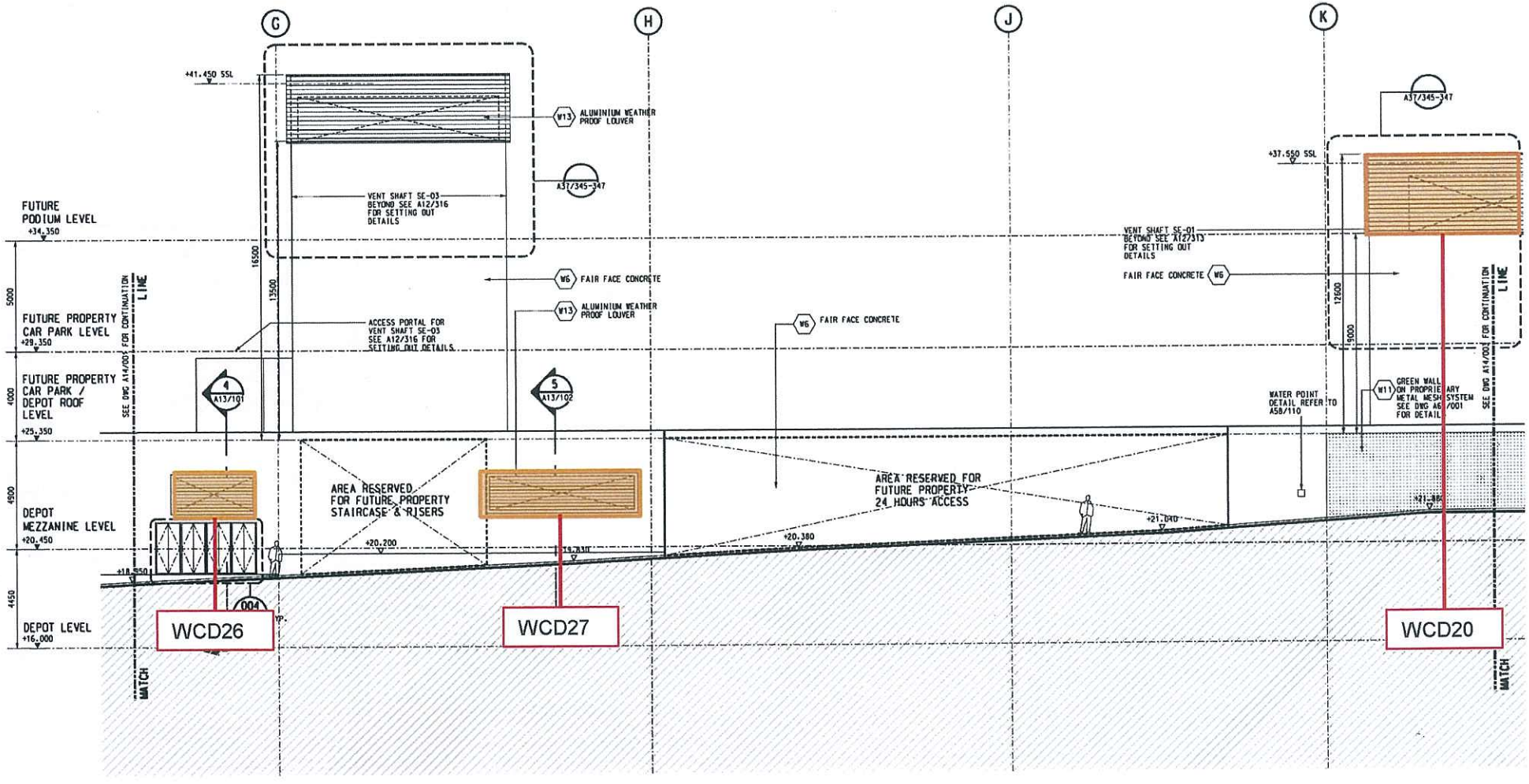
Annex A1e-9

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

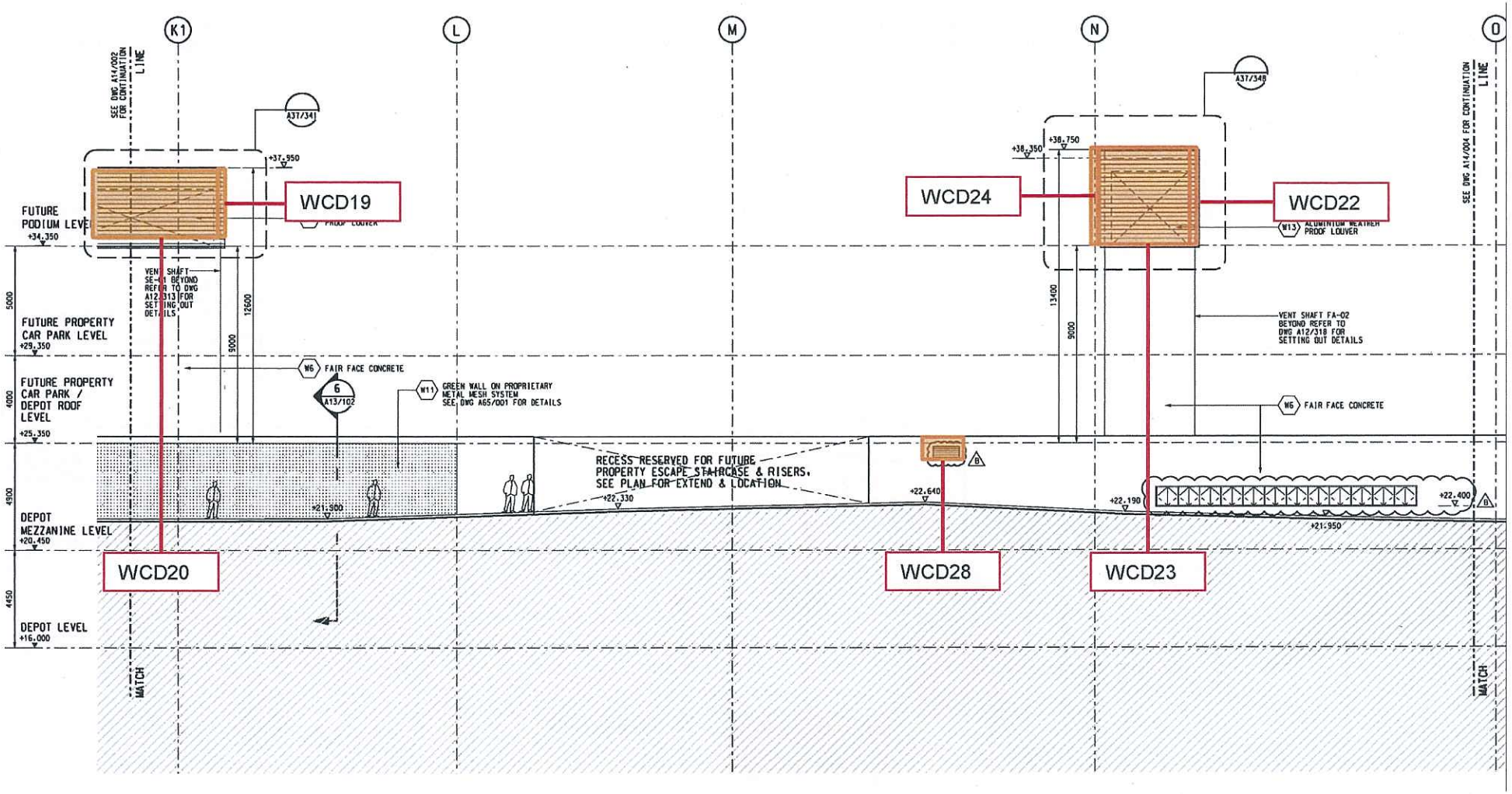
Annex A1e-10

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

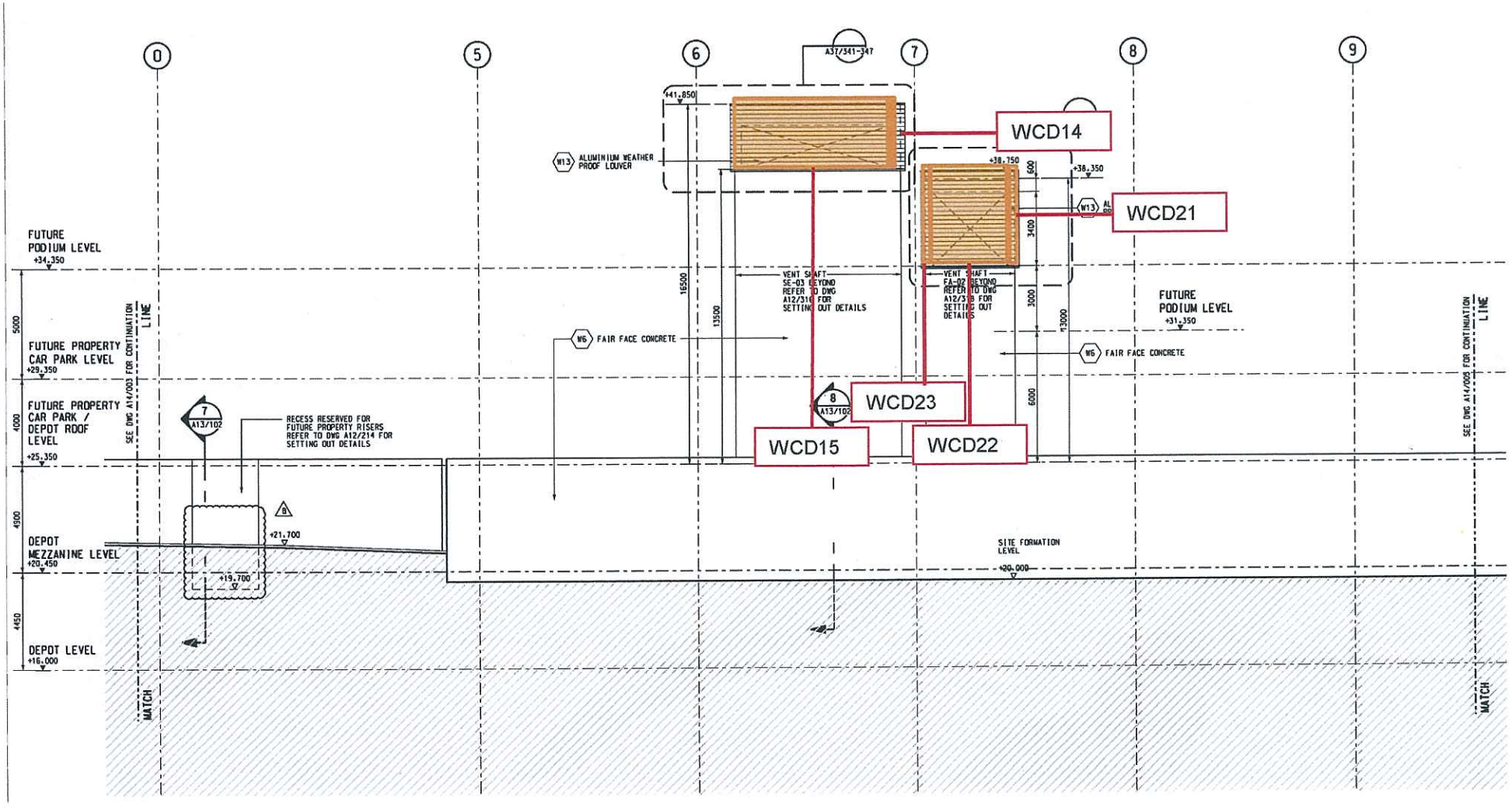
Annex A1e-11

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

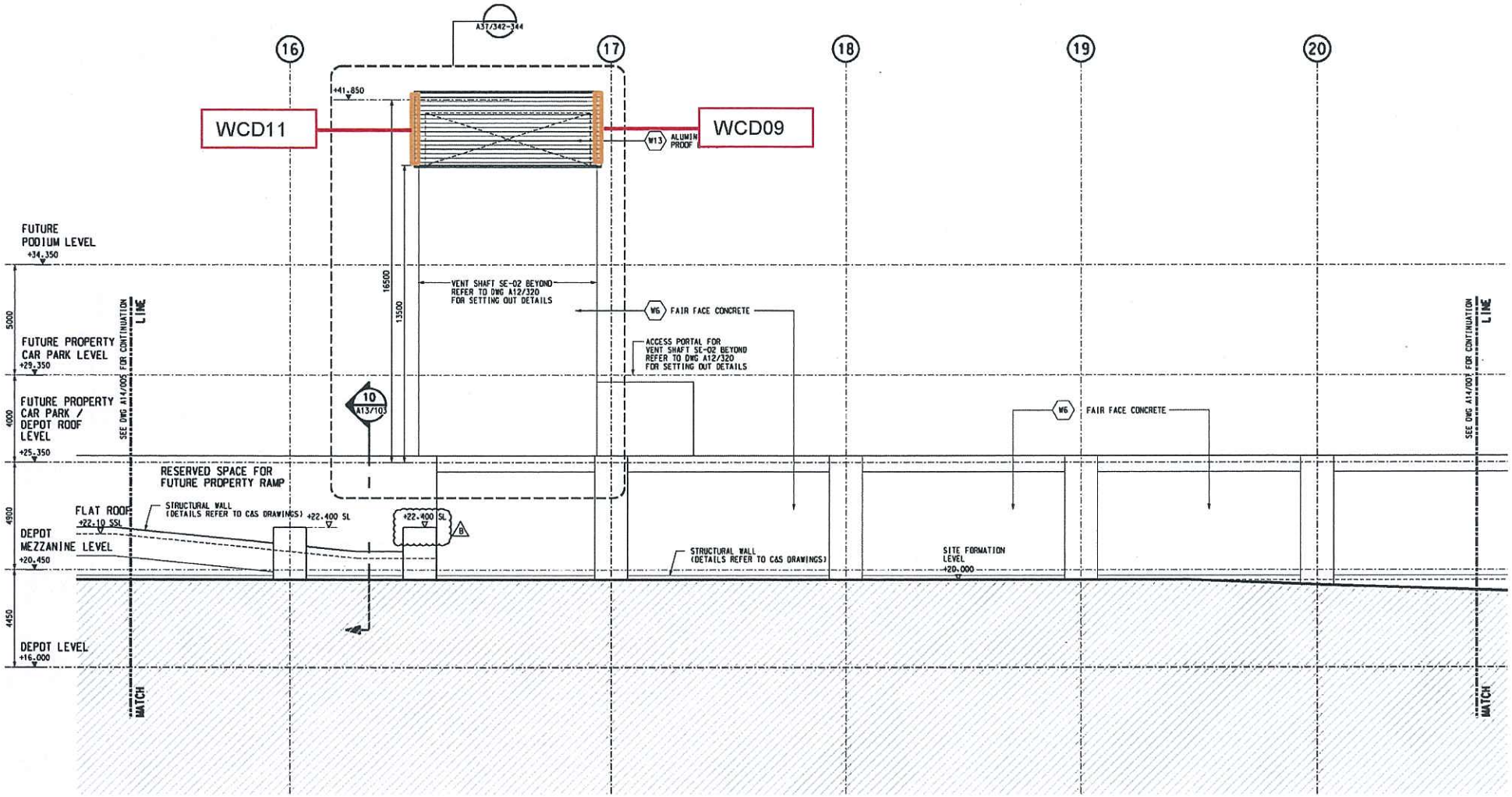
Annex A1e-12

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

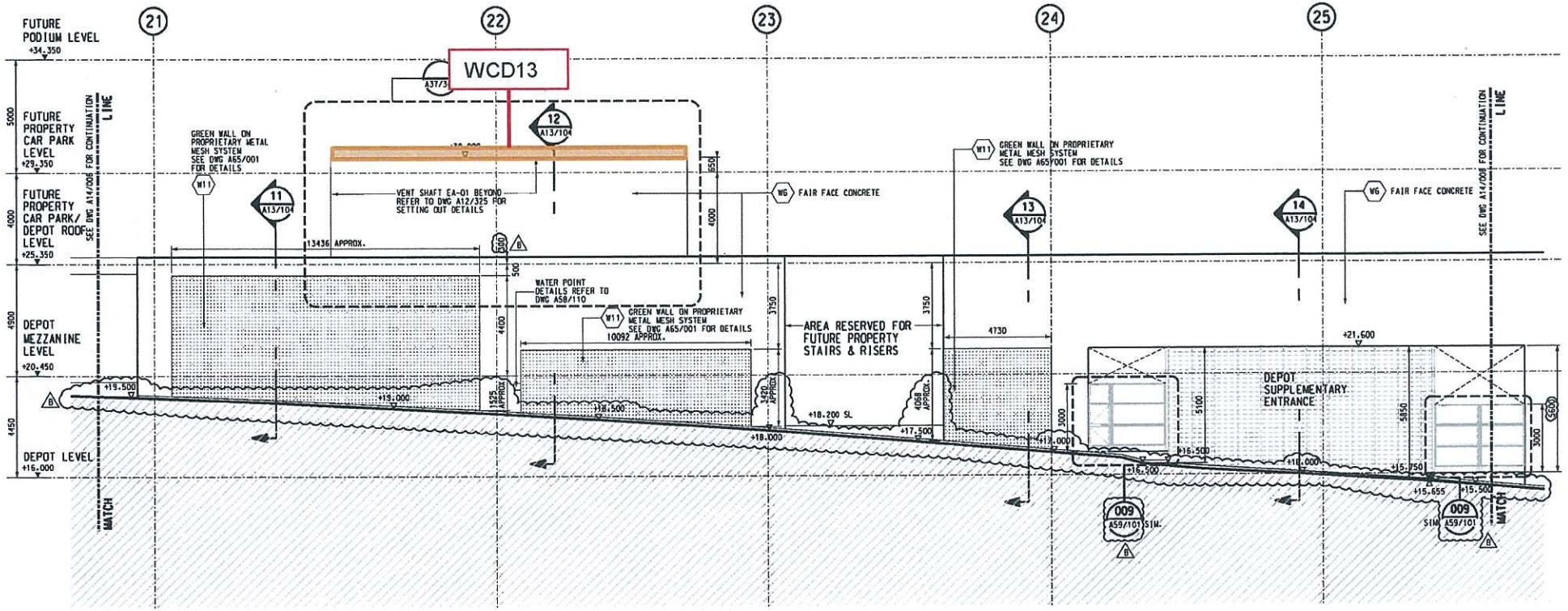
Annex A1e-13

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

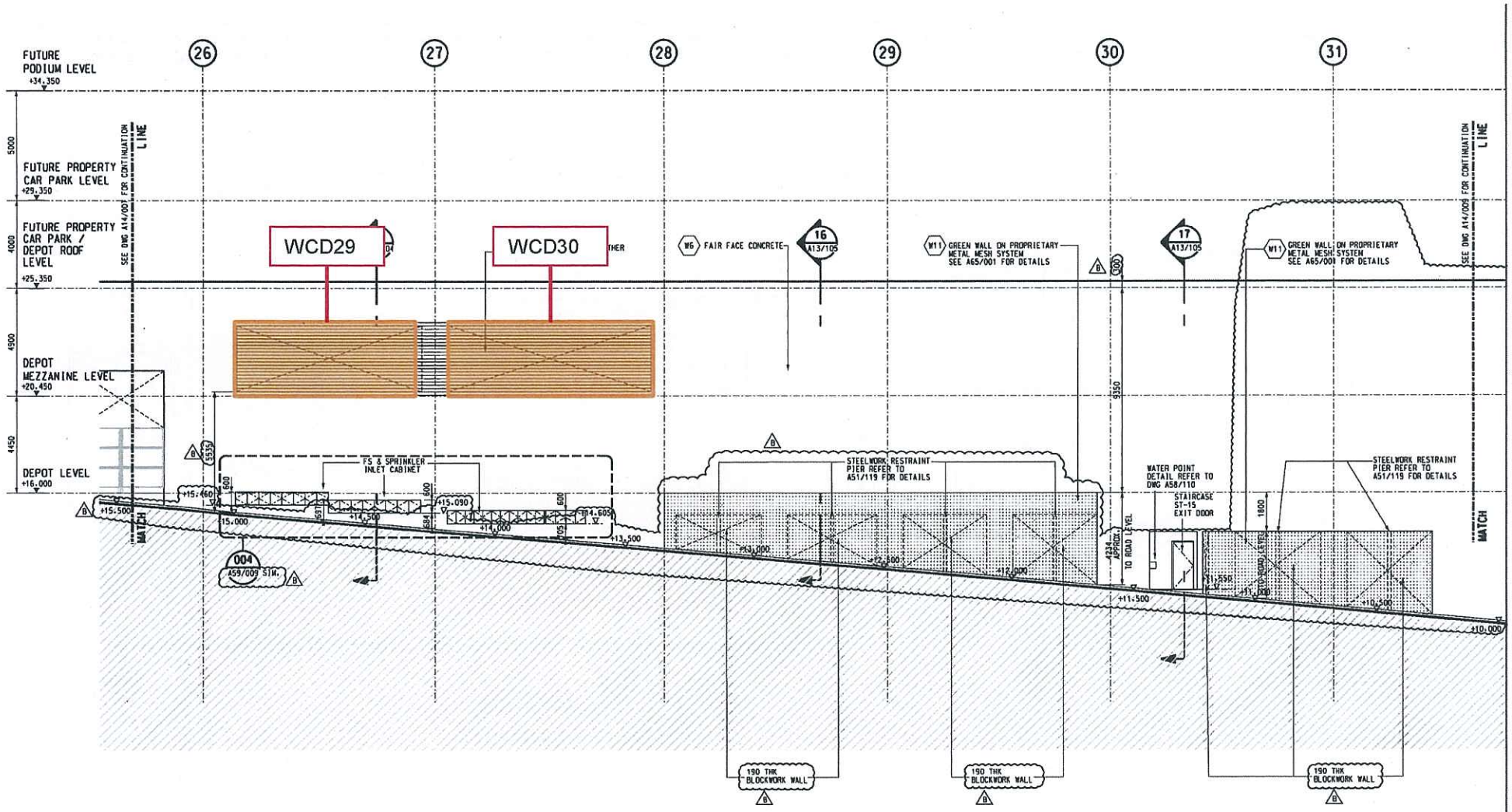
Annex A1e-14

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

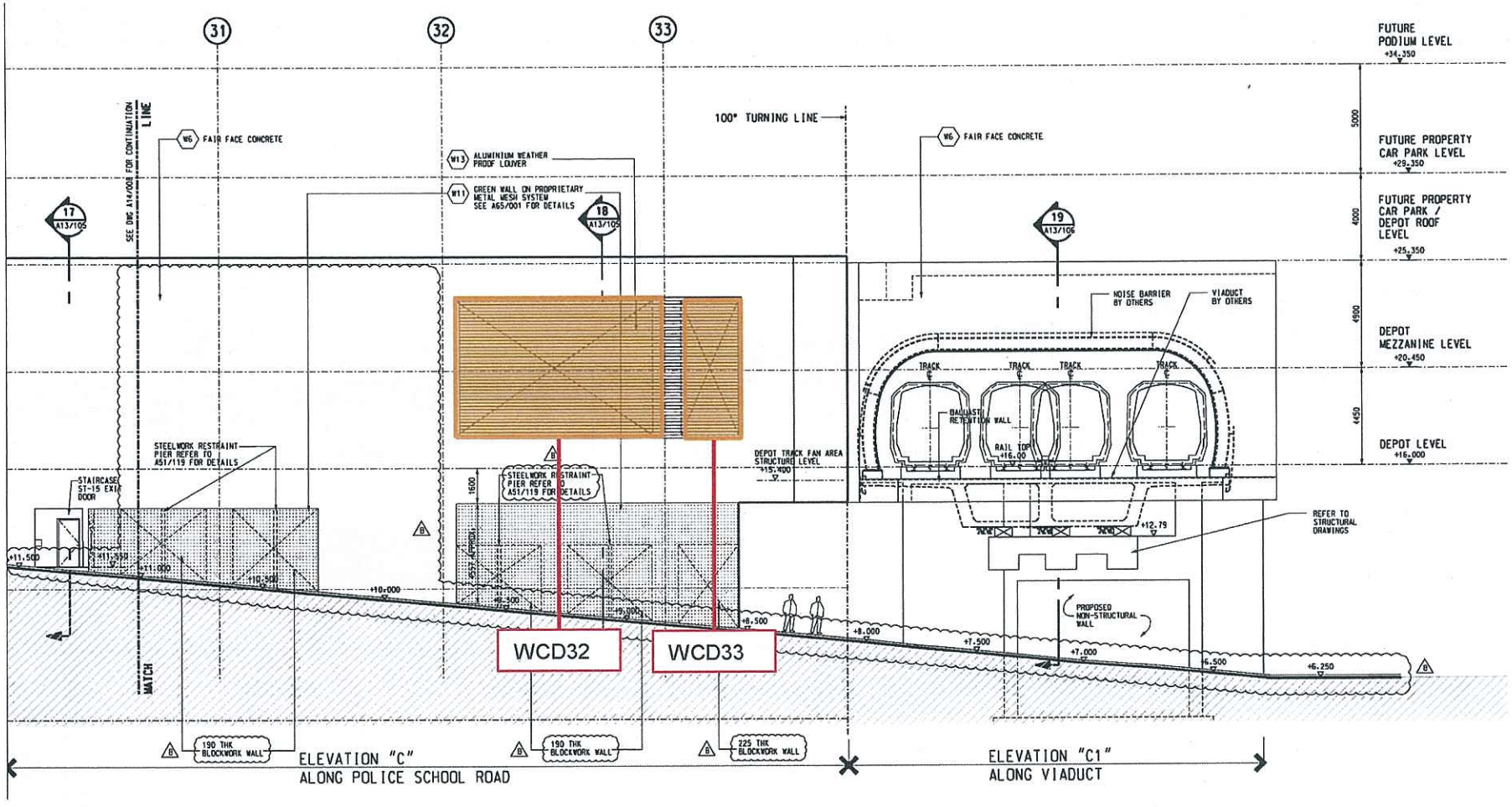
Annex A1e-15

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

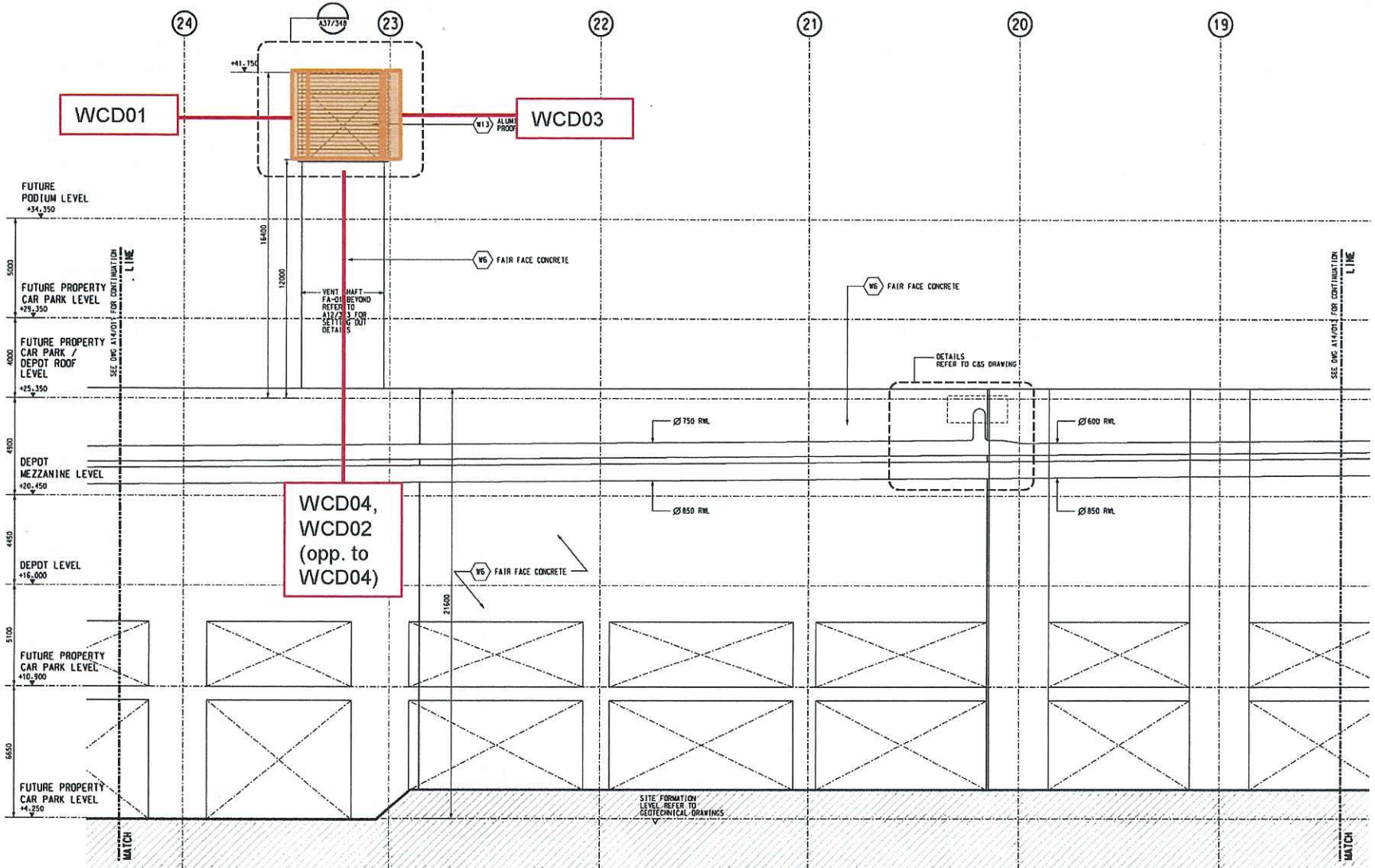
Annex A1e-16

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex:

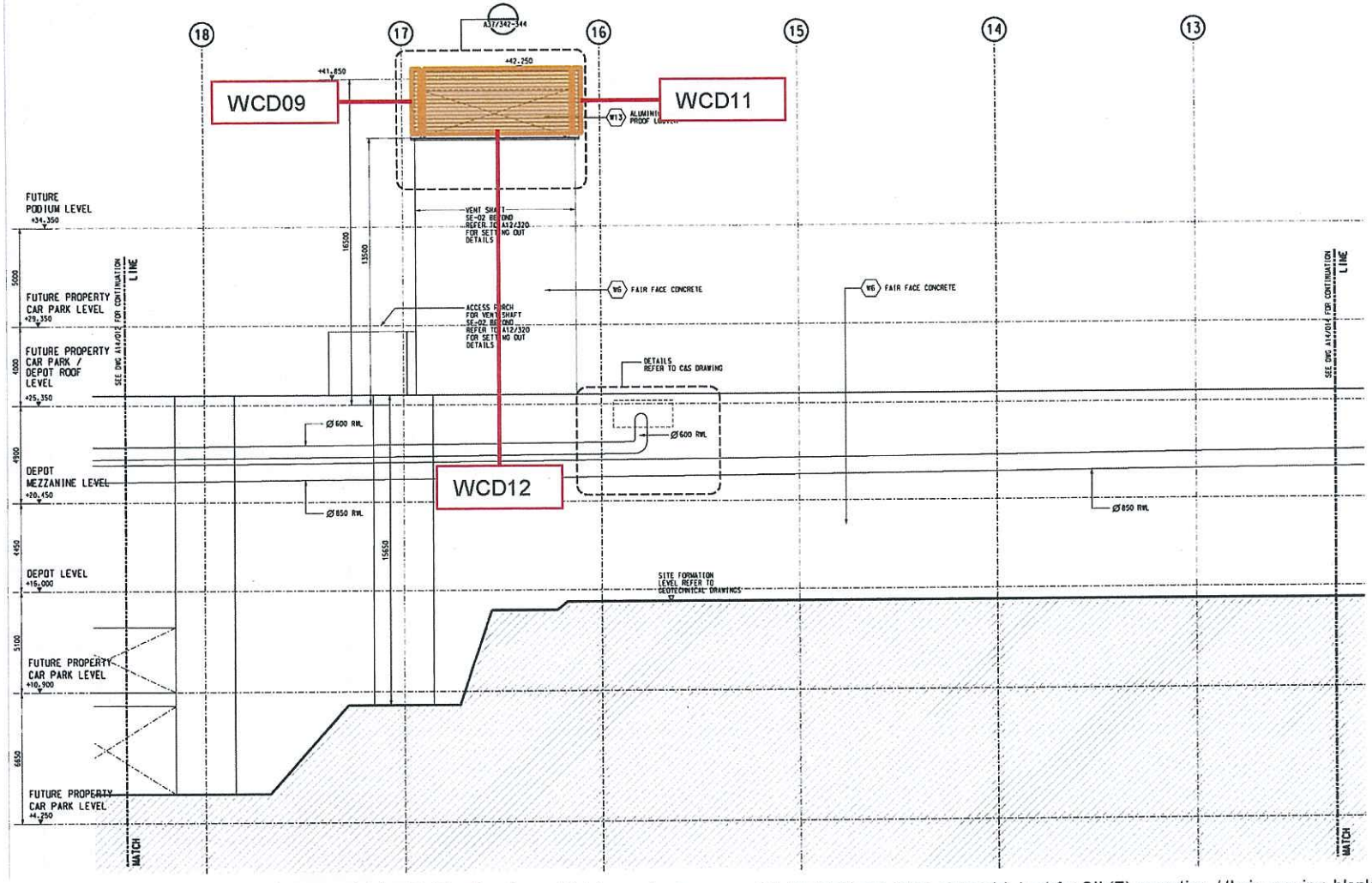
Annex A1e-17

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

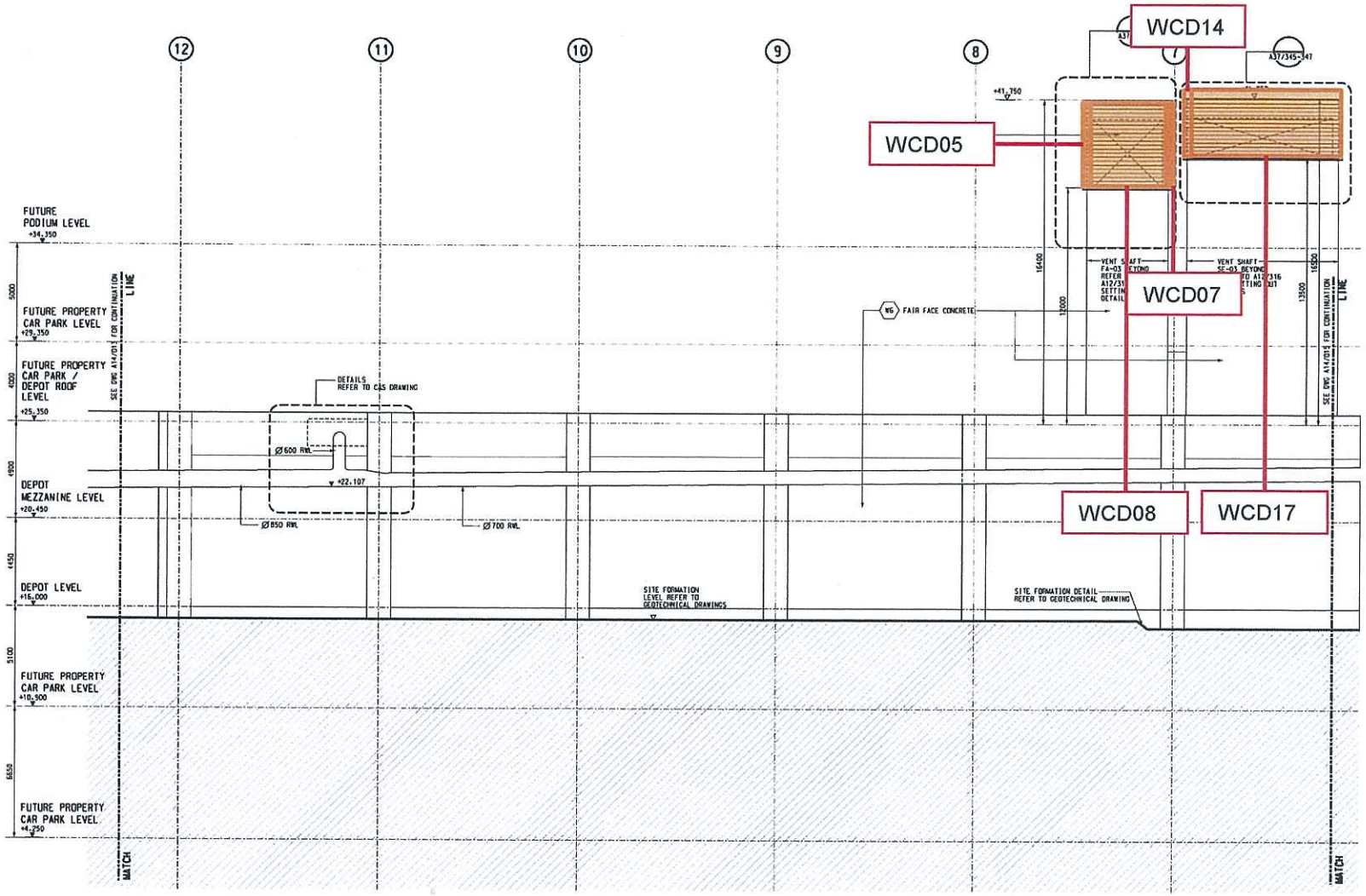
Annex A1e-18

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

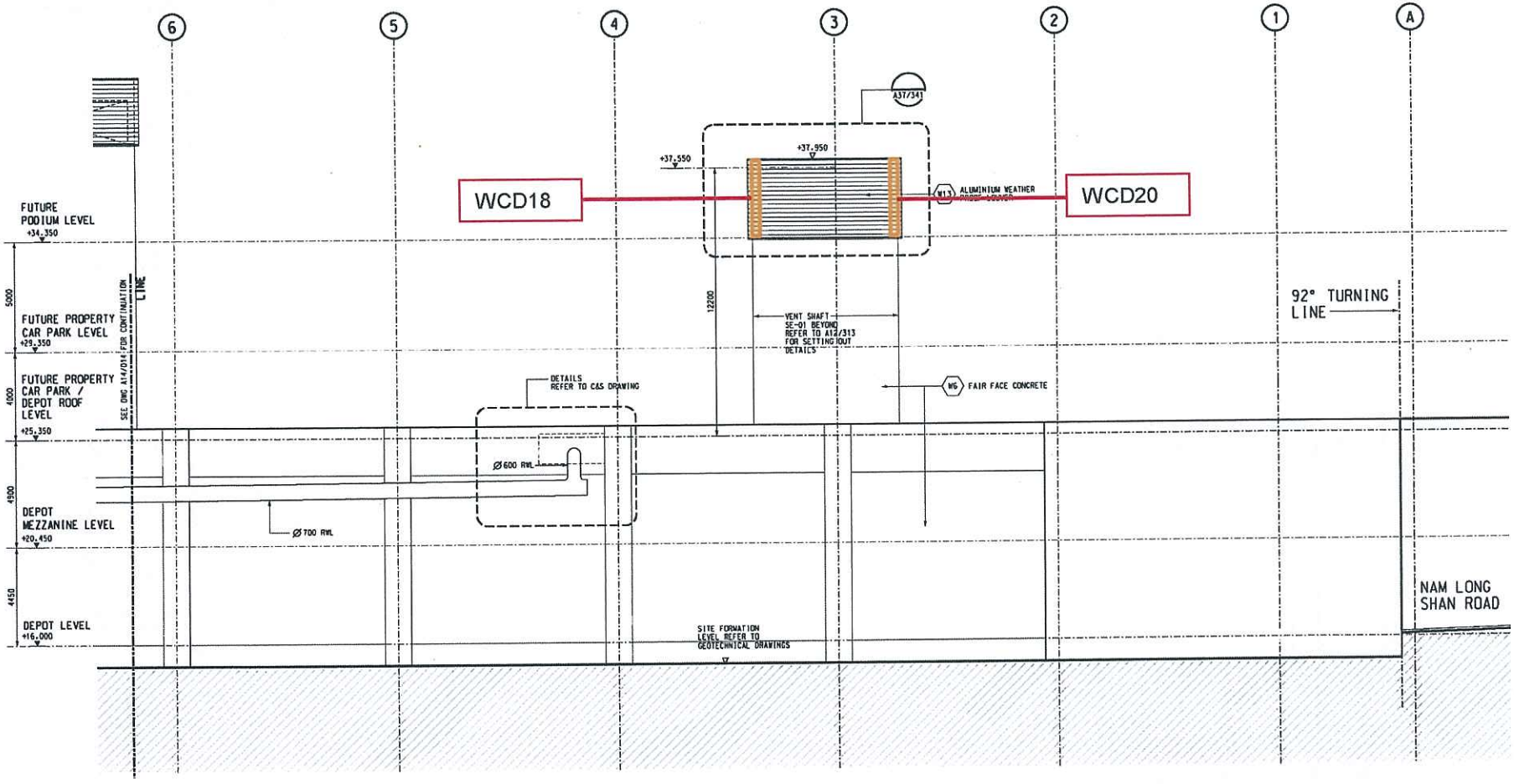
Annex A1e-19

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

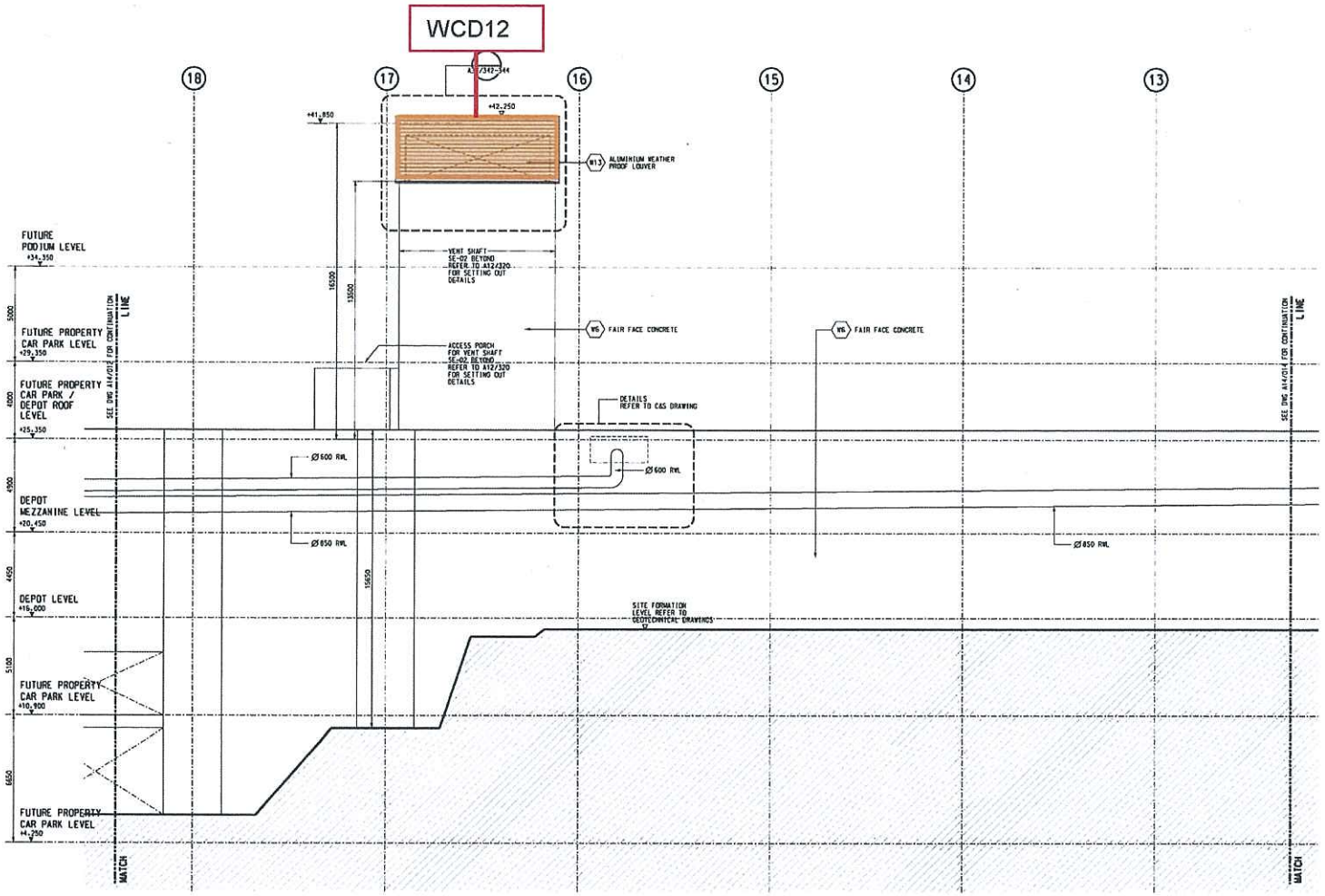
Annex A1e-20

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1e-21

Updated Elevation, Section, Layout Plans of Louvers and other Fixed Sources at WCH & WCD

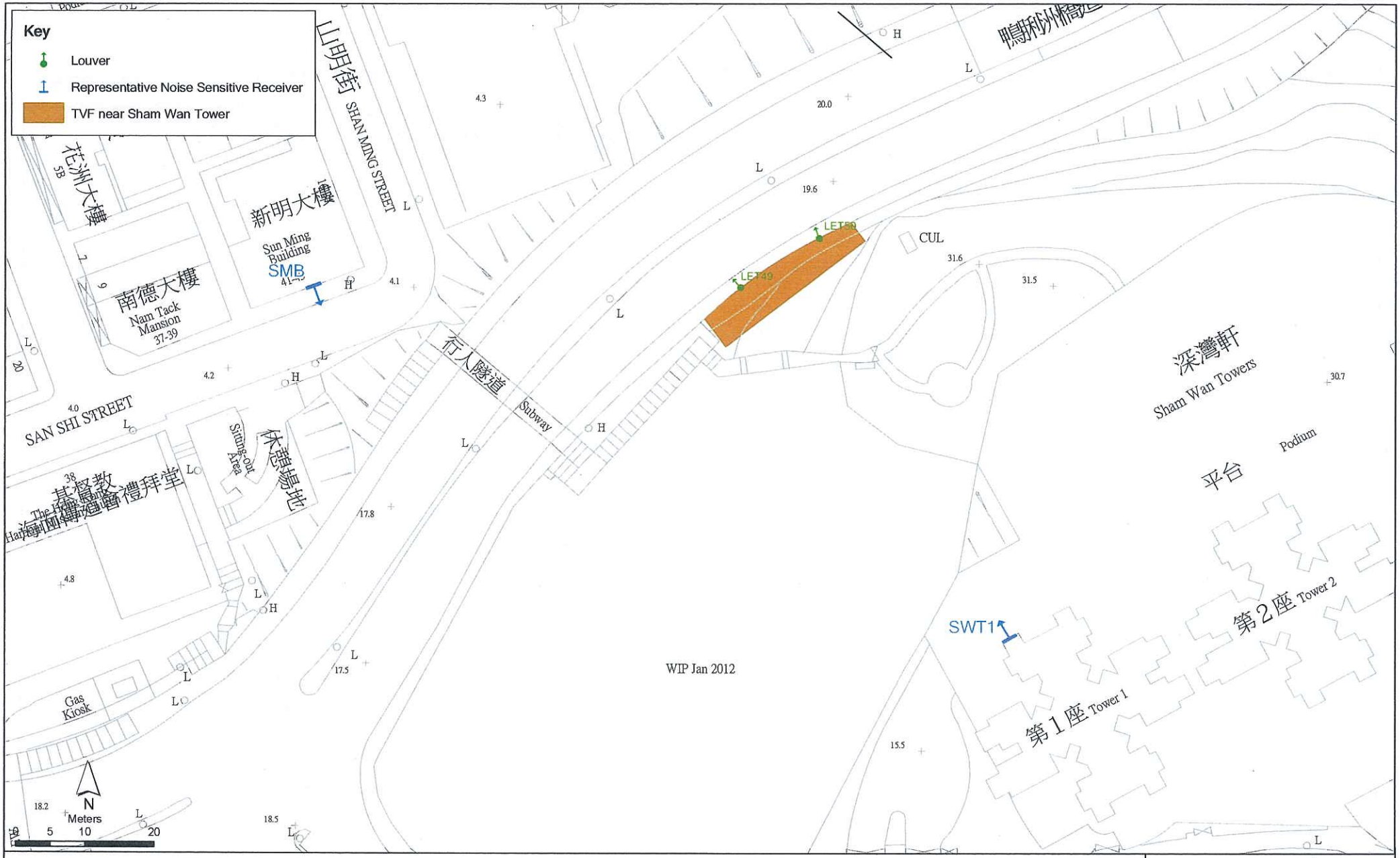
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1f

Updated Layout and Section Plans of Fixed Sources (LET-TVF)



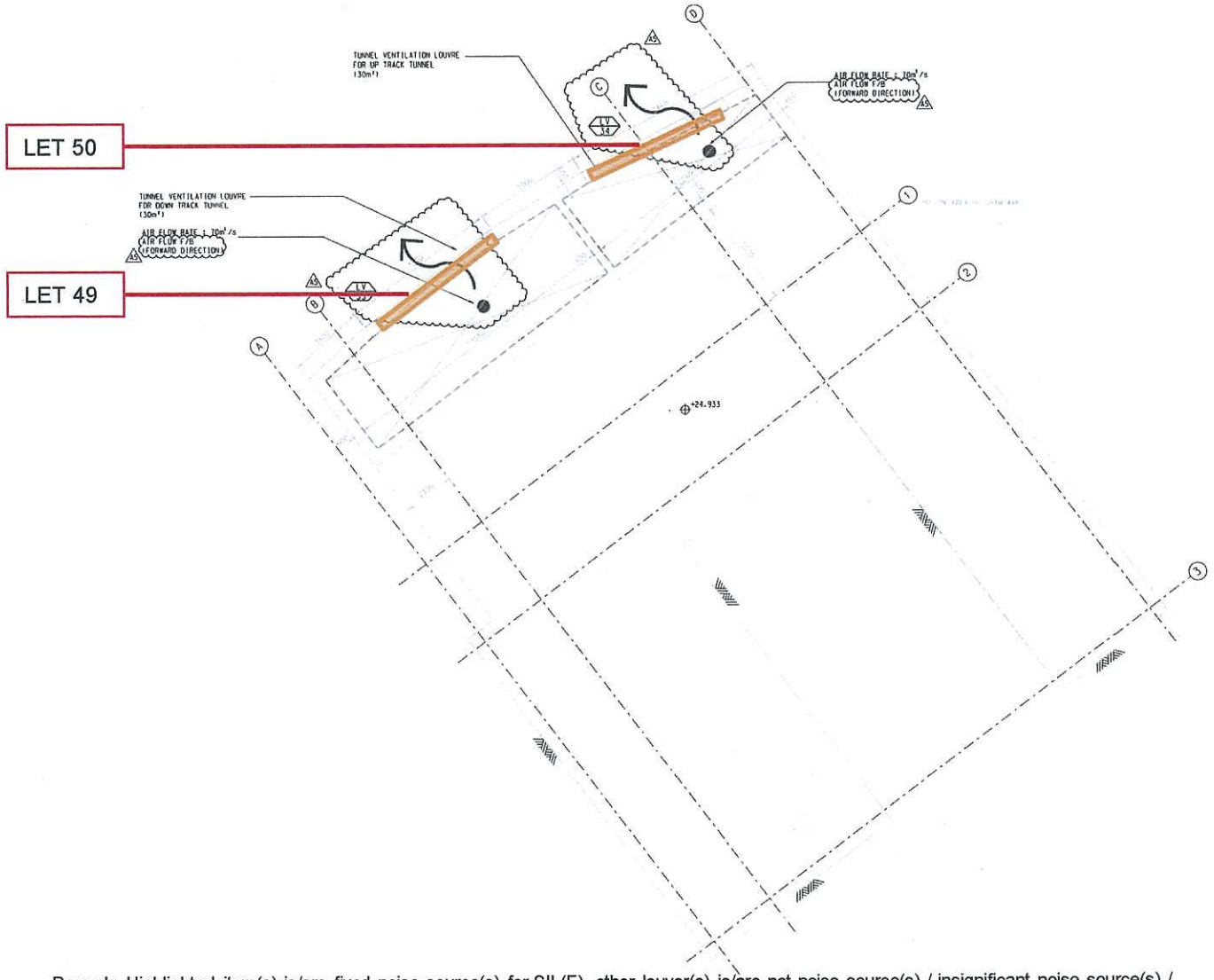
Annex A1f-1

Updated Layout Plan of Fixed Sources at LET-TVF

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_LET_TVF.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1f-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET-TVF

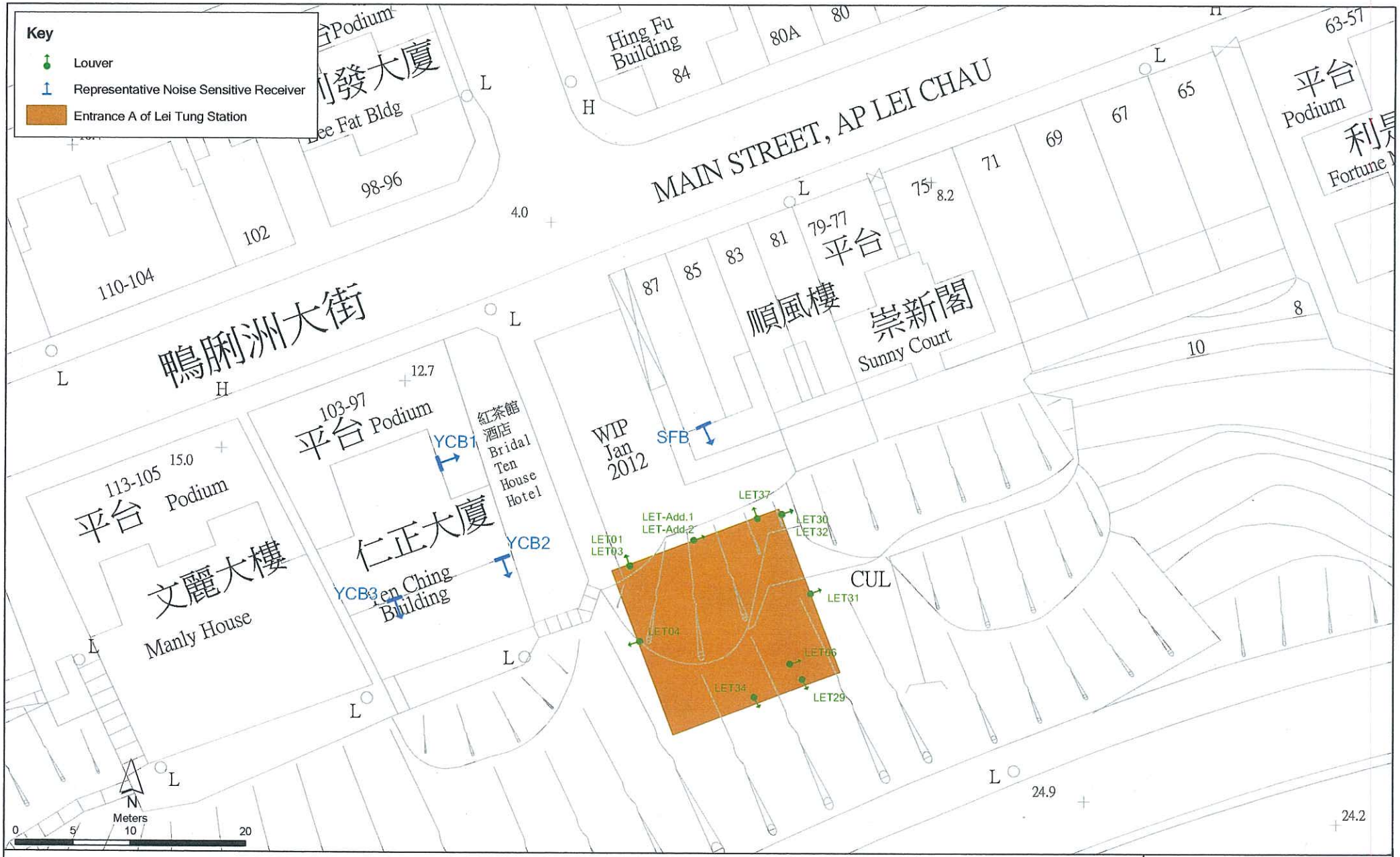
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1g

Updated Layout and Section Plans of Fixed Sources (LET-A)



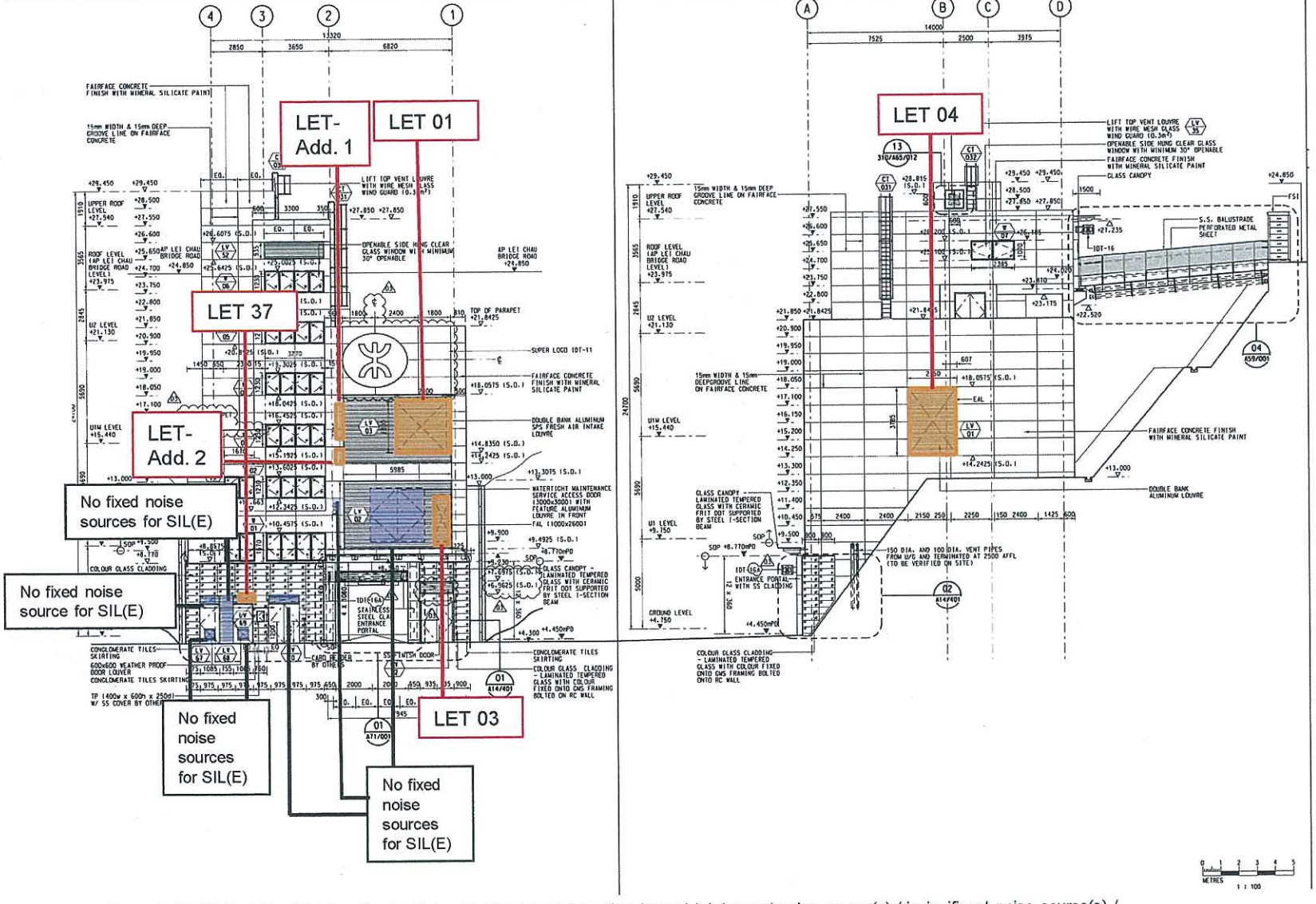
Annex A1g-1

Updated Layout Plan of Fixed Sources at LET-A

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_LET_A.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

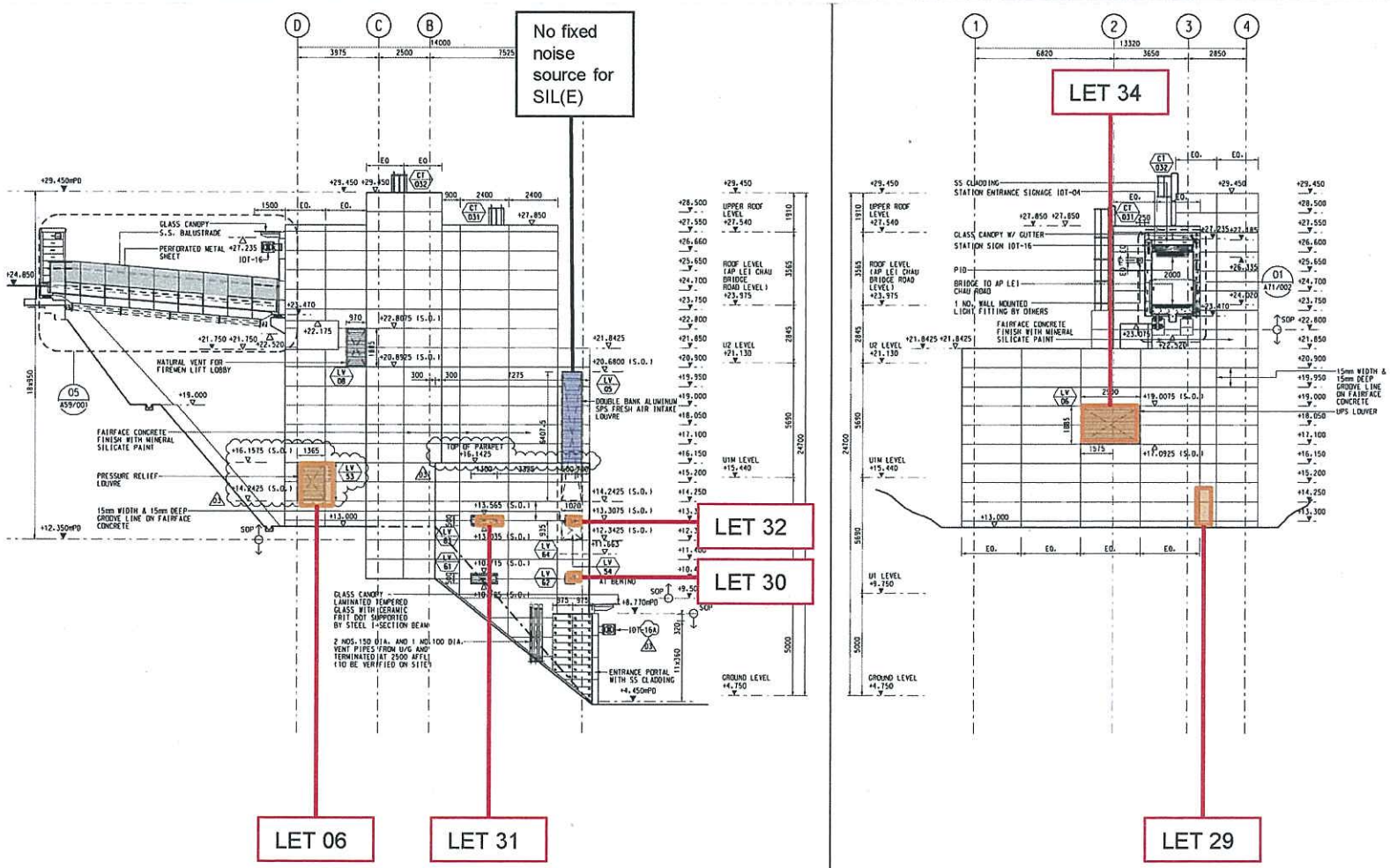
Annex A1g-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET A

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1g-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET A

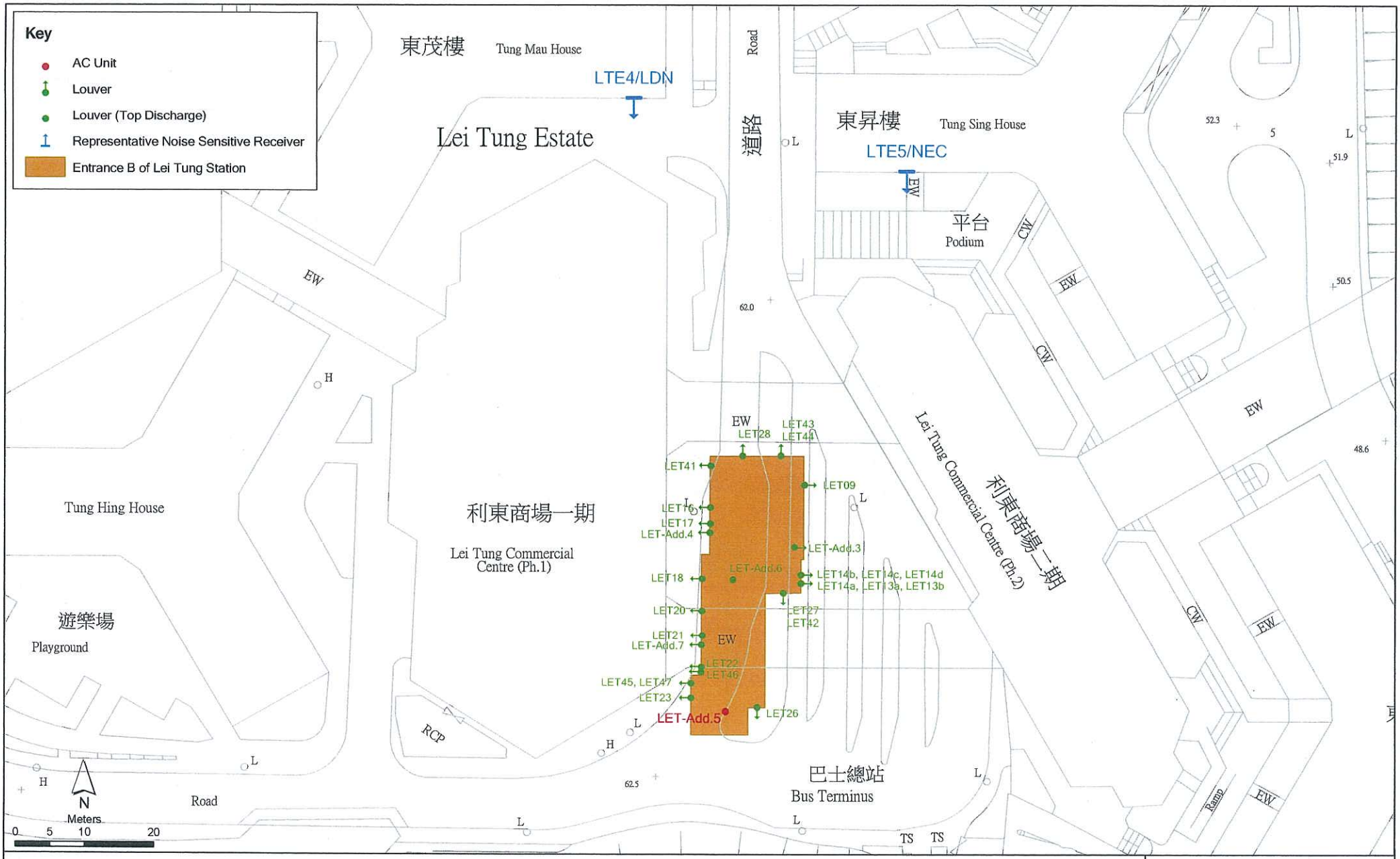
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1h

Updated Layout and Section Plans of Fixed Sources (LET-B)



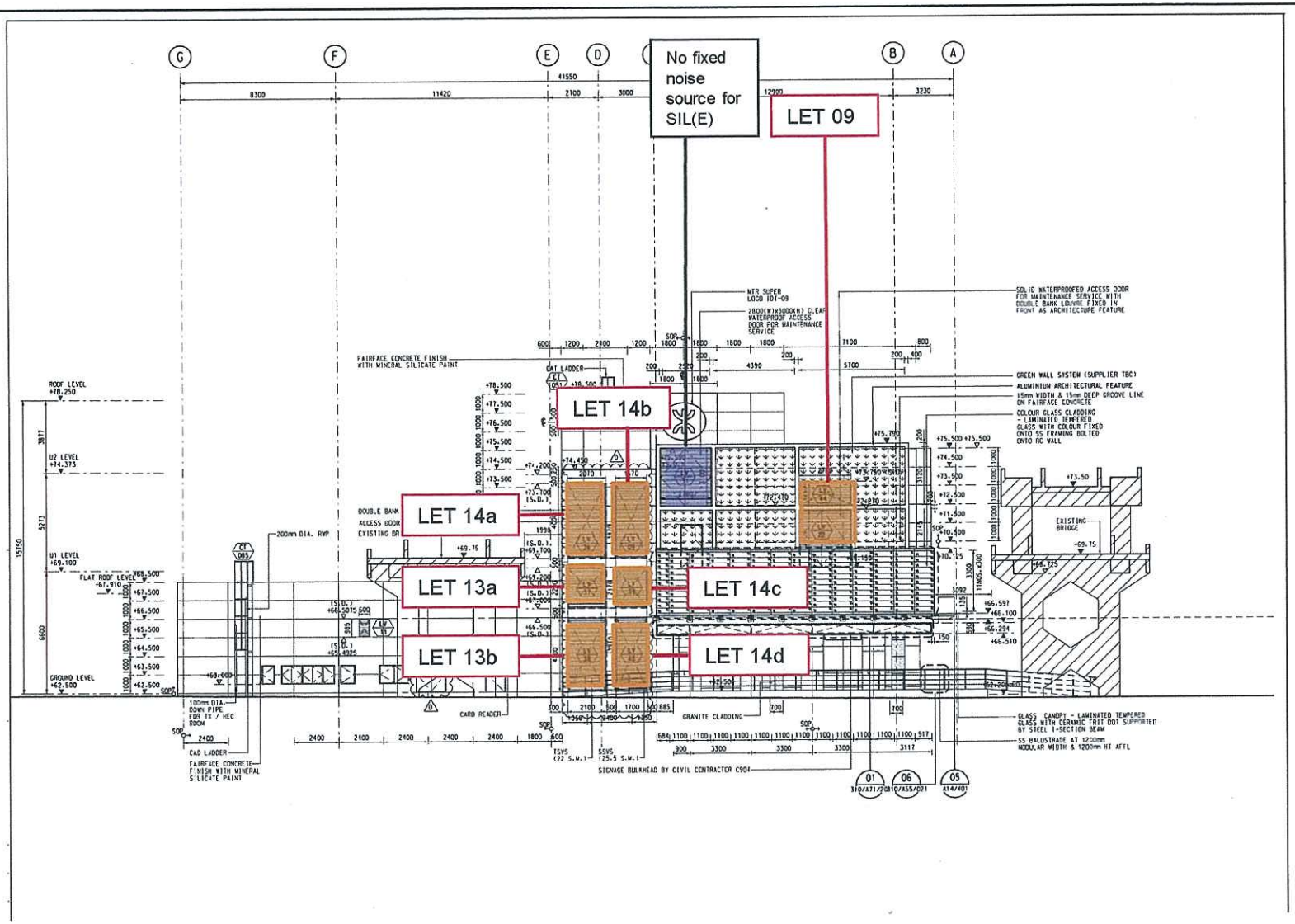
Annex A1h-1

Updated Layout Plan of Fixed Sources at LET-B

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_LET_B.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

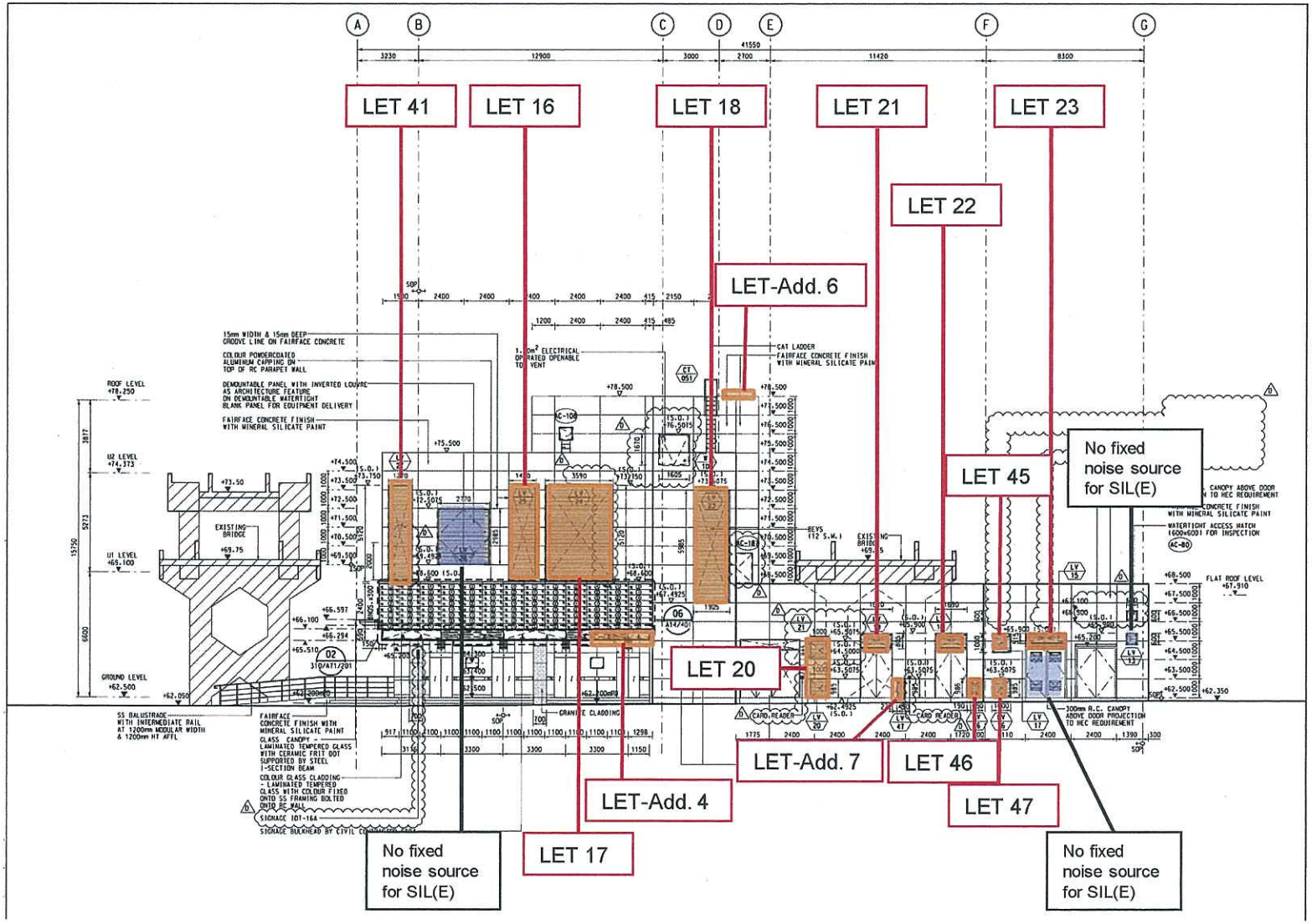
Annex A1h-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET B

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

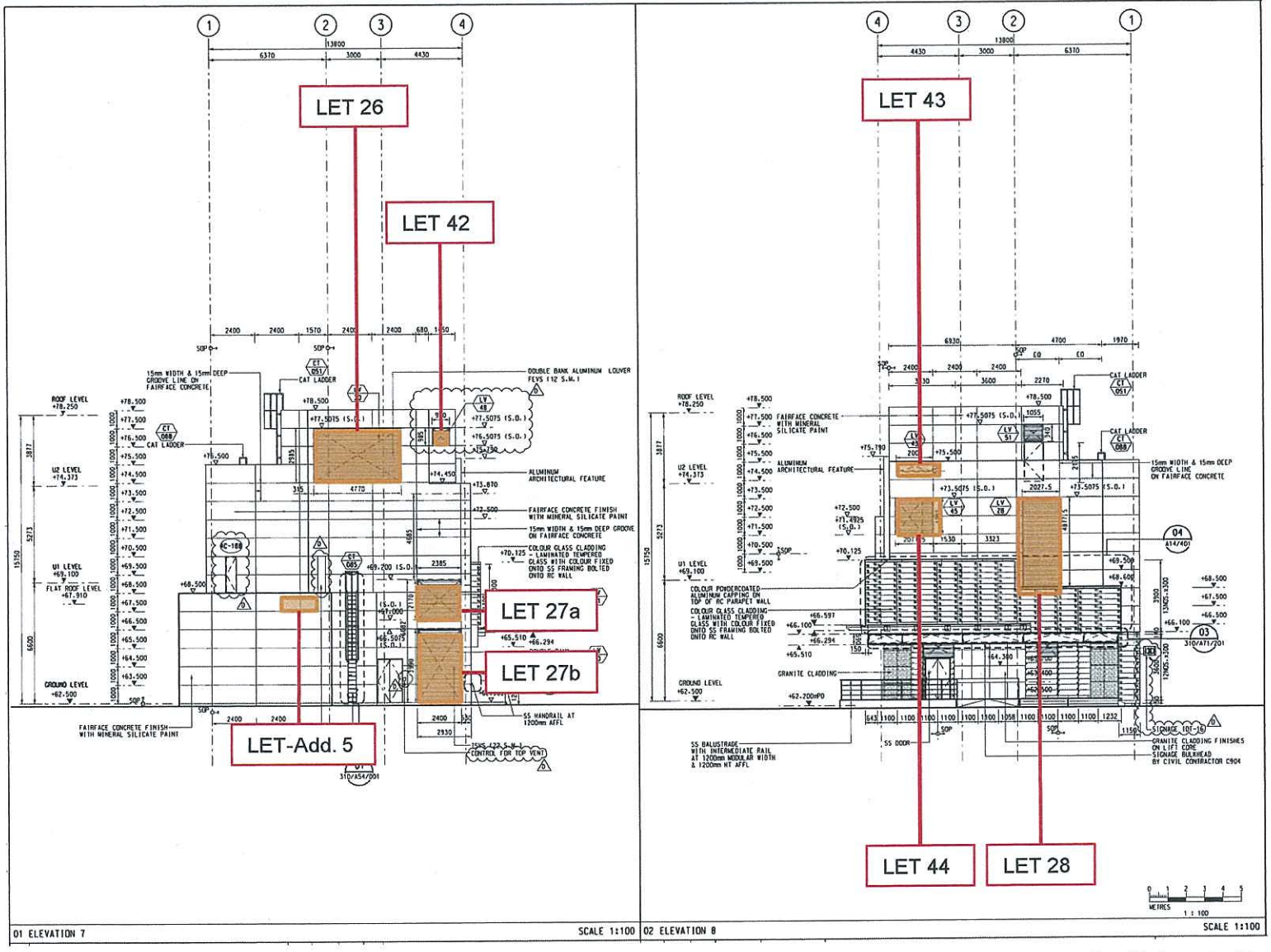
Annex A1h-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET B

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1h-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LET B

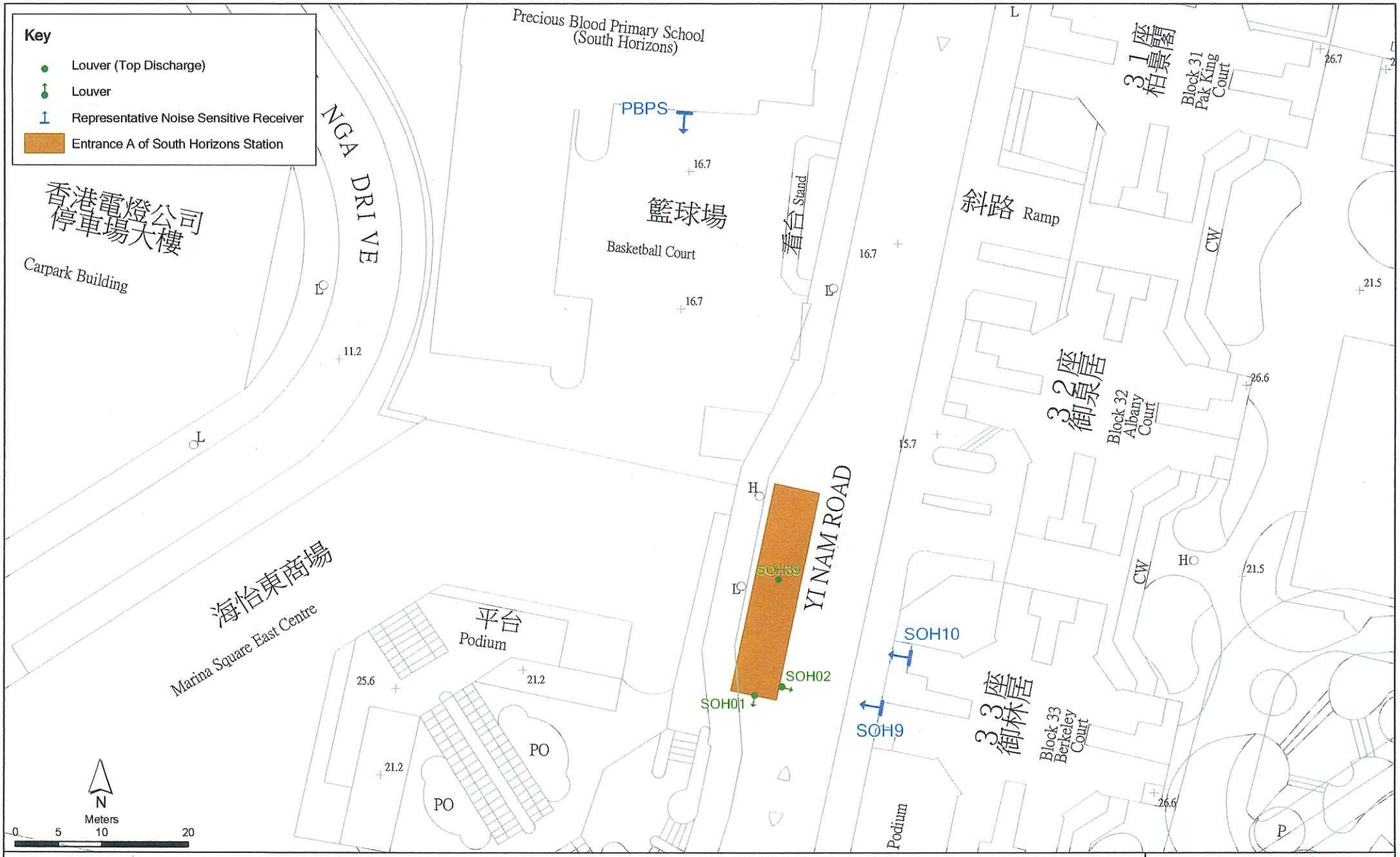
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1i

Updated Layout and Section Plans of Fixed Sources (SOH)



Annex A1i-1

Updated Layout Plan of Fixed Sources at SOH Entrance A

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_SOH_Entrance_A.mxd
Date: 20/10/2016

Environmental Resources Management

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Annex A1i-2

Updated Layout Plan of Fixed Sources at Entrance C of SOH

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_SOH_Entrance_C.mxd
Date: 20/10/2016

Environmental Resources Management

ERM

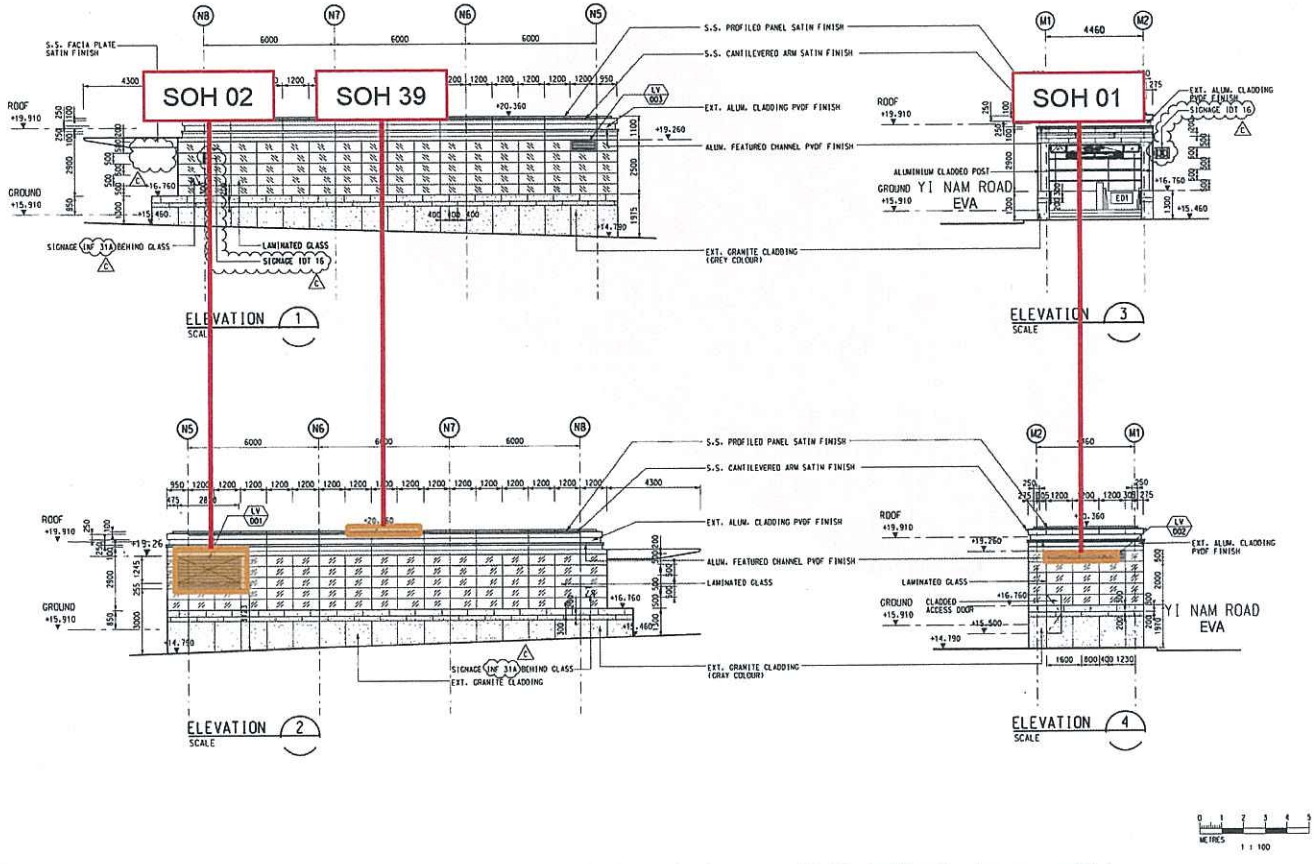
Annex A1i-3

Updated Layout Plan of Fixed Sources at SOH Plant Building

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_SOH_Plant_Building.mxd
Date: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

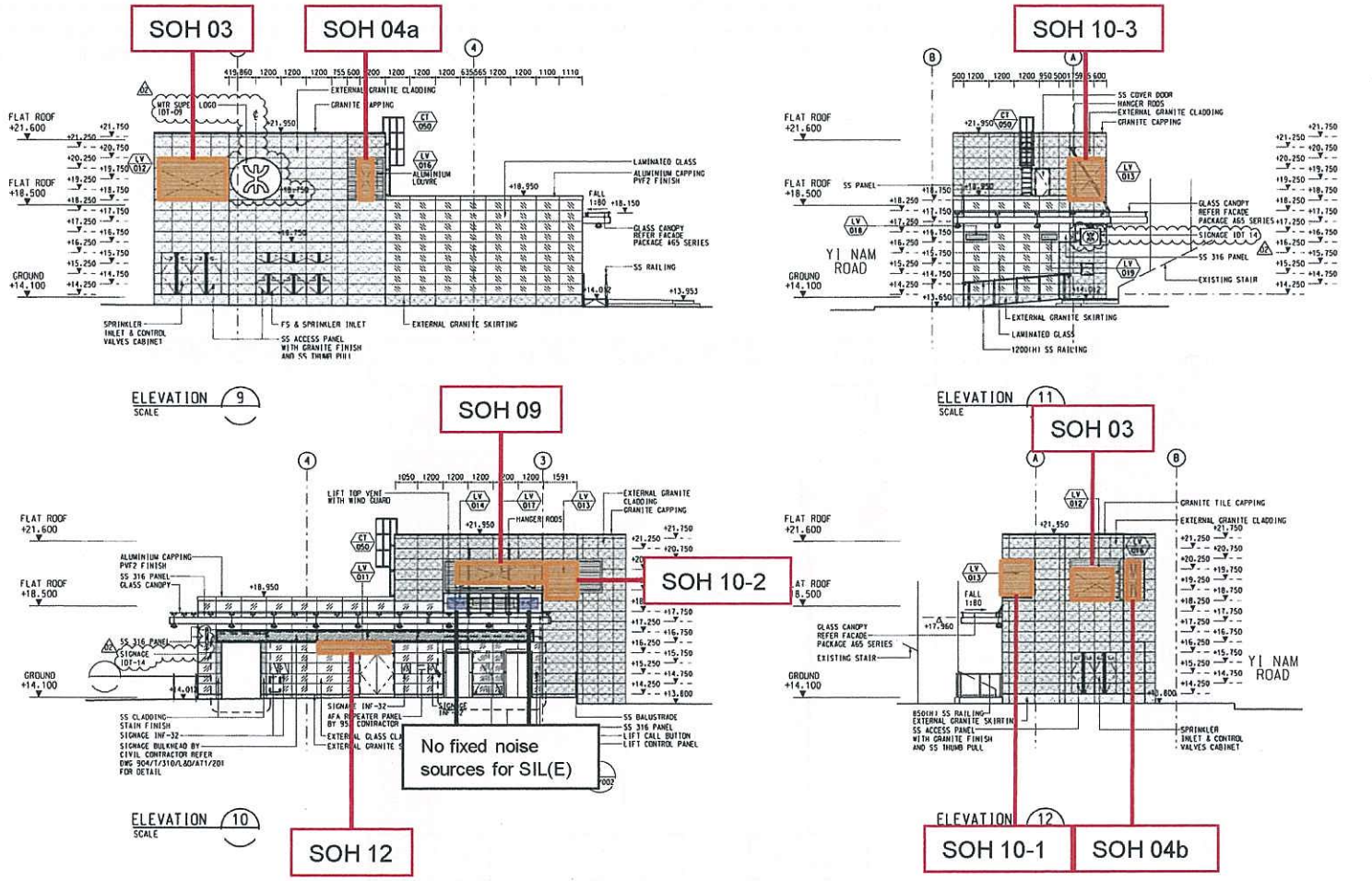
Annex A1i-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

METRES 0 1 2 3 4 5
1 : 100

Annex A1i-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

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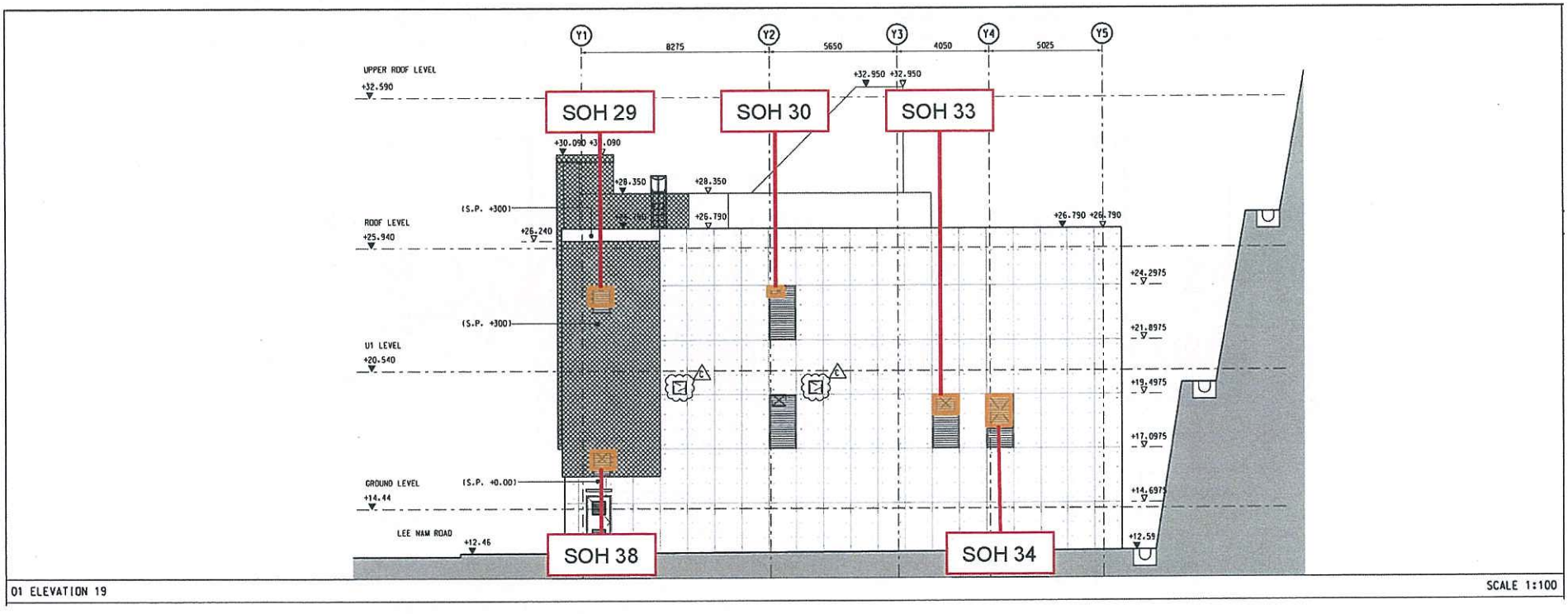

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1i-6

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

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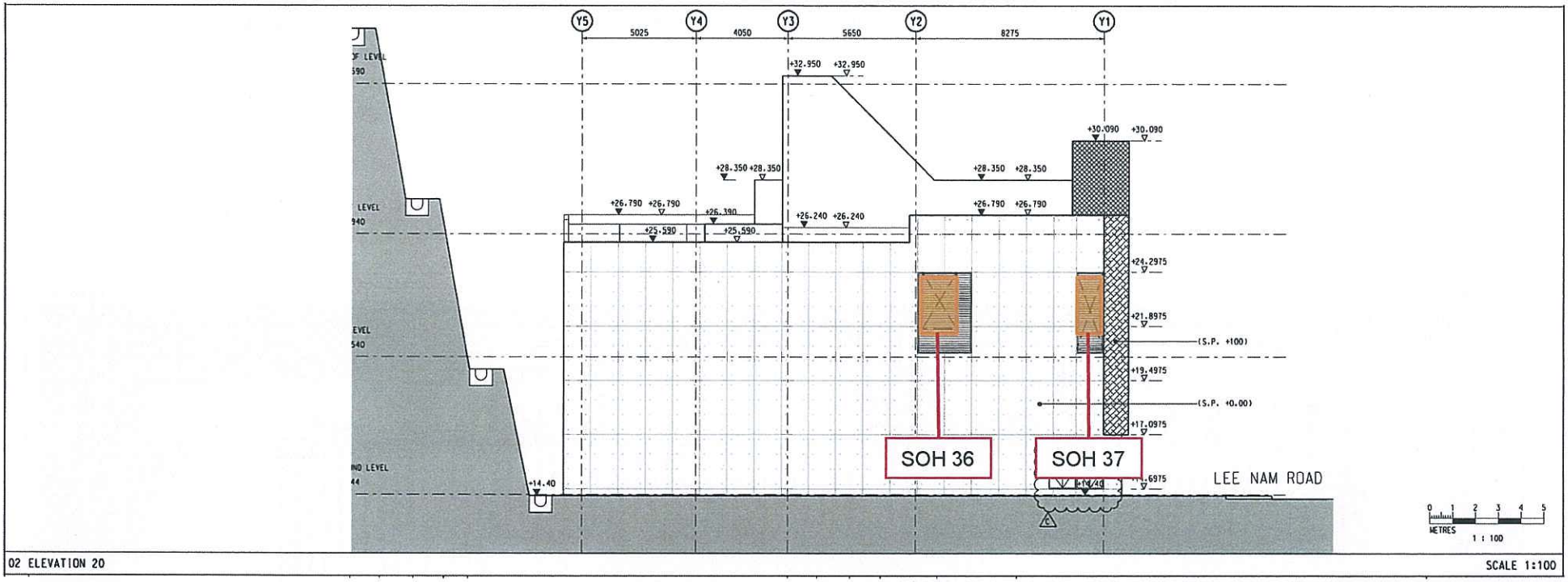


Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

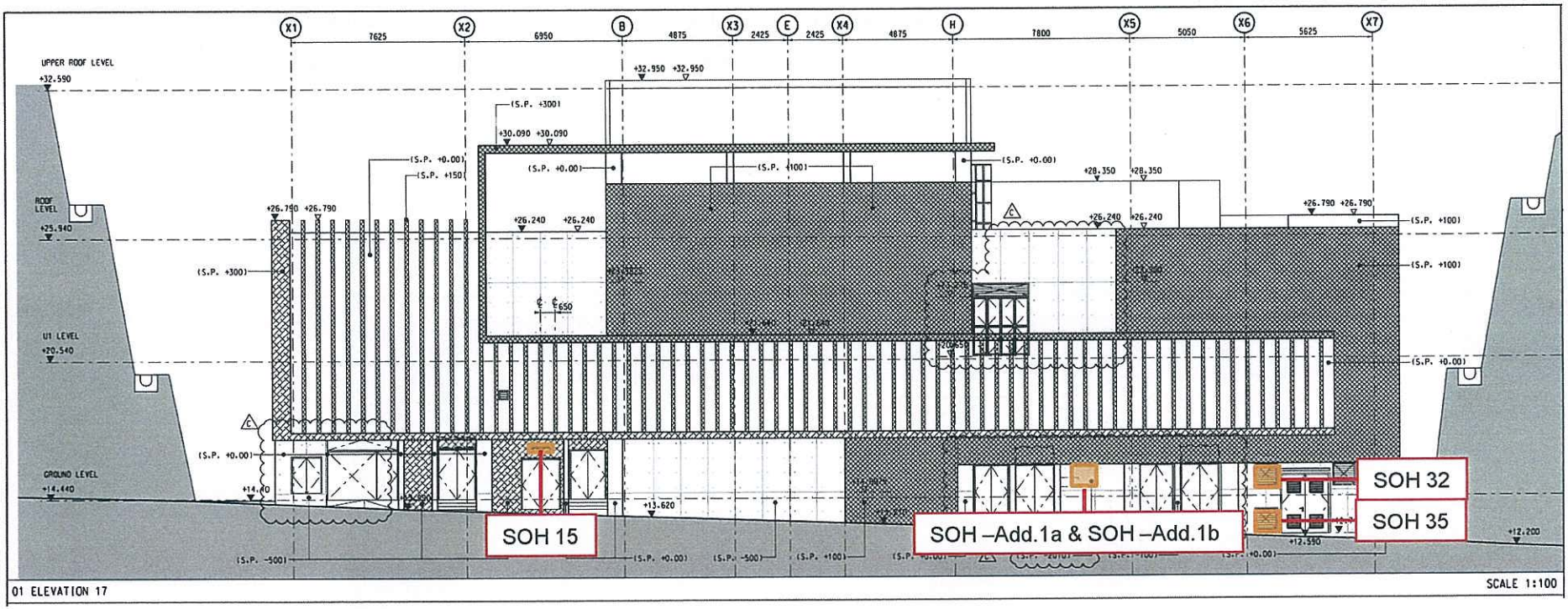
Annex A1i-7

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

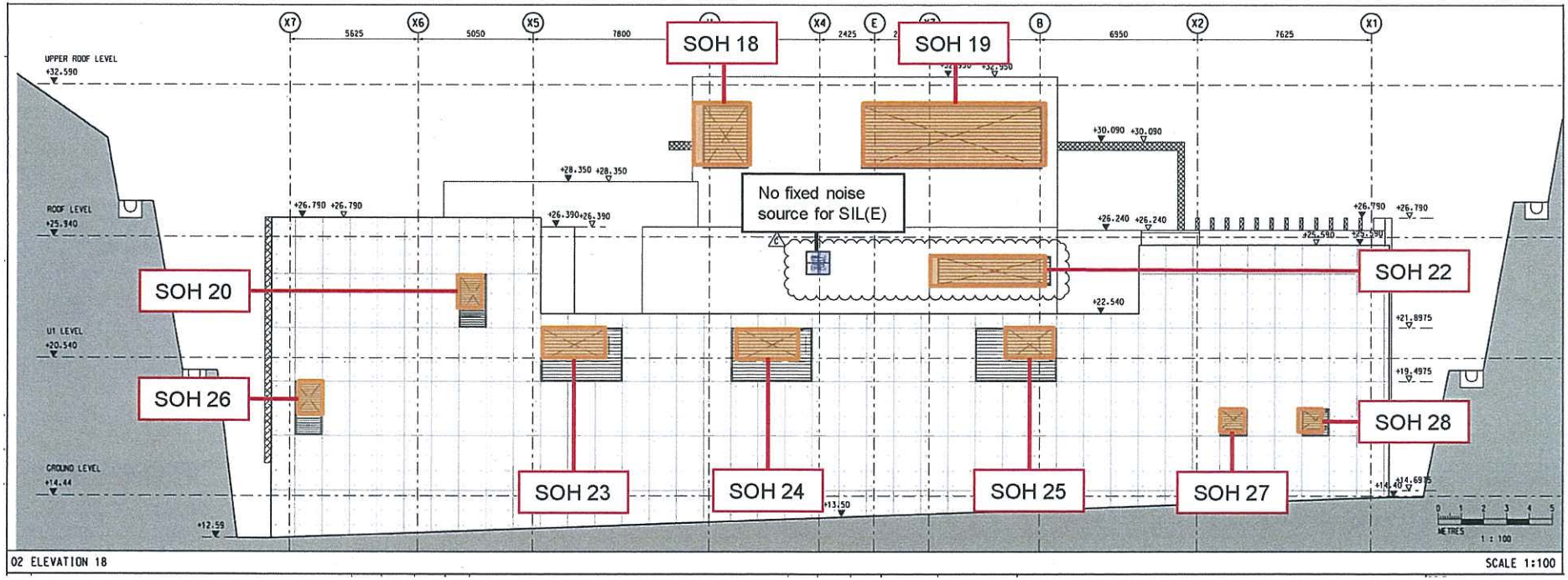
Annex A1i-8

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

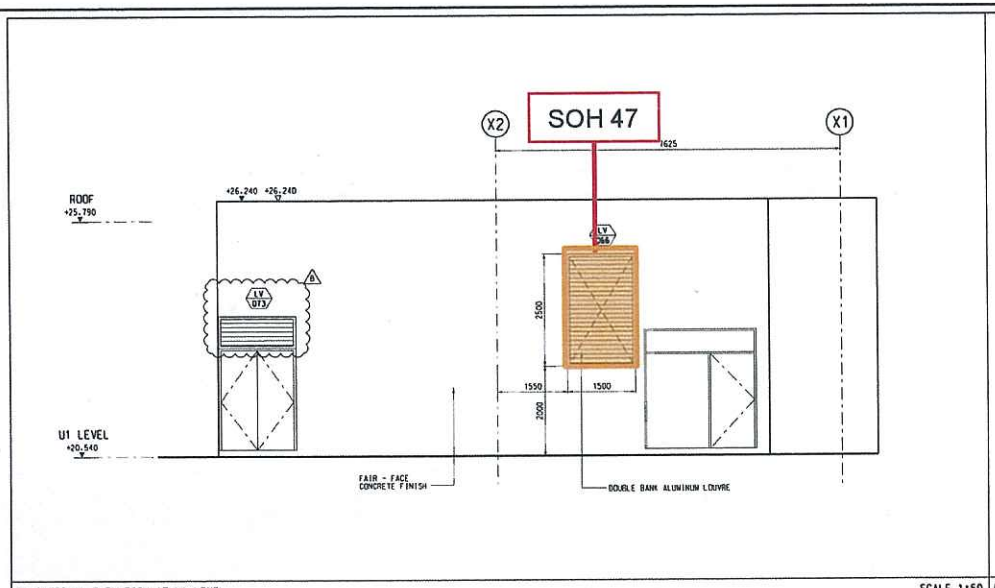
Annex A1i-9

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

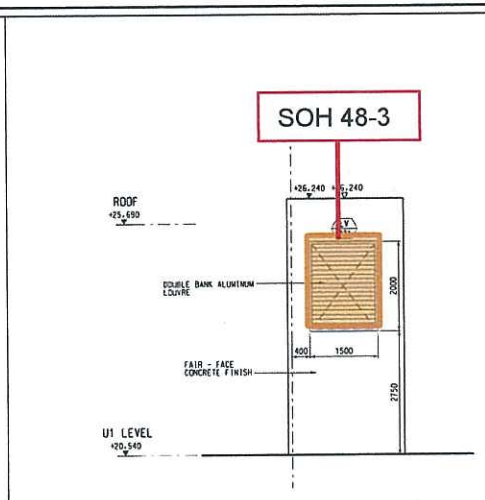
DATE: 20/10/2016

Environmental Resources Management

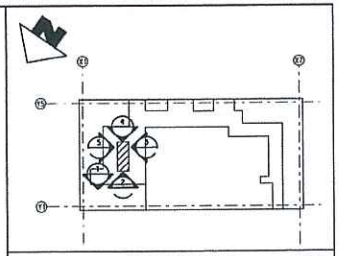
ERM



01 INTERNAL ELEVATION AT U1 LEVEL SCALE 1:50



02 INTERNAL ELEVATION AT U1 LEVEL SCALE 1:50

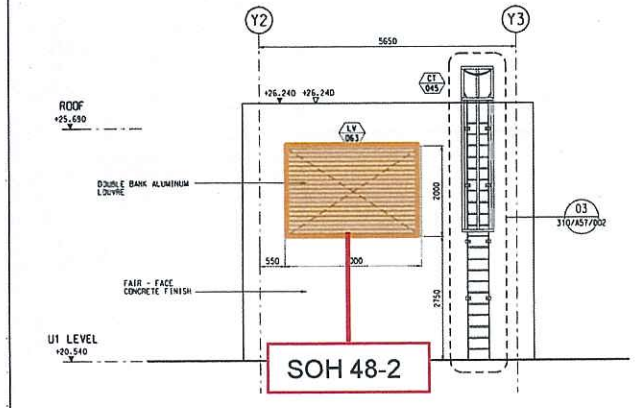


NOTE :

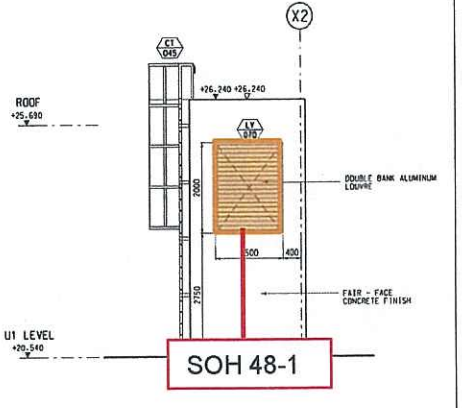
01. REFER TO LEGENDS & SYMBOLS DRAWING 904/M/310/LED/A10/010

02. UNLESS OTHERWISE SPECIFIED, ALL EXTERNAL WALL ARE OFF-FORM CONCRETE OFF-FORM CONCRETE FORMWORK TYPE F5 FAIR-FACE FINISH PAINTED EDGE AND SOFFIT LIQUID WATERPROOF MEMBRANE TO TOP SURFACE FINISH : MINERAL SILICATE PAINT AS SPECIFIED COLOUR : RAL 7039 QUARTZ GREY

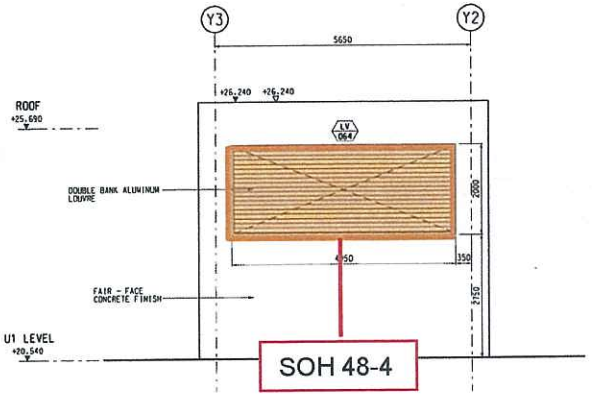
03. REFER TO 904/M/SCH/LED/A45 SERIES FOR LOUVRE SIZES.



03 INTERNAL ELEVATION AT U1 LEVEL SCALE 1:50



04 INTERNAL ELEVATION AT U1 LEVEL SCALE 1:50



05 INTERNAL ELEVATION AT U1 LEVEL SCALE 1:50

Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

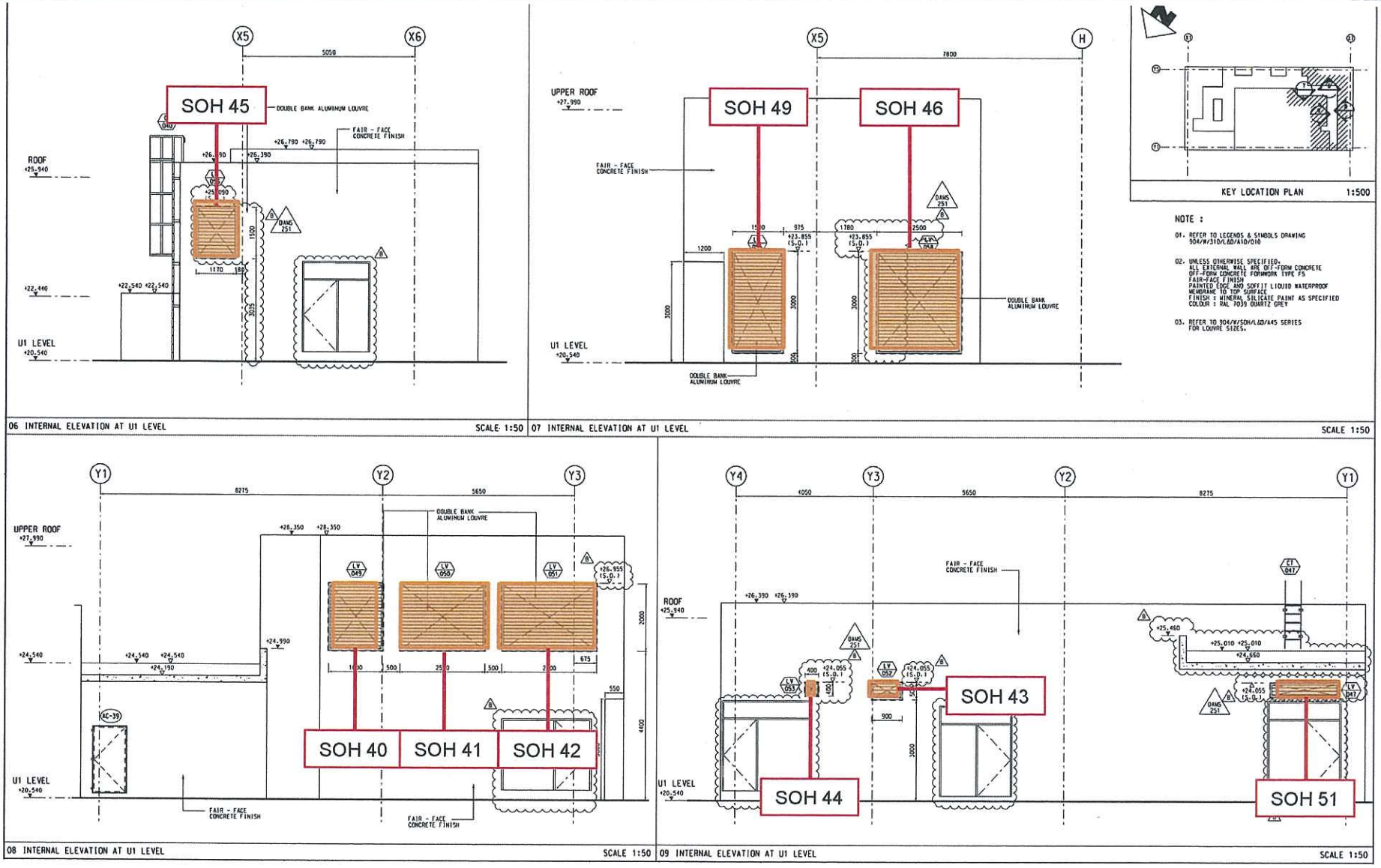
Annex A1i-10

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1i-11

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at SOH

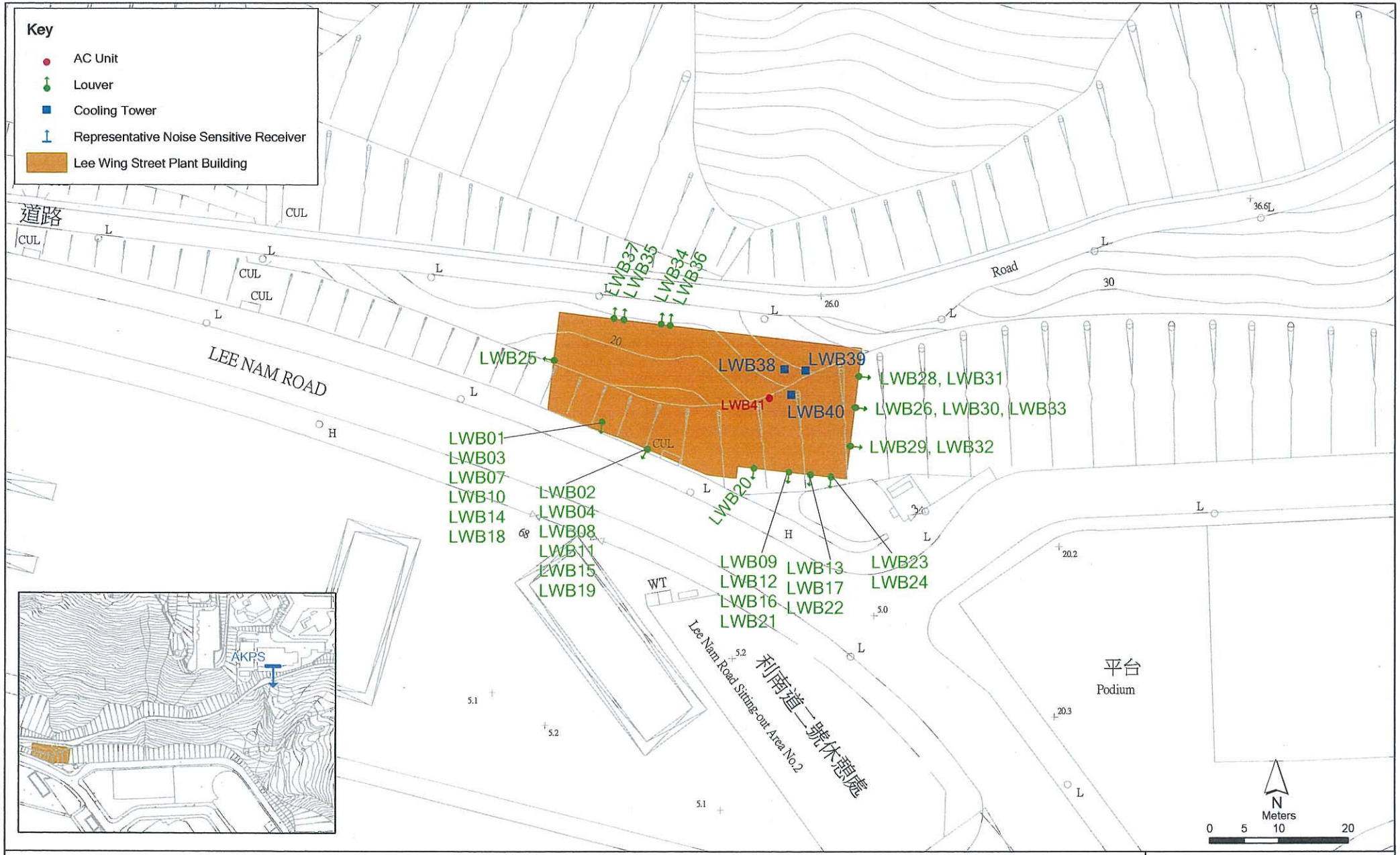
DATE: 20/10/2016

Environmental Resources Management

ERM

Annex A1j

Updated Layout and Section Plans of Fixed Sources (LWB)



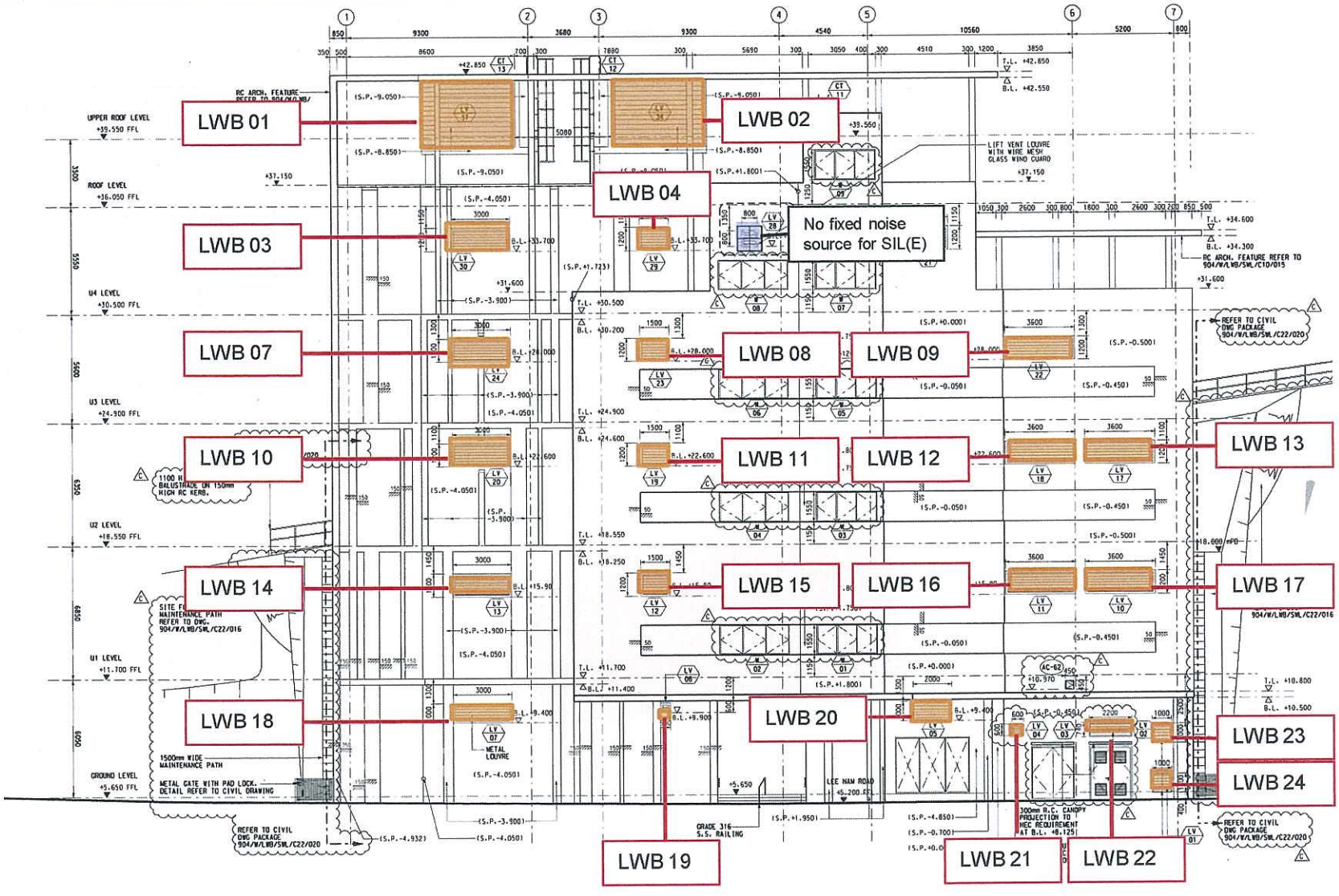
Annex A1j-1

Updated Layout Plan of Fixed Sources at LWB

File: T:\GIS\CONTRACT\0132172\Mxd\Fixed_Plant_Noise_Audit_Report\0132172_Louver_LWB.mxd
Date: 26/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

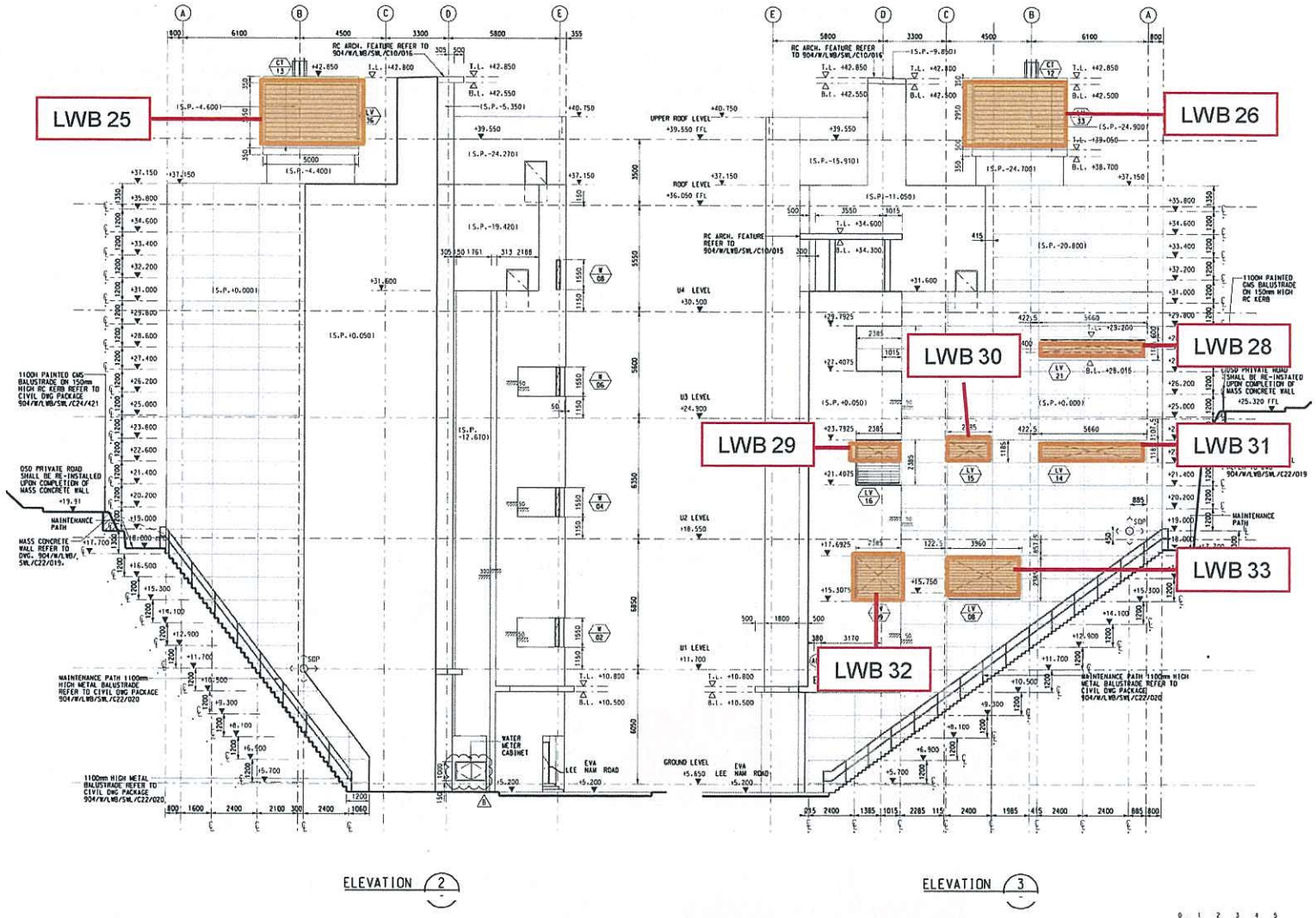
Annex A1j-2

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LWB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

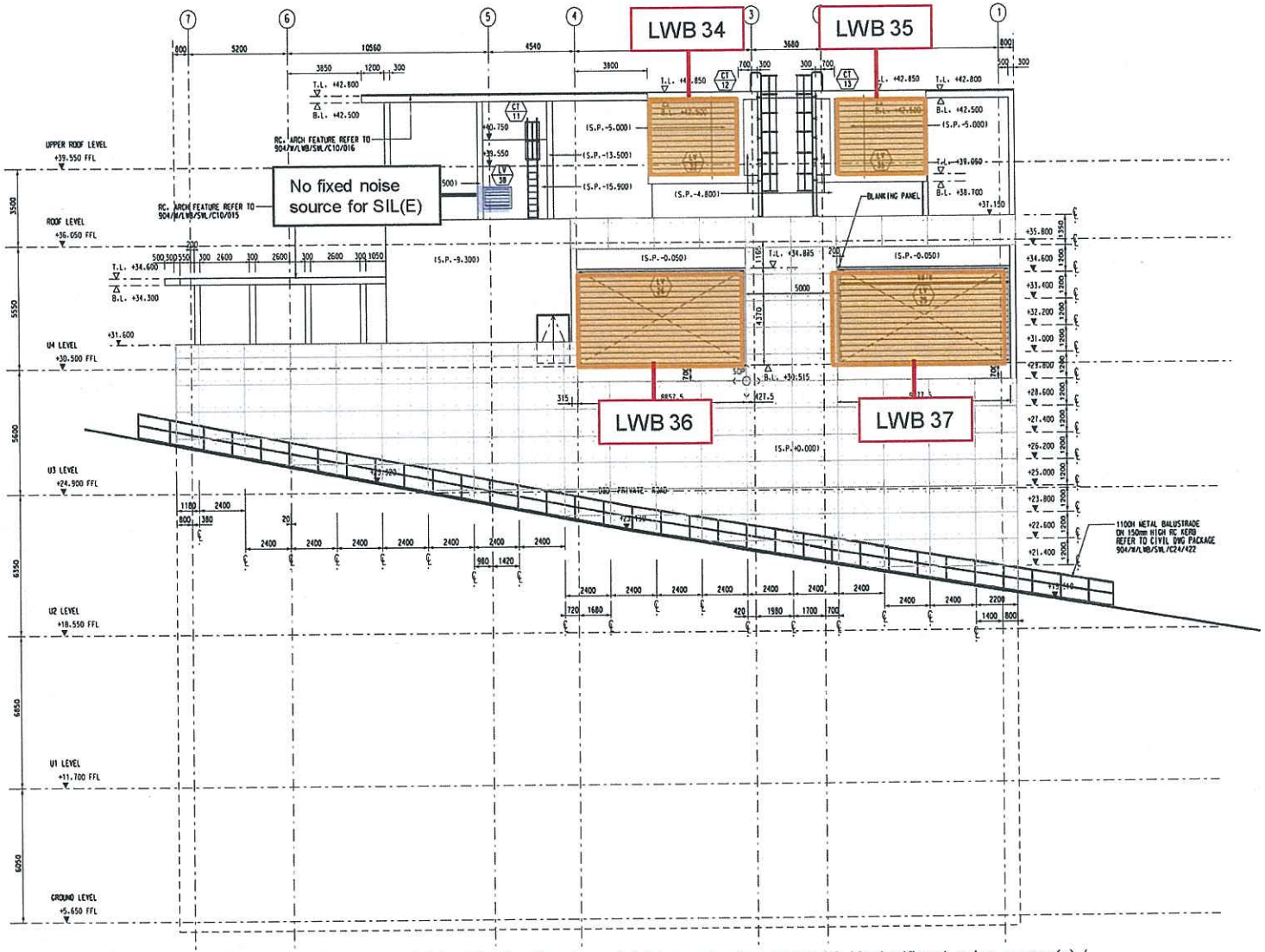
Annex A1j-3

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LWB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

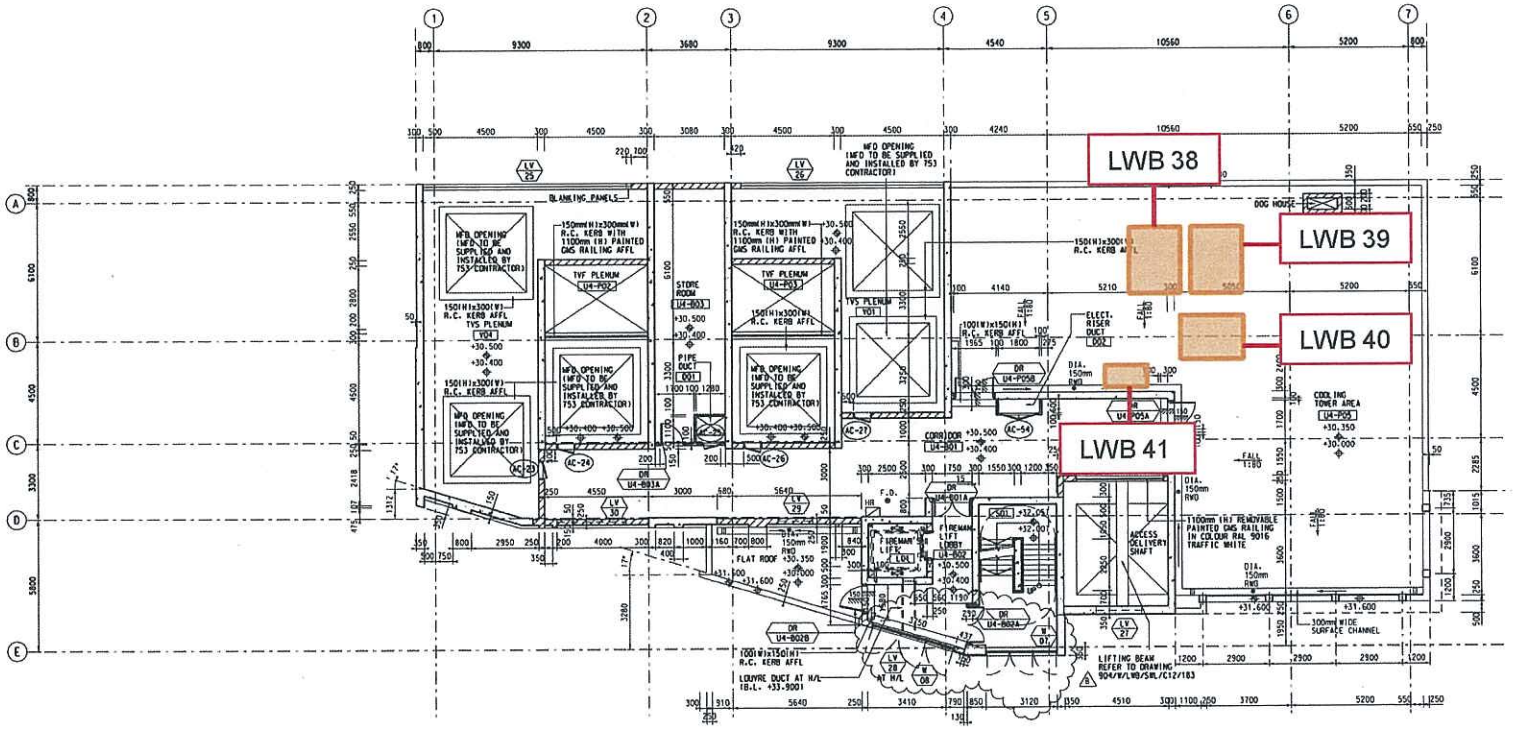
Annex A1j-4

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LWB

DATE: 20/10/2016

Environmental Resources Management

ERM



Remark: Highlighted item(s) is/are fixed noise source(s) for SIL(E), other louver(s) is/are not noise source(s) / insignificant noise source(s) / not for SIL(E) operation / their opening blanked off or they have been presented as noise sources in other drawings in the Annex. Based on the latest available information, there are no other noise sources other than those highlighted in the Annex.

Annex A1j-5

Updated Elevation, Section and Layout Plans of Louvers and other Fixed Sources at LWB

DATE: 20/10/2016

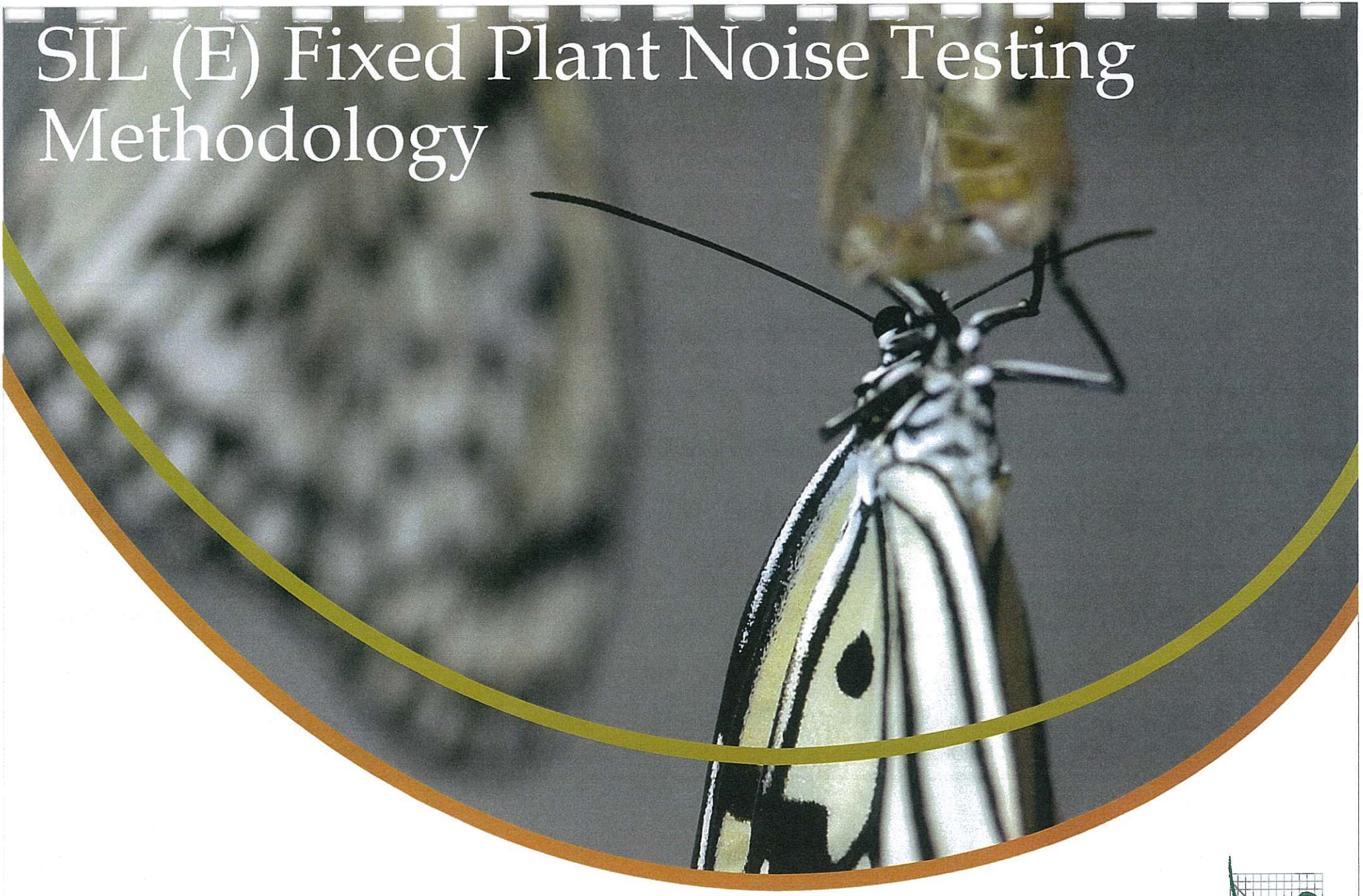
Environmental Resources Management

ERM

Annex A2

Measurement Methodology

SIL (E) Fixed Plant Noise Testing Methodology



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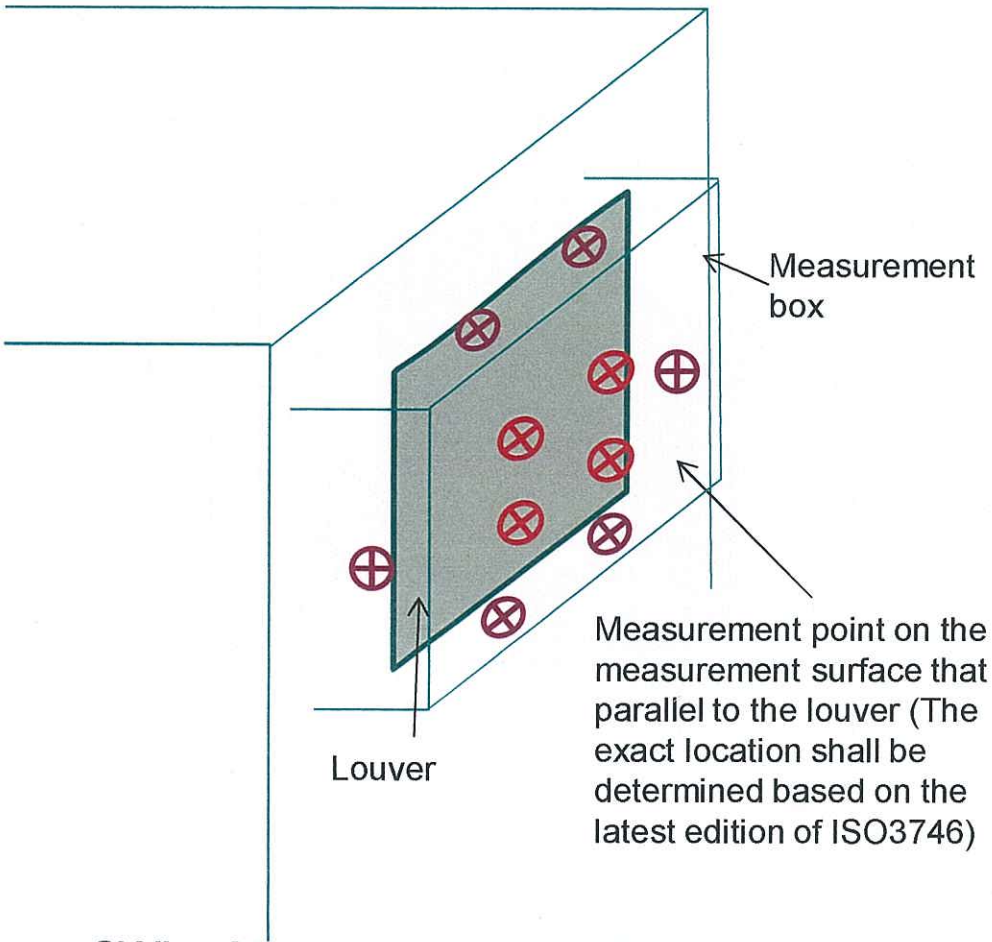
Summary of Testing Methodology

Method	Standard	Noise Source	Location of Measurement Point	Minimum Duration of Measurement at Each Point
Method 2	Developed based on ISO3746:2010	Louvre connected to ventilation duct(s) or a wall mount fan	On parallelepiped surfaces according to approach in ISO3746	10s / 1min
Method 4	Developed based on ISO3746:2010	3D plant item (AC unit, cooling tower, etc)	On parallelepiped surfaces according to approach in ISO3746	10s / 1min
Method 5	Developed based on ISO3746:2010	Other louvre (plant room with cooling towers, pump, etc)	On parallelepiped surfaces according to approach in ISO3746	10s / 1min
Note: If fixed plant items are operated at their noisiest operating modes and are steady during measurement, 10-second will be adopted for duration of measurement.				

Method 2 – Near Field Testing Method for Louver connected to Ventilation Duct(s) or a Wall Mount Fan

Distance between louvre and each measurement surface (measured from the centre of the louvre or its nearest edge as appropriate), d =1m (unless otherwise specified)



For Method 2 (developed based on the principle of ISO3746 - 2010),

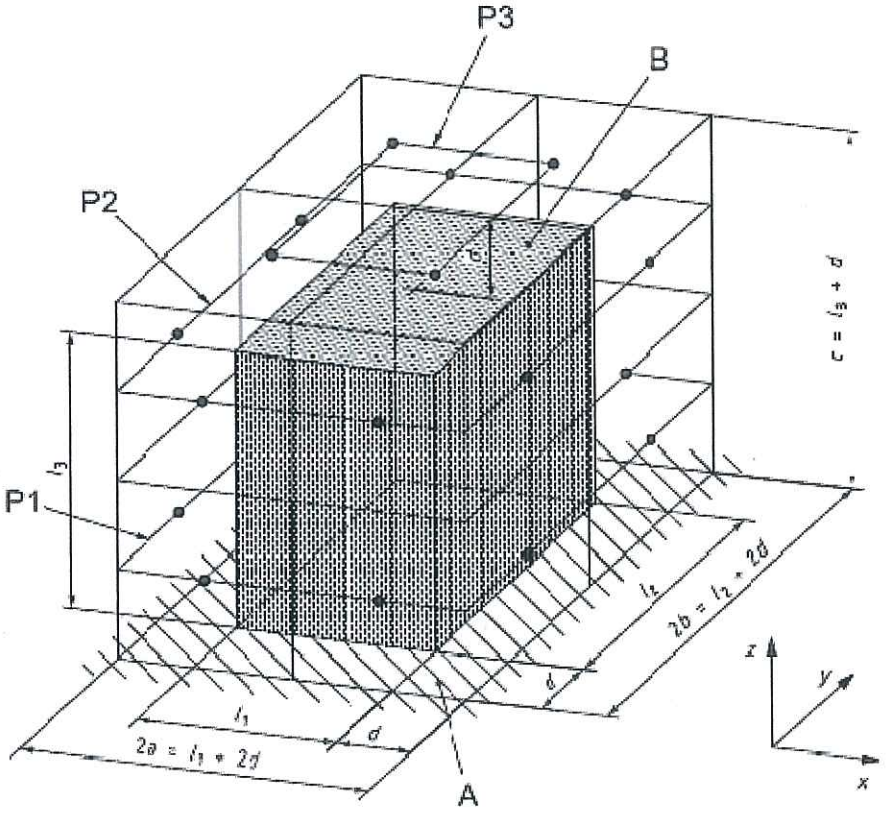
- First step is to determine a hypothetical measurement surfaces.
- For louvre with largest dimension $\leq$ 3.0m, at least one measurement at the centre of the measurement surface parallel to the louver should be conducted.
- Extra localized microphone positions on the measurement surfaces in the region of high radiation should be considered. In this case, follow the procedures of ISO 3744.
- For louvre with largest dimension >3.0m, measurement surface and measurement position should follow ISO3746.
- Background noise level (BGL) should be taken at each measurement point for determining the background correction (K1A).
- If the difference between the BGL and the measured noise level (MNL) is less than 3.0 dB, K1A should be capped to 3.0dB.
- If necessary to obtain less conservative results, d should be reduced according to ISO3746 to obtain higher MNLs.
- If d = 0.15m and there is still a need to obtain less conservative results, BGL shall be reduced. This may be achieved by installing a noise screen or other measures as appropriate to each particular situation.

SWL = Mean $L_{Aeq1min}$ over all measurement points + 10 log (total surface area over the measurement box) - K1A - K2A

K1A refers to background noise correction factor

K2A refers to environmental correction for sound absorption and reflection

Method 4 – Near Field Testing Method for Plant Item



KPV

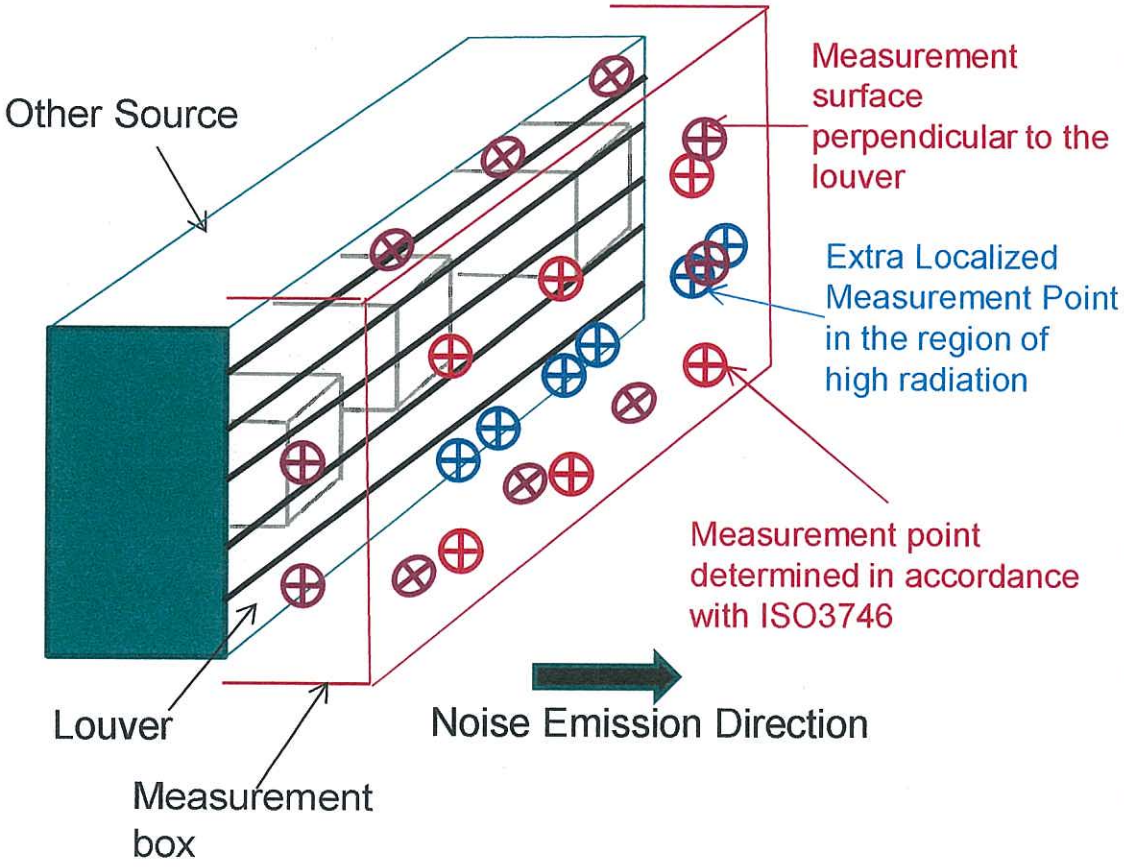
For Method 4 (based on ISO 3746-2010),

- Please refer to latest edition of ISO 3746 for measurement requirement.
- The locations of measurement points are depended on the size of the plant, which cannot be easily generalised (See figure on the left for example).
- According to ISO 3746, if the source under test radiates noise predominantly in one direction or if the noise from a large source is emitted only from a small portion of the source, the usage of extra localized microphone positions on the measurement surface in the region of high radiation should be considered. In this case, follow the procedures specified in ISO 3744.
- Detail calculation of the SWL should refer to the latest edition of ISO 3746.

SWL = Mean $L_{Aeq1min}$ over all measurement points + 10 log (total surface area over the measurement box) - K1A - K2A

K1A refers to background noise correction factor
K2A refers to environmental correction for sound absorption and reflection

Method 5 – Near Field Testing Method for Other Louver



For Method 5 (developed based on the principle of ISO3746 -2010),

- First step is to determine a measurement box with 1m separation from the louver.
- Extra localized microphone positions on the measurement surfaces in the region of high radiation should be considered. In this case follow the procedures of ISO 3744.
- Background noise level (BGL) should be taken at each measurement point for determining the background correction (K1A).
- If the difference between the BGL and the measured noise level (MNL) is less than 3.0 dB, K1A should be capped to 3.0dB.
- If necessary to obtain less conservative results, d should be reduced according to ISO3746 to obtain higher MNLs.
- If d = 0.15m and there is still a need to obtain less conservative results, BGL shall be reduced. This may be achieved by installing a noise screen or other measures as appropriate to each particular situation.

SWL = Mean $L_{Aeq1min}$ over all measurement points + 10 log (total surface area over the measurement box) - K1A - K2A

K1A refers to background noise correction factor
K2A refers to environmental correction for sound absorption and reflection

Annex A3

Calibration Certificate

1. Frequency weightings (Fig. 1) Pass

Frequency weighting A
Frequency weighting C
Frequency weighting Z

2. Level linearity error (dB)

Reference signal level (Ref.) : 94.0 dB (at 1 kHz, 8 kHz), 74.0 dB (at 31.5 Hz)
Frequency weighting : A

Indicated value / Frequency	Difference with Reference signal level (dB)						
	25.0	74.0	94.0	98.0	114.0	136.0	138.0
31.5 Hz	−0.2	Ref.	—	−0.1	—	—	—
1 kHz	0.0	—	Ref.	—	0.0	—	−0.1
8 kHz	0.0	—	Ref.	—	—	−0.1	—
Tolerance limit	±0.3	—	—	±0.3	±0.2	±0.3	±0.3

3. Toneburst response (Time weighted sound level)

Input signal level : 127 dB
Toneburst : Frequency : 4 kHz, duration : 0.25 ms
Frequency weighting : A, Time-weighting : F

(dB)			
Design goal	Indicated value	Difference	Tolerance limit
100.0	99.7	−0.3	±1.0

4. Time weighting I (impulse)

Input signal level : 120 dB
Toneburst : Frequency : 4 kHz, duration : 5 ms, period : 500 ms
Frequency weighting : A

(dB)			
Design goal	Indicated value	Difference	Tolerance limit
111.2	111.2	0.0	±2.0

*When the optional Extended Function Program NX-42EX is installed, time weighting I(impulse) can be selected in only sub-channel.

5. Peak sound level (dB)

Frequency weighting : C

Frequency (Hz)	Number of cycles in test signal	(dB)				
		Input signal level	Design goal	Indicated value	Difference	Tolerance limit
			L_c	L_{cpeak}		
31.5	1 cycle	137.0	136.5	137.3	0.8	±2.0
500	Positive half cycle	137.0	139.4	139.2	−0.2	±1.0
	Negative half cycle	137.0	139.4	139.2	−0.2	±1.0

6. Response to repeated to toneburst

Input signal level : 130.0 dB + 8 dB

Frequency weighting : A, Time-weighting : S

Toneburst : Frequency : 2 kHz, duration : 5 ms, period : 25 ms

(dB)				
Peak-to-rms ratio	Design goal	Indicated value	Difference	Tolerance limit
3.16	131.0	131.0	0.0	±0.5

7. Inherent noise level (dB)

(dB)		
Frequency weighting	Indicated value	Tolerance limit
A	11.6	17 or less
C	15.9	25 or less
Z	21.3	30 or less

8. Instrumental error

± 0.7 dB (Reference level : 84.0 dB) 0.1 dB

Applicable standards

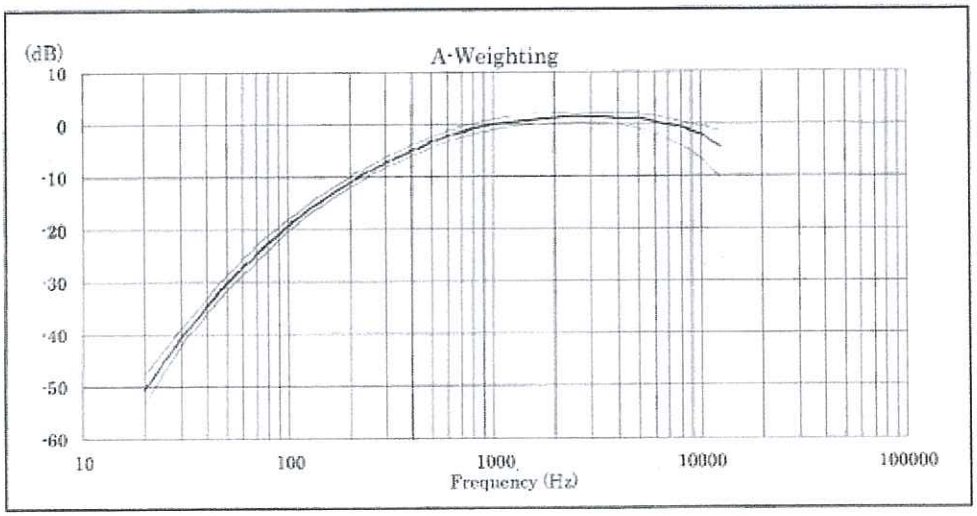
JIS C 1509-1 : 2005 class 1
IEC-61672-1 : 2013 class 1
IEC-61672-1 : 2002 class 1
ANSI /ASA S1.4-2014/Part 1 class 1
CE marking (EMC Directive 2004/108/EC, 2014/30/EU
Low Voltage Directive 2006/95/EC, 2014/35/EU)
WEEE Directive (2002/96/EC)
Chinese RoHS

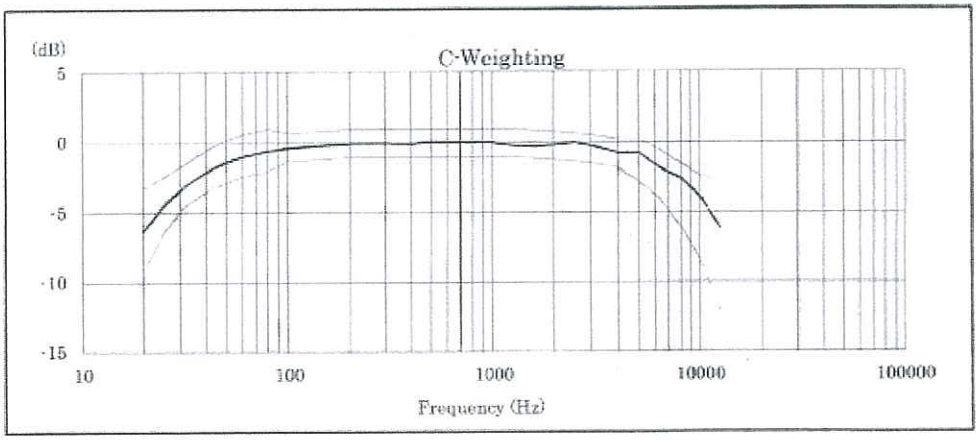
RION

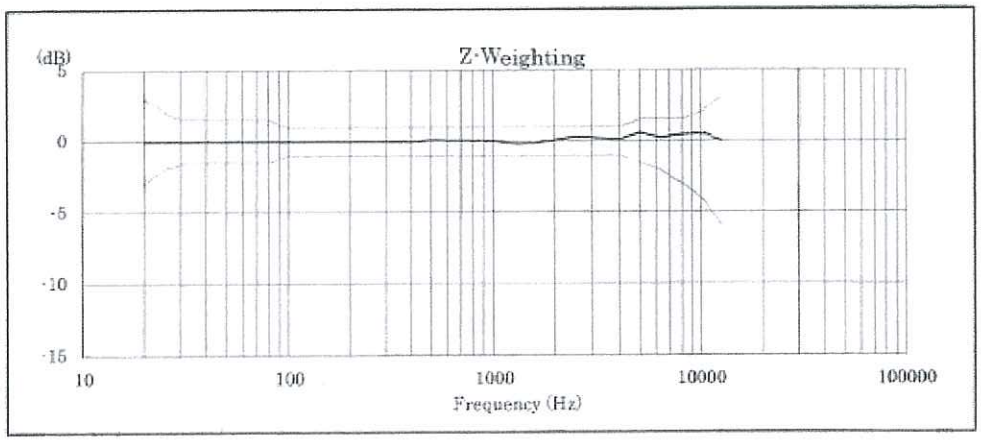
NL-52 (Fig. 1)

No. 00564841

Relative free field frequency response







MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	22-Aug-2015	**Certificate Number**	MLCN151389S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	14210
Equipment Number	--

Calibration Particular

Date of Calibration	22-Aug-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

K.O. Lo 22-Aug-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong. Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

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Certificate NoMLCN151389S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB

- END -

Calibrated By : Dan
Date : 22-Aug-2015

Checked By : K.O. Lo
Date : 22-Aug-2015

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	4-May-2015	**Certificate Number**	MLCN150723S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	20890
Equipment Number	--

Calibration Particular

Date of Calibration	2-May-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

K.O. Lo 4-May-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong. Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

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Certificate NoMLCN150723S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB

- END -

Calibrated By : Dan
Date : 2-May-2015

Checked By : K.O. Lo
Date : 4-May-2015

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MaxLab Calibration Centre Limited
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	7-Mar-2015	**Certificate Number**	MLCN150355S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	23412
Equipment Number	--

Calibration Particular

Date of Calibration	7-Mar-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

K.O. Lo 7-Mar-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Certificate NoMLCN150355S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / SLOW	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / IMPULSE	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	(1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB

- END -

Calibrated By : Dan
Date : 7-Mar-2015

Checked By : K.O. Lo
Date : 7-Mar-2015

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	7-Mar-2015	**Certificate Number**	MLCN150356S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 959
Serial Number	11228
Equipment Number	--

Calibration Particular

Date of Calibration	7-Mar-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 7-Mar-2015

Statements

- Calibration equipment used for this calibration are traceable to national / international standards.
- The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Certificate No. MLCN150356S

Calibration Data

Weighting / Time	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
A / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
A / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
A / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB

- END -

Calibrated By : Dan
Date : 7-Mar-2015

Checked By : K.O. Lo
Date : 7-Mar-2015

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MaxLab Calibration Centre Limited
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	1-Feb-2016	**Certificate Number**	MLCN160236S

Customer Information

Company Name	Acoustics Innovation Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T.

Equipment-under-Test (EUT)

Description	Acoustic Calibrator
Manufacturer	Svantek
Model Number	SV 30A
Serial Number	29088
Equipment Number	--

Calibration Particular

Date of Calibration	1-Feb-2016		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-16 1351(MLTE049) / MLEC15/06/02 / 3-Jun-16		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	Not applicable
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 1-Feb-2016

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Certificate No. MLCN160236S

Calibration Data

EUT Setting	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
94 dB	93.7 dB	0.3 dB	0.15 dB	± 0.3 dB
114 dB	113.7 dB	0.3 dB	0.15 dB	± 0.3 dB

- END -

Calibrated By : Dan
Date : 1-Feb-16

Checked By : K.O. Lo
Date : 1-Feb-16

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E-mail : matlab@fugro.com
Website : www.materialab.com

MateriaLab

Report no.: 161739CA161272(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Gammon - Kaden SCL1111 JV

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Rion (Model: NC-74)
Serial No.	:	35125848
Next Calibration Date	:	15-Jun-2017
Specification Limit	:	±0.5dB

Laboratory Information

Description : Reference Sound Level Meter

Equipment ID. : R-119-1

Date of Calibration : 16-Jun-2016 Ambient Temperature : 21 °C

Calibration Location : Calibration Laboratory of MateriaLab

Method Used : By direct comparison

Calibration Results :

Setting of UUT (dB)	Measured Value (dB)	Error (dB)	Specification Limit (dB)
93.7	94.1	-0.4	±0.5dB

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with specification limit.

Checked by : _____ Date : 20.6.2016 Certified by : _____ Date : 20 JUN 2016

CA-R-297 (22/07/2009) Kwok Chi Wa (Assistant Manager)

** End of Report **

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	25-May-2016	**Certificate Number**	MLCN161053S

Customer Information

Company Name	Acoustics Innovation Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T.

Equipment-under-Test (EUT)

Description	Acoustic Calibrator
Manufacturer	Svantek
Model Number	SV 30A
Serial Number	10814
Equipment Number	--

Calibration Particular

Date of Calibration	25-May-2016		
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-18 1351(MLTE049) / MLEC15/06/02 / 3-Jun-16		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	Not applicable
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 25-May-2016

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
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MAXLAB

Certificate No. MLCN161053S

Calibration Data

EUT Setting	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
94 dB	94.0 dB	0.0 dB	0.15 dB	± 0.3 dB
114 dB	114.0 dB	0.0 dB	0.15 dB	± 0.3 dB

- END -

Calibrated By : Dan
Date : 25-May-16

Checked By : K.O. Lo
Date : 25-May-16

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Annex A4

Sample Photographs showing Measurement Locations

Annex A4a-1

Measurement Location at ADM D8

DATE: 19/10/2016

Environmental Resources Management

ERM

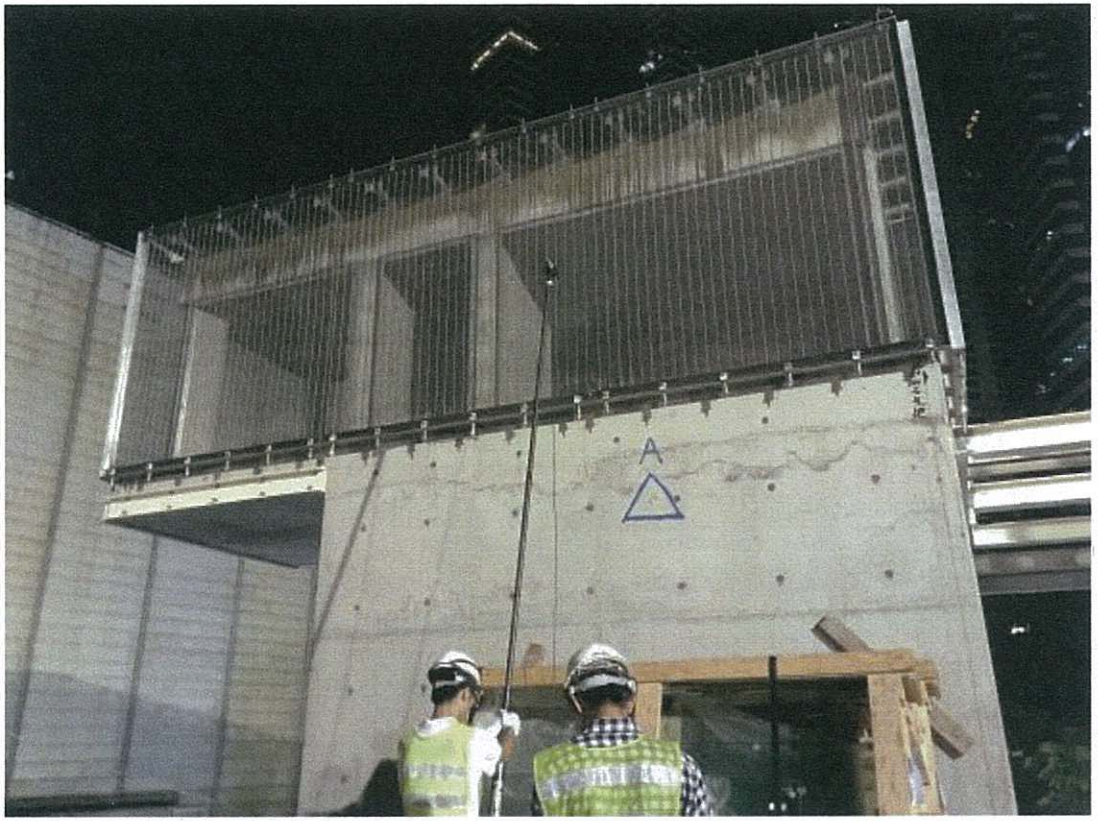
Annex A4a-2

Measurement Location at ADM ML1

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4a-3

Measurement Location at ADM C4

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex A4b-1

Measurement Location at HKP 11

DATE: 19/10/2016

Environmental
Resources
Management

ERM

Annex A4b-2

Measurement Location at HKP 12

DATE: 19/10/2016

Environmental Resources Management

ERM

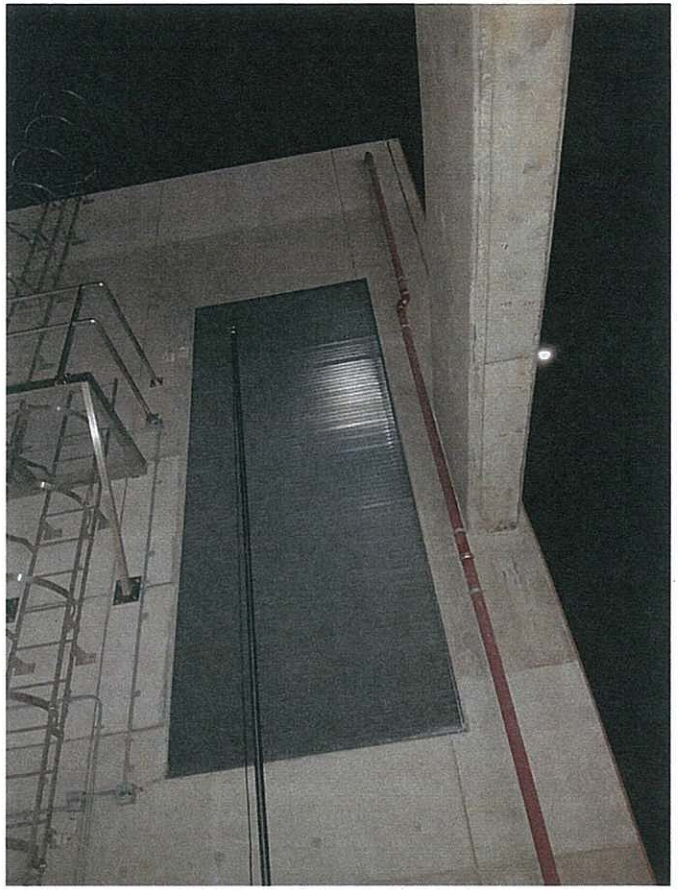
Annex A4b-3

Measurement Location at HKP 13

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4c-1

Measurement Location at NAM 15

DATE: 19/10/2016

Environmental
Resources
Management

ERM

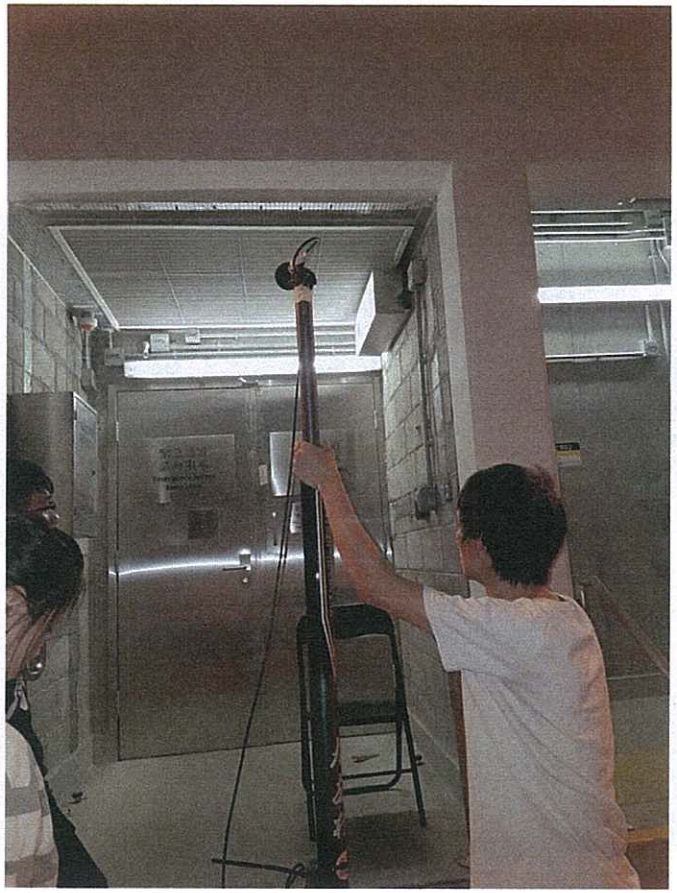
Annex A4c-2

Measurement Location at NAM 17

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4c-3

Measurement Location at NAM-Add. 2

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex A4d-1

Measurement Location at OCP 42

DATE: 19/10/2016

Environmental
Resources
Management

ERM

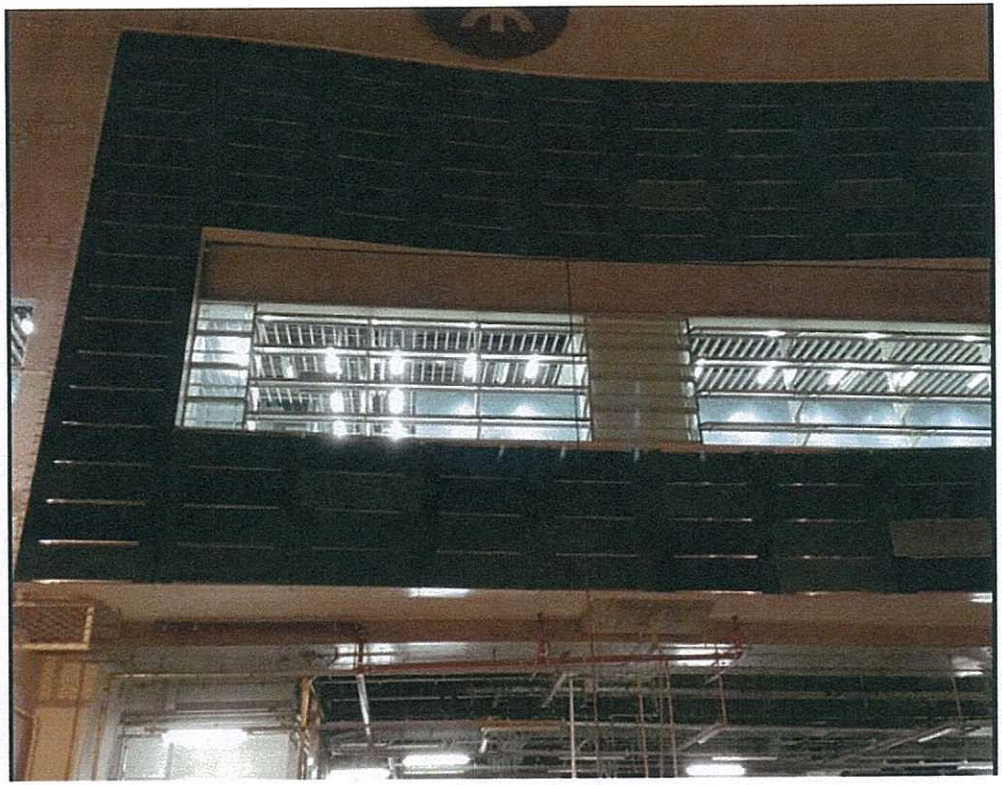
Annex A4d-2

Measurement Location at OCP 31b

DATE: 19/10/2016

Environmental Resources Management

ERM



Annex A4d-3

Measurement Location at OCP 18

DATE: 19/10/2016

Environmental Resources Management

ERM

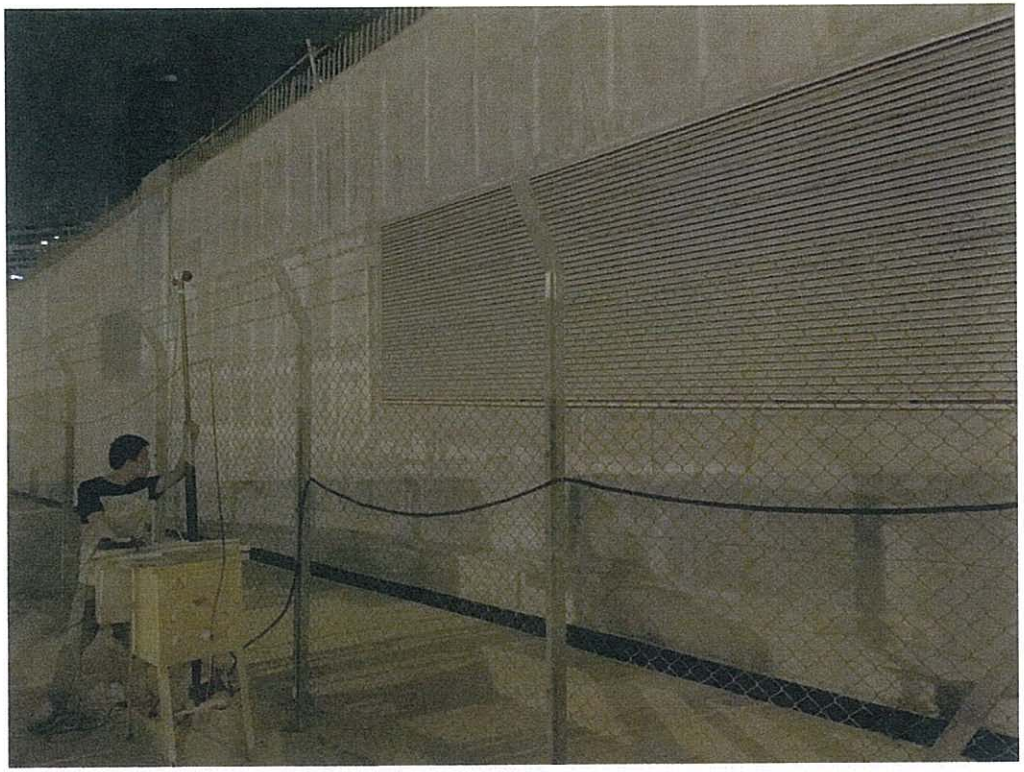
Annex A4e-1

Measurement Location at WCD 30

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4e-2

Measurement Location at WCD 27

DATE: 19/10/2016

Environmental
Resources
Management

ERM

Annex A4e-3

Measurement Location at WCD 15

DATE: 19/10/2016

Environmental
Resources
Management

ERM

Annex A4f-1

Measurement Location at LET 50 (LET-TVF)

DATE: 19/10/2016

Environmental
Resources
Management

ERM

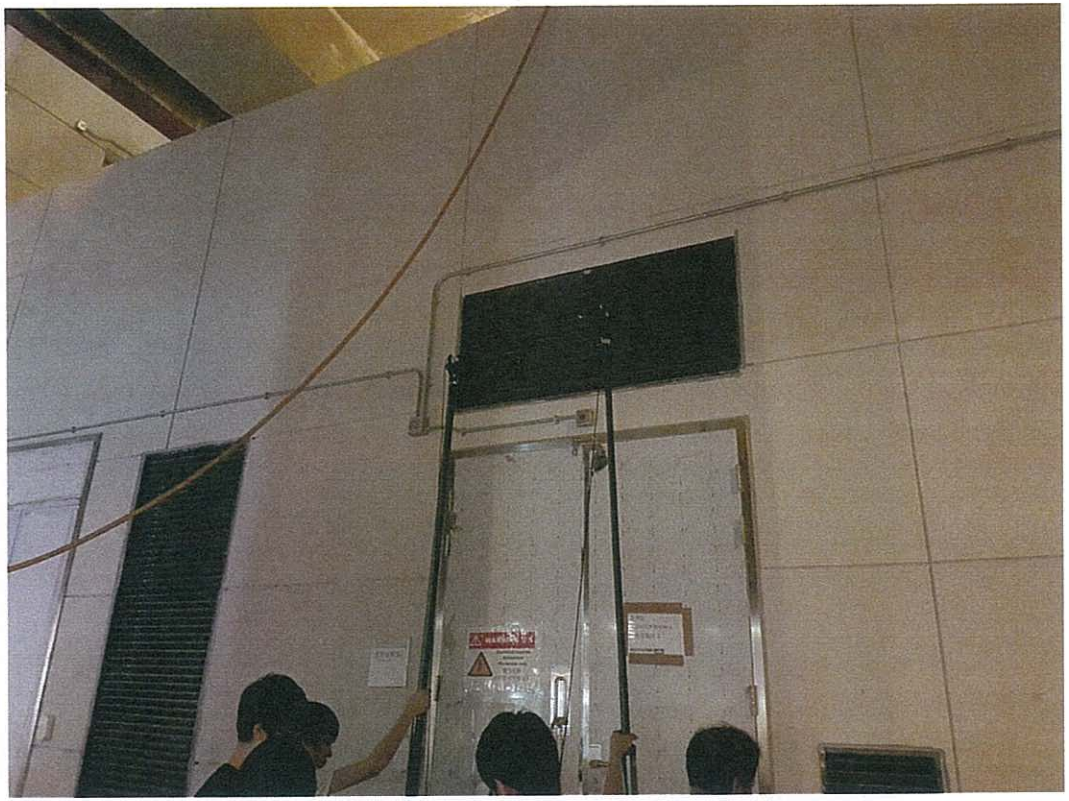
Annex A4g-1

Measurement Location at LET 30(LET-A)

DATE: 19/10/2016

Environmental
Resources
Management

ERM



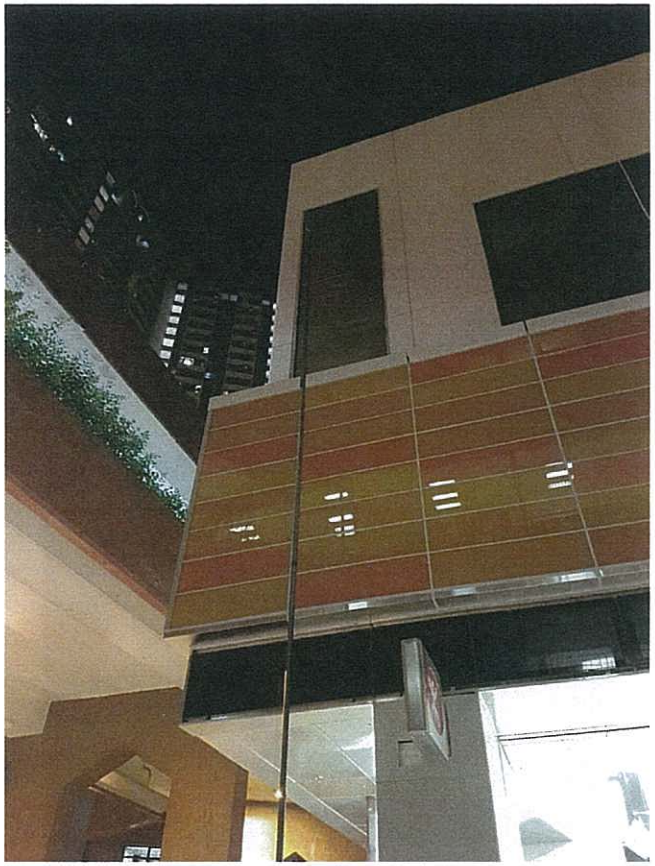
Annex A4h-1

Measurement Location at LET 21 (LET-B)

DATE: 19/10/2016

Environmental
Resources
Management

ERM



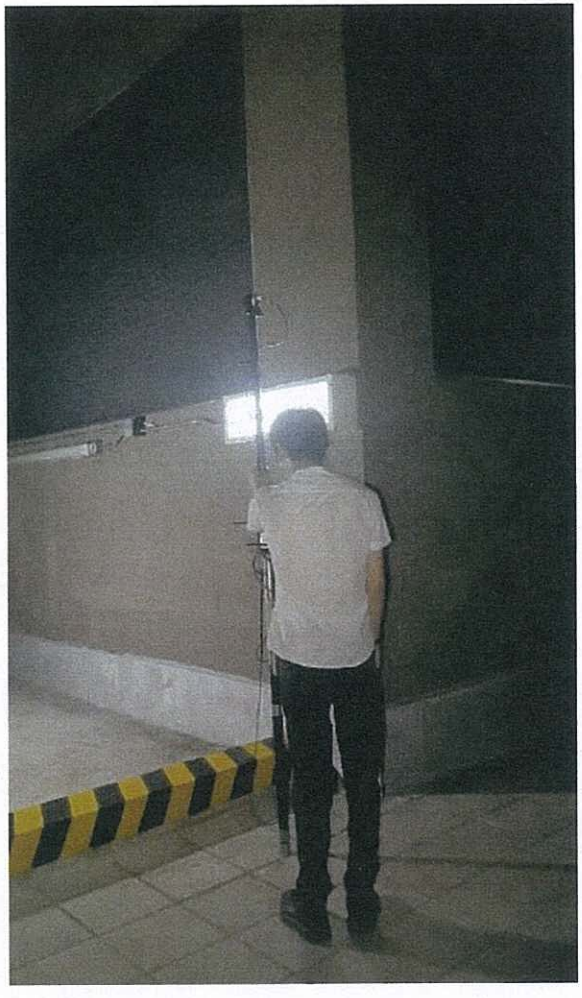
Annex A4h-2

Measurement Location at LET 41 (LET-B)

DATE: 19/10/2016

Environmental
Resources
Management

ERM



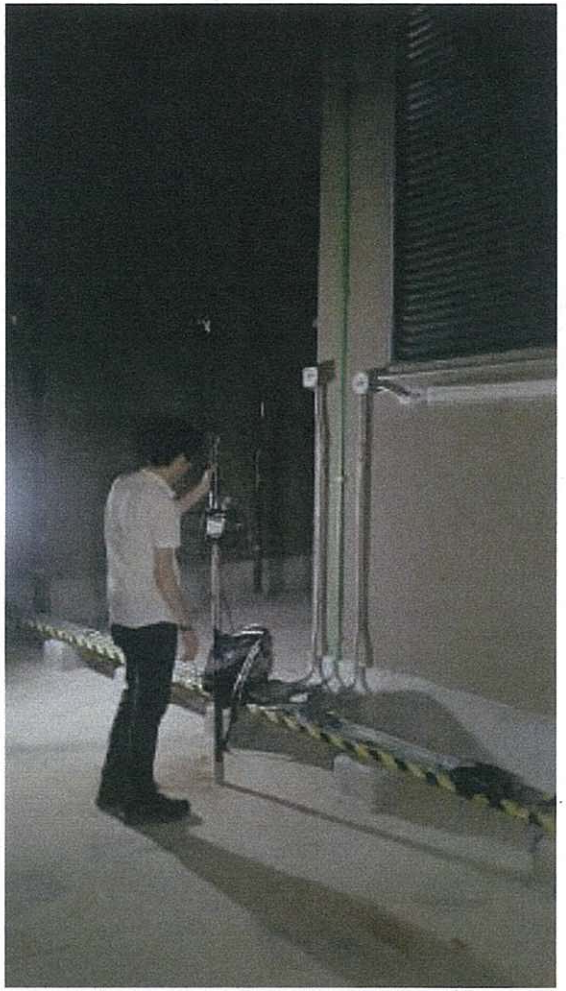
Annex A4i-1

Measurement Location at SOH 48-2

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4i-2

Measurement Location at SOH 48-4

DATE: 19/10/2016

Environmental
Resources
Management

ERM

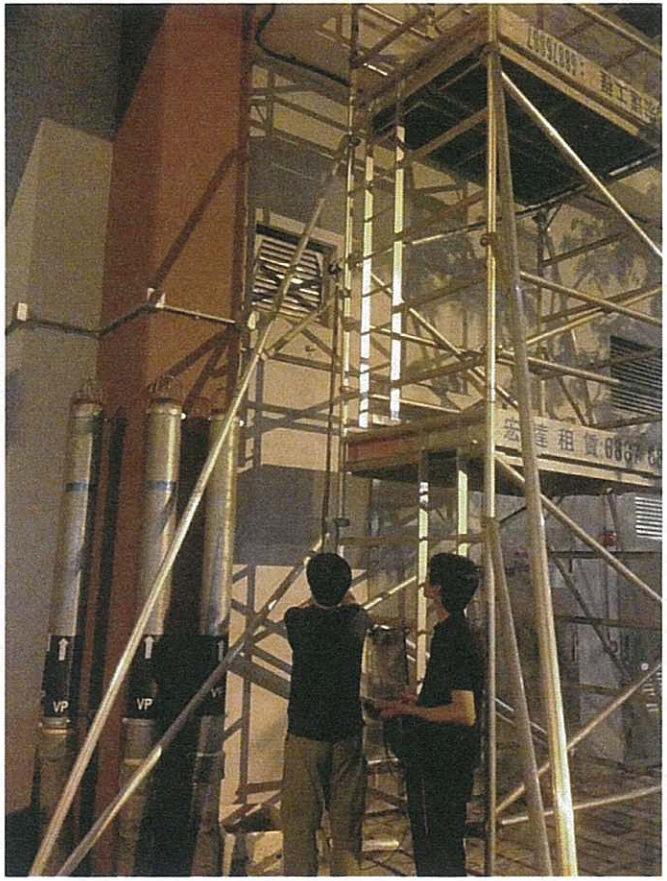
Annex A4i-3

Measurement Location at SOH 48-1

DATE: 19/10/2016

Environmental
Resources
Management

ERM



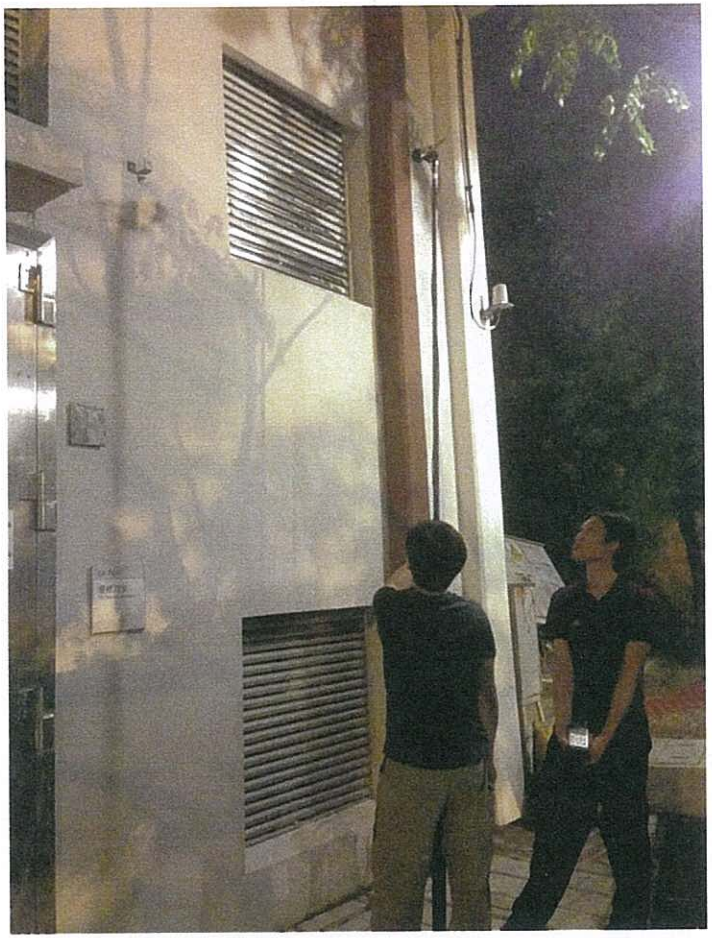
Annex A4j-1

Measurement Location at LWB 15

DATE: 19/10/2016

Environmental
Resources
Management

ERM



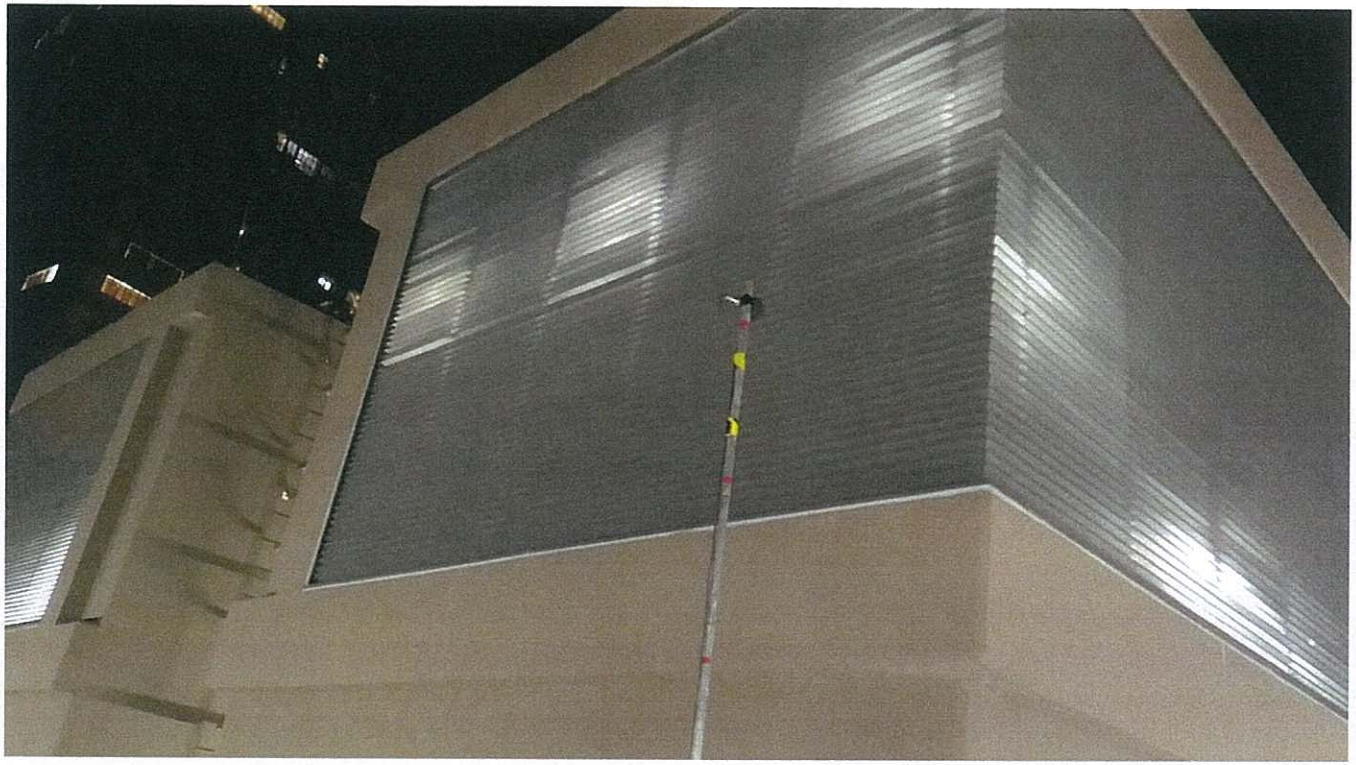
Annex A4j-2

Measurement Location at LWB 23

DATE: 19/10/2016

Environmental
Resources
Management

ERM



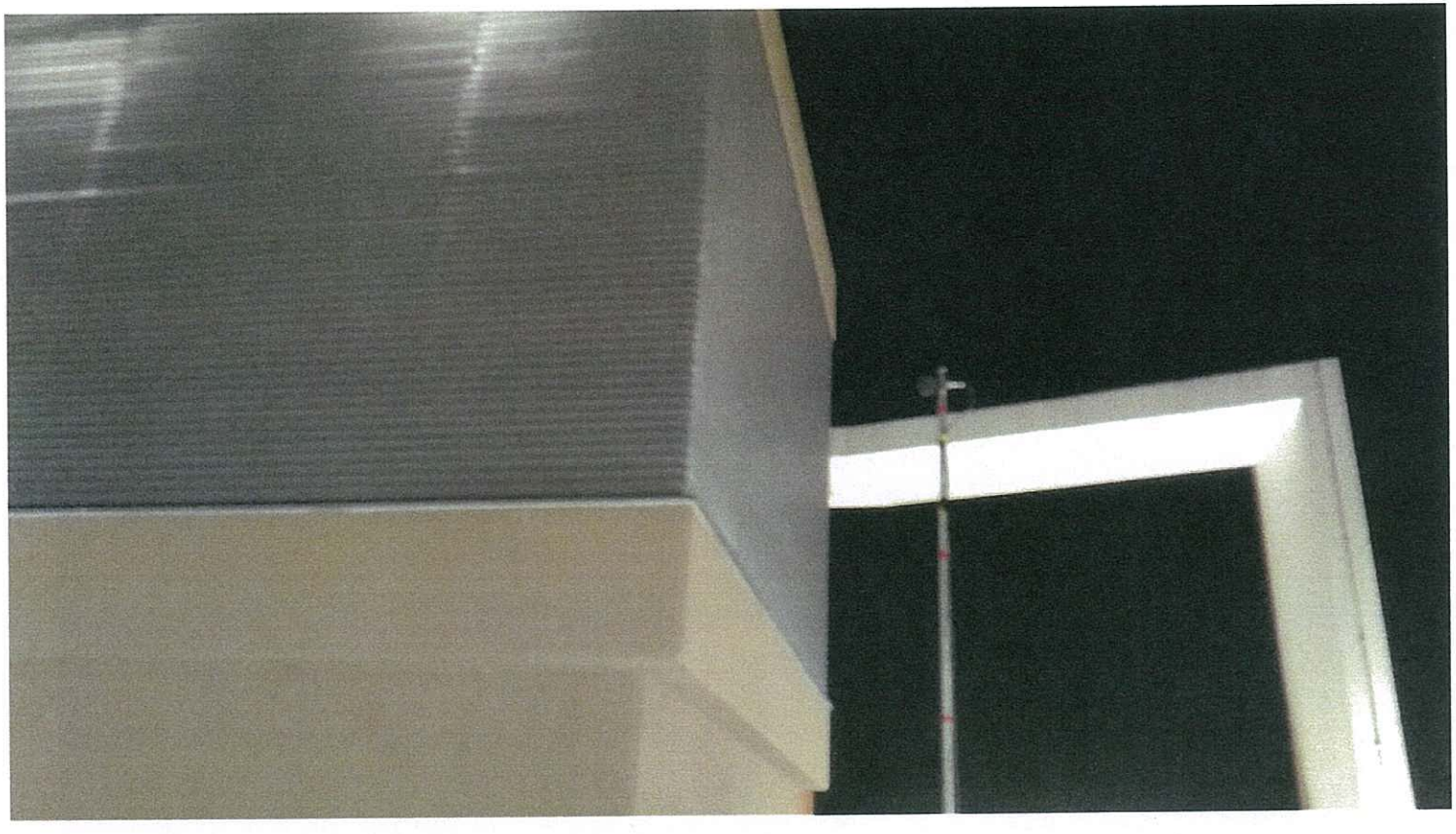
Annex A4j-3

Measurement Location at LWB 02

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex A4j-4

Measurement Location at LWB 35

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex A5

Detailed Results of the Noise Measurements

Sound Power Levels (SWLs) for Fixed Plants at ADM

Louvre	Mode[a]	Source size (m)			Method	d (m)[b]	Measured L_{Aeq} [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)][f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime /Evening	Night-time
ADM A1	Scenario 1&2	1.8	6.2	-	2	1.00	61.2 [e]	58.1	3.1	58.3	75.7	76	76
ADM A2	Scenario 1&2	1.8	3.0	-	2	1.00	62.0 [e]	58.1	3.9	59.7	75.3	75	75
ADM A3	Scenario 1&2	1.8	6.2	-	2	1.00	61.1 [e]	58.1	3.0	58.1	75.5	76	76
ADM A4	Scenario 1&2	1.8	3.0	-	2	1.00	60.6 [e]	58.1	2.5	57.6	73.2	73	73
ADM B1	Scenario 1&2	4.5	2.1	-	2	1.00	61.4 [e]	59.5	1.9	58.4	75.2	75	75
ADM B3	Scenario 1&2	3.2	2.1	-	2	1.00	61.3 [e]	59.0	2.3	58.3	74.3	74	74
ADM B4	Scenario 1&2	4.5	2.1	-	2	1.00	61.0 [e]	58.0	3.0	58.0	74.8	75	75
ADM B5	Scenario 1&2	3.2	2.1	-	2	1.00	61.8 [e]	58.0	3.8	59.5	75.4	75	75
ADM B6	Scenario 1&2	1.0	1.5	-	2	1.00	71.1 [e]	64.3	6.8	70.1	75.4	75	75
ADM C1	Scenario 1&2	1.8	7.3	-	2	1.00	64.3 [e]	60.6	3.7	61.9	79.8	80	80
ADM C3	Scenario 1&2	1.8	3.0	-	2	1.00	63.4 [e]	60.6	2.8	60.4	76.0	76	76
ADM C4	Scenario 1&2	1.8	7.3	-	2	1.00	64.1 [e]	62.3	1.8	61.1	79.0	79	79
ADM C5	Scenario 1&2	1.8	3.0	-	2	1.00	62.9 [e]	60.1	2.8	59.9	75.5	76	76
ADM D1	Scenario 1&2	2.0	7.2	-	2	1.00	65.3 [e]	60.9	4.4	63.3	81.3	81	81
ADM D1a	Scenario 1&2	5.9	7.0	-	2	1.00	64.7 [e]	64.3	0.4	61.7	81.9	82	82
ADM D2	Scenario 1&2	3.3	1.9	-	2	1.00	62.6 [e]	59.9	2.7	59.6	75.5	76	76
ADM D3	Scenario 1&2	2.0	1.9	-	2	1.00	61.2 [e]	59.9	1.3	58.2	73.1	73	73
ADM D3a	Scenario 1&2	2.4	10.4	-	2	1.00	65.4 [e]	63.0	2.4	62.4	81.8	82	82
ADM D4	Scenario 1&2	2.4	4.5	-	2	1.00	66.1 [e]	64.0	2.1	63.1	80.1	80	80
ADM D6	Scenario 1&2	0.6	1.0	-	2	1.00	63.6	64.0	-0.4	60.6	73.3	73	73
ADM D7	Scenario 1&2	1.0	1.0	-	2	1.00	63.9	60.7	3.2	61.1	72.2	72	72
ADM D8	Scenario 1&2	1.0	1.0	-	2	1.00	64.5	61.9	2.6	61.5	74.7	75	75
ADM D9	Scenario 1&2	0.3	0.3	-	2	1.00	60.7	60.1	0.6	57.7	69.3	70	70
ADM D10	Scenario 1&2	0.3	0.3	-	2	1.00	61.7	60.1	1.6	58.7	70.3	70	70
ADM E1	Scenario 1&2	2.6	5.9	-	2	1.00	65.4 [e]	64.8	0.6	62.4	80.2	80	80
ADM E2	Scenario 1&2	2.7	5.7	-	2	1.00	65.1 [e]	64.8	0.3	62.1	79.9	80	80
ADM E3	Scenario 1&2	2.7	5.8	-	2	1.00	64.5 [e]	64.8	-0.3	61.5	79.4	79	79
ADM E4	Scenario 1&2	2.7	5.7	-	2	1.00	64.0 [e]	64.8	-0.8	61.0	78.8	79	79
ADM E7	Scenario 1&2	2.8	5.4	-	2	1.00	64.6 [e]	63.0	1.6	61.6	79.4	79	79
ADM E8	Scenario 1&2	2.8	2.0	-	2	1.00	61.0 [e]	63.0	-2.0	58.0	73.6	74	74
ADM E9	Scenario 1&2	2.8	2.0	-	2	1.00	67.0 [e]	63.0	4.0	64.8	80.4	80	80
ADM E10	Scenario 1&2	1.2	2.6	-	2	1.00	61.2 [e]	63.0	-1.8	58.2	73.0	73	73
ADM F1	Scenario 1&2	6.1	4.1	-	2	1.00	65.1 [e]	64.0	1.1	62.1	81.0	81	81
ADM F2	Scenario 1&2	6.1	3.9	-	2	1.00	65.2 [e]	64.0	1.2	62.2	81.0	81	81
ADM J1	Scenario 1&2	21.0	11.7	-	2	1.00	68.1 [e]	65.1	3.0	65.1	91.0	91	91
ADM J5	Scenario 1&2	1.1	1.1	-	2	1.00	72.1 [e]	65.1	7.0	71.1	84.5	85	85
ADM J7	Scenario 1&2	1.0	1.0	-	2	1.00	66.0	65.1	0.9	63.0	76.2	76	76
ADM M1	Scenario 1&2	5.3	3.4	-	2	1.00	74.4 [e]	72.2	2.2	71.4	88.2	88	88
ADM M2	Scenario 1&2	3.2	3.5	-	2	1.00	62.9 [e]	63.7	-0.8	59.9	76.9	77	77
ADM M3	Scenario 1&2	3.0	10.3	-	2	1.00	62.9 [e]	63.7	-0.8	59.9	79.7	80	80
ADM N1	Scenario 1&2	4.6	2.4	-	2	1.00	59.0 [e]	58.9	0.1	56.0	73.1	73	73
ADM ML1	Scenario 1&2	3.3	2.9	-	2	1.00	75.7 [e]	61.9	13.8	75.5	90.9	91	91
ADM ML2	Scenario 1&2	4.0	3.9	-	2	1.00	76.6 [e]	60.7	15.9	76.5	93.1	93	93
ADM ML3	Scenario 1&2	3.8	3.9	-	2	1.00	71.1 [e]	58.5	12.6	70.9	87.3	87	87
ADM ML4	Scenario 1&2	3.6	2.8	-	2	1.00	74.4 [e]	59.6	14.8	74.3	89.8	90	90

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods

Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at HKP

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)] [f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
HKP01	Scenario 1	2.43	5.20	-	2	1.00	62.9 [e]	48.8	14.1	62.7	79.2	79	-
HKP05	Scenario 1&2	1.65	3.00	-	2	1.00	77.6 [e]	56.9	20.7	77.6	84.8	85	85
HKP06	Scenario 1&2	2.00	0.90	-	2	1.00	76.1 [e]	56.9	19.2	76.0	83.1	83	83
HKP08	Scenario 1&2	2.50	6.00	-	2	1.00	66.5 [e]	53.4	13.1	66.3	84.1	84	84
HKP09	Scenario 1&2	2.80	6.00		2	1.00	72.1	66.3	5.8	70.8	87.4	87	87
HKP10	Scenario 1&2	0.30	0.30	-	2	1.00	70.4	53.4	17.0	70.3	74.9	75	75
HKP11	Scenario 1&2	7.00	6.00	-	2	1.00	68.5	60.4	8.1	67.8	87.1	87	87
HKP12	Scenario 1&2	2.00	6.00	-	2	1.00	69.9	64.4	5.5	68.5	85.9	86	86
HKP13	Scenario 1&2	3.55	6.00	-	2	1.00	71.9	66.4	5.5	70.5	87.7	88	88
HKP14	Scenario 1&2	2.00	0.90	-	2	1.00	70.4 [e]	53.0	17.4	70.3	77.4	77	77
HKP15	Scenario 1	2.20	2.30	-	2	1.00	67.3 [e]	56.9	10.4	66.9	82.3	82	-
HKP16	Scenario 1&2	2.50	6.00	-	2	1.00	58.6 [e]	56.9	1.7	55.6	73.5	74	74
PRD01	Scenario 1	1.10	1.50	-	2	1.00	61.9 [e]	53.4	8.5	61.2	68.0	68	-
PRD02	Scenario 1	1.00	0.70	-	2	1.00	60.9	48.8	12.1	60.6	66.5	67	-
PCU01	Scenario 1&2	0.90	1.29	0.33	4	1.00	65.2 [e]	53.4	11.8	64.9	79.1	79	79
PCU02	Scenario 1&2	0.90	1.29	0.33	4	1.00	62.9 [e]	48.8	14.1	62.7	76.9	77	77
PCU03	Scenario 1&2	0.90	1.29	0.33	4	1.00	62.7 [e]	56.9	5.8	61.4	75.5	76	76
PCU04	Scenario 1&2	0.90	1.29	0.33	4	1.00	63.4 [e]	56.9	6.5	62.3	76.5	77	77
PCU05	Scenario 1&2	0.90	1.29	0.33	4	1.00	62.0 [e]	56.9	5.1	60.4	74.5	75	75
HKP-Add. 1	Scenario 1	2.43	5.20	-	2	1.00	67.9 [e]	56.9	11.0	67.5	84.0	84	-

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at NFB

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)] [f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
NAM 02	Scenario 1	2.80	3.00	-	2	1.00	66.3 [e]	51.7	14.6	66.1	82.5	83	-
NAM 03	Scenario 1&2	6.60	5.00	-	2	1.00	75.6	68.3	7.3	74.7	94.3	94	94
NAM 04	Scenario 1&2	6.60	5.00	-	2	1.00	73.8	74.3	-0.5	70.8	89.6	90	90
NAM 05	Scenario 1	1.27	3.47	-	2	1.00	46.9 [e]	47.9	-1.0	43.9	59.4	59	-
NAM 06	Scenario 1&2	11.50	2.65	-	2	1.00	74.7	57.0	17.7	74.6	94.6	95	95
NAM 10	Scenario 1&2	2.80	3.30	-	2	1.00	63.4 [e]	42.3	21.1	63.4	80.0	80	80
NAM 12	Scenario 1&2	1.97	2.47	-	2	1.00	69.7 [e]	51.7	18.0	69.6	83.4	83	83
NAM 13	Scenario 1&2	1.00	1.00	-	2	1.00	51.7	46.4	5.3	50.2	63.4	63	63
NAM 14	Scenario 1&2	1.00	1.00	-	2	1.00	48.6	46.4	2.2	45.6	58.8	59	59
NAM 15	Scenario 1&2	5.00	2.00	-	2	1.00	58.3 [e]	46.4	11.9	58.0	75.0	75	75
NAM 16	Scenario 1	2.80	3.00	-	2	1.00	61.3 [e]	47.9	13.4	61.1	77.5	78	-
NAM 17	Scenario 1&2	0.40	0.40	-	2	1.00	46.3	42.3	4.0	44.1	56.0	56	56
NAM 18	Scenario 1&2	10.00	2.50	-	2	1.00	68.8 [e]	65.0	3.8	66.5	85.9	86	86
NAM-Add. 1a	Scenario 1	1.57	1.20	-	2	1.00	53.9 [e]	47.9	6.0	52.6	66.6	67	-
NAM-Add. 1b	Scenario 1	1.19	2.39	-	2	1.00	52.4 [e]	47.9	4.5	50.5	65.1	65	-
NAM-Add. 2	Scenario 1	2.12	1.60	-	2	1.00	44.1 [e]	42.3	1.8	41.1	55.9	56	-
NAM-Add. 3	Scenario 1&2	0.93	1.31	-	2	1.00	48.5 [e]	46.4	2.1	45.5	59.0	59	59
VCU-006	Scenario 1&2	1.69	2.16	0.77	4	1.00	55.0 [e]	46.4	8.6	54.4	68.8	69	69
PCU-002	Scenario 1&2	1.29	0.90	0.33	4	1.00	61.6 [e]	46.4	15.2	61.5	73.7	74	74
PCU-003	Scenario 1&2	1.29	0.90	0.33	4	1.00	51.5 [e]	42.3	9.2	50.9	63.1	63	63
PCU-004	Scenario 1&2	1.69	1.70	1.27	4	1.00	76.6 [e]	42.3	34.3	76.6	91.4	91	91

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at OCP

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Point 1	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)][f]	SWL, dB(A)	
		Length	Width	Height[d]									Daytime/ Evening	Night-time
Item 1	Scenario 1&2	0.4	0.6	-	2	1.00	60.4	60.4	55.0	5.4	58.9	71.0	71	71
OCP 10	Scenario 1&2	0.9	0.9	-	2	1.00	68.9	68.9	52.0	16.9	68.8	81.8	82	82
OCP 12	Scenario 1&2	0.9	0.9	-	2	1.00	68.8	68.8	52.0	16.8	68.7	81.7	82	82
OCP 14	Scenario 1&2	0.6	0.6	-	2	1.00	61.3	61.3	48.2	13.1	61.1	73.4	73	73
OCP 17	Scenario 1&2	0.4	0.5	-	2	1.00	54.9	54.9	53.4	1.5	51.9	63.9	64	64
OCP 18	Scenario 1&2	0.9	3.1	-	2	1.00	58.7	58.7	52.4	6.3	57.5	70.2	70	70
OCP 19	Scenario 1&2	0.9	3.1	-	2	1.00	57.1	57.1	52.4	4.7	55.3	68.0	68	68
OCP 21	Scenario 1&2	0.6	0.6	-	2	1.00	64.0	64.0	54.7	9.3	63.5	75.8	76	76
OCP 22	Scenario 1&2	0.6	0.6	-	2	1.00	62.0	62.0	54.7	7.3	61.1	73.5	74	74
OCP 23	Scenario 1&2	0.6	0.6	-	2	1.00	66.3	66.3	54.7	11.6	66.0	78.3	78	78
OCP 24	Scenario 1&2	0.6	0.6	-	2	1.00	54.3	54.3	50.8	3.5	51.7	64.1	64	64
OCP 28	Scenario 1&2	0.3	0.7	-	2	1.00	56.0	56.0	52.3	3.7	53.6	65.7	66	66
OCP 29	Scenario 1&2	0.4	0.5	-	2	1.00	56.9	56.9	52.3	4.6	55.1	67.0	67	67
OCP 30	Scenario 1&2	0.4	1.0	-	2	1.00	57.8	57.8	52.4	5.4	56.3	68.9	69	69
OCP 31-a	Scenario 1&2	0.5	0.9	-	2	1.00	55.9	55.9	52.4	3.5	53.3	65.9	66	66
OCP 31-b	Scenario 1&2	0.5	2.2	-	2	1.00	52.7	53.0 [e]	52.4	0.6	50.0	63.8	64	64
OCP 31-c	Scenario 1&2	0.5	0.9	-	2	1.00	52.8	52.8	52.2	0.6	49.8	62.4	62	62
OCP 32	Scenario 1&2	2.0	5.0	-	2	1.00	57.5	57.9 [e]	54.7	3.2	55.1	72.1	72	72
OCP 33	Scenario 1&2	0.4	0.8	-	2	1.00	66.7	66.7	54.7	12.0	66.4	78.8	79	79
OCP 34	Scenario 1&2	1.1	1.1	-	2	1.00	67.2	67.2	58.0	9.2	66.6	80.1	80	80
OCP 35	Scenario 1&2	1.1	1.1	-	2	1.00	64.8	64.8	57.0	7.8	64.0	77.4	77	77
OCP 36	Scenario 1&2	0.3	0.3	-	2	1.00	60.2	60.2	54.9	5.3	58.7	70.3	70	70
OCP 37	Scenario 1&2	1.0	1.0	-	2	1.00	63.0	63.0	59.0	4.0	60.8	74.0	74	74
OCP 38	Scenario 1	1.0	1.0	-	2	1.00	65.5	65.5	59.4	6.1	64.3	77.5	78	-
OCP 39	Scenario 1	1.0	1.0	-	2	1.00	65.0	65.0	58.4	6.6	63.9	77.1	77	-
OCP 40	Scenario 1	1.0	1.0	-	2	1.00	66.0	66.0	59.4	6.6	64.9	78.1	78	-
OCP 42	Scenario 1	2.0	4.0	-	2	0.50	60.8	60.5 [e]	52.7	7.8	59.7	73.3	73	-
OCP 43	Scenario 1&2	1.5	1.5	-	2	0.50	61.9	61.1 [e]	56.5	4.6	59.3	69.8	70	70
OCP 45	Scenario 1	1.1	1.0	-	2	1.00	65.9	65.4 [e]	53.0	12.4	65.1	78.5	79	-
	Scenario 2	1.1	1.0		2	1.00	63.3	61.6 [e]	55.4	6.2	60.4	73.7	-	74
OCP 47	Scenario 1&2	0.3	0.7	-	2	1.00	56.3	56.3	51.8	4.5	54.4	66.5	67	67
OCP 48	Scenario 1	1.6	5.2	-	2	1.00	74.8	71.5 [e]	52.7	18.8	71.4	86.1	86	-
OCP Cooling Unit 1	Scenario 1&2	13.0	1.3	1.69	4	0.25	64.8	67.2 [e]	53.6	13.6	67.0	79.1	79	79
OCP 58	Scenario 1&2	0.9	0.9	-	2	1.00	61.2	61.2	52.0	9.2	60.6	73.7	74	74
OCP 59	Scenario 1&2	0.9	0.9	-	2	1.00	60.2	60.2	52.0	8.2	59.5	72.5	73	73
VCU101	Scenario 1&2	0.8	0.9	1.69	4	1.00	59.6	57.9 [e]	53.6	4.3	55.9	71.8	72	72
VCU401(1), VCU401(2	Scenario 1&2	2.5	0.8	1.69	4	0.25	61.3	61.6 [e]	45.7	15.9	61.5	67.6	68	68
VCU402(1), VCU402(2	Scenario 1&2	2.5	0.8	1.69	4	0.25	61.9	65.1 [e]	49.3	15.8	65.0	71.1	71	71
VCU403(1), VCU403(2	Scenario 1&2	2.5	0.8	1.69	4	0.25	65.3	72.8 [e]	49.3	23.5	72.8	78.9	79	79

Remarks:

a) Scenario 1 — Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 — Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at WCH & WCD

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)][f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
WCH 01	Scenario 1&2	1.90	1.00	-	2	1.00	71.7	61.2	10.5	71.3	85.4	85	85
WCH 02	Scenario 1&2	1.90	1.00	-	2	1.00	78.2	61.2	17.0	78.1	92.2	92	92
WCH 03	Scenario 1&2	5.68	2.23	-	2	1.00	63.1 [e]	64.4	-1.3	60.1	77.6	78	78
WCH 04	Scenario 1&2	4.68	2.23	-	2	1.00	68.6 [e]	64.4	4.2	66.5	83.5	84	84
WCH 05	Scenario 1&2	2.68	2.23	-	2	1.00	59.9	55.1	4.8	58.2	73.9	74	74
WCH 06	Scenario 1&2	1.30	2.30	-	2	1.00	66.7	57.5	9.2	66.1	80.8	81	81
WCH 07	Scenario 1&2	2.50	1.50	-	2	1.00	68.5	57.5	11.0	68.1	83.2	83	83
WCH 08	Scenario 1&2	4.00	1.00	-	2	1.00	68.5 [e]	63.7	4.8	66.8	82.3	82	82
WCH 09	Scenario 1&2	0.50	0.40	-	2	1.00	57.7	54.2	3.5	55.1	67.1	67	67
WCH 10	Scenario 1&2	2.00	1.00	-	2	1.00	57.7	54.2	3.5	55.1	69.3	69	69
WCH 11	Scenario 1&2	0.70	1.00	-	2	1.00	57.7	54.2	3.5	55.1	68.0	68	68
WCH 12	Scenario 1&2	1.00	1.20	-	2	1.00	60.4	54.2	6.2	59.2	72.6	73	73
WCH 13	Scenario 1&2	0.50	0.40	-	2	1.00	64.5	60.0	4.5	62.6	74.6	75	75
WCH 15	Scenario 1&2	2.50	2.00	-	2	1.00	70.3	61.5	8.8	69.7	85.1	85	85
WCH 16	Scenario 1&2	3.00	1.50	-	2	1.00	82.2	61.5	20.7	82.2	97.5	98	98
WCH 17	Scenario 1&2	2.00	2.00	-	2	1.00	76.1	61.5	14.6	75.9	91.0	91	91
WCH 18	Scenario 1&2	2.00	2.00	-	2	1.00	81.9	61.5	20.4	81.9	96.9	97	97
WCH 19	Scenario 1&2	2.00	2.00	-	2	1.00	82.9	61.5	21.4	82.9	97.9	98	98
WCH 20	Scenario 1&2	1.80	0.90	-	2	1.00	74.2	61.5	12.7	74.0	87.8	88	88
WCH 21	Scenario 1&2	0.60	0.60	-	2	1.00	59.0	54.6	4.4	57.0	69.4	69	69
WCH 22	Scenario 1&2	0.60	0.60	-	2	1.00	64.7	54.6	10.1	64.3	76.6	77	77
WCH 23	Scenario 1&2	1.10	0.60	-	2	1.00	64.3	54.6	9.7	63.8	76.7	77	77
WCH 24a	Scenario 1&2	0.60	0.60	-	2	1.00	63.9	54.6	9.3	63.4	75.7	76	76
WCH 24b	Scenario 1&2	0.60	0.60	-	2	1.00	61.7	54.6	7.1	60.8	73.1	73	73
WCH 24c	Scenario 1&2	0.60	0.60	-	2	1.00	61.1	54.6	6.5	60.0	72.3	72	72
WCH 25	Scenario 1&2	4.00	3.50	-	2	1.00	83.4 [e]	59.4	24.0	83.4	96.6	97	97
WCH 26	Scenario 1&2	0.90	0.90	-	2	1.00	69.2	59.4	9.8	68.7	81.7	82	82
WCH 27	Scenario 1&2	8.00	3.50	-	2	1.00	65.1 [e]	59.1	6.0	63.8	81.9	82	82
WCH 28	Scenario 1&2	2.02	2.01	-	2	1.00	77.3	56.8	20.5	77.3	92.3	92	92
WCH 29	Scenario 1&2	6.00	1.57	-	2	1.00	58.3 [e]	51.3	7.0	57.3	74.5	75	75
WCH 30	Scenario 1	2.00	5.64	-	2	1.00	71.2 [e]	53.9	17.3	71.1	88.4	88	-
WCH 31	Scenario 1&2	7.00	2.00	-	2	1.00	68.4 [e]	53.9	14.5	68.2	86.2	86	86
WCH 32a	Scenario 1&2	0.50	0.50	-	2	1.00	69.6	60.0	9.6	69.1	81.2	81	81
WCH 32b	Scenario 1&2	0.50	0.50	-	2	1.00	65.3	60.4	4.9	63.6	75.7	76	76
WCH 33	Scenario 1&2	0.70	0.35	-	2	1.00	59.8	54.2	5.6	58.4	70.6	71	71
WCH-Add. 1a	Scenario 1&2	2.40	1.20	-	2	1.00	70.5	57.5	13.0	70.3	84.9	85	85
WCH-Add. 1b	Scenario 1&2	2.40	1.20	-	2	1.00	72.1	57.5	14.6	71.9	86.6	87	87
WCH-Add. 2	Scenario 1&2	0.60	0.40	-	2	1.00	56.4	54.6	1.8	53.4	65.5	66	66
WCH-Add. 3	Scenario 1&2	1.50	1.30	-	2	1.00	68.7	60.4	8.3	68.0	82.0	82	82
WCH-Add. 4	Scenario 1&2	0.60	0.40	-	2	1.00	59.7	54.6	5.1	58.1	70.2	70	70
WCH-Add. 5	Scenario 1&2	1.50	0.70	-	2	1.00	61.0	54.6	6.4	59.9	73.3	73	73
WCH-Add. 6	Scenario 1&2	0.50	0.50	-	2	1.00	68.1	59.8	8.3	67.4	79.5	80	80
VCU-301	Scenario 1&2	0.77	0.93	1.69	4	1.00	72.9 [e]	59.8	13.1	72.7	89.7	90	90
WCD 01	Scenario 1&2	3.40	3.50	-	2	1.00	51.3 [e]	50.2	1.1	48.3	65.4	65	65
WCD 02	Scenario 1&2	3.40	3.50	-	2	1.00	50.0 [e]	50.2	-0.2	47.0	64.1	64	64
WCD 03	Scenario 1&2	3.40	3.50	-	2	1.00	51.1 [e]	50.2	0.9	48.1	65.2	65	65
WCD 04	Scenario 1&2	3.40	3.50	-	2	1.00	51.5 [e]	50.2	1.3	48.5	65.6	66	66
WCD 05	Scenario 1&2	3.40	3.50	-	2	1.00	56.4 [e]	53.8	2.6	53.4	70.5	71	71
WCD 06	Scenario 1&2	3.40	3.50	-	2	1.00	59.2 [e]	53.8	5.4	57.7	74.8	75	75
WCD 07	Scenario 1&2	3.40	3.50	-	2	1.00	57.9 [e]	53.8	4.1	55.8	72.9	73	73
WCD 08	Scenario 1&2	3.40	3.50	-	2	1.00	56.7 [e]	53.8	2.9	53.7	70.8	71	71
WCD 09	Scenario 1&2	2.40	9.00	-	2	1.00	50.1 [e]	51.5	-1.4	47.1	66.1	66	66
WCD 11	Scenario 1&2	2.40	9.00	-	2	1.00	52.7 [e]	51.5	1.2	49.7	68.7	69	69
WCD 12	Scenario 1&2	2.40	7.50	-	2	1.00	53.3 [e]	51.5	1.8	50.3	68.7	69	69
WCD 13	Scenario 1&2	5.00	14.00	-	2	1.00	55.8 [e]	52.1	3.7	53.4	75.4	75	75
WCD 14	Scenario 1&2	2.00	9.00	-	2	1.00	53.9 [e]	51.5	2.4	50.9	69.6	70	70
WCD 15	Scenario 1&2	2.00	7.00	-	2	1.00	55.9 [e]	51.5	4.4	53.9	71.9	72	72
WCD 17	Scenario 1&2	2.00	7.00	-	2	1.00	59.3 [e]	51.5	7.8	58.5	76.4	76	76
WCD 18	Scenario 1&2	2.60	7.50	-	2	1.00	52.2 [e]	48.0	4.2	50.1	68.7	69	69
WCD 19	Scenario 1&2	2.60	6.00	-	2	1.00	52.4 [e]	48.0	4.4	50.4	68.4	68	68
WCD 20	Scenario 1&2	2.60	7.50	-	2	1.00	50.0 [e]	48.0	2.0	47.0	65.6	66	66
WCD 21	Scenario 1&2	3.40	3.50	-	2	1.00	50.2 [e]	49.8	0.4	47.2	64.3	64	64
WCD 22	Scenario 1&2	3.40	3.50	-	2	1.00	51.1 [e]	49.8	1.3	48.1	65.2	65	65
WCD 23	Scenario 1&2	3.40	3.50	-	2	1.00	46.8 [e]	49.8	-3.0	43.8	60.9	61	61
WCD 24	Scenario 1&2	3.40	3.50	-	2	1.00	46.5 [e]	49.8	-3.3	43.5	60.6	61	61
WCD 25	Scenario 1&2	2.80	15.55	-	2	0.50	60.7 [e]	59.0	1.7	57.7	77.9	78	78
WCD 26	Scenario 1&2	1.50	3.65	-	2	1.00	53.9 [e]	50.1	3.8	51.6	67.4	67	67
WCD 27	Scenario 1&2	2.00	6.73	-	2	0.50	62.5 [e]	50.8	11.7	62.2	78.7	79	79
WCD 28	Scenario 1&2	0.30	1.20	-	2	1.00	65.8	53.0	12.8	65.6	78.2	78	78
WCD 29	Scenario 1&2	3.00	8.40	-	2	1.00	73.7 [e]	48.0	25.7	73.7	92.9	93	93
WCD 30	Scenario 1&2	3.30	9.24	-	2	1.00	67.4 [e]	52.1	15.3	67.3	86.9	87	87
WCD 32	Scenario 1&2	6.15	8.95	-	2	1.00	62.4 [e]	52.1	10.3	62.0	83.0	83	83
WCD 33	Scenario 1&2	2.77	6.15	-	2	1.00	61.7 [e]	52.1	9.6	61.2	79.3	79	79

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at LET-TVF

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)] [f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
LET 49	Scenario 1&2	7.50	4.00	-	2	1.00	69.2 [e]	55.4	13.8	69.0	88.5	89	89
LET 50	Scenario 1&2	7.50	4.00	-	2	1.00	70.9 [e]	55.4	15.5	70.8	90.2	90	90

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at LETA

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)] [f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
LET 01	Scenario 1	2.80	2.80	-	2	1.00	55.0 [e]	54.6	0.4	52.0	68.3	68	-
LET 03	Scenario 1&2	1.10	3.40	-	2	1.00	59.0 [e]	54.4	4.6	57.2	72.4	72	72
LET 04	Scenario 1	2.75	3.88	-	2	1.00	70.9 [e]	55.6	15.3	70.8	87.7	88	-
	Scenario 2	2.75	3.88	-	2	1.00	61.5 [e]	50.5	11.0	61.1	78.1	-	78
LET 06	Scenario 1	1.37	1.89	-	2	1.00	50.3 [e]	46.0	4.3	48.3	62.7	63	-
LET 29	Scenario 1&2	0.50	1.30	-	2	0.50	57.3 [e]	55.3	2.0	54.3	59.4	59	59
LET 30	Scenario 1&2	0.50	0.50	-	2	1.00	56.4	46.0	10.4	56.0	68.1	68	68
LET 31	Scenario 1&2	1.30	0.50	-	2	1.00	58.6 [e]	46.0	12.6	58.4	71.3	71	71
LET 32	Scenario 1&2	0.50	0.50	-	2	1.00	57.3	46.0	11.3	57.0	69.1	69	69
LET 34	Scenario 1&2	2.90	1.89	-	2	0.50	48.9 [e]	46.0	2.9	45.9	58.5	59	59
LET 37	Scenario 1&2	1.05	0.45	-	2	1.00	54.2 [e]	57.6	-3.4	51.2	63.9	64	64
LET-Add. 1	Scenario 1	1.02	6.50	-	2	1.00	63.9 [e]	46.0	17.9	63.8	80.7	81	-
LET-Add. 2	Scenario 1	1.02	0.95	-	2	1.00	63.9	46.0	17.9	63.8	77.0	77	-

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at LETB

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured L_{Aeq} [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)][f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
LET 09	Scenario 1&2	2.77	1.25	-	2	0.50	69.6 [e]	55.7	13.9	69.4	81.0	81	81
LET 13a	Scenario 1&2	1.50	2.20	-	2	1.00	54.8 [e]	54.5	0.3	51.8	66.6	67	67
LET 13b	Scenario 1&2	1.50	4.00	-	2	1.00	57.0 [e]	54.5	2.5	54.0	70.0	70	70
LET 14a	Scenario 1&2	2.07	4.00	-	2	1.00	54.7 [e]	54.1	0.6	51.7	68.2	68	68
LET 14b	Scenario 1&2	1.57	4.00	-	2	1.00	54.6 [e]	54.1	0.5	51.6	67.7	68	68
LET 14c	Scenario 1&2	1.57	3.00	-	2	1.00	56.4 [e]	54.1	2.3	53.4	68.8	69	69
LET 14d	Scenario 1&2	1.57	4.00	-	2	1.00	57.1 [e]	54.1	3.0	54.1	70.2	70	70
LET 16	Scenario 1&2	1.42	5.12	-	2	1.00	68.4 [e]	54.5	13.9	68.2	84.8	85	85
LET 17	Scenario 1&2	2.89	5.12	-	2	1.00	68.5 [e]	54.5	14.0	68.3	86.0	86	86
LET 18	Scenario 1&2	1.90	6.00	-	2	1.00	57.3 [e]	54.1	3.2	54.5	71.9	72	72
LET 20	Scenario 1&2	1.00	3.00	-	2	1.00	66.9 [e]	57.0	9.9	66.4	80.0	80	80
LET 21	Scenario 1&2	1.69	0.81	-	2	1.00	62.2 [e]	57.0	5.2	60.6	74.3	74	74
LET 22	Scenario 1&2	1.69	0.81	-	2	1.00	62.4 [e]	57.0	5.4	60.9	74.6	75	75
LET 23	Scenario 1&2	2.13	0.52	-	2	0.50	67.4 [e]	57.0	10.4	67.0	74.6	75	75
LET 26	Scenario 1	3.82	2.99	-	2	1.00	53.2 [e]	58.1	-4.9	50.2	67.2	67	-
	Scenario 2	3.82	2.99	-	2	1.00	52.8 [e]	58.1	-5.3	49.8	66.8	-	67
LET 27a	Scenario 1&2	2.40	2.17	-	2	1.00	58.7 [e]	54.5	4.2	56.6	72.1	72	72
LET 27b	Scenario 1&2	2.40	3.99	-	2	1.00	55.1 [e]	54.5	0.6	52.1	68.8	69	69
LET 28	Scenario 1&2	2.02	4.87	-	2	1.00	62.3 [e]	58.1	4.2	60.2	77.2	77	77
LET 41	Scenario 1&2	1.27	4.00	-	2	0.50	63.5 [e]	57.6	5.9	62.2	74.9	75	75
LET 42	Scenario 1&2	0.97	0.97	-	2	1.00	75.0	57.6	17.4	74.9	88.1	88	88
LET 43	Scenario 1&2	2.00	0.55	-	2	1.00	60.4 [e]	59.4	1.0	57.4	71.1	71	71
LET 44	Scenario 1&2	2.08	1.98	-	2	1.00	66.8 [e]	59.4	7.4	65.9	79.4	79	79
LET 45	Scenario 1&2	1.00	1.00	-	2	1.00	54.5	54.5	0.0	51.5	64.7	65	65
LET 46	Scenario 1&2	0.60	0.99	-	2	1.00	59.9	55.3	4.6	58.1	70.8	71	71
LET 47	Scenario 1&2	1.00	0.90	-	2	1.00	61.3	56.7	4.6	59.5	72.6	73	73
LET-Add. 3	Scenario 1&2	5.37	0.62	-	2	1.00	57.3 [e]	54.5	2.8	54.3	70.2	70	70
LET-Add. 4	Scenario 1&2	5.11	0.60	-	2	1.00	58.4 [e]	54.5	3.9	56.1	71.9	72	72
LET-Add. 5	Scenario 1&2	0.90	1.17	1.89	4	1.00	64.6 [e]	63.4	1.2	61.6	75.8	76	76
LET-Add. 6	Scenario 1&2	3.00	1.45	-	2	1.00	54.4 [e]	54.5	-0.1	51.4	66.7	67	67
LET-Add. 7	Scenario 1&2	0.45	0.99	-	2	1.00	60.6	54.5	6.1	59.4	72.0	72	72

Remarks:

a) Scenario 1 Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at SOH

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured LAeq [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)][f]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
SOH01	Scenario 1&2	3.60	0.50	-	2	1.00	54.3 [e]	54.5	-0.2	51.3	66.1	66	66
SOH02	Scenario 1&2	1.80	1.50	-	2	1.00	54.8 [e]	54.2	0.6	51.8	66.3	66	66
SOH39	Scenario 1	3.00	3.00	-	2	1.00	68.4 [e]	53.9	14.5	68.2	84.8	85	-
	Scenario 2	3.00	3.00	-	2	1.00	66.8 [e]	53.9	13.1	66.5	82.8		69
SOH03	Scenario 1	4.00	2.00	-	2	1.00	55.3 [e]	54.1	1.2	52.3	68.7	69	-
SOH04a	Scenario 1	1.20	1.80	-	2	1.00	55.9 [e]	54.4	1.5	52.9	67.1	67	-
SOH04b	Scenario 1	0.80	1.80	-	2	1.00	55.1 [e]	54.4	0.7	52.1	63.6	64	-
SOH09	Scenario 1	4.77	2.00	-	2	0.25	58.4 [e]	55.2	3.2	55.6	67.9	68	-
SOH10-1	Scenario 1&2	1.50	2.00	-	2	0.25	58.0 [e]	55.2	2.8	55.0	63.6	64	64
SOH10-2	Scenario 1&2	1.25	2.00	-	2	0.25	57.4 [e]	55.2	2.2	54.4	62.5	63	63
SOH10-3	Scenario 1&2	1.25	2.00	-	2	0.25	57.1 [e]	55.2	1.9	54.1	62.2	62	62
SOH12	Scenario 1	2.50	1.80	-	2	1.00	62.7 [e]	58.2	4.5	60.8	72.4	72	-
SOH15	Scenario 1&2	0.80	0.20	-	2	1.00	71.9 [e]	55.5	16.4	71.8	78.9	79	79
SOH18	Scenario 1	2.00	2.70	-	2	1.00	74.2 [e]	51.4	22.8	74.2	84.8	85	-
	Scenario 2	2.00	2.70	-	2	1.00	71.4 [e]	51.4	20.0	71.4	81.9		82
SOH19	Scenario 1&2	8.00	2.75	-	2	1.00	62.8 [e]	50.7	12.1	62.5	81.4	81	81
SOH20	Scenario 1&2	1.19	2.39	-	2	1.00	67.2 [e]	56.7	10.5	66.8	78.4	78	78
SOH22	Scenario 1&2	5.00	1.50	-	2	1.00	55.1 [e]	51.4	3.7	52.7	66.3	66	66
SOH23	Scenario 1&2	3.50	1.30	-	2	1.00	61.4 [e]	51.4	10.0	60.9	73.5	74	74
SOH24	Scenario 1	3.50	2.30	-	2	1.00	53.6 [e]	51.4	2.2	50.6	64.0	64	-
SOH25	Scenario 1&2	2.50	1.30	-	2	1.00	61.6 [e]	51.4	10.2	61.2	73.0	73	73
SOH26	Scenario 1&2	1.10	1.10	-	2	1.00	73.4 [e]	50.3	23.1	73.4	81.8	82	82
SOH27	Scenario 1&2	1.10	1.10	-	2	1.00	56.8 [e]	50.3	6.5	55.7	66.1	66	66
SOH28	Scenario 1&2	1.10	1.10	-	2	1.00	55.7 [e]	50.3	5.4	54.2	64.6	65	65
SOH29	Scenario 1&2	0.80	1.19	-	2	1.00	70.2	53.3	16.9	70.1	78.3	78	78
SOH30	Scenario 1&2	1.19	2.39	-	2	1.00	59.0	53.5	5.5	57.6	69.2	69	69
SOH32	Scenario 1&2	0.80	1.00	-	2	1.00	54.6 [e]	55.2	-0.6	51.6	64.6	65	65
SOH33	Scenario 1&2	1.10	1.10	-	2	1.00	62.9 [e]	55.2	7.7	62.1	72.5	73	73
SOH34	Scenario 1&2	0.90	0.90	-	2	1.00	60.6	51.9	8.7	60.0	70.0	70	70
SOH35	Scenario 1&2	0.80	1.00	-	2	1.00	54.4	54.6	-0.2	51.4	64.4	64	64
SOH36	Scenario 1&2	2.39	3.57	-	2	1.00	59.3 [e]	51.9	7.4	58.4	71.9	72	72
SOH37	Scenario 1&2	1.19	3.57	-	2	0.25	62.7 [e]	51.9	10.8	62.3	69.2	69	69
SOH38	Scenario 1&2	0.80	1.30	-	2	1.00	51.5	53.3	-1.8	48.5	58.8	59	59
SOH40	Scenario 1&2	1.60	2.00	-	2	1.00	57.1 [e]	51.9	5.2	55.5	67.3	67	67
SOH41	Scenario 1	1.00	2.00	-	2	1.00	72.5 [e]	51.9	20.6	72.5	81.6	82	-
	Scenario 2	1.50	2.00	-	2	1.00	57.4 [e]	51.9	5.5	56.0	67.6		68
SOH42	Scenario 1	2.80	2.00	-	2	1.00	72.6 [e]	50.3	22.3	72.6	83.2	83	-
SOH43	Scenario 1&2	0.90	0.50	-	2	1.00	54.8	51.4	3.4	52.1	64.7	65	65
SOH44	Scenario 1&2	0.40	0.40	-	2	1.00	51.5	51.4	0.1	48.5	60.4	60	60
SOH45	Scenario 1&2	1.20	1.50	-	2	1.00	65.2 [e]	51.4	13.8	65.0	75.9	76	76
SOH46	Scenario 1	2.50	3.00	-	2	1.00	73.1 [e]	51.9	21.2	73.1	81.4	81	-
SOH47	Scenario 1&2	1.50	2.50	-	2	1.00	61.7 [e]	51.9	9.8	61.2	73.2	73	73
SOH48-1	Scenario 1&2	1.50	2.00	-	2	1.00	69.0 [e]	51.7	17.3	68.9	78.5	79	79
SOH48-2	Scenario 1&2	4.95	2.00	-	2	1.00	70.3 [e]	50.2	20.1	70.3	81.2	81	81
SOH48-3	Scenario 1&2	1.50	2.00	-	2	1.00	70.6 [e]	51.0	19.6	70.6	80.2	80	80
SOH48-4	Scenario 1&2	3.00	2.00	-	2	1.00	72.2 [e]	51.4	20.8	72.2	83.0	83	83
SOH49	Scenario 1	1.50	3.00	-	2	1.00	65.4 [e]	51.9	13.5	65.2	75.6	76	-
SOH51	Scenario 1&2	2.00	0.40	-	2	1.00	67.4 [e]	51.9	15.5	67.3	75.8	76	76
PCU-401	Scenario 1	1.30	0.65	0.40	4	1.00	64.4 [e]	50.3	14.1	64.2	77.5	78	-
SOH-Add1a	Scenario 1&2	0.95	1.45	-	2	1.00	67.5 [e]	54.6	12.9	67.3	75.9	76	76
SOH-Add1b	Scenario 1&2	0.95	1.45	-	2	1.00	67.7 [e]	54.6	13.1	67.5	76.1	76	76

Remarks:

a) Scenario 1 — Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening periods
Scenario 2 — Worst case scenario for normal operation & emergency modes to check against the noise criteria during night-time period

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.1 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Sound Power Levels (SWLs) for Fixed Plants at LWB

Louvre	Mode[a]	Source size (m)			Method	D (m)[b]	Measured L_{Aeq} [dB(A)]	Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected L_{Aeq} [dB(A)][c]	Calculated SWL, L_{Aeq} [dB(A)]	SWL, dB(A)	
		Length	Width	Height[d]								Daytime/ Evening	Night-time
LWB01	-	4.80	3.45	-	2	1	73.1 [e]	63.4	9.7	72.6	90.5	91	91
LWB02	-	4.80	3.45	-	2	1	73.1 [e]	55.8	17.3	73.0	90.9	91	91
LWB03	-	0.40	0.40	-	2	1	58.2	45.9	12.3	57.9	69.8	70	70
LWB04	-	0.40	0.40	-	2	1	61.9	48.3	13.6	61.7	73.6	74	74
LWB07	-	0.50	0.40	-	2	1	59.5	49.7	9.8	59.0	71.0	71	71
LWB08	-	0.50	0.40	-	2	1	61.9	46.2	15.7	61.8	73.8	74	74
LWB09	-	2.30	1.00	-	2	1	65.9 [e]	49.9	16.0	65.8	80.2	80	80
LWB10	-	3.00	1.20	-	2	1	67.1 [e]	50.2	16.9	67.0	82.1	82	82
LWB11	-	1.50	1.20	-	2	1	64.5 [e]	52.5	12.0	64.2	78.1	78	78
LWB12	-	1.50	1.20	-	2	1	65.5 [e]	52.5	13.0	65.3	79.2	79	79
LWB13	-	0.80	1.20	-	2	1	64.6 [e]	52.5	12.1	64.3	77.5	78	78
LWB14	-	3.00	1.20	-	2	1	65.9 [e]	59.5	6.4	64.8	79.9	80	80
LWB15	-	1.50	0.60	-	2	1	71.0 [e]	59.5	11.5	70.7	84.0	84	84
LWB16	-	3.60	1.20	-	2	1	75.6 [e]	55.9	19.7	75.6	91.1	91	91
LWB17	-	3.60	1.20	-	2	1	72.3 [e]	55.9	16.4	72.2	87.7	88	88
LWB18	-	3.00	1.00	-	2	1	64.0 [e]	47.3	16.7	63.9	78.8	79	79
LWB19	-	0.50	0.50	-	2	1	66.6	48.6	18.0	66.5	78.6	79	79
LWB20	-	2.00	1.00	-	2	1	63.3 [e]	48.8	14.5	63.1	77.3	77	77
LWB21	-	0.60	0.60	-	2	1	48.8	48.8	0.0	45.8	58.1	58	58
LWB22	-	2.20	0.74	-	2	1	47.8 [e]	48.8	-1.0	44.8	58.8	59	59
LWB23	-	1.00	1.00	-	2	1	49.8	47.3	2.5	46.8	60.0	60	60
LWB24	-	1.00	1.00	-	2	1	49.8	47.3	2.5	46.8	60.0	60	60
LWB25	-	5.00	3.45	-	2	1	73.0 [e]	56.3	16.7	72.9	90.9	91	91
LWB26	-	5.00	3.45	-	2	1	75.0 [e]	68.5	6.5	73.9	91.9	92	92
LWB28	-	1.75	0.60	-	2	1	75.9 [e]	49.1	26.8	75.9	89.4	90	90
LWB29	-	1.00	0.90	-	2	1	70.2	49.1	21.1	70.2	83.3	83	83
LWB30	-	1.80	1.18	-	2	1	77.5 [e]	48.4	29.1	77.5	91.7	92	92
LWB31	-	5.66	1.18	-	2	1	72.1 [e]	49.1	23.0	72.1	88.7	89	89
LWB32	-	2.39	1.20	-	2	1	74.6 [e]	49.1	25.5	74.6	89.2	89	89
LWB33	-	3.40	2.38	-	2	1	75.7 [e]	49.1	26.6	75.7	92.0	92	92
LWB34	-	4.80	3.45	-	2	1	74.8 [e]	62.7	12.1	74.5	92.4	92	92
LWB35	-	4.80	3.45	-	2	1	72.7 [e]	53.3	19.4	72.6	90.5	91	91
LWB36	-	9.10	4.37	-	2	1	73.1 [e]	54.6	18.5	73.0	93.3	93	93
LWB37	-	8.86	4.37	-	2	1	73.4 [e]	53.1	20.3	73.4	93.5	94	94
LWB38	-	2.30	3.65	4.40	4	1	67.4 [e]	56.4	11.0	67.0	88.2	88	88
LWB39	-	2.30	3.65	4.40	4	1	69.6 [e]	56.4	13.2	69.4	89.0	89	89
LWB40	-	2.30	3.65	4.40	4	1	67.1 [e]	56.4	10.7	66.7	86.3	86	86
LWB41	-	0.83	0.32	0.65	4	1	62.1 [e]	56.4	5.7	60.7	74.5	75	75

Remarks:

a) Worst case scenario for normal operation & emergency modes to check against the noise criteria during daytime/evening and night-time periods

b) Perpendicular distance between microphone and the nearest surface of the noise sources

c) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0dB

d) Height of the source is based on the type of fixed plant according to Table 2.2 of Report.

e) Results are averaged from number of point(s) in accordance with ISO3746.

f) The calculation of SWL is in accordance with the Methodology in Annex A2.

Annex B

Noise Measurement to Confirm any Tonal, Impulsive and Intermittent Characteristics from the Fixed Plant Noise Sources at Noise Sensitive Receivers (by ERM)

Annex B1

Calibration Certificates

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. 607302 Page 1 of 4 Pages

Customer : Environmental Resources Management

Address : 16/F DCH Commercial Centre 25 Westlands Road Quarry Bay Hong Kong

Order No. : Q62896 **Date of receipt :** 12-Aug-16

Item Tested

Description : Sound Level Meter

Manufacturer : 01dB-Stell **I.D.** : --

Model : Solo **Serial No.** : 65225

Test Conditions

Date of Test : 30-Aug-16 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 60651, IEC 60804, IEC 61260.

Test Results

All results were within the IEC 60651 Type 1 & IEC 60804 Type 1 & IEC 61260 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C147450	SCL-HKSAR
S240	Sound Level Calibrator	601604	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Kin Wong

Approved by : Alan Chu

Date: 30-Aug-16

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

E

Calibration Certificate

Results :

1. Accuracy Check

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Range (dB)	Response	Weighting		
20 - 140	Fast	L_A	94.0	93.9
	Slow			93.9
	Fast	L_C		94.0
	Slow			94.0
	Fast	L_A	114.0	114.0
	Slow			114.0
	Fast	L_C		114.0
	Slow			113.9

IEC 60651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 60651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.0	0.0	± 0.7 dB
130	104.0	104.0	0.0	
120	94.0	94.0(Ref.)	- -	
110	84.0	84.1	+0.1	
100	74.0	74.1	+0.1	
90	64.0	64.0	0.0	
80	54.0	54.0	0.0	

Uncertainty : ± 0.1 dB

Calibration Certificate

3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec.
140	84.0	84.1	+0.1	± 0.4 dB
	94.0	94.0 (Ref.)	- -	
	95.0	95.0	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 60651 Type 1 Spec.
31.5 Hz	-39.2	- 39.4 dB, ± 1.5 dB
63 Hz	-25.9	- 26.2 dB, ± 1.5 dB
125 Hz	-16.0	- 16.1 dB, ± 1 dB
250 Hz	-8.5	- 8.6 dB, ± 1 dB
500 Hz	-3.2	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1 dB
4 kHz	+0.9	+ 1.0 dB ,± 1 dB
8 kHz	-1.8	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-12.1	- 6.6 dB, + 3 dB ~- ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 60804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
$1/10^2$	40.0	40.1	
$1/10^3$	40.0	40.1	± 1.0 dB
$1/10^4$	40.0	40.1	

Uncertainty : ± 0.1 dB

Calibration Certificate

6. Filter Characteristics

6.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 (dB)
125 Hz	-65.0	< - 61
250 Hz	-54.6	< - 42
500 Hz	-24.4	< - 17.5
707 Hz	-3.0	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	-2.8	- 2 ~ - 5
2 kHz	-48.3	< - 17.5
4 kHz	-66.7	< - 42
8 kHz	-67.1	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1012 hPa.
4. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 600699 Page 1 of 4 Pages

Customer : Environmental Resources Management

Address : 16/F DCH Commercial Centre 25 Westlands Road Quarry Bay Hong Kong

Order No. : Q54386 **Date of receipt :** 22-Jan-16

Item Tested

Description : Sound Level Meter

Manufacturer : 01dB-Stell **I.D.** :

Model : Solo **Serial No.** : 65226

Test Conditions

Date of Test : 16-Feb-16 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 651, IEC 804 and IEC 1260.

Test Results

All results were within the IEC 651 Type1, IEC 804 Type1 and IEC 1260 Class1 specification after adjustment.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C147450	SCL-HKSAR
S240	Sound Level Calibrator	500563	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Y. K. Wong

Approved by : Alan Chu

Date: 16-Feb-16

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

EO

Calibration Certificate

Results :

1. Accuracy Check

UUT Setting			Applied Value (dB)	UUT Reading (dB)	
Range (dB)	Response	Weighting		Before adjust	After adjust
20 - 140	Fast	L_A	94.0	*93.2	93.9
	Slow			--	93.9
	Fast	L_C		--	93.9
	Slow			--	93.9
	Fast	L_A	114.0	--	113.9
	Slow			--	113.9
	Fast	L_C		--	113.9
	Slow			--	113.9

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB
IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.1 dB

3. Linearity

3.1 Differential level linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
140	84.0	83.9	0.0	± 0.4 dB
	94.0	93.9 (Ref.)	- -	
	95.0	94.9	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.4	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.1	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.1	- 16.1 dB, ± 1 dB
250 Hz	- 8.5	- 8.6 dB, ± 1 dB
500 Hz	- 3.2	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+ 1.3	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.0	+ 1.0 dB ,± 1 dB
8 kHz	- 1.7	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 12.0	- 6.6 dB, + 3 dB ~- ∞

Uncertainty : ± 0.1 dB

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
$1/10^2$	40.0	40.0	
$1/10^3$	40.0	40.0	± 1.0 dB
$1/10^4$	40.0	40.0	

Uncertainty : ± 0.1 dB

6. Filter Characteristics

6.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 1260 Class 1 (dB)
125 Hz	- 75.0	< - 61
250 Hz	- 55.2	< - 42
500 Hz	- 24.4	< - 17.5
707 Hz	- 3.2	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	- 2.8	- 2 ~ - 5
2 kHz	- 48.6	< - 17.5
4 kHz	- 88.0	< - 42
8 kHz	- 90.0	< - 61

Uncertainty : ± 0.25 dB

Calibration Certificate

6.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	IEC 1260 Class 1 (dB)
326 Hz	- 76.0	< - 61
530 Hz	- 60.2	< - 42
772 Hz	- 28.5	< - 17.5
891 Hz	- 3.5	+ 0.3 ~ - 5.0
1 kHz (Ref)	--	--
1.122 kHz	- 3.8	+ 0.3 ~ - 5.0
1.296 kHz	- 31.5	< - 17.5
1.887 kHz	- 65.4	< - 42
3.070 kHz	- 90.3	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 022 hPa.
4. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.
5. * Out of specification

---------- END ----------

聲學測試服務有限公司
Acoustic Testing Services Limited
Unit E, 2/F., Century Industrial Centre, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax: (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

Certificate of Calibration

Certificate No. ATS15-100-CC001

Customer:	**Aeolian View Consultants** Room 1907 Tung Che Commercial Centre, 246 Des Voeux Road West, Hong Kong	
Item Tested		
Description:	Sound Analyzer	, Microphone
Manufacturer:	Svantek	
Type No.:	Svan-959	, 40AE
Serial No.:	11238	, 520688
Test Conditions		
Temperature:	23°C	
Relative Humidity:	65%	
Test Specifications:	Calibration Check	
Date of calibration:	28 January 2016	
Test Results:	All calibration points are within manufacturer's specification.	

The test equipment used for calibration is traceable to National Standards via:
- South China National Center of Metrology, Guangdong Institute of Metrology

Certified by: _____
K. T. Leung
MIOA, MHKIOA

Issue Date: 28 January 2016

聲學測試服務有限公司
Acoustic Testing Services Limited
Unit E, 2/F., Century Industrial Centre, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax: (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

1. The instrument under test was allowed to stabilize in the laboratory for over 24 hours.

2. Calibration equipment:

Description:	Acoustical Calibrator
Manufacturer:	Brüel & Kjær
Type No.:	4231
Serial No.:	2478237
Last Calibration Date:	17 June 2015
Certificate No.:	SSD201503359

3. The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. Acoustic Testing Services Limited shall not be liable for any loss or damage resulting from the use of the equipment.

4. Calibration Results

Setting of unit-under-test (UUT)				Applied value		UUT Reading, dB
Range, dB	Parameter	Frequency Weighting	Response	Level, dB	Frequency, Hz	
-10-140	SPL	A	F	93.85	1000	93.9
			S			93.9
			I			93.9
		C	F			93.9
			S			93.9
			I			93.9
		L	F			94.0
			S			93.9
			I			94.0
		A	F	113.85	1000	113.9
			S			113.9
			I			113.9

5. The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

聲學測試服務有限公司
Acoustic Testing Services Limited
Unit B, 2/F., Century Industrial Centre, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax: (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

Certificate of Calibration

Certificate No. ATS15-100-CC003

Customer:	**Aeolian View Consultants** Room 1907 Tung Che Commercial Centre, 246 Des Voeux Road West, Hong Kong			
Item Tested				
Description:	Sound Analyzer	,	Microphone	, Preamplifier
Manufacturer:	NTi Audio			
Type No.:	XL2-TA	,	MC230	, MA220
Serial No.:	A2A-08670-E0	,	9422	, 5045
Test Conditions				
Temperature:	25°C			
Relative Humidity:	66%			
Test Specifications:	Calibration Check			
Date of calibration:	04 May 2016			
Test Results:	All calibration points are within manufacturer's specification			

The test equipment used for calibration is traceable to National Standards via:
- South China National Center of Metrology, Guangdong Institute of Metrology

Certified by: _____

Y. T. Leung
MIOA, MHKIOA

Issue Date: 04 May 2016

Unit E, 3/F., Century Industrial Centre, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax: (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

1. The instrument under test was allowed to stabilize in the laboratory for over 24 hours.

2. Calibration equipment:

Description:	Acoustical Calibrator
Manufacturer:	Brüel & Kjær
Type No.:	4231
Serial No.:	2478237
Last Calibration Date:	17 June 2015
Certificate No.:	SSD201503359

3. The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. Acoustic Testing Services Limited shall not be liable for any loss or damage resulting from the use of the equipment.

4. Calibration Results

Setting of unit-under-test (UUT)				Applied value		UUT Reading, dB
Range, dB	Parameter	Frequency Weighting	Response	Level, dB	Frequency, Hz	
-10-140	SPL	A	F	93.85	1000	93.9
			S			93.9
			I			94.0
		C	F			94.0
			S			94.0
			I			94.1
		L	F			94.0
			S			93.9
			I			94.0
		A	F	113.85	1000	114.0
			S			114.0
			I			114.0

5. The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C163994
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC16-1623) Date of Receipt / 收件日期 : 18 July 2016

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Casella
Model No. / 型號 : CEL-633C
Serial No. / 編號 : 0442197
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 21 July 2016

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Project Engineer

Date of Issue 簽發日期 : 21 July 2016

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C163994
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before test from 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurement at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C160077
CL281	Multifunction Acoustic Calibrator	PA160023

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-Calibration

UUT Setting		Applied Value		UUT Reading (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)	
L_F	A	114.00	1	112.6

6.1.1.2 After Self-Calibration

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)		
L_F	A	114.00	1	114.0	± 1.1

6.1.2 Linearity

UUT Setting		Applied Value		UUT Reading (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)	
L_F	A	114.00	1	114.0 (Ref.)
		104.00		103.9
		94.00		93.6

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)		
L_F	A	114.00	1	114.0	Ref.
L_S				114.0	± 0.3

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C163994
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq.		
L_F	A	94.00	63 Hz	87.7	-26.2 ± 1.5
			125 Hz	97.8	-16.1 ± 1.5
			250 Hz	105.3	-8.6 ± 1.4
			500 Hz	110.8	-3.2 ± 1.4
			1 kHz	114.0	Ref.
			2 kHz	115.2	+1.2 ± 1.6
			4 kHz	114.9	+1.0 ± 1.6
			8 kHz	112.6	-1.1(+2.1 ; -3.1)
			12.5 kHz	108.4	-4.3(+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq.		
L_F	C	94.00	63 Hz	113.2	-0.8 ± 1.5
			125 Hz	113.8	-0.2 ± 1.0
			250 Hz	114.0	0.0 ± 1.0
			500 Hz	114.0	0.0 ± 1.0
			1 kHz	114.0	Ref.
			2 kHz	113.8	-0.2 ± 1.0
			4 kHz	113.1	-0.8 ± 1.0
			8 kHz	110.7	-3.0 (+1.5 ; -3.0)
			12.5 kHz	106.5	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : CEL-251 & S/N : 00364

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

114 dB	: 63 Hz - 125 Hz	: ± 0.45 dB
	250 Hz - 500 Hz	: ± 0.40 dB
	1 kHz	: ± 0.30 dB
	2 kHz - 4 kHz	: ± 0.45 dB
	8 kHz	: ± 0.55 dB
	12.5 kHz	: ± 0.80 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 114 dB)
94 dB	: 1 kHz	: ± 0.10 dB (Ref. 114 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C154709
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1720) Date of Receipt / 收件日期 : 21 August 2015

Description / 儀器名稱 : Precision Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NA-27
Serial No. / 編號 : 00201194
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 26 August 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Project Engineer

Date of Issue 簽發日期 : 1 September 2015

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C154709
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	Fast	94.00	1	* 94.8	± 0.7

* Out of IEC 60651 Type 1 Spec.

6.1.1.2 After Adjustment

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	Fast	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting			Applied Value		UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
60 - 120	LA	Fast	94.00	1	94.0 (Ref.)
			104.00		104.0
			114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C154709
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	Fast	94.00	1	94.0	Ref.
		Slow			94.0	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
50 -110	LA	Fast	106.00	Continuous	106.0	Ref.
	LAmax			200 ms	105.0	-1.0 ± 1.0
	LA	Slow		Continuous	106.0	Ref.
	LAmax			500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LA	Fast	94.00	31.5 Hz	54.4	-39.4 ± 1.5
				63 Hz	67.7	-26.2 ± 1.5
				125 Hz	77.7	-16.1 ± 1.0
				250 Hz	85.2	-8.6 ± 1.0
				500 Hz	90.7	-3.2 ± 1.0
				1 kHz	94.0	Ref.
				2 kHz	95.2	+1.2 ± 1.0
				4 kHz	95.0	+1.0 ± 1.0
				8 kHz	92.8	-1.1 (+1.5 ; -3.0)
				12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

Certificate of Calibration
校正證書

Certificate No. : C154709
證書編號

6.3.2 C-Weighting

UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	Fast	94.00	31.5 Hz	90.8	-3.0 ± 1.5
				63 Hz	93.1	-0.8 ± 1.5
				125 Hz	93.8	-0.2 ± 1.0
				250 Hz	93.9	0.0 ± 1.0
				500 Hz	94.0	0.0 ± 1.0
				1 kHz	93.9	Ref.
				2 kHz	93.8	-0.2 ± 1.0
				4 kHz	93.1	-0.8 ± 1.0
				8 kHz	90.9	-3.0 (+1.5 ; -3.0)
				12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting			Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
50 - 110	LAeq	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
					$1/10^2$		90	90.3	± 0.5
		60 sec.			$1/10^3$		80	80.1	± 1.0
		5 min.			$1/10^4$		70	70.0	± 1.0

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 320128

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	: 31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited Calibration & Testing Laboratory
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Tel電話: 2927 2606 Fax傳真: 2744 8986 E-mail電郵: callab@suncreation.com Website網址: www.suncreation.com

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. 600700 Page 1 of 2 Pages

Customer : Environmental Resources Management

Address : 16/F DCH Commercial Centre 25 Westlands Road Quarry Bay Hong Kong

Order No. : Q54386 **Date of receipt :** 22-Jan-16

Item Tested

Description : Sound Level Calibrator

Manufacturer : 01dB-Stell **I.D.** : --

Model : CAL21 **Serial No.** : 34113607(2011)

Test Conditions

Date of Test : 27-Jan-16 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : Z02, IEC942.

Test Results

All results were within the IEC 942 Class 2 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S240	Sound Level Calibrator	500563	NIM-PRC & SCL-HKSAR
S041	Universal Counter	506951	SCL-HKSAR
S014	Spectrum Analyzer	505317	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Alan Chu

Approved by : Steve Kwan

Date: 27-Jan-16

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

EO

Calibration Certificate

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 2 Spec.
94	94.0	± 0.5 dB

Uncertainty : ± 0.1 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	IEC 942 Class 2 Spec.
1 kHz	1.003 kHz	± 4 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB
IEC 942 Class 2 Spec. : ± 0.2 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 1.5 %
IEC 942 Class 2 Spec. : < 3 %
Uncertainty : ± 2.3 % of rdg.

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 010 hPa.

---------- END ----------

聲學測試服務有限公司
Acoustic Testing Services Limited
Unit E, 2/F., Century Industrial Centre, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax. (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

Certificate of Calibration

Certificate No. ATS15-100-CC002

Customer:	**Aeolian View Consultants** Room 1907 Tung Che Commercial Centre, 246 Des Voeux Road West, Hong Kong
Item Tested	
Description:	Sound Level Calibrator
Manufacturer:	Svantek
Type No.:	SV-30A
Serial No.:	7441
Test Conditions	
Temperature:	23°C
Relative Humidity:	65%
Test Specifications:	Calibration Check
Date of calibration:	28 January 2016
Test Results:	All calibration points are within manufacturer's specification.

The test equipment used for calibration is traceable to National Standards via:
- Standards and Calibration Laboratory, the Government of the HKSAR.

Certified by: _____
Y. T. LEUNG
MIOA, MHKIOA

Issue Date: 28 January 2016

聲學測試服務有限公司
Acoustic Testing Services Limited
Unit E, 2/F., Century Industrial Center, 33-35 Au Pui Wan Street, Fo Tan, Shatin, New Territories, Hong Kong
Tel: (852) 2690 9126 Fax: (852) 2690 9125 E-mail: info@ATSL.com.hk http://www.ATSL.com.hk

1. The instrument under test was allowed to stabilize in the laboratory for over 24 hours.

2. Calibration equipment:

	Type	Serial No.	Last Calibration Date	Calibration Report Number	Traceable to
PULSE Frequency Analyzer	3560-B	2454296	13-Feb-2015	LF150064	SCL, HKSAR
Reference Microphone*	B&K 4942	2497997	11-Feb-2015	PA150018	SCL, HKSAR

3. Calibration Results

Nominal value	Measured value	Expanded Measurement Uncertainty of Reference Microphone B&K 4942 at 1000 Hz	
dB	dB	dB	mV/Pa
94.00	93.84	0.07	0.36

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C163756
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC16-1465) Date of Receipt / 收件日期 : 29 June 2016

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10786708
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 11 July 2016

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Project Engineer

Date of Issue 簽發日期 : 12 July 2016

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
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Certificate of Calibration
校正證書

Certificate No. : C163756
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C163709
CL281	Multifunction Acoustic Calibrator	PA160023
TST150A	Measuring Amplifier	C161175

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.7	± 0.5	± 0.2

5.1.2 After Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

5.2.1 Before Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.987	1 kHz ± 2 %	± 1

5.2.2 After Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.987	1 kHz ± 2 %	± 1

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Certificate of Calibration
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Certificate No. : C163756
證書編號

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	7-Mar-2015	**Certificate Number**	MLCN150356S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 959
Serial Number	11228
Equipment Number	--

Calibration Particular

Date of Calibration	7-Mar-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 7-Mar-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong. Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

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Certificate No. MLCN150356S

Calibration Data

Weighting / Time	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
A / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / FAST (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
		114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
A / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / SLOW (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
A / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
C / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB
Z / IMPULSE (1 kHz Input)	LOW	94.2 dB	94.0 dB	0.2 dB	0.2 dB	± 0.7 dB
	HIGH	114.2 dB	114.0 dB	0.2 dB	0.2 dB	± 0.7 dB

- END -

Calibrated By : Dan
Date : 7-Mar-2015

Checked By : K.O. Lo
Date : 7-Mar-2015

萬儀校正中心有限公司
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香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	4-May-2015	**Certificate Number**	MLCN150723S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	20890
Equipment Number	--

Calibration Particular

Date of Calibration	2-May-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

K.O. Lo 4-May-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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MaxLab Calibration Centre Limited
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Certificate NoMLCN150723S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB

- END -

Calibrated By : Dan
Date : 2-May-2015

Checked By : K.O. Lo
Date : 4-May-2015

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香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	7-Mar-2015	**Certificate Number**	MLCN150355S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	23412
Equipment Number	--

Calibration Particular

Date of Calibration	7-Mar-2015		
Calibration Equipment	4231(MLTE008) / PA140064 / 29-Apr-2016		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date

K.O. Lo 7-Mar-2015

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Certificate NoMLCN150355S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB

- END -

Calibrated By : Dan
Date : 7-Mar-2015

Checked By : K.O. Lo
Date : 7-Mar-2015

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong. Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	25-May-2016	**Certificate Number**	MLCN161053S

Customer Information

Company Name	Acoustics Innovation Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T.

Equipment-under-Test (EUT)

Description	Acoustic Calibrator
Manufacturer	Svantek
Model Number	SV 30A
Serial Number	10814
Equipment Number	--

Calibration Particular

Date of Calibration	25-May-2016		
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-18 1351(MLTE049) / MLEC15/06/02 / 3-Jun-16		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	Not applicable
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 25-May-2016

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.

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Certificate No. MLCN161053S

Calibration Data

EUT Setting	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
94 dB	94.0 dB	0.0 dB	0.15 dB	± 0.3 dB
114 dB	114.0 dB	0.0 dB	0.15 dB	± 0.3 dB

- END -

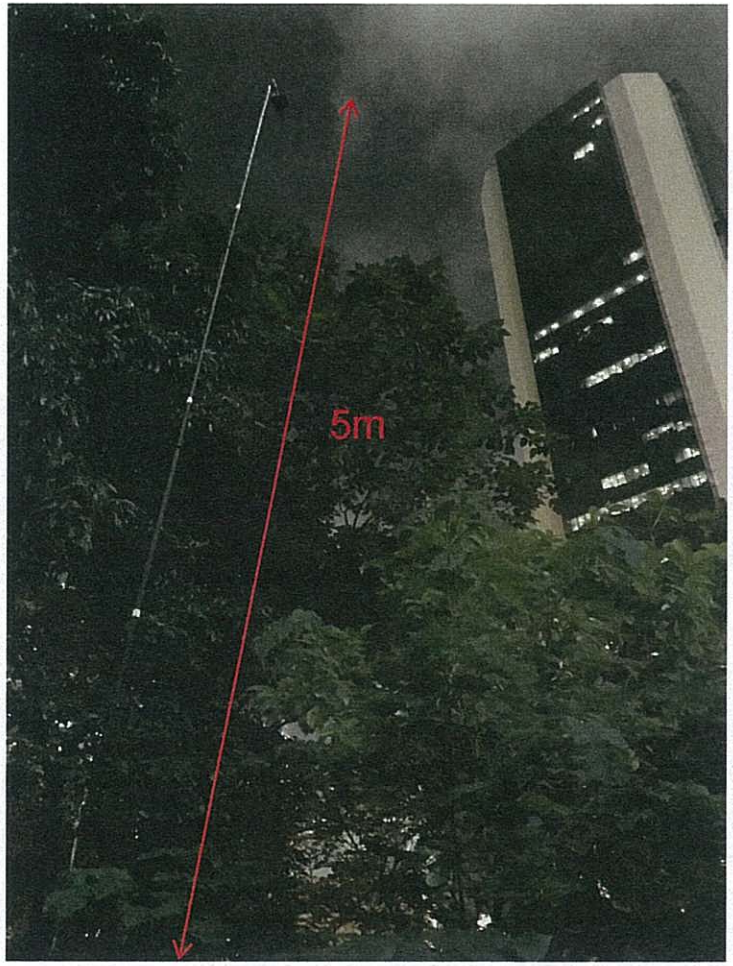
Calibrated By : Dan
Date : 25-May-16

Checked By : K.O. Lo
Date : 25-May-16

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Annex B2

Photographs showing Measurement Locations



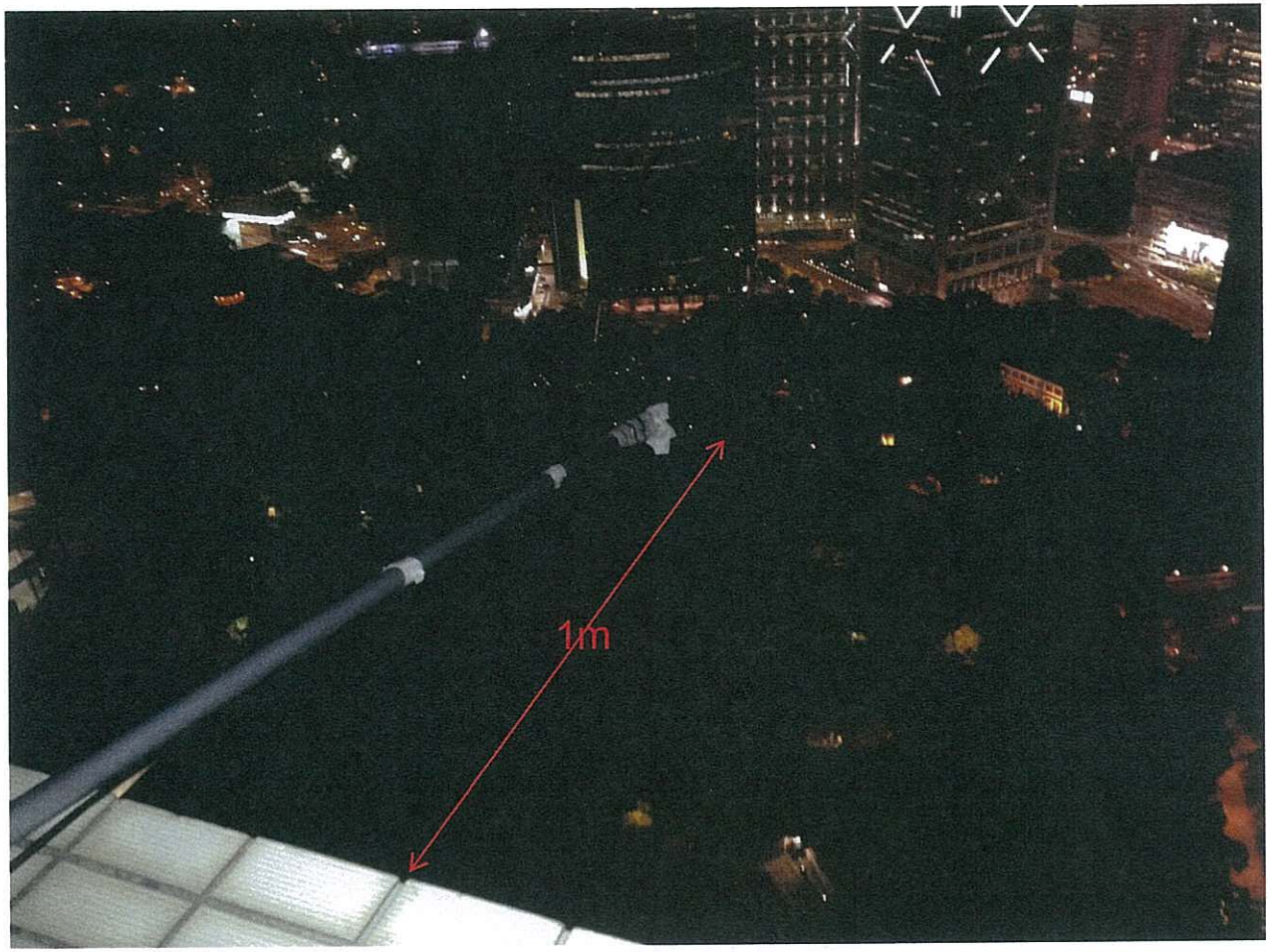
Annex B2a-1

DATE: 19/10/2016

Measurement Location at PH

Environmental
Resources
Management

ERM



Annex B2b-1

Measurement Location at RP

DATE: 19/10/2016

Environmental
Resources
Management

ERM

Annex B2c-1

Measurement Location at EX2

DATE: 19/10/2016

Environmental Resources Management

ERM

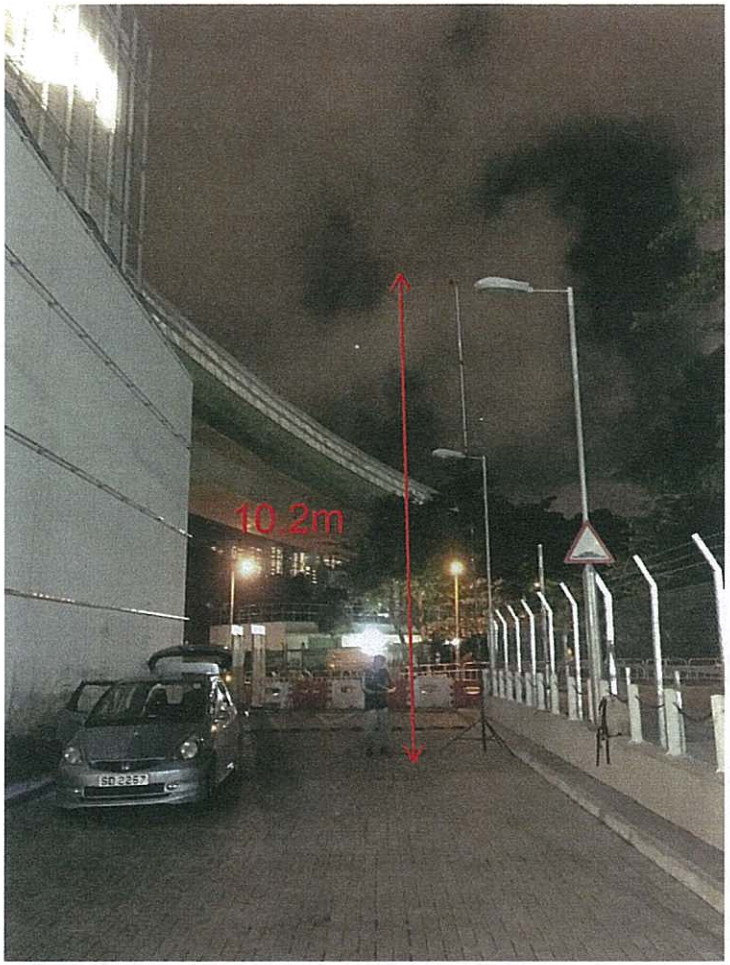
Annex B2c-2

Measurement Location at YSM2

DATE: 19/10/2016

Environmental
Resources
Management

ERM



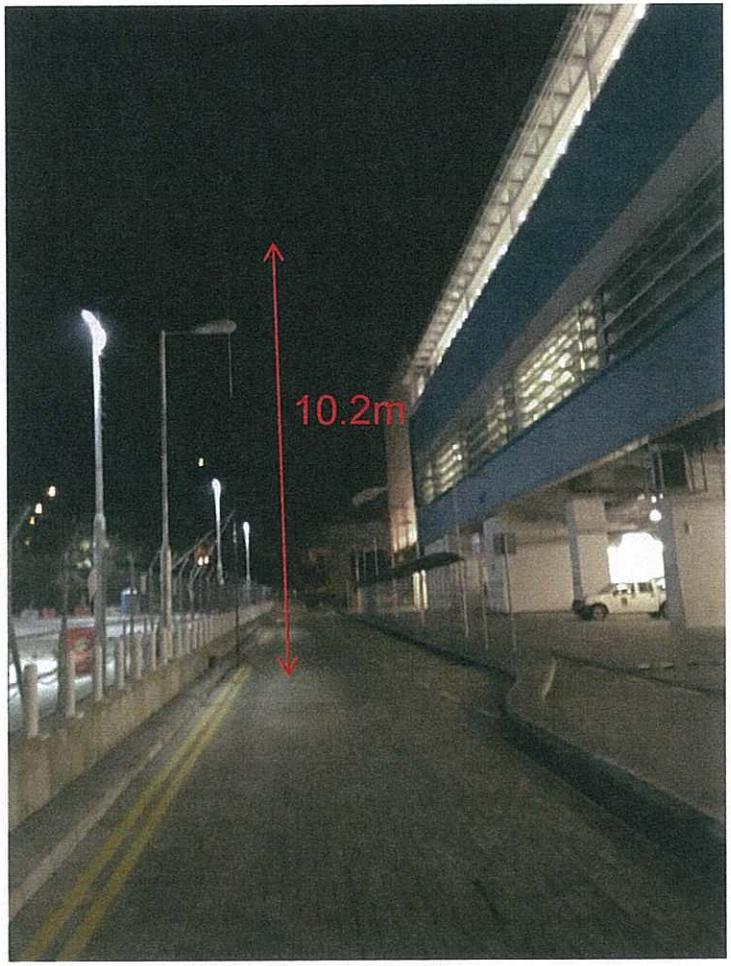
Annex B2d-1

Measurement Location at OCP1

DATE: 19/10/2016

Environmental
Resources
Management

ERM



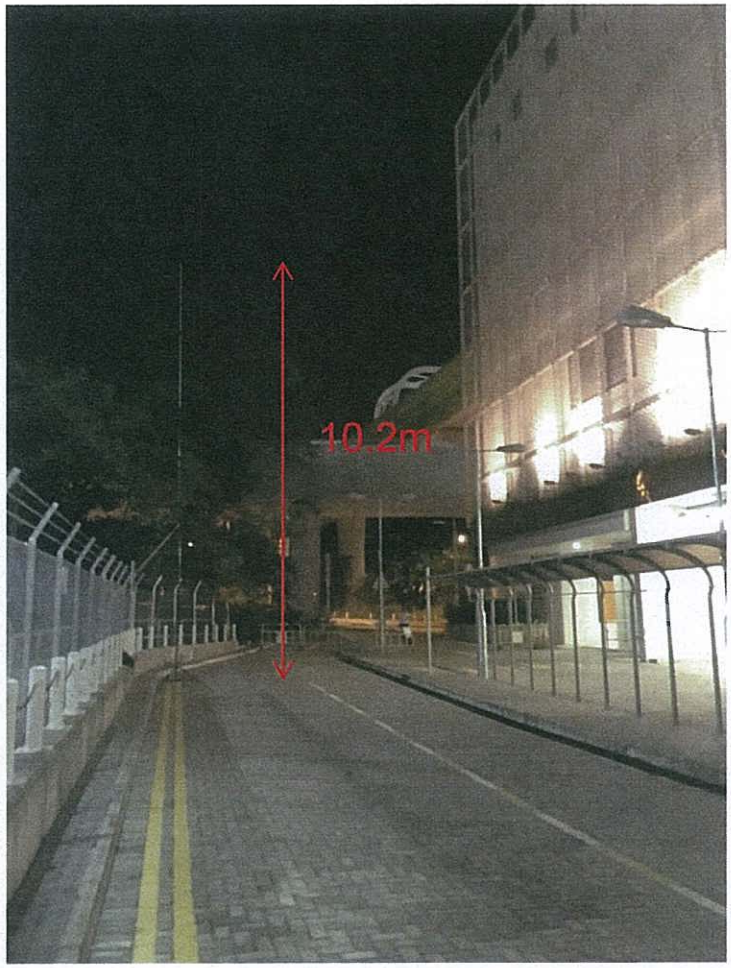
Annex B2d-2

Measurement Location at OCP2

DATE: 19/10/2016

Environmental
Resources
Management

ERM



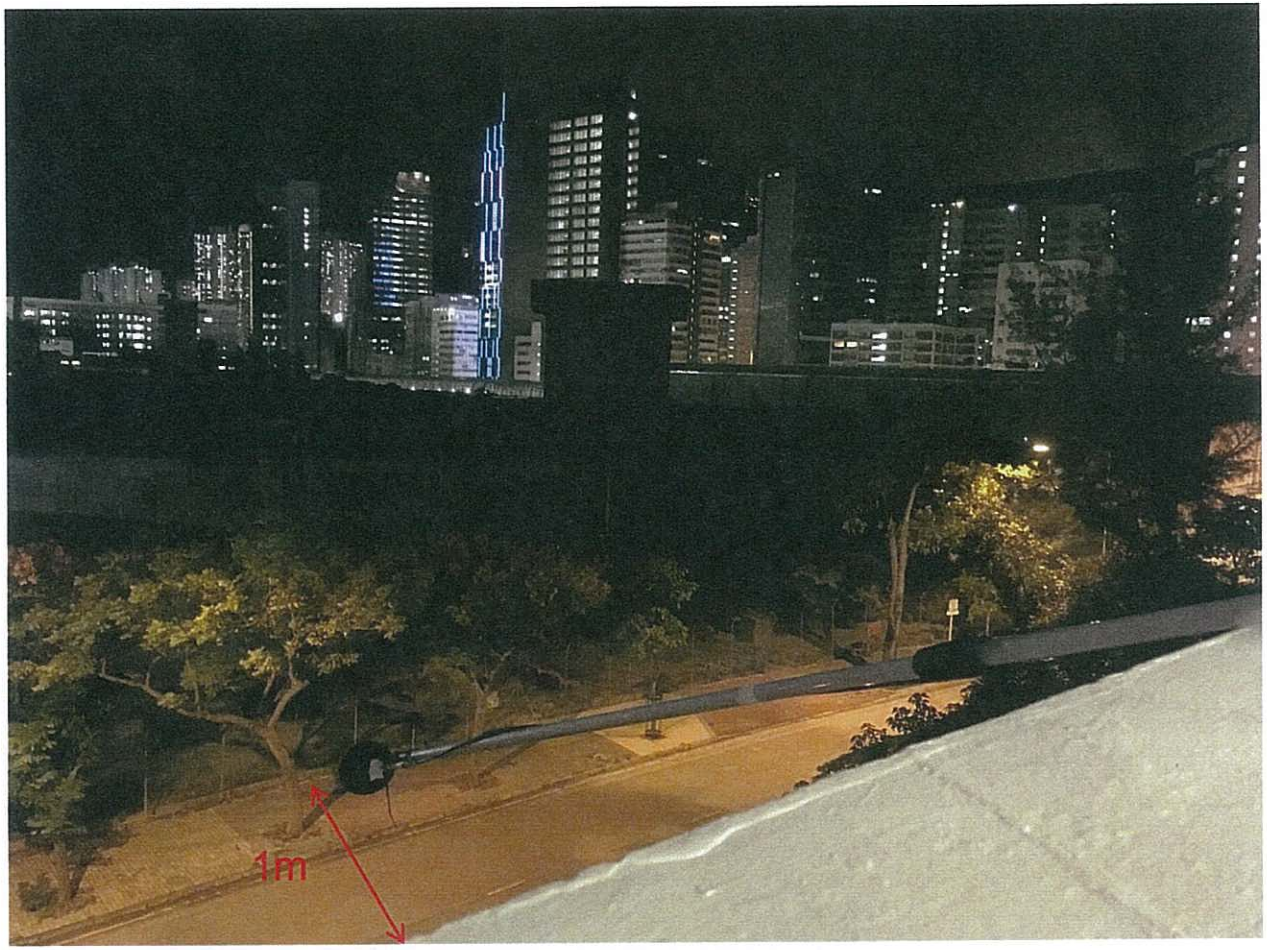
Annex B2d-3

Measurement Location at OCP3

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex B2e-1

Measurement Location at PC1

DATE: 19/10/2016

Environmental Resources Management

ERM

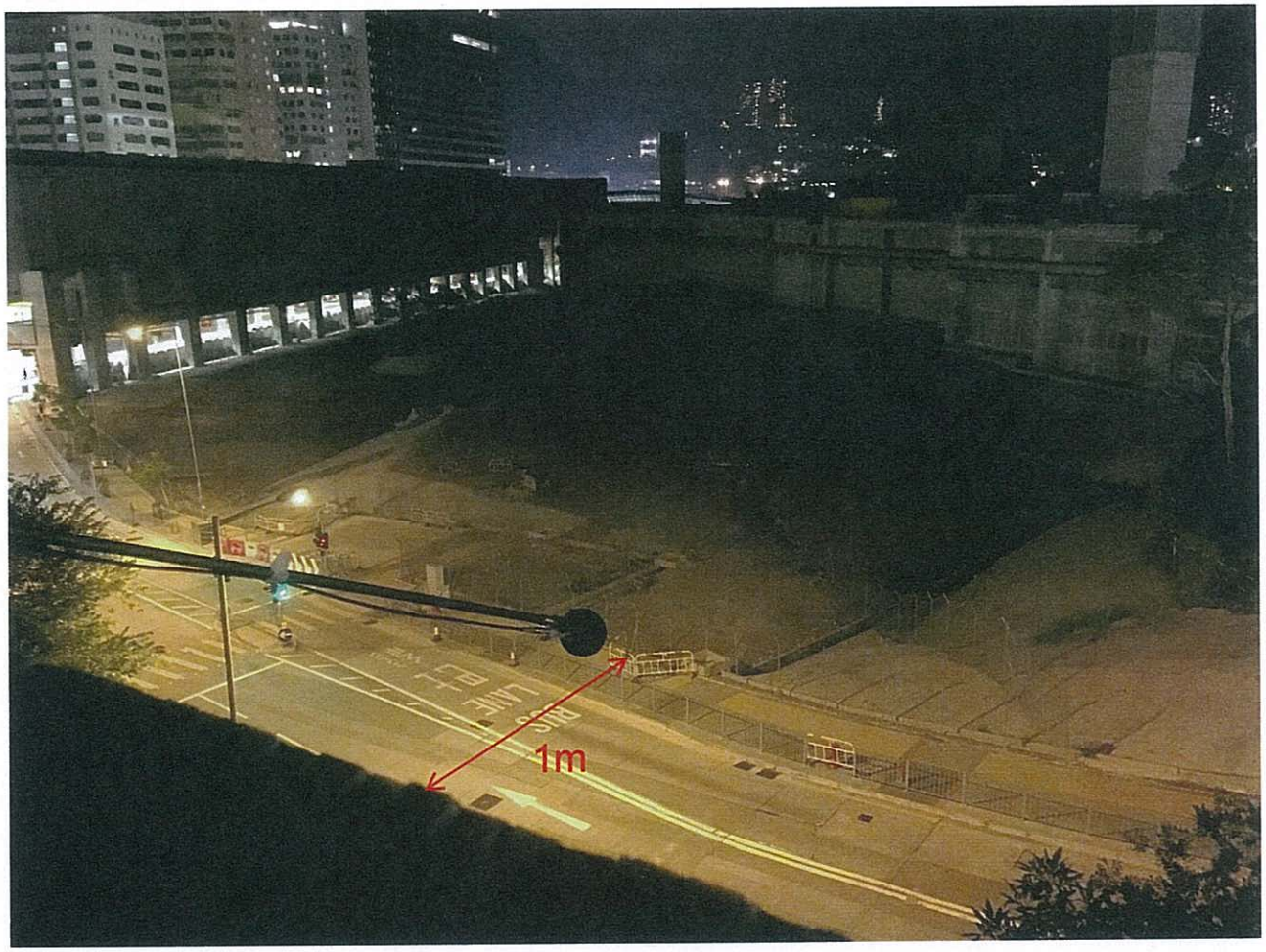
Annex B2e-2

Measurement Location at SIS2

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex B2e-4

Measurement Location at SMH2

DATE: 19/10/2016

Environmental Resources Management

ERM

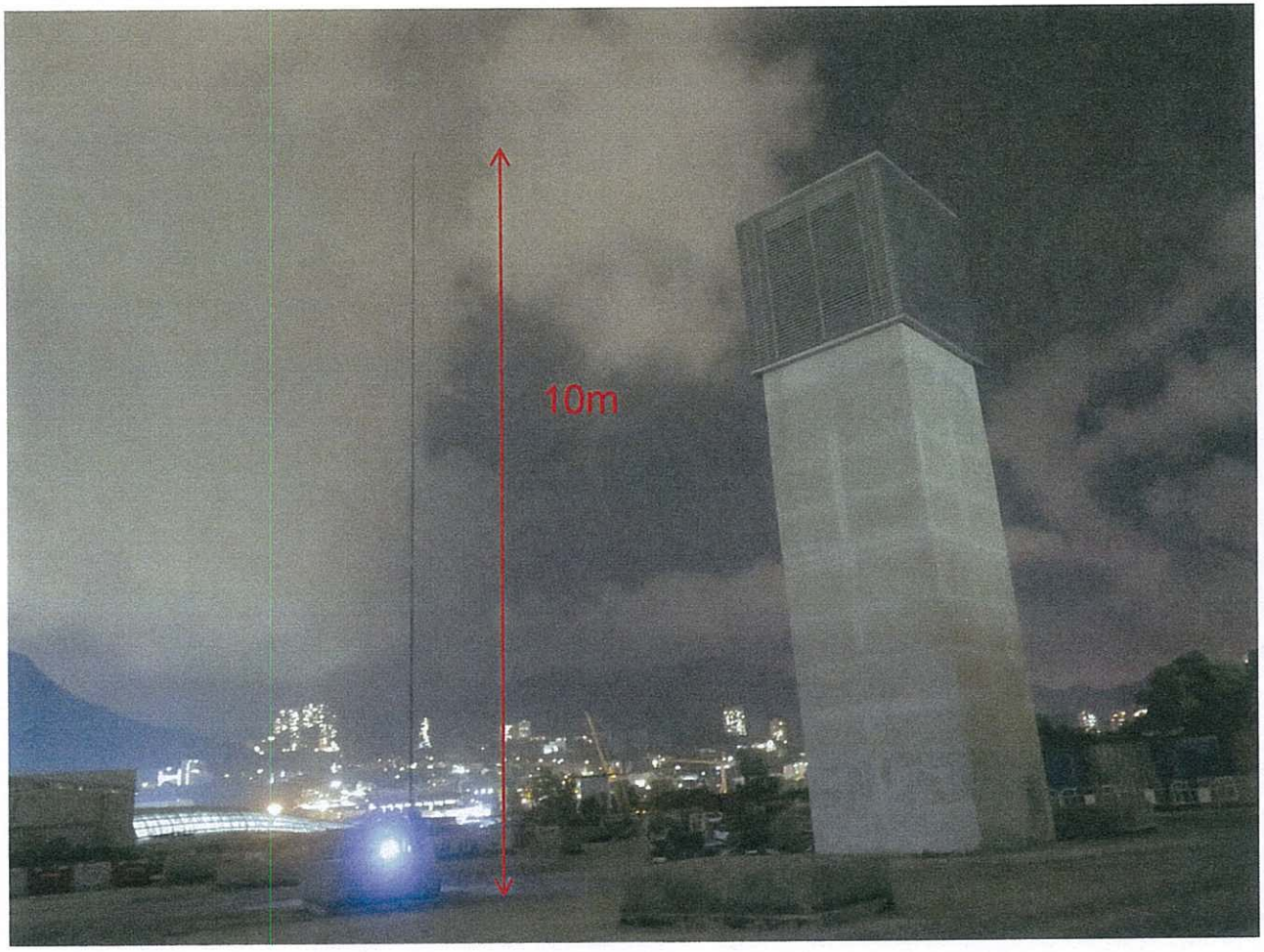
Annex B2e-3

Measurement Location at CPS

DATE: 19/10/2016

Environmental Resources Management

ERM



Annex B2e-5

Measurement Location at T5-2

DATE: 19/10/2016

Environmental Resources Management

ERM

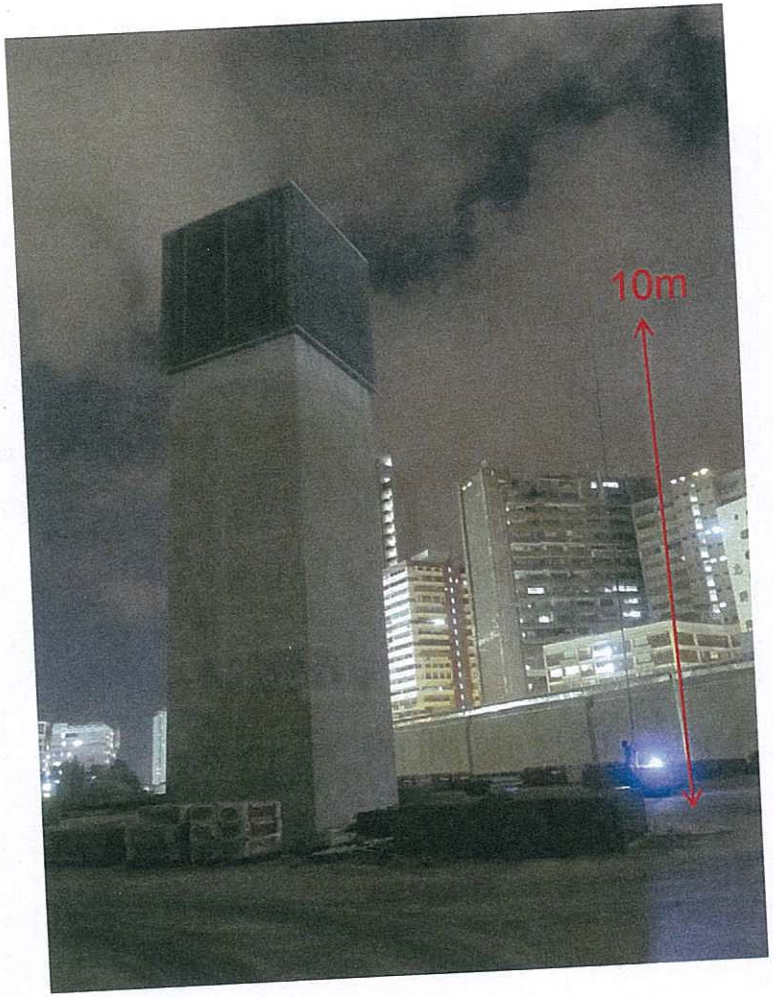
Annex B2e-6

Measurement Location at T6-1

DATE: 19/10/2016

Environmental
Resources
Management

ERM



Annex B2e-7

Measurement Location at T7-2

Environmental Resources Management

ERM

DATE: 19/10/2016

Annex B2e-8

Measurement Location at T8-1

DATE: 19/10/2016

Environmental
Resources
Management

ERM

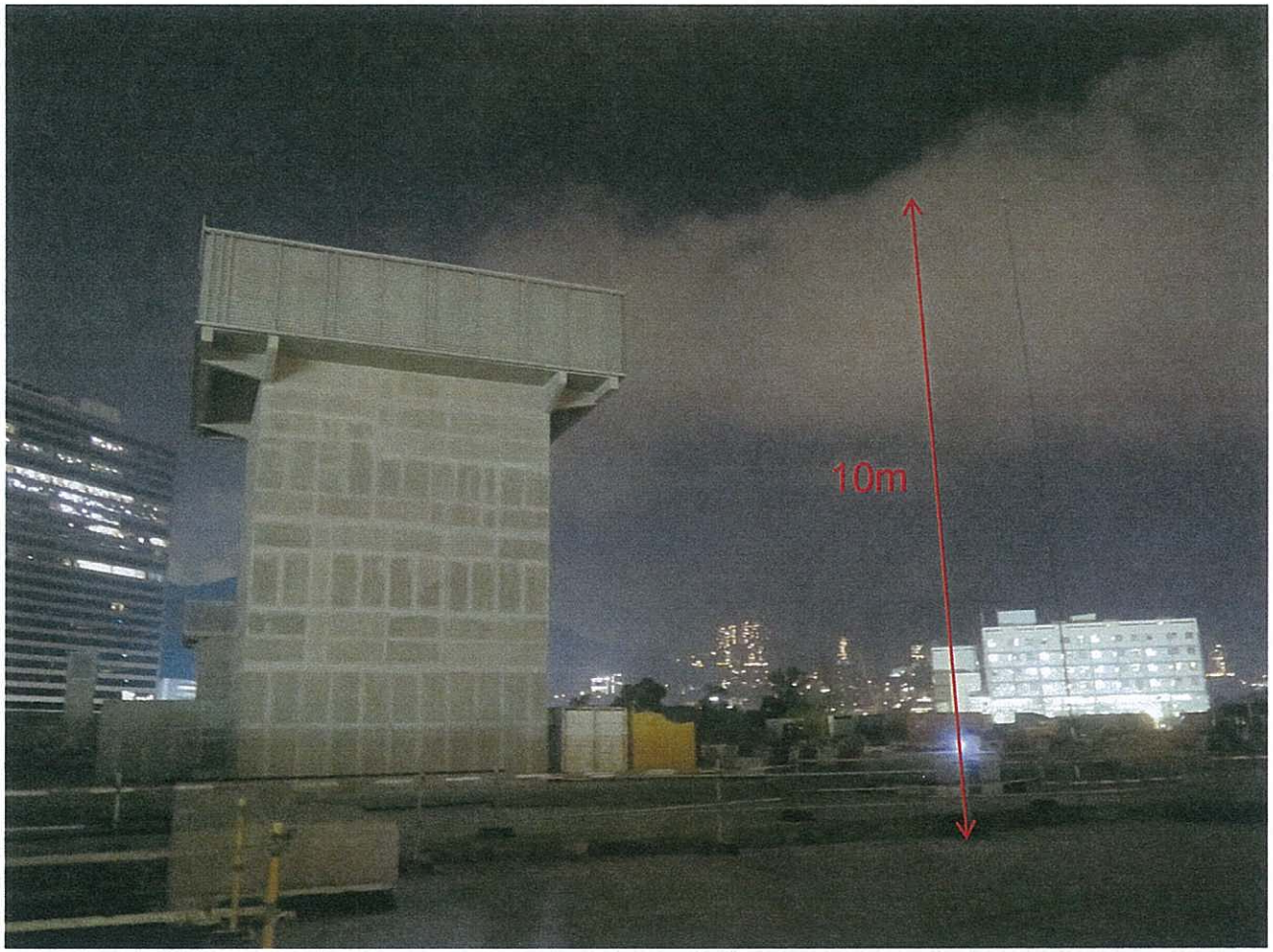
Annex B2e-9

Measurement Location at T12-1

DATE: 19/10/2016

Environmental Resources Management

ERM



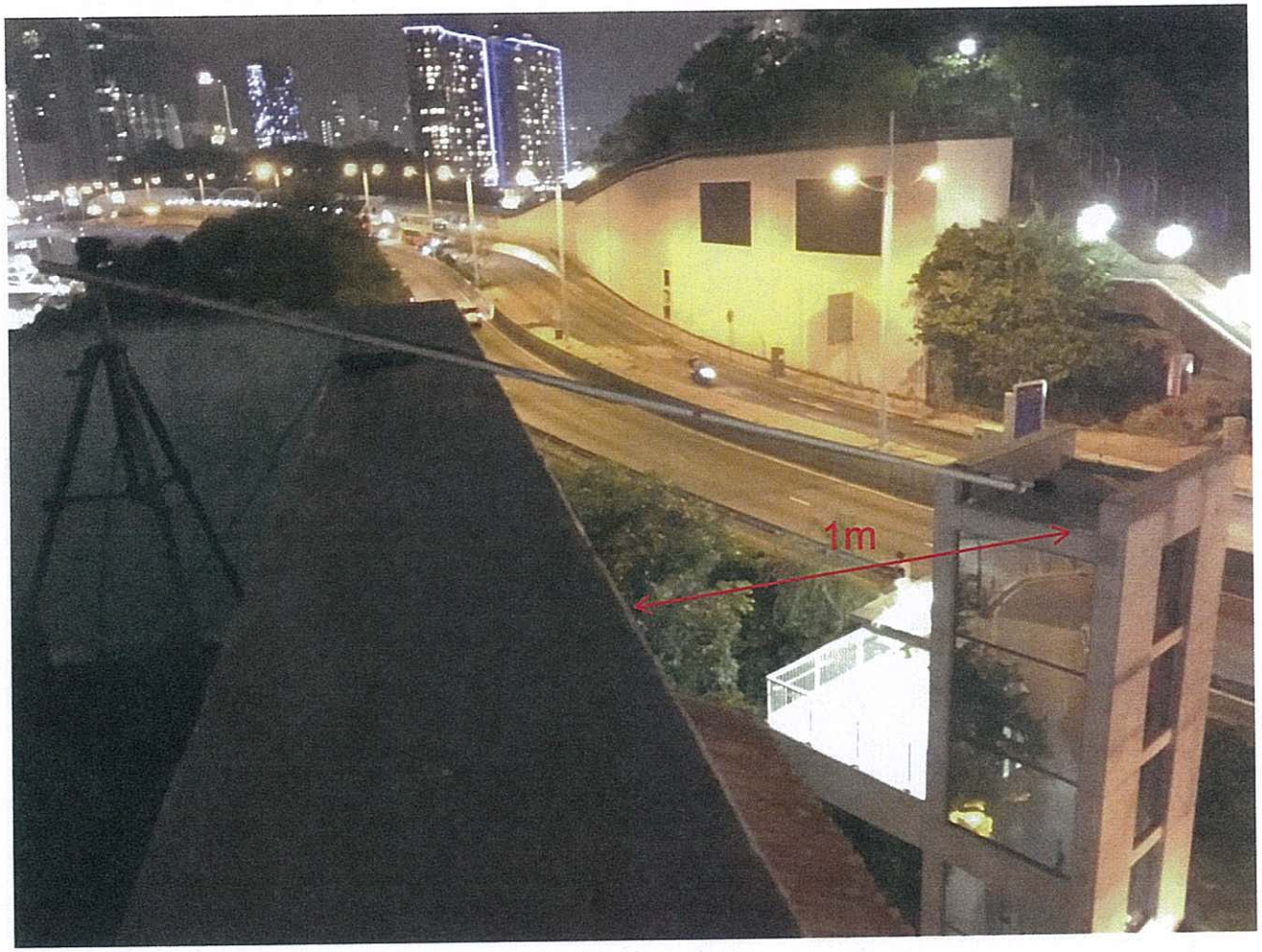
Annex B2e-10

Measurement Location at T13-2

DATE: 19/10/2016

Environmental Resources Management

ERM



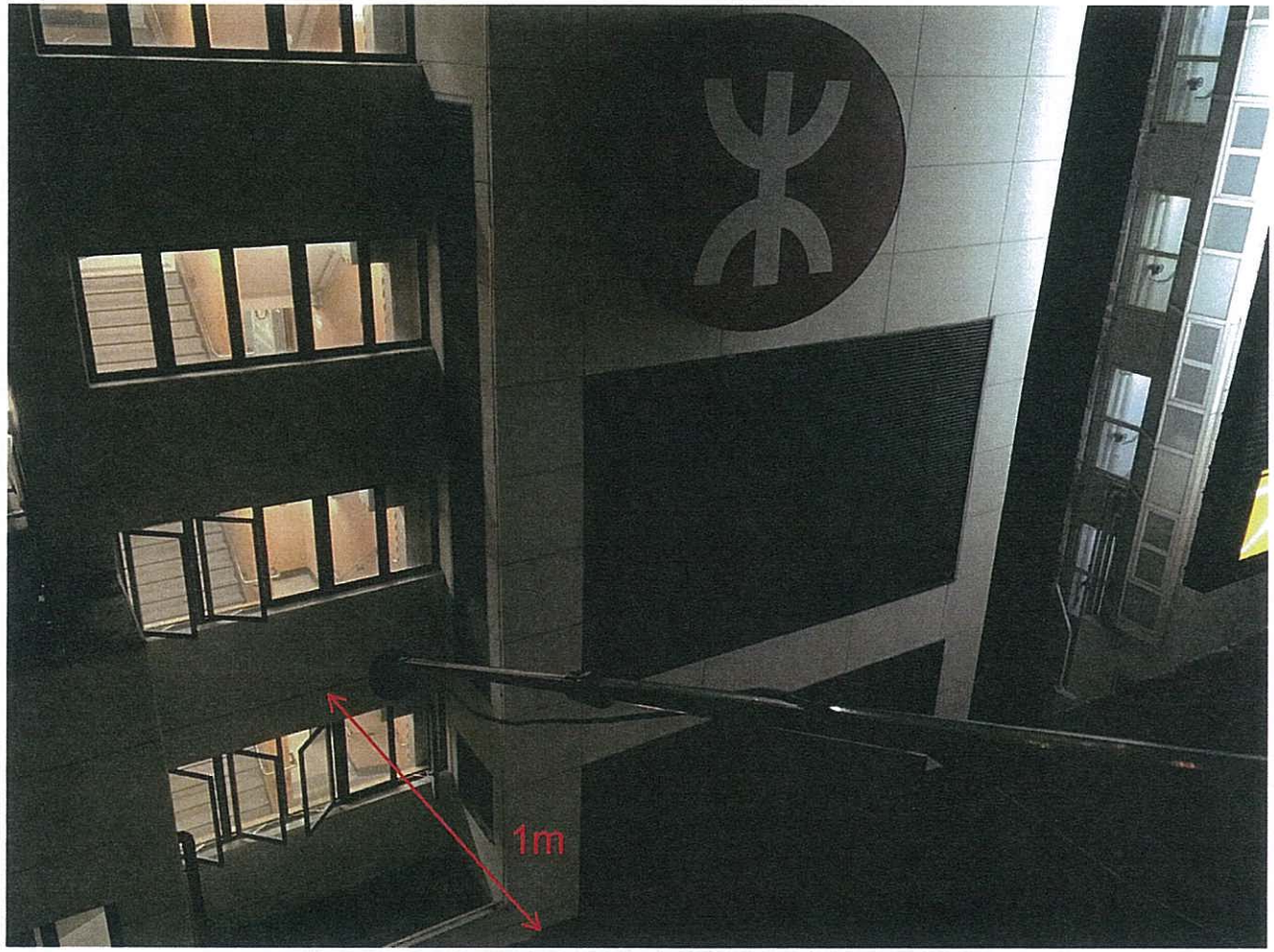
Annex B2f-1

Measurement Location at SMB

DATE: 19/10/2016

Environmental
Resources
Management

ERM



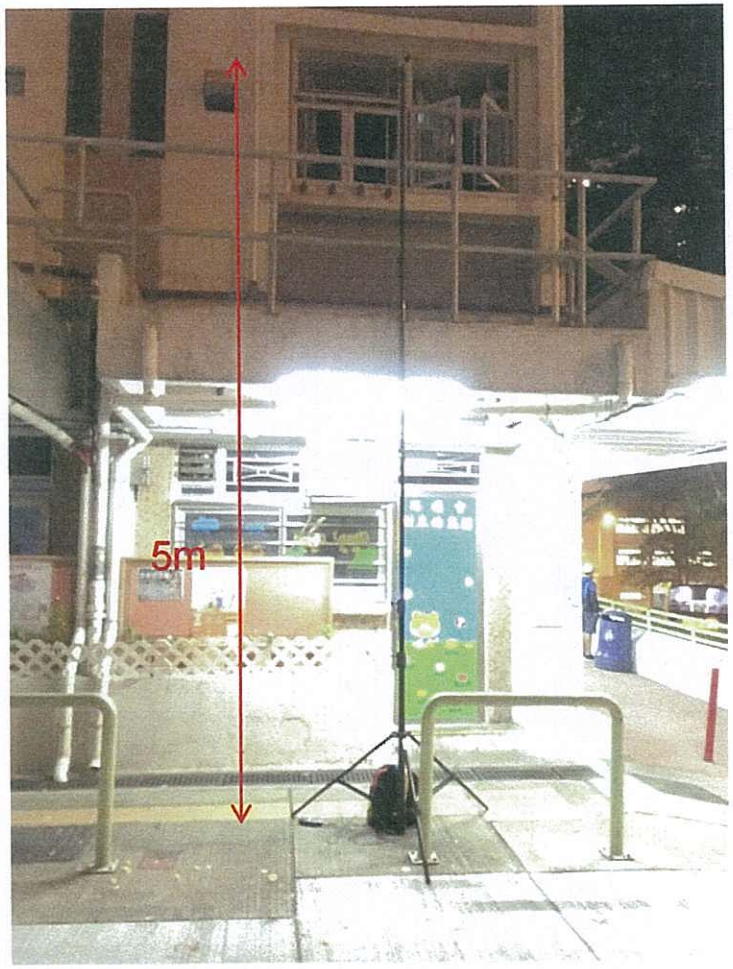
Annex B2g-1

Measurement Location at SFB

DATE: 19/10/2016

Environmental
Resources
Management

ERM



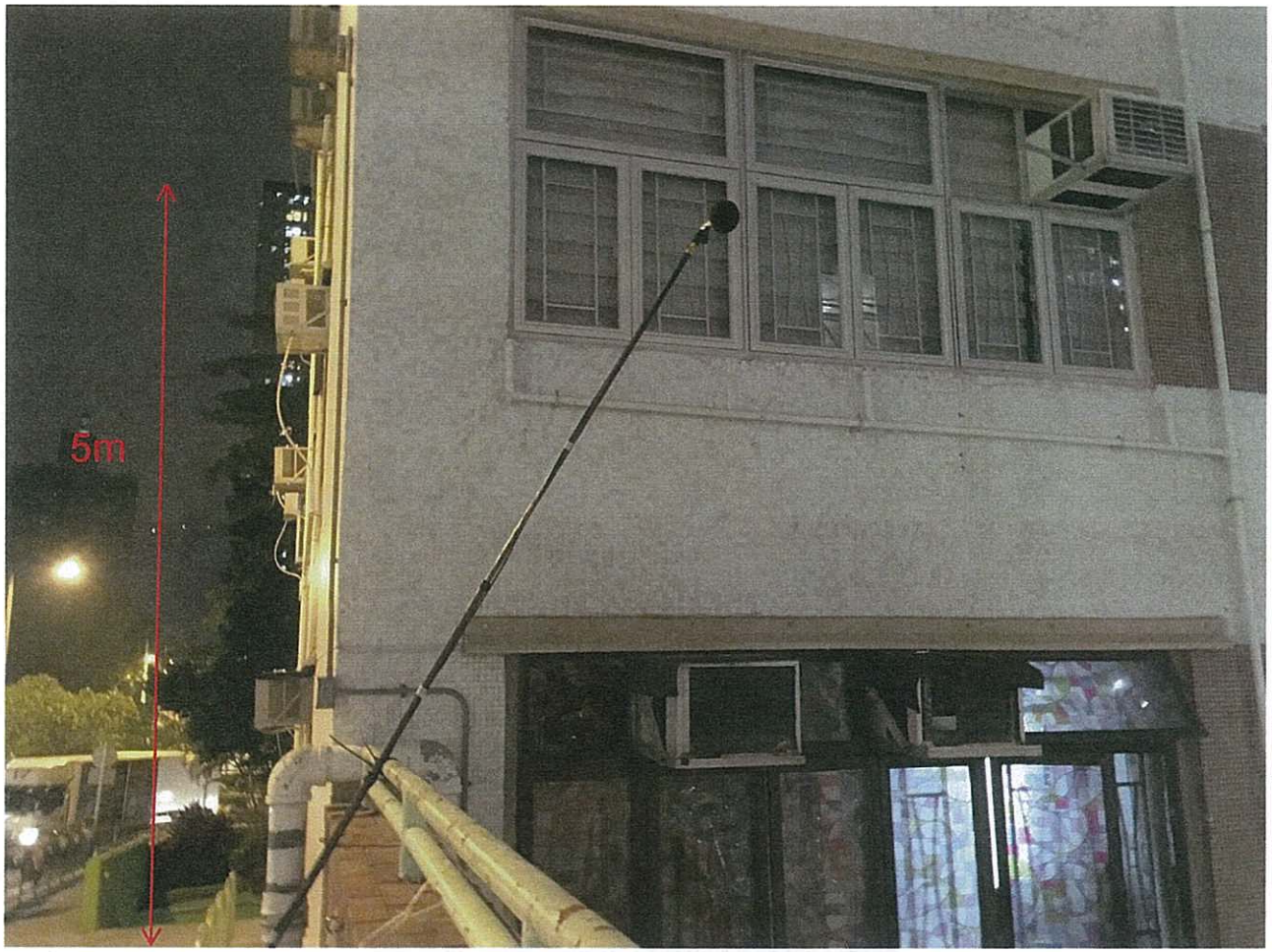
Annex B2h-1

Measurement Location at LTE4/LDN

DATE: 19/10/2016

Environmental Resources Management

ERM



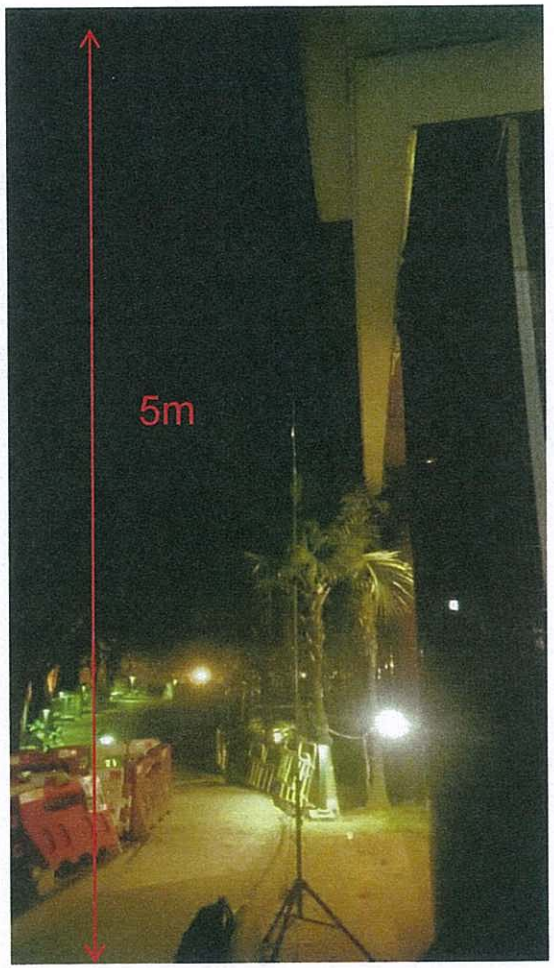
Annex B2h-2

Measurement Location at LTE5/NEC

DATE: 19/10/2016

Environmental Resources Management

ERM



Annex B2i-1

Measurement Location at SOH 6

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex B2i-2

Measurement Location at SOH 8

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex B2i-3

Measurement Location at SOH 7

DATE: 19/10/2016

Environmental Resources Management

ERM

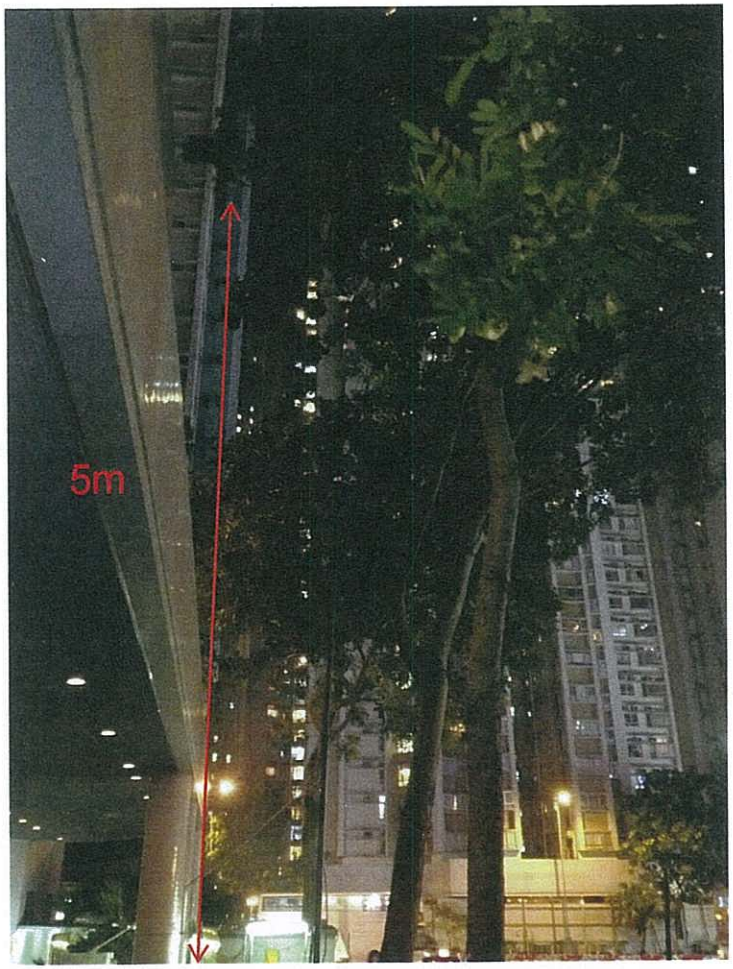
Annex B2i-4

Measurement Location at SOH 5

DATE: 19/10/2016

Environmental Resources Management

ERM



Annex B2i-5

Measurement Location at SOH 9

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex B2j-1

Measurement Location at AKPS

DATE: 19/10/2016

Environmental Resources Management

ERM

Annex B3

Detailed Results of Noise Measurement

Location	NSR ID	Scenario	Background/Measured Noise Level	Start Time	End Time	L_{eq}, dB(A)
ADM	PH	1 & 2	Background Noise Level	26-10-2016 0:14	26-10-2016 0:19	65.2
				26-10-2016 0:19	26-10-2016 0:24	64.9
				26-10-2016 0:24	26-10-2016 0:29	63.3
			Measured Noise Level	25-10-2016 23:07	25-10-2016 23:37	64.3
				25-10-2016 23:37	26-10-2016 0:07	64.2
HKB	RP	1	Background Noise Level	30-09-2016 21:32	30-09-2016 21:37	61.3
				30-09-2016 21:37	30-09-2016 21:42	61.1
				30-09-2016 21:42	30-09-2016 21:47	61.6
			Measured Noise Level	30-09-2016 22:00	30-09-2016 22:30	61.2
				30-09-2016 22:30	30-09-2016 23:00	61.0
		2	Background Noise Level	01-10-2016 0:23	01-10-2016 0:28	58.8
				01-10-2016 0:29	01-10-2016 0:34	58.6
				01-10-2016 0:35	01-10-2016 0:40	58.6
			Measured Noise Level	30-09-2016 23:08	30-09-2016 23:38	60.2
				30-09-2016 23:38	01-10-2016 0:08	60.0
NFB	EX2	1	Background Noise Level	26-09-2016 21:27	26-09-2016 21:32	63.6
				26-09-2016 21:32	26-09-2016 21:37	68.3
				26-09-2016 21:38	26-09-2016 21:43	64.5
			Measured Noise Level	26-09-2016 22:19	26-09-2016 22:49	65.5
				26-09-2016 22:50	26-09-2016 23:20	65.3
		2	Background Noise Level	07-10-2016 0:33	07-10-2016 0:38	67.2
				07-10-2016 0:44	07-10-2016 0:49	65.4
				07-10-2016 0:49	07-10-2016 0:54	63.3
			Measured Noise Level	06-10-2016 23:19	06-10-2016 23:49	65.3
				06-10-2016 23:52	07-10-2016 0:22	66.9
	YSM2	1	Background Noise Level	26-09-2016 21:25	26-09-2016 21:30	62.2
				26-09-2016 21:30	26-09-2016 21:35	62.5
				26-09-2016 21:35	26-09-2016 21:40	63.1
			Measured Noise Level	26-09-2016 22:17	26-09-2016 22:47	62.6
				26-09-2016 22:48	26-09-2016 23:18	62.6
		2	Background Noise Level	07-10-2016 0:38	07-10-2016 0:43	60.9
				07-10-2016 0:43	07-10-2016 0:48	61.5
				07-10-2016 0:48	07-10-2016 0:53	60.9
			Measured Noise Level	06-10-2016 23:32	07-10-2016 0:02	61.3
				07-10-2016 0:02	07-10-2016 0:32	58.7
OCP	OCP 1	1	Background Noise Level	24-10-2016 20:50	24-10-2016 20:55	61.0
				24-10-2016 21:12	24-10-2016 21:17	59.8
				24-10-2016 21:23	24-10-2016 21:28	61.1
			Measured Noise Level	24-10-2016 21:41	24-10-2016 22:11	62.5
				24-10-2016 22:11	24-10-2016 22:41	58.9
		2	Background Noise Level	25-10-2016 0:14	25-10-2016 0:19	60.9
				25-10-2016 0:25	25-10-2016 0:30	61.8
				25-10-2016 0:30	25-10-2016 0:35	61.7
			Measured Noise Level	24-10-2016 23:00	24-10-2016 23:30	59.5
				24-10-2016 23:30	24-10-2016 0:00	62.8
	OCP 2	1	Background Noise Level	24-10-2016 21:15	24-10-2016 21:20	60.2
				24-10-2016 21:20	24-10-2016 21:25	59.8
				24-10-2016 21:25	24-10-2016 21:30	60.1
			Measured Noise Level	24-10-2016 21:42	24-10-2016 22:12	62.0
				24-10-2016 22:12	24-10-2016 22:42	61.6
		2	Background Noise Level	25-10-2016 0:15	25-10-2016 0:20	62.3
				25-10-2016 0:20	25-10-2016 0:25	61.7
				25-10-2016 0:25	25-10-2016 0:30	63.3
			Measured Noise Level	24-10-2016 23:00	24-10-2016 23:30	59.9
				24-10-2016 23:30	25-10-2016 0:00	61.6
	OCP 3	1	Background Noise Level	24-10-2016 21:16	24-10-2016 21:21	61.5
				24-10-2016 21:21	24-10-2016 21:26	61.5
				24-10-2016 21:26	24-10-2016 21:31	61.2
			Measured Noise Level	24-10-2016 21:44	24-10-2016 22:14	62.0
				24-10-2016 22:14	24-10-2016 22:44	62.0
		2	Background Noise Level	25-10-2016 0:42	25-10-2016 0:47	58.6
				25-10-2016 0:47	25-10-2016 0:52	60.1
				25-10-2016 0:52	25-10-2016 0:57	60.6
			Measured Noise Level	24-10-2016 23:00	24-10-2016 23:30	60.6
				25-10-2016 23:49	26-10-2016 0:19	61.2

Location	NSR ID	Scenario	Background/Measured Noise Level	Start Time	End Time	L_{eq}, dB(A)
WCH & WCD	PC1	1	Background Noise Level	03-10-2016 21:13	03-10-2016 21:18	61.5
				03-10-2016 21:18	03-10-2016 21:23	59.3
				03-10-2016 21:23	03-10-2016 21:28	62.7
			Measured Noise Level	03-10-2016 21:46	03-10-2016 22:16	60.9
				03-10-2016 22:16	03-10-2016 22:46	59.9
		2	Background Noise Level	04-10-2016 0:38	04-10-2016 0:43	60.0
				04-10-2016 0:43	04-10-2016 0:48	58.3
				04-10-2016 0:48	04-10-2016 0:53	61.2
			Measured Noise Level	03-10-2016 23:12	03-10-2016 23:42	59.7
				03-10-2016 23:44	04-10-2016 0:14	59.9
	SIS2	1	Background Noise Level	03-10-2016 21:05	03-10-2016 21:10	62.2
				03-10-2016 21:11	03-10-2016 21:16	62.6
				03-10-2016 21:17	03-10-2016 21:22	60.0
			Measured Noise Level	03-10-2016 21:48	03-10-2016 22:18	61.6
				03-10-2016 22:19	03-10-2016 22:49	60.4
	CPS	1	Background Noise Level	04-10-2016 20:57	04-10-2016 21:02	65.2
				04-10-2016 21:02	04-10-2016 21:07	65.5
				04-10-2016 21:07	04-10-2016 21:12	62.9
			Measured Noise Level	04-10-2016 21:35	04-10-2016 22:05	64.7
				04-10-2016 22:05	04-10-2016 22:35	64.4
	SMH2	1	Background Noise Level	04-10-2016 20:47	04-10-2016 20:52	64.9
				04-10-2016 21:00	04-10-2016 21:05	63.8
				04-10-2016 21:09	04-10-2016 21:14	63.4
			Measured Noise Level	04-10-2016 21:35	04-10-2016 22:05	64.2
				04-10-2016 22:06	04-10-2016 22:36	64.6
		2	Background Noise Level	04-10-2016 23:00	04-10-2016 23:05	61.8
				04-10-2016 23:07	04-10-2016 23:12	62.8
				05-10-2016 0:35	05-10-2016 0:40	59.0
			Measured Noise Level	04-10-2016 23:29	04-10-2016 23:59	63.7
				05-10-2016 0:00	05-10-2016 0:30	62.2
	T5-2	1	Background Noise Level	03-10-2016 21:28	03-10-2016 21:33	56.1
				03-10-2016 22:50	03-10-2016 22:55	55.5
				03-10-2016 22:56	03-10-2016 23:01	56.7
			Measured Noise Level	03-10-2016 21:44	03-10-2016 22:14	57.2
				03-10-2016 22:14	03-10-2016 22:44	57.2
		2	Background Noise Level	04-10-2016 0:25	04-10-2016 0:30	57.7
				04-10-2016 0:35	04-10-2016 0:40	57.0
				04-10-2016 0:42	04-10-2016 0:47	56.8
			Measured Noise Level	03-10-2016 23:19	03-10-2016 23:49	57.4
				03-10-2016 23:54	04-10-2016 0:24	57.8
	T7-2	1	Background Noise Level	03-10-2016 21:24	03-10-2016 21:29	55.7
				03-10-2016 21:29	03-10-2016 21:34	55.4
				03-10-2016 22:55	03-10-2016 23:00	55.9
			Measured Noise Level	03-10-2016 21:46	03-10-2016 22:16	56.6
				03-10-2016 22:16	03-10-2016 22:46	55.8
		2	Background Noise Level	04-10-2016 0:32	04-10-2016 0:37	52.9
				04-10-2016 0:37	04-10-2016 0:42	55.4
				04-10-2016 0:43	04-10-2016 0:48	54.7
			Measured Noise Level	03-10-2016 23:25	03-10-2016 23:55	55.8
				03-10-2016 23:56	04-10-2016 0:26	56.1
	T8-1	1	Background Noise Level	04-10-2016 20:57	04-10-2016 21:02	55.1
				04-10-2016 21:04	04-10-2016 21:09	54.9
				04-10-2016 21:11	04-10-2016 21:16	54.9
			Measured Noise Level	04-10-2016 21:36	04-10-2016 22:06	55.3
				04-10-2016 22:07	04-10-2016 22:37	55.0
		2	Background Noise Level	04-10-2016 23:00	04-10-2016 23:05	52.9
				04-10-2016 23:05	04-10-2016 23:10	53.8
				04-10-2016 23:11	04-10-2016 23:16	53.9
			Measured Noise Level	04-10-2016 23:30	05-10-2016 0:00	54.9
				05-10-2016 0:01	05-10-2016 0:31	54.2
	T12-1	1	Background Noise Level	03-10-2016 20:55	03-10-2016 21:00	57.3
				03-10-2016 21:00	03-10-2016 21:05	57.4
				03-10-2016 22:56	03-10-2016 23:01	56.2
			Measured Noise Level	03-10-2016 21:47	03-10-2016 22:17	58.5
				03-10-2016 22:17	03-10-2016 22:47	56.9
		2	Background Noise Level	04-10-2016 0:23	04-10-2016 0:28	56.4
				04-10-2016 0:29	04-10-2016 0:34	55.2
				04-10-2016 0:40	04-10-2016 0:45	55.2
			Measured Noise Level	03-10-2016 23:21	03-10-2016 23:51	57.3
				03-10-2016 23:51	04-10-2016 0:21	57.7
	T13-2	1	Background Noise Level	04-10-2016 21:00	04-10-2016 21:05	58.2
				04-10-2016 21:06	04-10-2016 21:11	58.6
				04-10-2016 21:11	04-10-2016 21:16	58.7
			Measured Noise Level	04-10-2016 21:37	04-10-2016 22:07	59.0
				04-10-2016 22:07	04-10-2016 22:37	58.9
		2	Background Noise Level	04-10-2016 23:00	04-10-2016 23:05	57.6
				04-10-2016 23:06	04-10-2016 23:11	56.1
				04-10-2016 23:11	04-10-2016 23:16	57.5
			Measured Noise Level	04-10-2016 23:31	05-10-2016 0:01	58.3
				05-10-2016 0:01	05-10-2016 0:31	55.9
	T6-1	1	Background Noise Level	04-10-2016 20:59	04-10-2016 21:04	56.2
				04-10-2016 21:05	04-10-2016 21:10	56.2
				04-10-2016 22:49	04-10-2016 22:54	55.8
			Measured Noise Level	04-10-2016 21:37	04-10-2016 22:07	57.4
				04-10-2016 22:07	04-10-2016 22:37	57.0
		2	Background Noise Level	04-10-2016 23:00	04-10-2016 23:05	56.3
				04-10-2016 23:05	04-10-2016 23:10	55.9
				04-10-2016 23:10	04-10-2016 23:15	55.2
			Measured Noise Level	04-10-2016 23:30	05-10-2016 0:00	57.7
				05-10-2016 0:00	05-10-2016 0:30	57.7

Location	NSR ID	Scenario	Background/Measured Noise Level	Start Time	End Time	L_{eq}, dB(A)
LET-TVF	SMB	1	Background Noise Level	29-09-2016 20:40	29-09-2016 20:45	71.4
				29-09-2016 20:50	29-09-2016 20:55	72.9
				29-09-2016 22:28	29-09-2016 22:33	69.3
			Measured Noise Level	29-09-2016 21:16	29-09-2016 21:46	73.3
				29-09-2016 21:46	29-09-2016 22:16	68.9
		2	Background Noise Level	30-09-2016 0:03	30-09-2016 0:08	67.7
				30-09-2016 0:08	30-09-2016 0:13	66.8
				30-09-2016 0:13	30-09-2016 0:18	66.8
			Measured Noise Level	29-09-2016 23:00	29-09-2016 23:30	68.7
				29-09-2016 23:30	30-09-2016 0:00	68.4
LET-A	SFB	1	Background Noise Level	29-09-2016 20:59	29-09-2016 21:04	59.7
				29-09-2016 21:05	29-09-2016 21:10	60.3
				29-09-2016 22:23	29-09-2016 22:28	60.0
			Measured Noise Level	29-09-2016 21:20	29-09-2016 21:50	60.9
				29-09-2016 21:50	29-09-2016 22:20	60.2
		2	Background Noise Level	30-09-2016 0:02	30-09-2016 0:07	58.3
				30-09-2016 0:07	30-09-2016 0:12	57.3
				30-09-2016 0:12	30-09-2016 0:17	57.5
			Measured Noise Level	29-09-2016 23:00	29-09-2016 23:30	59.2
				29-09-2016 23:30	30-09-2016 0:00	60.0
LET-B	LTE4/LDN	1	Background Noise Level	30-09-2016 20:50	30-09-2016 20:55	66.9
				30-09-2016 20:55	30-09-2016 21:00	65.5
				30-09-2016 22:43	30-09-2016 22:48	65.6
			Measured Noise Level	30-09-2016 21:35	30-09-2016 22:05	65.3
				30-09-2016 22:05	30-09-2016 22:35	65.9
		2	Background Noise Level	01-10-2016 0:14	01-10-2016 0:19	65.5
				01-10-2016 0:19	01-10-2016 0:24	62.8
				01-10-2016 0:24	01-10-2016 0:29	65.9
			Measured Noise Level	30-09-2016 23:10	30-09-2016 23:40	65.6
				30-09-2016 23:40	01-10-2016 0:10	64.5
	LTE5/NEC	1	Background Noise Level	30-09-2016 21:07	30-09-2016 21:12	68.3
				30-09-2016 21:13	30-09-2016 21:18	67.7
				30-09-2016 22:42	30-09-2016 22:47	67.7
			Measured Noise Level	30-09-2016 21:36	30-09-2016 22:06	66.5
				30-09-2016 22:06	30-09-2016 22:36	66.8
		2	Background Noise Level	01-10-2016 0:14	01-10-2016 0:19	64.2
				01-10-2016 0:20	01-10-2016 0:25	64.0
				01-10-2016 0:26	01-10-2016 0:31	67.2
			Measured Noise Level	30-09-2016 23:10	30-09-2016 23:40	66.8
				30-09-2016 23:40	01-10-2016 0:10	66.8
SOH	SOH 5	1	Background Noise Level	28-09-2016 20:58	28-09-2016 21:03	66.0
				28-09-2016 21:03	28-09-2016 21:08	64.5
				28-09-2016 21:08	28-09-2016 21:13	65.8
			Measured Noise Level	28-09-2016 21:45	28-09-2016 22:15	65.2
				28-09-2016 22:18	28-09-2016 22:48	65.6
		2	Background Noise Level	28-09-2016 23:00	28-09-2016 23:05	65.5
				28-09-2016 0:35	28-09-2016 0:40	58.7
				28-09-2016 0:41	28-09-2016 0:46	62.0
			Measured Noise Level	28-09-2016 23:23	28-09-2016 23:53	63.9
				27-09-2016 23:53	28-09-2016 0:23	61.9
	SOH 6	1	Background Noise Level	28-09-2016 20:57	28-09-2016 21:02	62.7
				28-09-2016 21:02	28-09-2016 21:07	59.3
				28-09-2016 21:07	28-09-2016 21:12	58.8
			Measured Noise Level	28-09-2016 21:45	28-09-2016 22:15	59.1
				28-09-2016 22:18	28-09-2016 22:48	59.5
		2	Background Noise Level	28-09-2016 23:00	28-09-2016 23:05	56.4
				28-09-2016 0:36	28-09-2016 0:41	52.2
				28-09-2016 0:41	28-09-2016 0:46	53.9
			Measured Noise Level	28-09-2016 23:24	28-09-2016 23:54	56.0
				27-09-2016 23:55	28-09-2016 0:25	55.4
	SOH 7	1	Background Noise Level	28-09-2016 20:56	28-09-2016 21:01	69.2
				28-09-2016 21:01	28-09-2016 21:06	68.1
				28-09-2016 21:06	28-09-2016 21:11	69.9
			Measured Noise Level	28-09-2016 21:43	28-09-2016 22:13	69.0
				28-09-2016 22:13	28-09-2016 22:43	68.7
		2	Background Noise Level	29-09-2016 23:00	29-09-2016 23:05	66.8
				29-09-2016 0:34	29-09-2016 0:39	62.7
				29-09-2016 0:39	29-09-2016 0:44	65.1
			Measured Noise Level	28-09-2016 23:24	28-09-2016 23:54	66.1
				28-09-2016 23:54	29-09-2016 0:24	64.9
	SOH 8	1	Background Noise Level	28-09-2016 20:56	28-09-2016 21:00	65.5
				28-09-2016 21:00	28-09-2016 21:05	66.1
				28-09-2016 21:05	28-09-2016 21:10	63.6
			Measured Noise Level	28-09-2016 21:45	28-09-2016 22:15	63.0
				28-09-2016 22:15	28-09-2016 22:45	63.3
		2	Background Noise Level	29-09-2016 23:00	29-09-2016 23:05	62.3
				29-09-2016 0:35	29-09-2016 0:40	59.1
				29-09-2016 0:40	29-09-2016 0:45	60.9
			Measured Noise Level	28-09-2016 23:25	28-09-2016 23:55	61.7
				28-09-2016 23:55	29-09-2016 0:25	61.4

Location	NSR ID	Scenario	Background/Measured Noise Level	Start Time	End Time	L_{eq}, dB(A)
	SOH 9	1	Background Noise Level	28-09-2016 20:56	28-09-2016 21:19	67.5
				28-09-2016 21:03	28-09-2016 21:08	67.3
				28-09-2016 21:14	28-09-2016 21:19	68.8
			Measured Noise Level	28-09-2016 21:45	28-09-2016 22:15	67.7
				28-09-2016 22:16	28-09-2016 22:46	68.5
		2	Background Noise Level	29-09-2016 23:00	29-09-2016 23:05	65.3
				29-09-2016 0:35	29-09-2016 0:40	63.6
				29-09-2016 0:41	29-09-2016 0:46	66.0
			Measured Noise Level	28-09-2016 23:23	28-09-2016 23:53	67.5
				28-09-2016 23:54	29-09-2016 0:24	66.5
LWB	AKPS	1	Background Noise Level	23-09-2016 22:52	23-09-2016 22:57	52.2
				23-09-2016 22:57	23-09-2016 23:02	51.9
				23-09-2016 23:02	23-09-2016 23:07	51.7
			Measured Noise Level	23-09-2016 23:30	24-09-2016 0:00	51.7
				24-09-2016 0:00	24-09-2016 0:30	51.2