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APPENDIX 11-1

CONSTRUCTION NOISE LEVELS

Appendix 11-1 Construction noise levels

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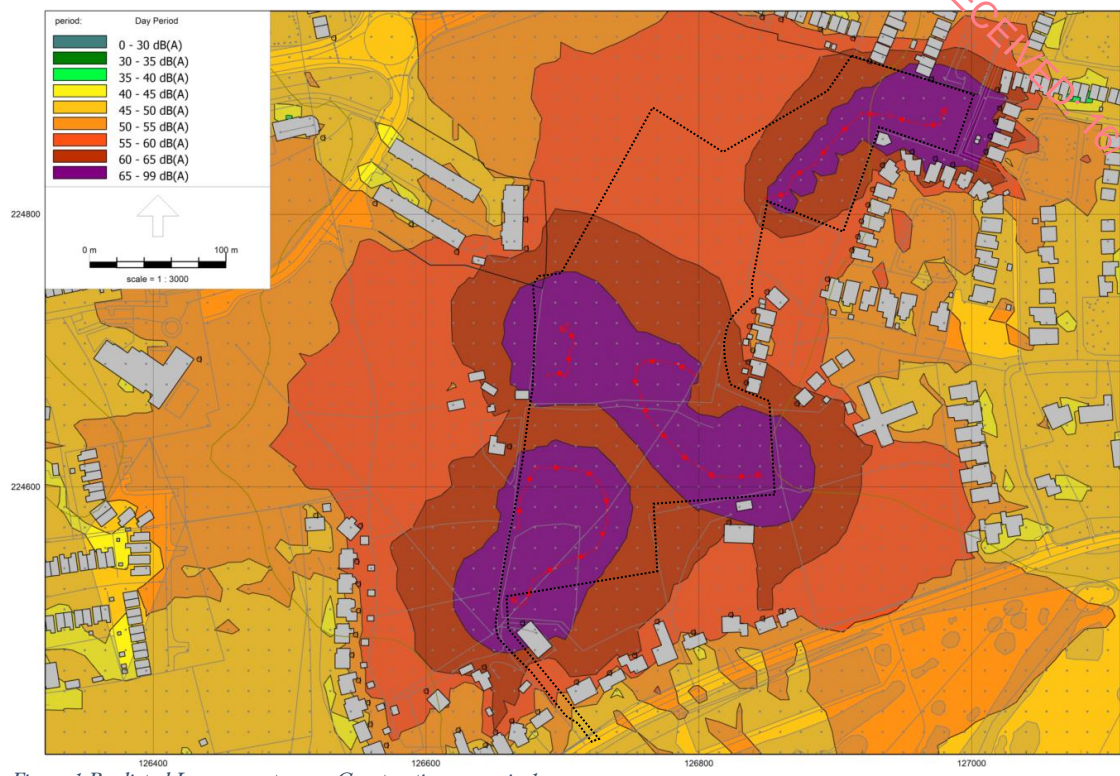


Figure 1 Predicted $L_{Aeq} 1h$ contours – Construction scenario 1.

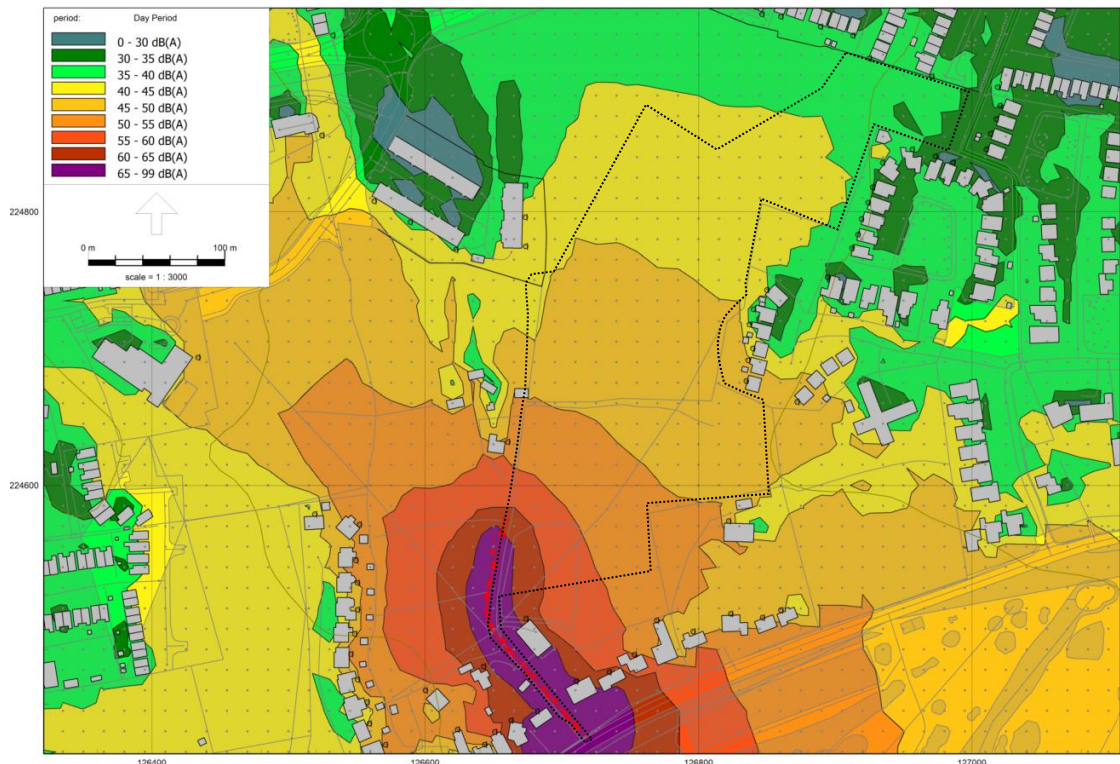


Figure 2 Predicted $L_{Aeq} 1h$ contours – Construction scenario 2.

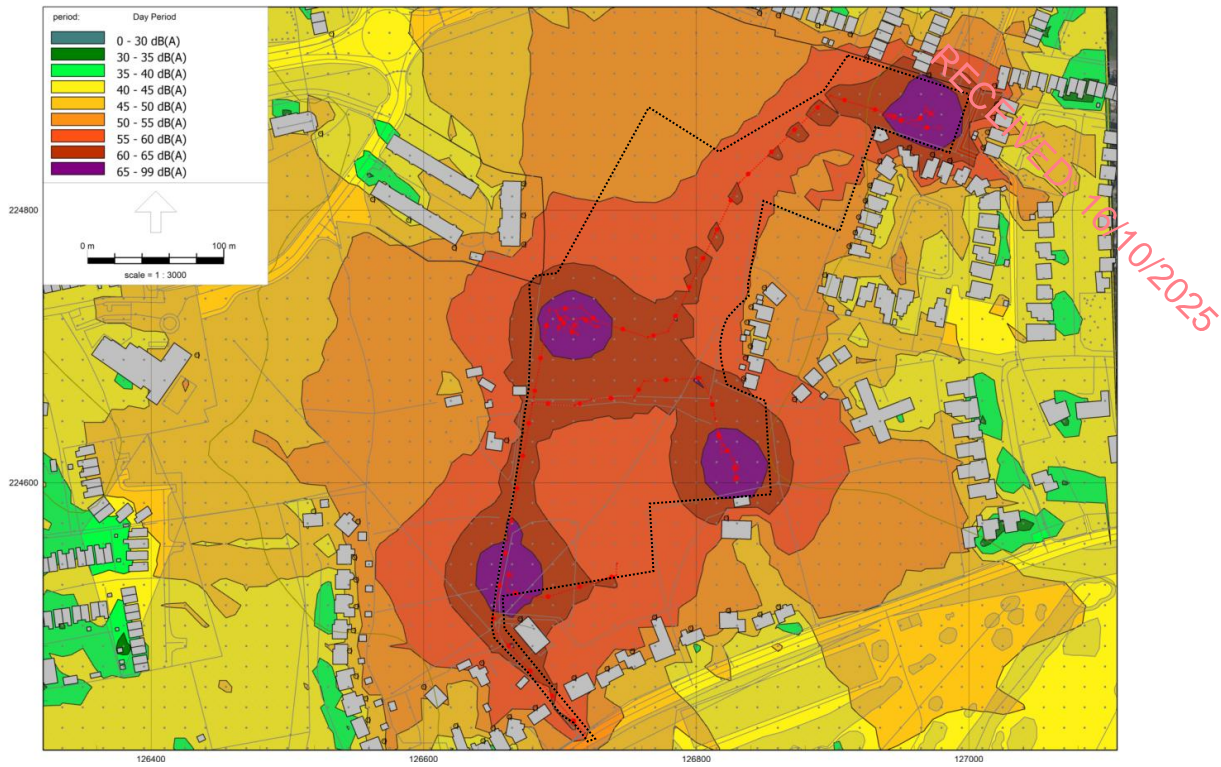


Figure 3 Predicted $L_{Aeq} 1h$ contours – Construction scenario 3.

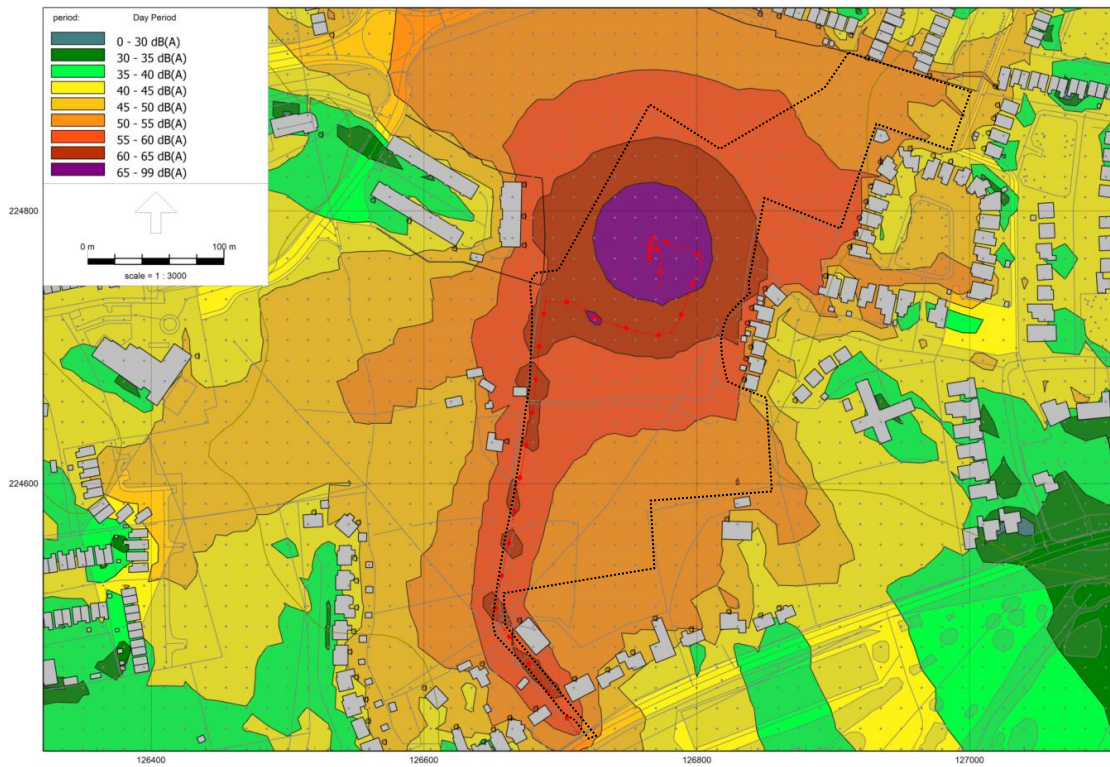


Figure 4 Predicted $L_{Aeq} 1h$ contours – Construction scenario 4.

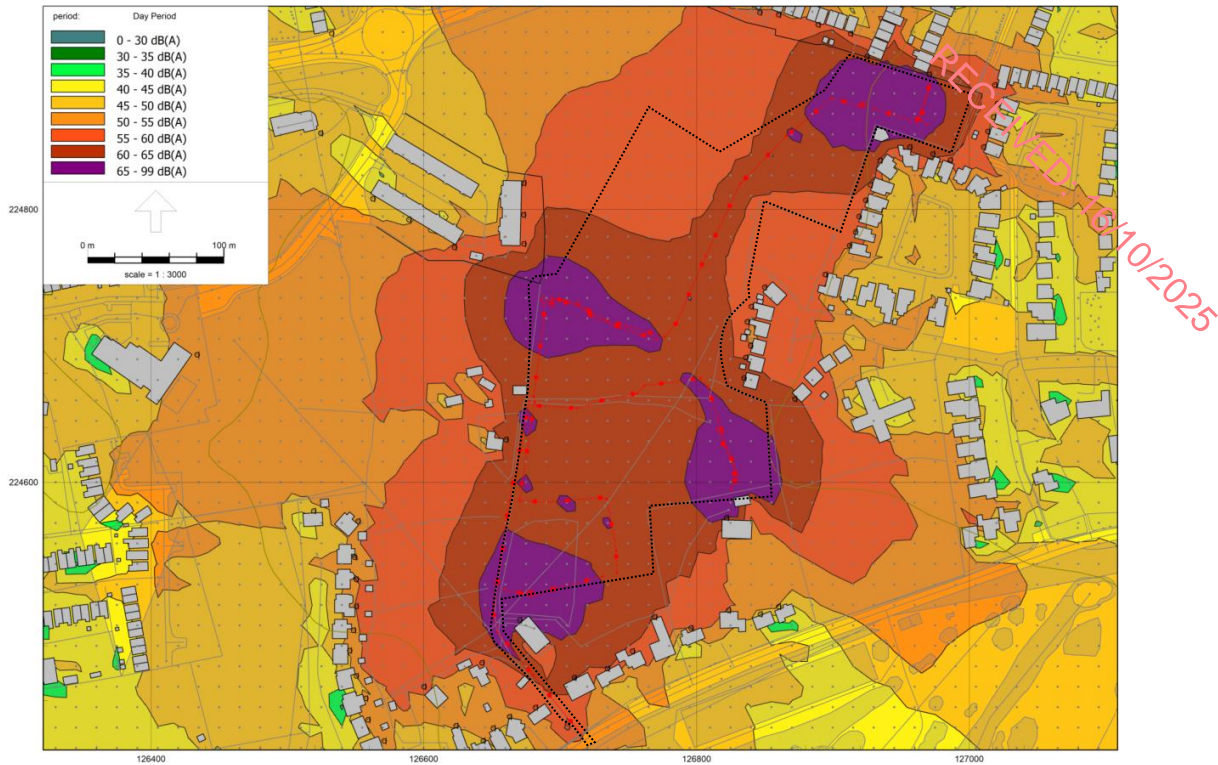


Figure 5 Predicted $L_{Aeq} 1h$ contours – Construction scenario 5.

Table 1 Predicted construction phase $L_{Aeq} 1h$ levels (dB) at receptors – Scenarios 1–3.

Receptor	Scenario 1				Scenario 2				Scenario 3			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R01	53	53	-	-	47	47	-	-	48	47	-	-
R02	52	51	-	-	43	44	-	-	46	46	-	-
R03	46	49	49	-	40	43	43	-	41	44	45	-
R04	48	48	48	-	34	36	37	-	42	42	42	-
R05	51	51	53	54	40	42	43	43	45	46	47	49
R06	52	52	55	55	38	43	44	43	43	47	49	49
R07	50	56	57	57	38	43	43	43	43	49	50	53
R08	56	58	61	61	38	43	44	43	51	53	56	56
R09	55	56	58	59	38	42	43	43	50	52	54	55
R10	55	55	56	57	36	38	41	42	50	51	53	53
R11	51	54	54	-	35	37	39	-	47	50	51	-
R12	52	54	56	-	35	37	39	-	47	50	51	-
R13	51	54	-	-	35	37	-	-	48	50	-	-
R14	53	55	-	-	35	37	-	-	48	51	-	-
R15	52	56	-	-	35	37	-	-	47	52	-	-
R16	53	62	-	-	29	36	-	-	48	58	-	-
R17	60	69	-	-	29	36	-	-	52	63	-	-
R18	65	65	-	-	33	34	-	-	60	60	-	-
R19	65	65	-	-	31	33	-	-	59	59	-	-
R20	65	65	-	-	30	32	-	-	59	59	-	-
R21	66	66	-	-	31	34	-	-	59	59	-	-
R22	58	59	-	-	29	33	-	-	60	60	-	-
R23	65	65	65	-	23	26	35	-	61	61	61	-
R24	68	68	68	-	30	32	35	-	65	64	64	-
R25	66	66	67	-	29	31	37	-	63	63	64	-
R26	61	61	62	-	39	41	40	-	59	59	59	-
R27	58	58	59	-	39	40	40	-	51	51	51	-
R28	58	57	58	-	38	39	39	-	51	51	51	-
R29	57	57	57	-	35	37	38	-	51	50	51	-
R30	56	56	57	-	35	36	38	-	50	50	50	-
R31	56	56	56	-	34	36	38	-	50	50	50	-

Receptor	Scenario 1				Scenario 2				Scenario 3			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R32	56	55	-	-	38	39	-	-	49	49	-	-
R33	57	57	-	-	40	40	-	-	53	53	-	-
R34	58	58	-	-	44	45	-	-	54	54	-	-
R35	59	58	-	-	45	45	-	-	54	54	-	-
R36	59	58	-	-	45	45	-	-	54	54	-	-
R37	59	59	-	-	46	46	-	-	55	54	-	-
R38	60	60	-	-	48	48	-	-	59	58	-	-
R39	62	62	-	-	47	46	-	-	56	56	-	-
R40	62	62	-	-	47	46	-	-	61	61	-	-
R41	58	58	-	-	45	45	-	-	48	48	-	-
R42	58	58	-	-	45	45	-	-	49	49	-	-
R43	57	56	-	-	47	46	-	-	50	50	-	-
R44	57	56	-	-	47	47	-	-	54	54	-	-
R45	59	59	-	-	53	52	-	-	55	55	-	-
R46	60	60	-	-	51	51	-	-	55	55	-	-
R47	59	59	-	-	56	56	-	-	54	54	-	-
R48	58	58	-	-	62	62	-	-	55	55	-	-
R49	72	72	-	-	62	62	-	-	63	63	-	-
R50	64	64	-	-	64	64	-	-	59	59	-	-
R51	59	59	-	-	54	53	-	-	54	53	-	-
R52	54	54	-	-	64	64	-	-	56	56	-	-
R53	60	60	-	-	60	60	-	-	56	55	-	-
R54	58	58	-	-	57	58	-	-	53	53	-	-
R55	52	53	-	-	52	53	-	-	46	47	-	-
R56	52	53	-	-	54	54	-	-	49	49	-	-
R57	47	49	-	-	43	45	-	-	42	44	-	-
R58	50	50	-	-	45	46	-	-	42	43	-	-
R59	51	51	-	-	48	48	-	-	46	47	-	-
R60	56	55	-	-	51	50	-	-	50	50	-	-
R61	55	54	-	-	48	47	-	-	46	46	-	-
R62	57	56	-	-	52	51	-	-	53	52	-	-
R63	57	56	-	-	53	52	-	-	52	51	-	-
R64	57	56	-	-	52	51	-	-	51	51	-	-
R65	57	56	-	-	55	54	-	-	53	52	-	-
R66	59	58	-	-	54	53	-	-	54	54	-	-
R67	60	59	-	-	53	52	-	-	53	52	-	-
R68	57	56	-	-	52	52	-	-	55	54	-	-
R69	58	58	-	-	55	54	-	-	54	53	-	-
R70	51	51	-	-	38	39	-	-	44	44	-	-
R71	63	63	-	-	54	54	-	-	59	59	-	-

Table 2 Predicted construction phase $L_{Aeq 1h}$ levels (dB) at receptors – Scenarios 4-5.

Receptor	Scenario 4				Scenario 5			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R01	44	44	-	-	51	51	-	-
R02	40	41	-	-	50	49	-	-
R03	35	37	38	-	44	47	47	-
R04	49	48	48	-	45	45	45	-
R05	35	35	37	39	44	46	49	49
R06	36	37	39	41	46	48	51	52
R07	45	48	50	52	48	53	54	56
R08	53	58	58	58	55	58	59	62
R09	52	57	58	58	53	56	56	59
R10	52	57	57	57	54	54	55	56
R11	48	52	52	-	51	54	55	-
R12	48	52	52	-	53	55	57	-
R13	48	52	-	-	54	56	-	-
R14	47	51	-	-	47	51	-	-

Receptor	Scenario 4				Scenario 5			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R15	47	51	-	-	57	62	-	-
R16	43	52	-	-	53	65	-	-
R17	43	51	-	-	54	65	-	-
R18	49	50	-	-	58	59	-	-
R19	50	49	-	-	58	58	-	-
R20	45	46	-	-	57	57	-	-
R21	34	37	-	-	58	57	-	-
R22	41	43	-	-	57	57	-	-
R23	41	44	49	-	60	60	60	-
R24	39	44	47	-	62	62	62	-
R25	42	43	49	-	64	64	64	-
R26	54	53	52	-	60	60	60	-
R27	54	53	53	-	60	60	60	-
R28	55	54	53	-	59	59	59	-
R29	55	54	54	-	58	58	58	-
R30	55	54	54	-	59	58	58	-
R31	55	54	54	-	58	57	57	-
R32	56	55	-	-	58	57	-	-
R33	58	58	-	-	57	56	-	-
R34	59	59	-	-	57	56	-	-
R35	58	58	-	-	56	56	-	-
R36	48	48	-	-	56	56	-	-
R37	57	57	-	-	57	56	-	-
R38	56	56	-	-	61	61	-	-
R39	43	44	-	-	59	59	-	-
R40	52	52	-	-	67	67	-	-
R41	41	42	-	-	52	51	-	-
R42	41	41	-	-	50	51	-	-
R43	46	49	-	-	54	54	-	-
R44	46	49	-	-	57	56	-	-
R45	48	50	-	-	59	59	-	-
R46	47	46	-	-	61	60	-	-
R47	48	48	-	-	59	59	-	-
R48	53	52	-	-	60	60	-	-
R49	56	56	-	-	69	69	-	-
R50	54	55	-	-	62	62	-	-
R51	46	48	-	-	57	57	-	-
R52	55	55	-	-	57	57	-	-
R53	50	50	-	-	54	54	-	-
R54	48	48	-	-	52	52	-	-
R55	46	46	-	-	49	49	-	-
R56	45	45	-	-	50	51	-	-
R57	41	43	-	-	45	47	-	-
R58	41	41	-	-	46	48	-	-
R59	44	44	-	-	47	49	-	-
R60	45	47	-	-	49	49	-	-
R61	41	43	-	-	48	49	-	-
R62	47	49	-	-	55	54	-	-
R63	47	48	-	-	55	54	-	-
R64	45	47	-	-	54	54	-	-
R65	44	44	-	-	56	55	-	-
R66	45	44	-	-	58	57	-	-
R67	44	44	-	-	57	56	-	-
R68	46	47	-	-	56	55	-	-
R69	50	49	-	-	55	54	-	-
R70	38	38	-	-	48	48	-	-
R71	58	57	-	-	61	61	-	-

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APPENDIX 11-2

CONSTRUCTION NOISE IMPACTS

Appendix 11-2 Construction Noise Impacts

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Table 1 Construction phase noise impacts - Scenario 1.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	53	49	Not significant
R02	51-52	49	Not significant
R03	46-49	49	Imperceptible to not significant
R04	48	49	Imperceptible
R05	51-54	49	Not significant
R06	52-55	49	Not significant
R07	50-57	49	Not significant
R08	56-61	49	Not significant to slight
R09	55-59	49	Not significant
R10	55-57	49	Not significant
R11	51-54	50	Not significant
R12	52-56	50	Not significant
R13	51-54	50	Not significant
R14	53-55	50	Not significant
R15	52-56	50	Not significant
R16	53-62	50	Not significant to slight
R17	60-69	50	Slight to moderate
R18	65	50	Slight
R19	65	50	Slight
R20	65	50	Slight
R21	66	50	Moderate
R22	58-59	50	Not significant
R23	65	50	Slight
R24	68	50	Moderate
R25	66-67	50	Moderate
R26	61-62	50	Slight
R27	58-59	50	Not significant
R28	57-58	50	Not significant
R29	57	50	Not significant
R30	56-57	50	Not significant
R31	56	50	Not significant
R32	55-56	50	Not significant
R33	57	49	Not significant
R34	58	49	Not significant
R35	58-59	49	Not significant
R36	58-59	49	Not significant
R37	59	49	Not significant
R38	60	49	Slight
R39	62	49	Slight
R40	62	49	Slight
R41	58	48	Not significant
R42	58	48	Not significant
R43	56-57	48	Not significant
R44	56-57	48	Not significant
R45	59	48	Not significant
R46	60	48	Slight
R47	59	48	Not significant
R48	58	48	Not significant
R49	72	48	Significant
R50	64	48	Slight
R51	59	48	Not significant
R52	54	48	Not significant
R53	60	48	Slight
R54	58	48	Not significant
R55	52-53	48	Not significant

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R56	52-53	48	Not significant
R57	47-49	48	Imperceptible to not significant
R58	50	48	Not significant
R59	51	48	Not significant
R60	55-56	48	Not significant
R61	54-55	48	Not significant
R62	56-57	48	Not significant
R63	56-57	48	Not significant
R64	56-57	48	Not significant
R65	56-57	48	Not significant
R66	58-59	48	Not significant
R67	59-60	48	Not significant to slight
R68	56-57	48	Not significant
R69	58	48	Not significant
R70	51	48	Not significant
R71	63	48	Slight

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Table 2 Construction phase noise impacts - Scenario 2.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	47	49	Imperceptible
R02	43-44	49	Imperceptible
R03	40-43	49	Imperceptible
R04	34-37	49	Imperceptible
R05	40-43	49	Imperceptible
R06	38-44	49	Imperceptible
R07	38-43	49	Imperceptible
R08	38-44	49	Imperceptible
R09	38-43	49	Imperceptible
R10	36-42	49	Imperceptible
R11	35-39	50	Imperceptible
R12	35-39	50	Imperceptible
R13	35-37	50	Imperceptible
R14	35-37	50	Imperceptible
R15	35-37	50	Imperceptible
R16	29-36	50	Imperceptible
R17	29-36	50	Imperceptible
R18	33-34	50	Imperceptible
R19	31-33	50	Imperceptible
R20	30-32	50	Imperceptible
R21	31-34	50	Imperceptible
R22	29-33	50	Imperceptible
R23	23-35	50	Imperceptible
R24	30-35	50	Imperceptible
R25	29-37	50	Imperceptible
R26	39-41	50	Imperceptible
R27	39-40	50	Imperceptible
R28	38-39	50	Imperceptible
R29	35-38	50	Imperceptible
R30	35-38	50	Imperceptible
R31	34-38	50	Imperceptible
R32	38-39	50	Imperceptible
R33	40	49	Imperceptible
R34	44-45	49	Imperceptible
R35	45	49	Imperceptible
R36	45	49	Imperceptible
R37	46	49	Imperceptible
R38	48	49	Imperceptible
R39	46-47	49	Imperceptible

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R40	46-47	49	Imperceptible
R41	45	48	Imperceptible
R42	45	48	Imperceptible
R43	46-47	48	Imperceptible
R44	47	48	Imperceptible
R45	52-53	48	Not significant
R46	51	48	Not significant
R47	56	48	Not significant
R48	62	48	Slight
R49	62	48	Slight
R50	64	48	Slight
R51	53-54	48	Not significant
R52	64	48	Slight
R53	60	48	Slight
R54	57-58	48	Not significant
R55	52-53	48	Not significant
R56	54	48	Not significant
R57	43-45	48	Imperceptible
R58	45-46	48	Imperceptible
R59	48	48	Not significant
R60	50-51	48	Not significant
R61	47-48	48	Imperceptible to not significant
R62	51-52	48	Not significant
R63	52-53	48	Not significant
R64	51-52	48	Not significant
R65	54-55	48	Not significant
R66	53-54	48	Not significant
R67	52-53	48	Not significant
R68	52	48	Not significant
R69	54-55	48	Not significant
R70	38-39	48	Imperceptible
R71	54	48	Not significant

Table 3 Construction phase noise impacts - Scenario 3.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	47-48	49	Imperceptible
R02	46	49	Imperceptible
R03	41-45	49	Imperceptible
R04	42	49	Imperceptible
R05	45-49	49	Imperceptible to not significant
R06	43-49	49	Imperceptible to not significant
R07	43-53	49	Imperceptible to not significant
R08	51-56	49	Not significant
R09	50-55	49	Not significant
R10	50-53	49	Not significant
R11	47-51	50	Imperceptible to not significant
R12	47-51	50	Imperceptible to not significant
R13	48-50	50	Imperceptible to not significant
R14	48-51	50	Imperceptible to not significant
R15	47-52	50	Imperceptible to not significant
R16	48-58	50	Imperceptible to not significant
R17	52-63	50	Not significant to slight
R18	60	50	Slight
R19	59	50	Not significant
R20	59	50	Not significant
R21	59	50	Not significant
R22	60	50	Slight
R23	61	50	Slight

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R24	64-65	50	Slight
R25	63-64	50	Slight
R26	59	50	Not significant
R27	51	50	Not significant
R28	51	50	Not significant
R29	50-51	50	Not significant
R30	50	50	Not significant
R31	50	50	Not significant
R32	49	50	Imperceptible
R33	53	49	Not significant
R34	54	49	Not significant
R35	54	49	Not significant
R36	54	49	Not significant
R37	54-55	49	Not significant
R38	58-59	49	Not significant
R39	56	49	Not significant
R40	61	49	Slight
R41	48	48	Not significant
R42	49	48	Not significant
R43	50	48	Not significant
R44	54	48	Not significant
R45	55	48	Not significant
R46	55	48	Not significant
R47	54	48	Not significant
R48	55	48	Not significant
R49	63	48	Slight
R50	59	48	Not significant
R51	53-54	48	Not significant
R52	56	48	Not significant
R53	55-56	48	Not significant
R54	53	48	Not significant
R55	46-47	48	Imperceptible
R56	49	48	Not significant
R57	42-44	48	Imperceptible
R58	42-43	48	Imperceptible
R59	46-47	48	Imperceptible
R60	50	48	Not significant
R61	46	48	Imperceptible
R62	52-53	48	Not significant
R63	51-52	48	Not significant
R64	51	48	Not significant
R65	52-53	48	Not significant
R66	54	48	Not significant
R67	52-53	48	Not significant
R68	54-55	48	Not significant
R69	53-54	48	Not significant
R70	44	48	Imperceptible
R71	59	48	Not significant

Table 4 Construction phase noise impacts - Scenario 4.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	44	49	Imperceptible
R02	40-41	49	Imperceptible
R03	35-38	49	Imperceptible
R04	48-49	49	Imperceptible
R05	35-39	49	Imperceptible
R06	36-41	49	Imperceptible
R07	45-52	49	Imperceptible to not significant

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R08	53-58	49	Not significant
R09	52-58	49	Not significant
R10	52-57	49	Not significant
R11	48-52	50	Imperceptible to not significant
R12	48-52	50	Imperceptible to not significant
R13	48-52	50	Imperceptible to not significant
R14	47-51	50	Imperceptible to not significant
R15	47-51	50	Imperceptible to not significant
R16	43-52	50	Imperceptible to not significant
R17	43-51	50	Imperceptible to not significant
R18	49-50	50	Imperceptible to not significant
R19	49-50	50	Imperceptible to not significant
R20	45-46	50	Imperceptible
R21	34-37	50	Imperceptible
R22	41-43	50	Imperceptible
R23	41-49	50	Imperceptible
R24	39-47	50	Imperceptible
R25	42-49	50	Imperceptible
R26	52-54	50	Not significant
R27	53-54	50	Not significant
R28	53-55	50	Not significant
R29	54-55	50	Not significant
R30	54-55	50	Not significant
R31	54-55	50	Not significant
R32	55-56	50	Not significant
R33	58	49	Not significant
R34	59	49	Not significant
R35	58	49	Not significant
R36	48	49	Imperceptible
R37	57	49	Not significant
R38	56	49	Not significant
R39	43	49	Imperceptible
R40	52	49	Not significant
R41	41-42	48	Imperceptible
R42	41	48	Imperceptible
R43	46-49	48	Imperceptible to not significant
R44	46-49	48	Imperceptible to not significant
R45	48-50	48	Not significant
R46	46-47	48	Imperceptible
R47	48	48	Not significant
R48	52-53	48	Not significant
R49	56	48	Not significant
R50	54-55	48	Not significant
R51	46-48	48	Imperceptible
R52	55	48	Not significant
R53	50	48	Not significant
R54	48	48	Not significant
R55	46	48	Imperceptible
R56	45	48	Imperceptible
R57	41-43	48	Imperceptible
R58	41	48	Imperceptible
R59	44	48	Imperceptible
R60	45-47	48	Imperceptible
R61	41-43	48	Imperceptible
R62	47-49	48	Imperceptible to not significant
R63	47-48	48	Imperceptible to not significant
R64	45-47	48	Imperceptible
R65	44	48	Imperceptible

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R66	44-45	48	Imperceptible
R67	44	48	Imperceptible
R68	46-47	48	Imperceptible
R69	49-50	48	Not significant
R70	38	48	Imperceptible
R71	57-58	48	Not significant

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Table 5 Construction phase noise impacts - Scenario 5.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	51	49	Not significant
R02	49-50	49	Not significant
R03	44-47	49	Imperceptible
R04	45	49	Imperceptible
R05	44-49	49	Imperceptible to not significant
R06	46-52	49	Imperceptible to not significant
R07	48-56	49	Imperceptible to not significant
R08	55-62	49	Not significant to slight
R09	53-59	49	Not significant
R10	54-56	49	Not significant
R11	51-55	50	Not significant
R12	53-57	50	Not significant
R13	54-56	50	Not significant
R14	47-51	50	Imperceptible to not significant
R15	57-62	50	Not significant to slight
R16	53-65	50	Not significant to slight
R17	54-65	50	Not significant to slight
R18	58-59	50	Not significant
R19	58	50	Not significant
R20	57	50	Not significant
R21	57-58	50	Not significant
R22	57	50	Not significant
R23	60	50	Slight
R24	62	50	Slight
R25	64	50	Slight
R26	60	50	Slight
R27	60	50	Slight
R28	59	50	Not significant
R29	58	50	Not significant
R30	58-59	50	Not significant
R31	57-58	50	Not significant
R32	57-58	50	Not significant
R33	56-57	49	Not significant
R34	56-57	49	Not significant
R35	56	49	Not significant
R36	56	49	Not significant
R37	56-57	49	Not significant
R38	61	49	Slight
R39	59	49	Not significant
R40	67	49	Moderate
R41	51-52	48	Not significant
R42	50-51	48	Not significant
R43	54-54	48	Not significant
R44	56-57	48	Not significant
R45	59	48	Not significant
R46	60-61	48	Slight
R47	59	48	Not significant
R48	60	48	Slight
R49	69	48	Moderate

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R50	62	48	Slight
R51	57	48	Not significant
R52	57	48	Not significant
R53	54	48	Not significant
R54	52	48	Not significant
R55	49	48	Not significant
R56	50-51	48	Not significant
R57	45-47	48	Imperceptible
R58	46-48	48	Imperceptible to not significant
R59	47-49	48	Imperceptible to not significant
R60	49	48	Not significant
R61	48-49	48	Not significant
R62	54-55	48	Not significant
R63	54-55	48	Not significant
R64	54	48	Not significant
R65	55-56	48	Not significant
R66	57-58	48	Not significant
R67	56-57	48	Not significant
R68	55-56	48	Not significant
R69	54-55	48	Not significant
R70	48	48	Not significant
R71	61	48	Not significant to slight

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APPENDIX 11-3

**CUMULATIVE LRD
CONSTRUCTION NOISE LEVELS**

Appendix 11-3 Cumulative Proposed Project Construction Noise Levels

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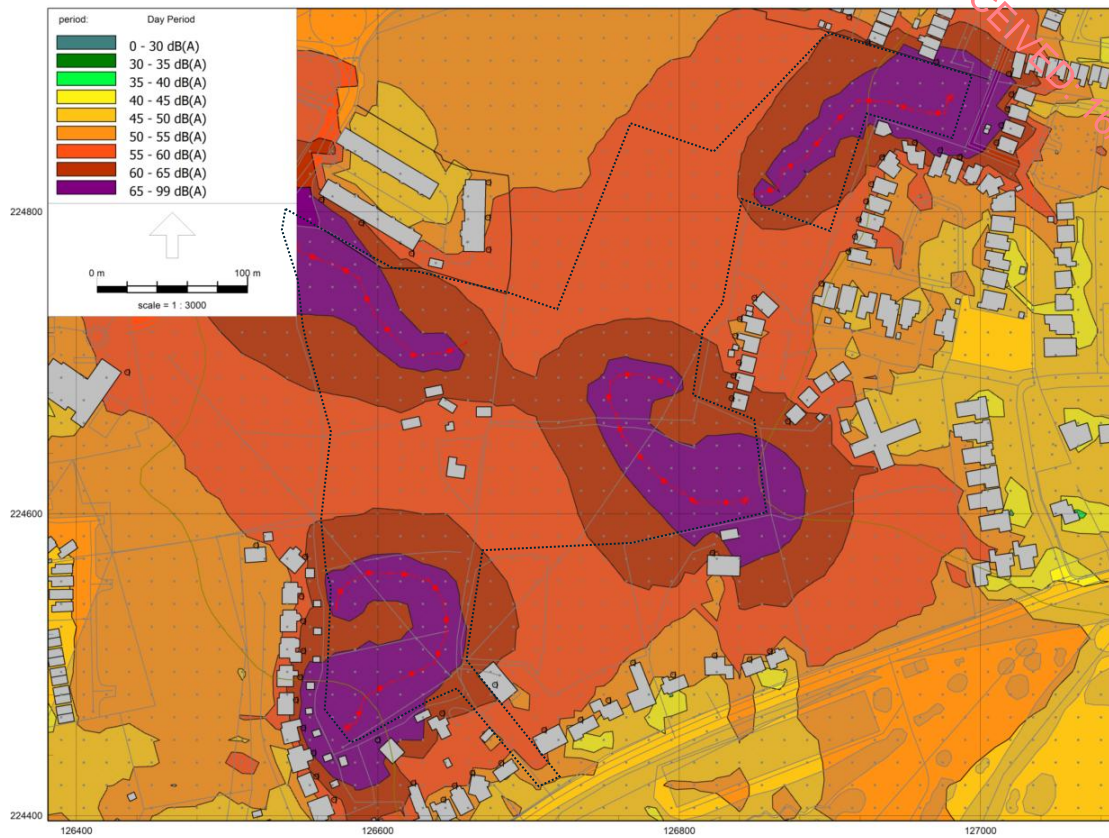


Figure 1 Predicted $L_{Aeq} 1 h$ contours – Construction scenario 6.

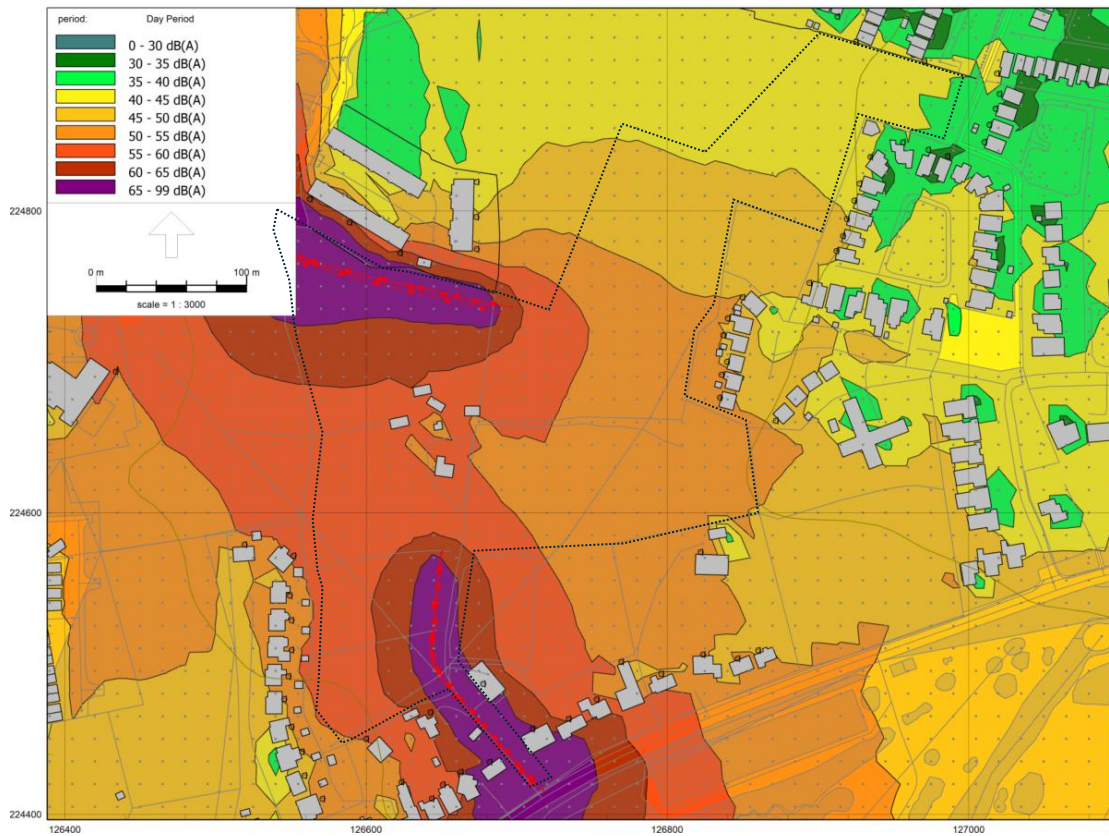


Figure 2 Predicted $L_{Aeq} 1 h$ contours – Construction scenario 7.

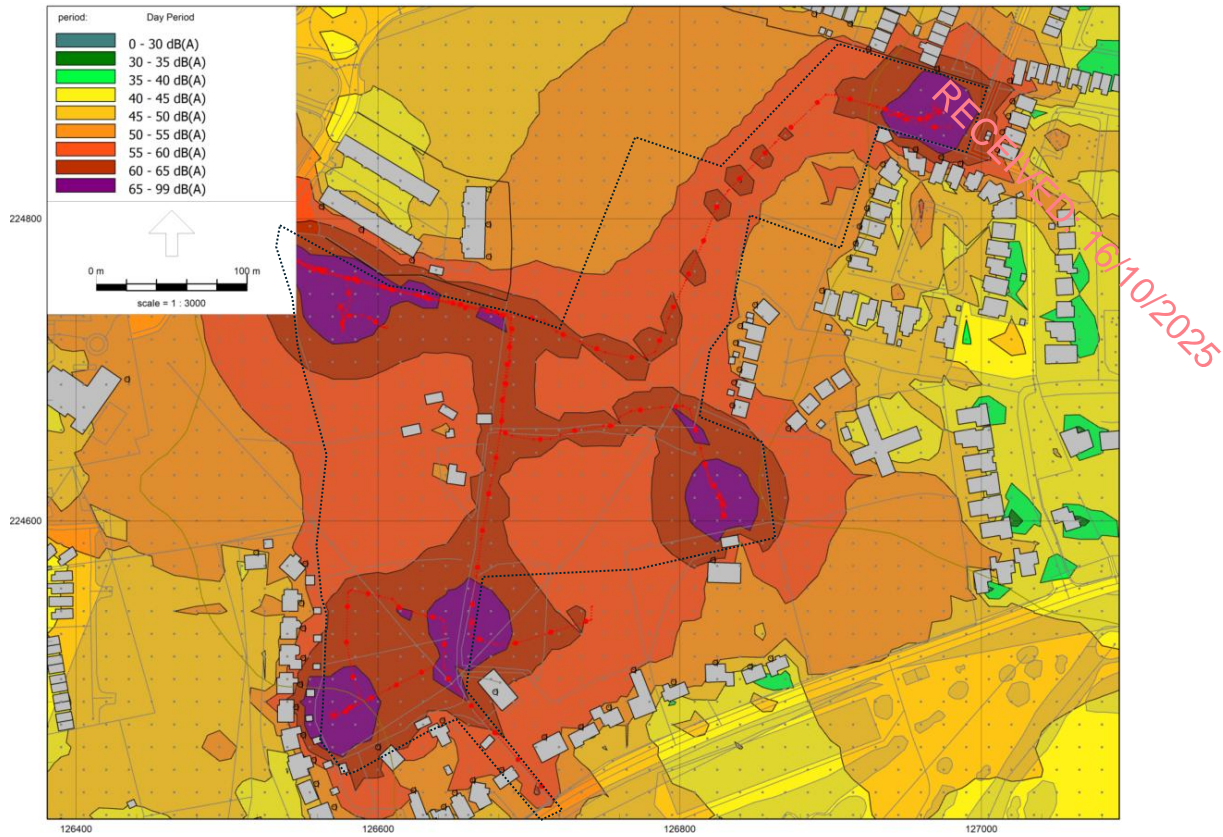


Figure 3 Predicted $L_{Aeq} 1h$ contours – Construction scenario 8.

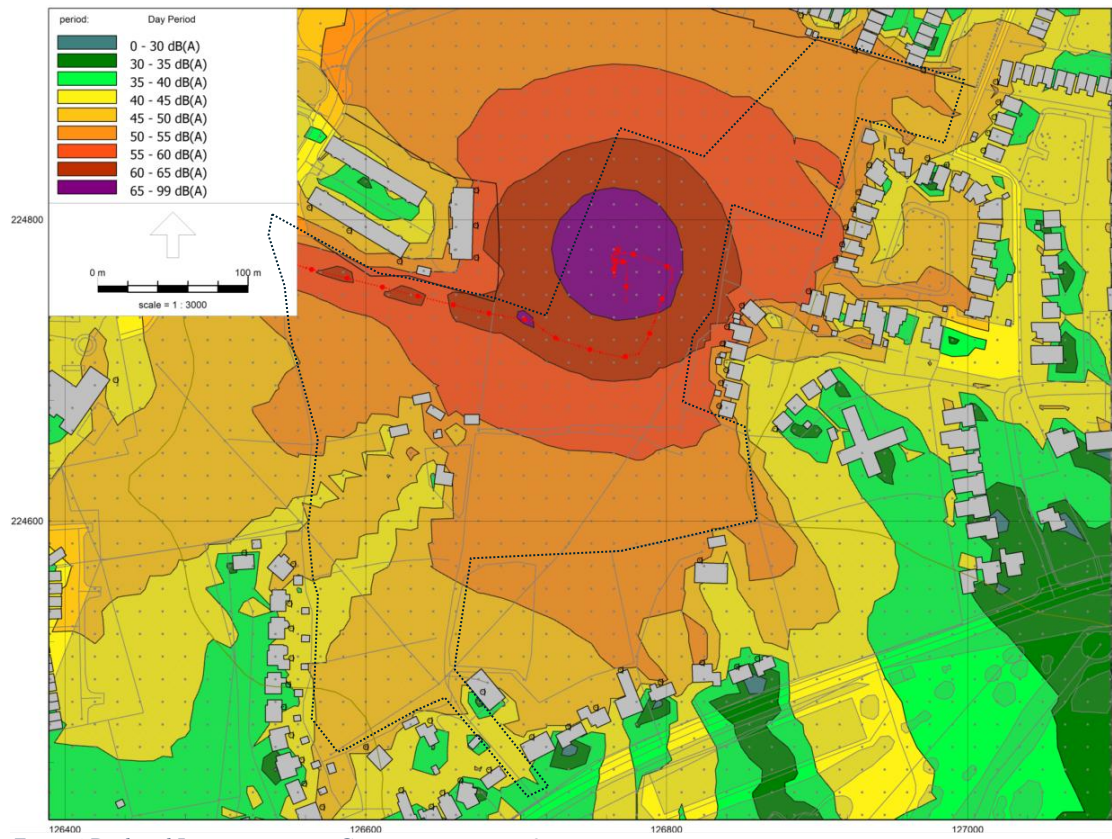


Figure 4 Predicted $L_{Aeq} 1h$ contours – Construction scenario 9.

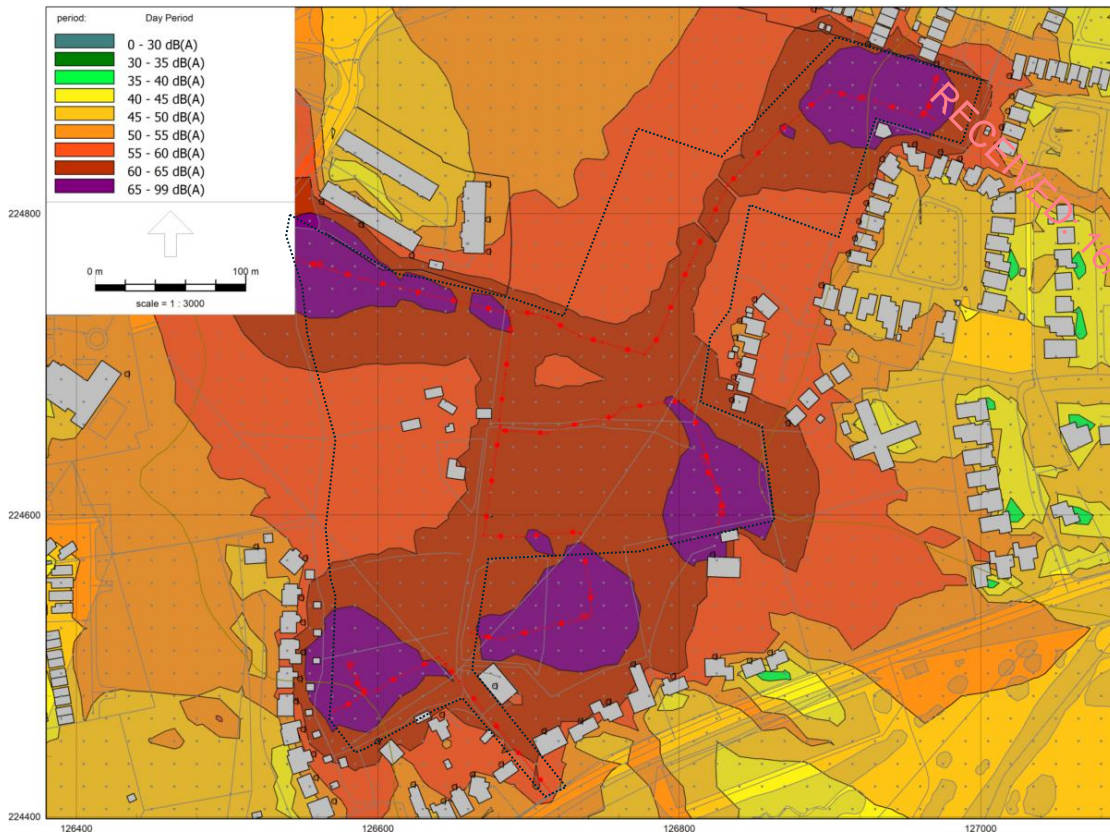


Figure 5 Predicted $L_{Aeq\ 1h}$ contours – Construction scenario 10.

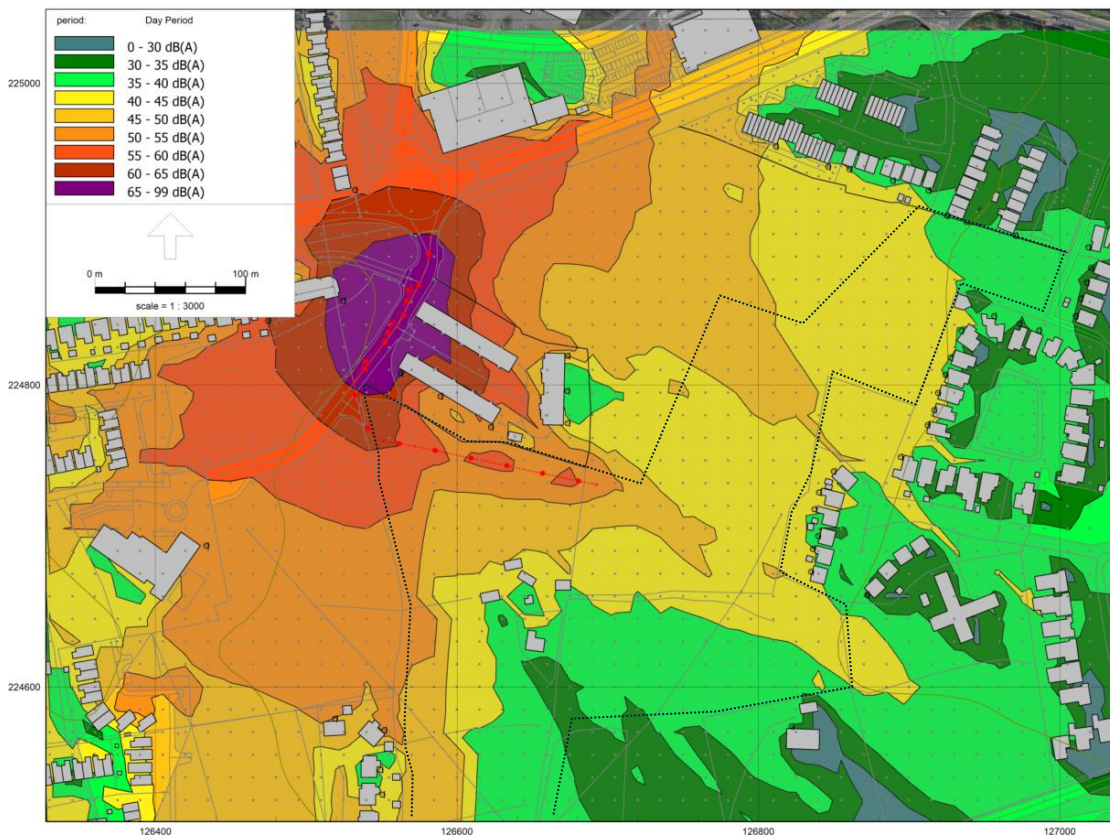


Figure 6 Predicted $L_{Aeq\ 1h}$ contours – Construction scenario 11.

Table 1 Predicted construction phase $L_{Aeq,1h}$ levels (dB) at receptor groups shown in Figure 11-3 – Scenarios 6-8.

Receptor	Scenario 6				Scenario 7				Scenario 8			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R01	56	55	-	-	56	55	-	-	52	51	-	-
R02	58	58	-	-	57	56	-	-	52	52	-	-
R03	59	59	59	-	58	57	57	-	53	52	52	-
R04	55	54	-	-	53	53	-	-	49	49	-	-
R05	66	66	66	66	65	65	65	65	55	56	58	58
R06	58	60	64	64	58	61	65	65	53	56	59	60
R07	56	59	61	61	57	61	64	64	53	58	60	61
R08	52	55	56	57	50	53	54	58	49	52	54	56
R09	50	53	53	54	43	45	47	50	46	49	50	52
R10	50	53	53	53	42	42	44	47	47	49	49	50
R11	50	52	53	-	37	40	42	-	47	50	50	-
R12	51	53	55	-	38	42	42	-	47	49	51	-
R13	49	53	-	-	37	41	-	-	47	49	-	-
R14	52	54	-	-	38	40	-	-	48	50	-	-
R15	51	56	-	-	37	40	-	-	47	52	-	-
R16	53	62	-	-	33	41	-	-	48	58	-	-
R17	60	69	-	-	34	41	-	-	52	63	-	-
R18	65	65	-	-	39	40	-	-	60	60	-	-
R19	65	65	-	-	38	39	-	-	59	59	-	-
R20	65	65	-	-	36	37	-	-	59	59	-	-
R21	66	66	-	-	32	35	-	-	59	59	-	-
R22	58	59	-	-	34	36	-	-	60	60	-	-
R23	65	65	65	-	30	33	40	-	61	61	61	-
R24	68	68	68	-	32	36	41	-	65	64	64	-
R25	66	66	67	-	32	34	42	-	64	64	64	-
R26	61	61	62	-	43	44	44	-	59	59	59	-
R27	58	58	59	-	43	44	44	-	51	51	51	-
R28	57	57	58	-	43	43	44	-	50	50	51	-
R29	56	56	57	-	44	44	44	-	50	49	50	-
R30	55	55	56	-	44	44	44	-	49	49	49	-
R31	55	55	55	-	45	45	45	-	49	48	49	-
R32	56	55	-	-	46	46	-	-	50	50	-	-
R33	55	55	-	-	48	48	-	-	53	52	-	-
R34	56	56	-	-	50	50	-	-	54	53	-	-
R35	56	56	-	-	52	51	-	-	54	53	-	-
R36	57	57	-	-	52	51	-	-	53	53	-	-
R37	57	57	-	-	52	51	-	-	55	54	-	-
R38	59	59	-	-	53	52	-	-	59	58	-	-
R39	62	62	-	-	48	48	-	-	57	57	-	-
R40	61	61	-	-	53	52	-	-	61	61	-	-
R41	57	57	-	-	47	47	-	-	49	49	-	-
R42	57	57	-	-	46	47	-	-	49	49	-	-
R43	52	52	-	-	49	49	-	-	51	50	-	-
R44	52	51	-	-	48	49	-	-	54	54	-	-
R45	54	54	-	-	53	53	-	-	55	55	-	-
R46	53	53	-	-	51	52	-	-	55	55	-	-
R47	53	53	-	-	56	56	-	-	55	55	-	-
R48	55	55	-	-	62	62	-	-	56	56	-	-
R49	62	62	-	-	61	61	-	-	63	63	-	-
R50	60	60	-	-	64	64	-	-	60	60	-	-
R51	72	72	-	-	54	55	-	-	63	63	-	-
R52	58	58	-	-	65	65	-	-	57	57	-	-
R53	54	54	-	-	61	61	-	-	56	56	-	-
R54	55	55	-	-	57	58	-	-	55	55	-	-
R55	54	55	-	-	53	54	-	-	49	50	-	-
R56	63	63	-	-	53	54	-	-	54	55	-	-
R57	60	60	-	-	46	47	-	-	54	54	-	-
R58	62	62	-	-	48	50	-	-	50	50	-	-

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Receptor	Scenario 6				Scenario 7				Scenario 8			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R59	55	55	-	-	50	50	-	-	49	50	-	-
R60	55	55	-	-	51	50	-	-	51	50	-	-
R61	56	56	-	-	49	49	-	-	59	59	-	-
R62	70	70	-	-	52	51	-	-	59	58	-	-
R63	68	68	-	-	54	53	-	-	67	67	-	-
R64	63	63	-	-	52	52	-	-	66	66	-	-
R65	63	63	-	-	55	54	-	-	62	61	-	-
R66	64	64	-	-	54	54	-	-	63	63	-	-
R67	60	60	-	-	53	53	-	-	57	57	-	-
R68	62	62	-	-	53	52	-	-	57	57	-	-
R69	60	60	-	-	57	56	-	-	56	55	-	-
R70	54	53	-	-	53	52	-	-	51	50	-	-

Table 2 Predicted construction phase $L_{Aeq, 1h}$ levels (dB) at receptor groups shown in Figure 11-3 – Scenarios 9-11.

Receptor	Scenario 9				Scenario 10				Scenario 11			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R01	45	44	-	-	54	53	-	-	53	52	-	-
R02	43	43	-	-	55	55	-	-	60	60	-	-
R03	41	41	42	-	56	56	56	-	67	67	67	-
R04	49	49	-	-	52	52	-	-	59	59	-	-
R05	47	48	48	48	63	63	63	63	59	61	61	61
R06	42	45	48	50	56	60	64	64	49	50	51	51
R07	48	51	54	55	56	59	62	62	52	51	52	53
R08	53	58	58	58	52	54	55	58	38	40	42	49
R09	52	57	58	58	49	52	53	54	35	35	38	47
R10	52	57	57	57	50	52	52	53	40	42	42	48
R11	48	52	52	-	51	54	54	-	36	43	42	-
R12	48	52	52	-	53	55	57	-	37	43	42	-
R13	48	52	-	-	53	55	-	-	36	41	-	-
R14	47	51	-	-	45	50	-	-	37	40	-	-
R15	47	51	-	-	56	62	-	-	30	34	-	-
R16	43	52	-	-	53	65	-	-	31	39	-	-
R17	43	51	-	-	54	65	-	-	32	38	-	-
R18	49	50	-	-	58	59	-	-	34	37	-	-
R19	50	49	-	-	58	58	-	-	37	37	-	-
R20	45	46	-	-	57	57	-	-	37	37	-	-
R21	34	37	-	-	58	57	-	-	30	30	-	-
R22	41	43	-	-	57	57	-	-	37	37	-	-
R23	41	44	49	-	60	60	60	-	31	33	37	-
R24	38	43	47	-	62	62	62	-	31	35	38	-
R25	41	43	49	-	64	64	64	-	30	33	39	-
R26	54	53	52	-	60	60	60	-	41	41	41	-
R27	54	53	53	-	60	60	60	-	41	41	40	-
R28	55	54	53	-	59	59	59	-	41	41	41	-
R29	55	54	53	-	58	58	58	-	41	41	41	-
R30	55	54	54	-	58	58	58	-	42	41	41	-
R31	55	54	54	-	57	57	56	-	42	42	42	-
R32	56	55	-	-	57	56	-	-	43	43	-	-
R33	58	58	-	-	55	55	-	-	42	42	-	-
R34	59	59	-	-	56	55	-	-	40	41	-	-
R35	58	58	-	-	55	55	-	-	41	43	-	-
R36	48	48	-	-	56	55	-	-	40	41	-	-
R37	57	57	-	-	55	54	-	-	40	42	-	-
R38	56	56	-	-	61	61	-	-	40	42	-	-
R39	40	42	-	-	59	59	-	-	33	35	-	-
R40	52	51	-	-	67	67	-	-	37	38	-	-
R41	35	39	-	-	55	55	-	-	31	31	-	-
R42	35	39	-	-	55	54	-	-	31	32	-	-
R43	45	49	-	-	57	57	-	-	31	33	-	-

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Receptor	Scenario 9				Scenario 10				Scenario 11			
	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m	2 m	4 m	6 m	8 m
R44	45	49	-	-	61	60	-	-	30	33	-	-
R45	45	49	-	-	63	63	-	-	30	32	-	-
R46	44	44	-	-	61	61	-	-	29	32	-	-
R47	44	43	-	-	59	59	-	-	30	30	-	-
R48	43	43	-	-	60	60	-	-	31	31	-	-
R49	44	48	-	-	63	63	-	-	34	34	-	-
R50	45	49	-	-	61	61	-	-	35	35	-	-
R51	42	46	-	-	64	64	-	-	43	46	-	-
R52	42	42	-	-	59	59	-	-	27	29	-	-
R53	35	38	-	-	59	58	-	-	33	33	-	-
R54	40	41	-	-	59	58	-	-	26	28	-	-
R55	43	44	-	-	56	56	-	-	29	31	-	-
R56	39	41	-	-	52	53	-	-	34	34	-	-
R57	40	42	-	-	56	55	-	-	40	40	-	-
R58	40	41	-	-	57	57	-	-	42	45	-	-
R59	43	43	-	-	50	50	-	-	38	40	-	-
R60	41	45	-	-	51	51	-	-	32	35	-	-
R61	38	42	-	-	57	57	-	-	36	39	-	-
R62	44	48	-	-	57	57	-	-	32	36	-	-
R63	44	47	-	-	62	62	-	-	42	44	-	-
R64	41	45	-	-	61	61	-	-	34	38	-	-
R65	34	37	-	-	67	67	-	-	36	39	-	-
R66	35	37	-	-	65	65	-	-	41	42	-	-
R67	36	37	-	-	62	62	-	-	40	42	-	-
R68	42	45	-	-	62	61	-	-	37	37	-	-
R69	49	49	-	-	56	55	-	-	49	49	-	-
R70	39	39	-	-	53	52	-	-	50	50	-	-

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APPENDIX 11-4

**CUMULATIVE LRD
CONSTRUCTION NOISE IMPACTS**

Appendix 11-4 Cumulative Proposed Project Construction Noise Impacts

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Table 1 Construction phase noise impacts – Scenario 6.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	55-56	49	Not significant
R02	58	49	Not significant
R03	59	49	Not significant
R04	54-55	49	Not significant
R05	66	49	Moderate
R06	58-64	49	Not significant to Slight
R07	56-61	49	Not significant to Slight
R08	52-56	49	Not significant
R09	50-53	49	Not significant
R10	50-53	49	Not significant
R11	50-53	50	Not significant
R12	51-55	50	Not significant
R13	49-53	50	Imperceptible to Not significant
R14	52-54	50	Not significant
R15	51-56	50	Not significant
R16	53-62	50	Not significant to Slight
R17	60-69	50	Slight to Moderate
R18	65	50	Slight
R19	65	50	Slight
R20	65	50	Slight
R21	66	50	Moderate
R22	58-59	50	Not significant
R23	65	50	Slight
R24	68	50	Moderate
R25	66-67	50	Moderate
R26	61-62	50	Slight
R27	58-59	50	Not significant
R28	57-58	50	Not significant
R29	56-57	50	Not significant
R30	55-56	50	Not significant
R31	55	50	Not significant
R32	55-56	50	Not significant
R33	55	49	Not significant
R34	56	49	Not significant
R35	56	49	Not significant
R36	57	49	Not significant
R37	57	49	Not significant
R38	59	49	Not significant
R39	62	49	Slight
R40	61	49	Slight
R41	57	48	Not significant
R42	57	48	Not significant
R43	52	48	Not significant
R44	51-52	48	Not significant
R45	54	48	Not significant
R46	53	48	Not significant
R47	53	48	Not significant
R48	55	48	Not significant
R49	62	48	Slight
R50	60	48	Slight
R51	72	48	Significant
R52	58	48	Not significant
R53	54	48	Not significant
R54	55	48	Not significant

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R55	54-55	48	Not significant
R56	63	48	Slight
R57	60	48	Slight
R58	62	48	Slight
R59	55	48	Not significant
R60	55	48	Not significant
R61	56	48	Not significant
R62	70	48	Significant
R63	68	48	Moderate
R64	63	48	Slight
R65	63	48	Slight
R66	64	48	Slight
R67	60	48	Slight
R68	62	48	Slight
R69	60	48	Slight
R70	53-54	48	Not significant

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Table 2 Construction phase noise impacts - Scenario 7.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	55-56	49	Not significant
R02	56-57	49	Not significant
R03	57-58	49	Not significant
R04	53	49	Not significant
R05	65	49	Slight
R06	58-65	49	Not significant to Slight
R07	57-64	49	Not significant to Slight
R08	50-58	49	Not significant
R09	43-50	49	Imperceptible to Not significant
R10	42-47	49	Imperceptible
R11	37-42	50	Imperceptible
R12	38-42	50	Imperceptible
R13	37-41	50	Imperceptible
R14	38-40	50	Imperceptible
R15	37-40	50	Imperceptible
R16	33-41	50	Imperceptible
R17	34-41	50	Imperceptible
R18	39-40	50	Imperceptible
R19	38-39	50	Imperceptible
R20	36-37	50	Imperceptible
R21	32-35	50	Imperceptible
R22	34-36	50	Imperceptible
R23	30-40	50	Imperceptible
R24	32-41	50	Imperceptible
R25	32-42	50	Imperceptible
R26	43-44	50	Imperceptible
R27	43-44	50	Imperceptible
R28	43-44	50	Imperceptible
R29	44	50	Imperceptible
R30	44	50	Imperceptible
R31	45	50	Imperceptible
R32	46	50	Imperceptible
R33	48	49	Imperceptible
R34	50	49	Not significant
R35	51-52	49	Not significant
R36	51-52	49	Not significant
R37	51-52	49	Not significant
R38	52-53	49	Not significant
R39	48	49	Imperceptible
R40	52-53	49	Not significant

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R41	47	48	Imperceptible
R42	46-47	48	Imperceptible
R43	49	48	Not significant
R44	48-49	48	Not significant
R45	53	48	Not significant
R46	51-52	48	Not significant
R47	56	48	Not significant
R48	62	48	Slight
R49	61	48	Slight
R50	64	48	Slight
R51	54-55	48	Not significant
R52	65	48	Slight
R53	61	48	Slight
R54	57-58	48	Not significant
R55	53-54	48	Not significant
R56	53-54	48	Not significant
R57	46-47	48	Imperceptible
R58	48-50	48	Not significant
R59	50	48	Not significant
R60	50-51	48	Not significant
R61	49	48	Not significant
R62	51-52	48	Not significant
R63	53-54	48	Not significant
R64	52	48	Not significant
R65	54-55	48	Not significant
R66	54	48	Not significant
R67	53	48	Not significant
R68	52-53	48	Not significant
R69	56-57	48	Not significant
R70	52-53	48	Not significant

Table 3 Construction phase noise impacts - Scenario 8.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	51-52	49	Not significant
R02	52	49	Not significant
R03	52-53	49	Not significant
R04	49	49	Not significant
R05	55-58	49	Not significant
R06	53-60	49	Not significant to Slight
R07	53-61	49	Not significant to Slight
R08	49-56	49	Not significant
R09	46-52	49	Imperceptible to Not significant
R10	47-50	49	Imperceptible to Not significant
R11	47-50	50	Imperceptible to Not significant
R12	47-51	50	Imperceptible to Not significant
R13	47-49	50	Imperceptible
R14	48-50	50	Imperceptible to Not significant
R15	47-52	50	Imperceptible to Not significant
R16	48-58	50	Imperceptible to Not significant
R17	52-63	50	Not significant to Slight
R18	60	50	Slight
R19	59	50	Not significant
R20	59	50	Not significant
R21	59	50	Not significant
R22	60	50	Slight
R23	61	50	Slight
R24	64-65	50	Slight
R25	64	50	Slight
R26	59	50	Not significant

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R27	51	50	Not significant
R28	50-51	50	Not significant
R29	49-50	50	Imperceptible to Not significant
R30	49	50	Imperceptible
R31	48-49	50	Imperceptible
R32	50	50	Not significant
R33	52-53	49	Not significant
R34	53-54	49	Not significant
R35	53-54	49	Not significant
R36	53	49	Not significant
R37	54-55	49	Not significant
R38	58-59	49	Not significant
R39	57	49	Not significant
R40	61	49	Slight
R41	49	48	Not significant
R42	49	48	Not significant
R43	50-51	48	Not significant
R44	54	48	Not significant
R45	55	48	Not significant
R46	55	48	Not significant
R47	55	48	Not significant
R48	56	48	Not significant
R49	63	48	Slight
R50	60	48	Slight
R51	63	48	Slight
R52	57	48	Not significant
R53	56	48	Not significant
R54	55	48	Not significant
R55	49-50	48	Not significant
R56	54-55	48	Not significant
R57	54	48	Not significant
R58	50	48	Not significant
R59	49-50	48	Not significant
R60	50-51	48	Not significant
R61	59	48	Not significant
R62	58-59	48	Not significant
R63	67	48	Moderate
R64	66	48	Moderate
R65	61-62	48	Slight
R66	63	48	Slight
R67	57	48	Not significant
R68	57	48	Not significant
R69	55-56	48	Not significant
R70	50-51	48	Not significant

Table 4 Construction phase noise impacts - Scenario 9.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	44-45	49	Imperceptible
R02	43	49	Imperceptible
R03	41-42	49	Imperceptible
R04	49	49	Not significant
R05	47-48	49	Imperceptible
R06	42-50	49	Imperceptible to Not significant
R07	48-55	49	Imperceptible to Not significant
R08	53-59	49	Not significant
R09	52-58	49	Not significant
R10	52-57	49	Not significant
R11	48-52	50	Imperceptible to Not significant
R12	48-52	50	Imperceptible to Not significant

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R13	48-52	50	Imperceptible to Not significant
R14	47-51	50	Imperceptible to Not significant
R15	47-51	50	Imperceptible to Not significant
R16	43-52	50	Imperceptible to Not significant
R17	43-51	50	Imperceptible to Not significant
R18	49-50	50	Imperceptible to Not significant
R19	49-50	50	Imperceptible to Not significant
R20	45-46	50	Imperceptible
R21	34-37	50	Imperceptible
R22	41-43	50	Imperceptible
R23	41-49	50	Imperceptible
R24	38-47	50	Imperceptible
R25	41-49	50	Imperceptible
R26	52-54	50	Not significant
R27	53-55	50	Not significant
R28	53-55	50	Not significant
R29	53-55	50	Not significant
R30	54-55	50	Not significant
R31	54-55	50	Not significant
R32	55-56	50	Not significant
R33	58	49	Not significant
R34	59	49	Not significant
R35	58	49	Not significant
R36	48	49	Imperceptible
R37	57	49	Not significant
R38	56	49	Not significant
R39	40-42	49	Imperceptible
R40	51-52	49	Not significant
R41	35-39	48	Imperceptible
R42	35-39	48	Imperceptible
R43	45-49	48	Imperceptible to Not significant
R44	45-49	48	Imperceptible to Not significant
R45	45-49	48	Imperceptible to Not significant
R46	44	48	Imperceptible
R47	43-44	48	Imperceptible
R48	43	48	Imperceptible
R49	44-48	48	Imperceptible to Not significant
R50	45-49	48	Imperceptible to Not significant
R51	42-46	48	Imperceptible
R52	42	48	Imperceptible
R53	35-38	48	Imperceptible
R54	40-41	48	Imperceptible
R55	43-44	48	Imperceptible
R56	39-41	48	Imperceptible
R57	40-42	48	Imperceptible
R58	40-41	48	Imperceptible
R59	43	48	Imperceptible
R60	41-45	48	Imperceptible
R61	38-42	48	Imperceptible
R62	44-48	48	Imperceptible to Not significant
R63	44-47	48	Imperceptible
R64	41-45	48	Imperceptible
R65	34-37	48	Imperceptible
R66	35-37	48	Imperceptible
R67	36-37	48	Imperceptible
R68	42-45	48	Imperceptible
R69	49	48	Not significant
R70	39	48	Imperceptible

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Table 5 Construction phase noise impacts - Scenario 10.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	53-54	49	Not significant
R02	55	49	Not significant
R03	56	49	Not significant
R04	52	49	Not significant
R05	63	49	Slight
R06	56-64	49	Not significant to Slight
R07	56-62	49	Not significant to Slight
R08	52-58	49	Not significant
R09	49-54	49	Not significant
R10	50-53	49	Not significant
R11	51-54	50	Not significant
R12	53-57	50	Not significant
R13	53-55	50	Not significant
R14	45-50	50	Imperceptible to Not significant
R15	56-62	50	Not significant to Slight
R16	53-65	50	Not significant to Slight
R17	54-65	50	Not significant to Slight
R18	58-59	50	Not significant
R19	58	50	Not significant
R20	57	50	Not significant
R21	58	50	Not significant
R22	57	50	Not significant
R23	60	50	Slight
R24	62	50	Slight
R25	64	50	Slight
R26	60	50	Slight
R27	60	50	Slight
R28	59	50	Not significant
R29	58	50	Not significant
R30	58	50	Not significant
R31	56-57	50	Not significant
R32	56-57	50	Not significant
R33	55	49	Not significant
R34	55-56	49	Not significant
R35	55	49	Not significant
R36	55-56	49	Not significant
R37	54-55	49	Not significant
R38	61	49	Slight
R39	59	49	Not significant
R40	67	49	Moderate
R41	55	48	Not significant
R42	54-55	48	Not significant
R43	57	48	Not significant
R44	60-61	48	Slight
R45	63	48	Slight
R46	61	48	Slight
R47	59	48	Not significant
R48	60	48	Slight
R49	63	48	Slight
R50	61	48	Slight
R51	64	48	Slight
R52	59	48	Not significant
R53	58-59	48	Not significant
R54	58-59	48	Not significant
R55	56	48	Not significant
R56	52-53	48	Not significant
R57	55-56	48	Not significant

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Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R58	57	48	Not significant
R59	50	48	Not significant
R60	51-57	48	Not significant
R61	57	48	Not significant
R62	57	48	Not significant
R63	62	48	Slight
R64	61	48	Slight
R65	67	48	Moderate
R66	65	48	Slight
R67	62	48	Slight
R68	61-62	48	Slight
R69	55-56	48	Not significant
R70	52-53	48	Not significant

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Table 6 Construction phase noise impacts - Scenario 11.

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R01	52-53	49	Not significant
R02	60	49	Slight
R03	67	49	Moderate
R04	59	49	Not significant
R05	59-61	49	Not significant to Slight
R06	49-51	49	Not significant
R07	51-53	49	Not significant
R08	38-49	49	Imperceptible to Not significant
R09	35-47	49	Imperceptible
R10	40-48	49	Imperceptible
R11	36-43	50	Imperceptible
R12	37-43	50	Imperceptible
R13	36-41	50	Imperceptible
R14	37-40	50	Imperceptible
R15	30-34	50	Imperceptible
R16	31-39	50	Imperceptible
R17	32-38	50	Imperceptible
R18	34-37	50	Imperceptible
R19	37	50	Imperceptible
R20	37	50	Imperceptible
R21	30	50	Imperceptible
R22	37	50	Imperceptible
R23	31-37	50	Imperceptible
R24	31-38	50	Imperceptible
R25	30-39	50	Imperceptible
R26	41	50	Imperceptible
R27	40-41	50	Imperceptible
R28	41	50	Imperceptible
R29	41	50	Imperceptible
R30	41-42	50	Imperceptible
R31	42	50	Imperceptible
R32	43	50	Imperceptible
R33	42	49	Imperceptible
R34	40-41	49	Imperceptible
R35	41-43	49	Imperceptible
R36	40-41	49	Imperceptible
R37	40-42	49	Imperceptible
R38	40-42	49	Imperceptible
R39	33-35	49	Imperceptible
R40	37-38	49	Imperceptible
R41	31	48	Imperceptible
R42	31-32	48	Imperceptible
R43	31-33	48	Imperceptible

Receptor	L _{Aeq} 1 h	Baseline L _{Aeq} T	Impact
R44	30-33	48	Imperceptible
R45	30-32	48	Imperceptible
R46	29-32	48	Imperceptible
R47	30	48	Imperceptible
R48	31	48	Imperceptible
R49	34	48	Imperceptible
R50	35	48	Imperceptible
R51	43-46	48	Imperceptible
R52	27-29	48	Imperceptible
R53	33	48	Imperceptible
R54	26-28	48	Imperceptible
R55	29-31	48	Imperceptible
R56	34	48	Imperceptible
R57	40	48	Imperceptible
R58	42-45	48	Imperceptible
R59	38-40	48	Imperceptible
R60	32-35	48	Imperceptible
R61	36-39	48	Imperceptible
R62	32-36	48	Imperceptible
R63	42-44	48	Imperceptible
R64	34-38	48	Imperceptible
R65	36-39	48	Imperceptible
R66	41-42	48	Imperceptible
R67	40-42	48	Imperceptible
R68	37	48	Imperceptible
R69	49	48	Imperceptible
R70	50	48	Not significant

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APPENDIX 11-5

**CUMULATIVE ONSITE & OFFSITE
CONSTRUCTION NOISE LEVELS**

Appendix 11-5 Cumulative Onsite & Offsite Construction Noise Levels

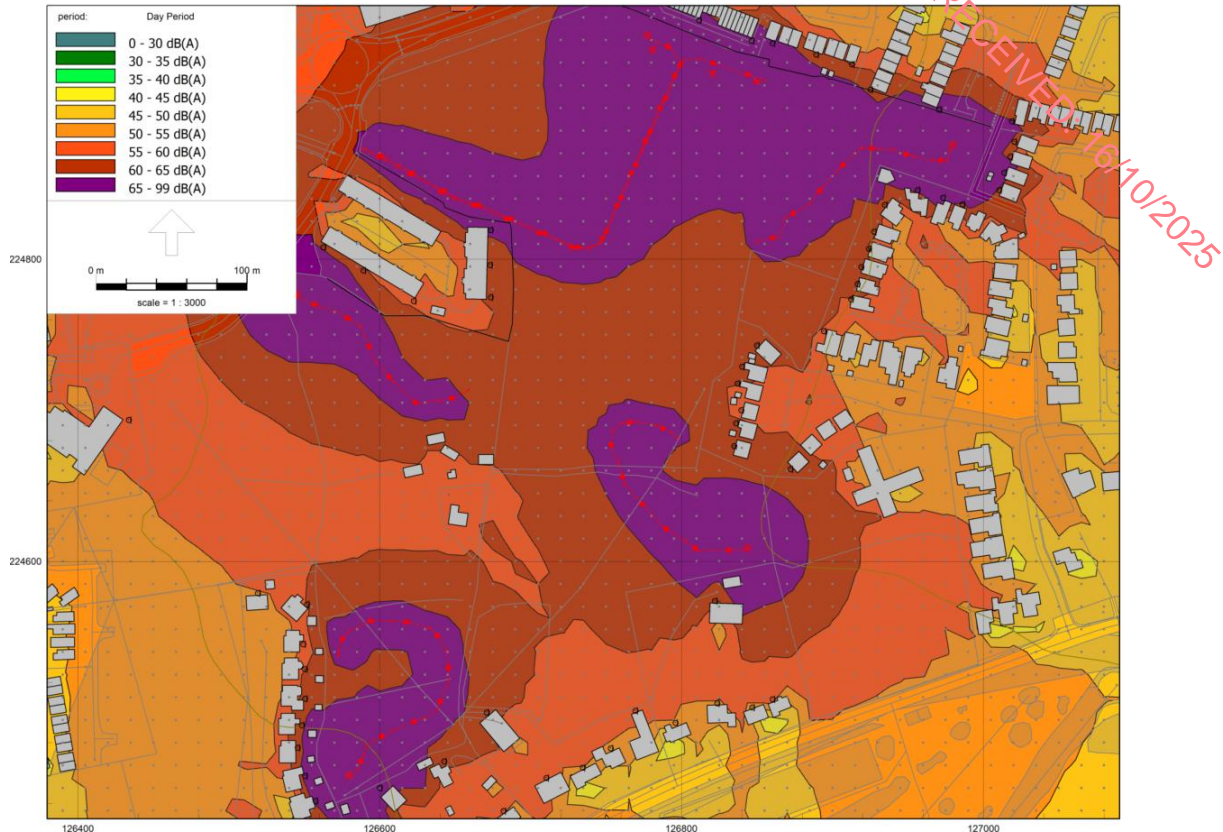


Figure 1 Predicted $L_{Aeq 1h}$ contours – Proposed Development construction scenario 12 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

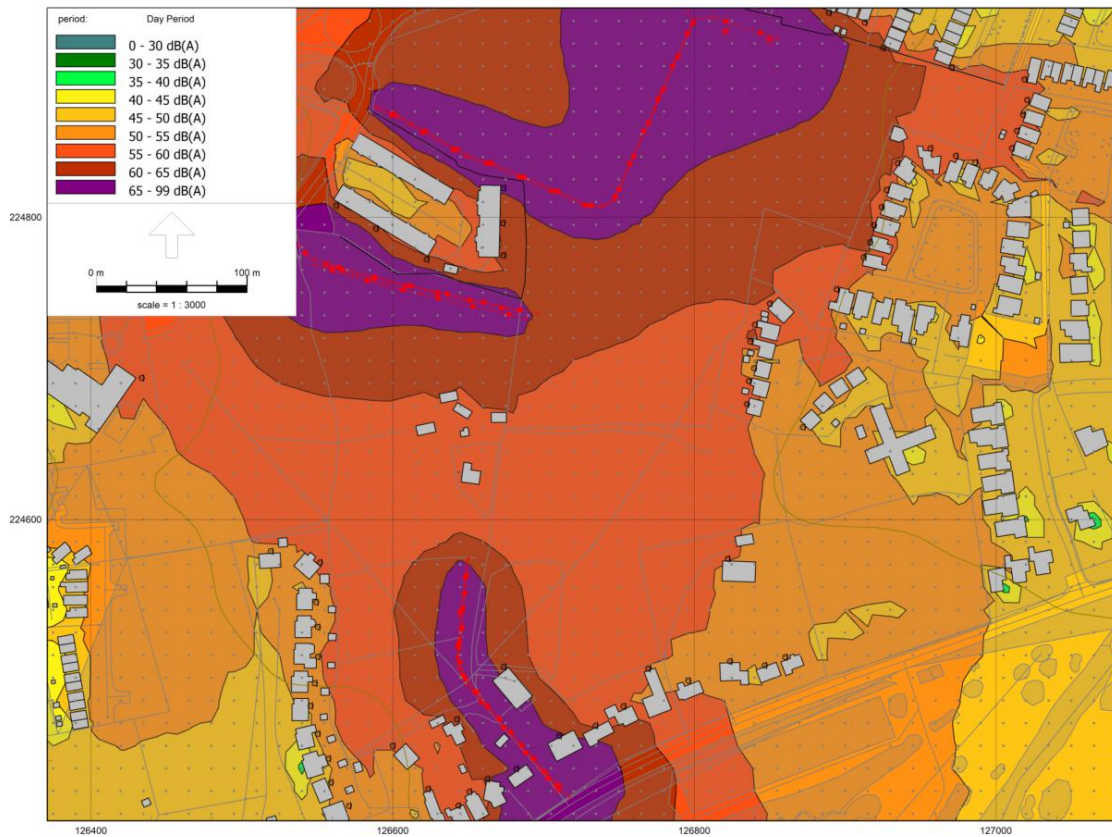


Figure 2 Predicted $L_{Aeq 1h}$ contours – Proposed Development construction scenario 13 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

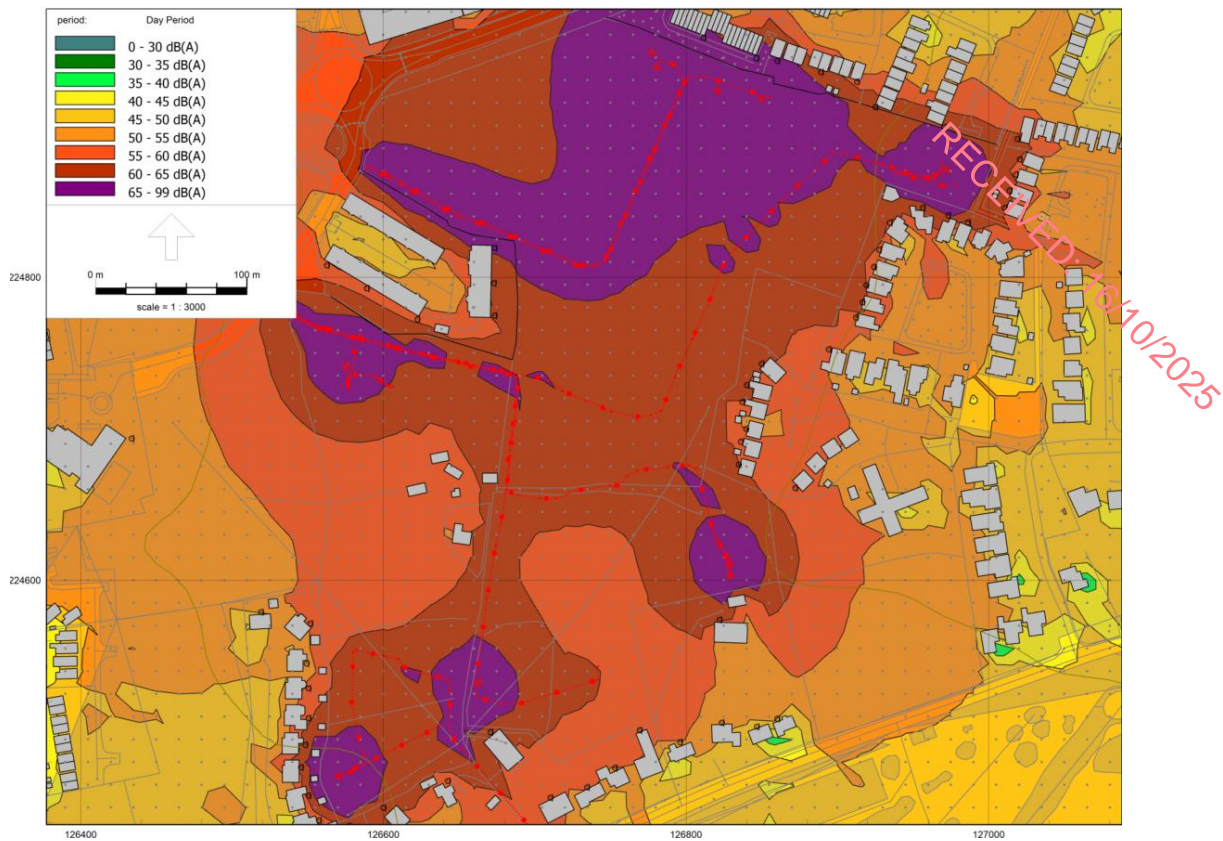


Figure 3 Predicted $L_{Aeq} 1h$ contours – Proposed Development construction scenario 14 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

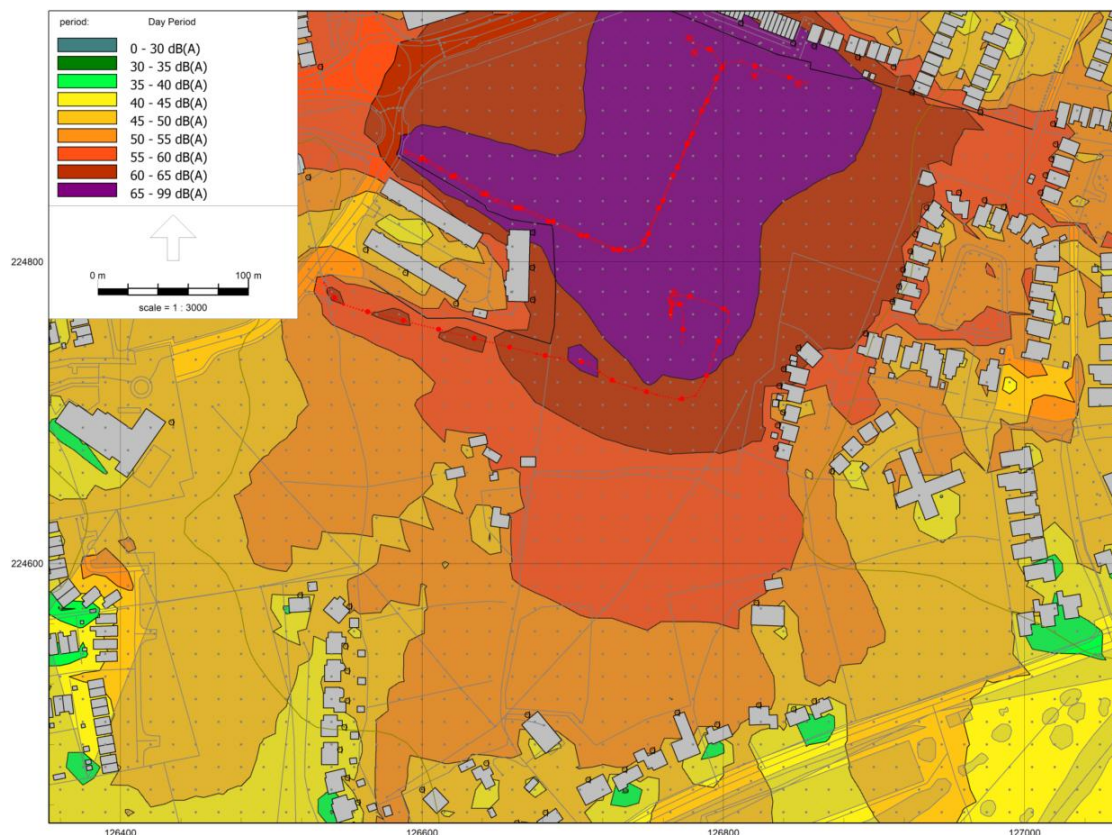


Figure 4 Predicted $L_{Aeq} 1h$ contours – Proposed Development construction scenario 15 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

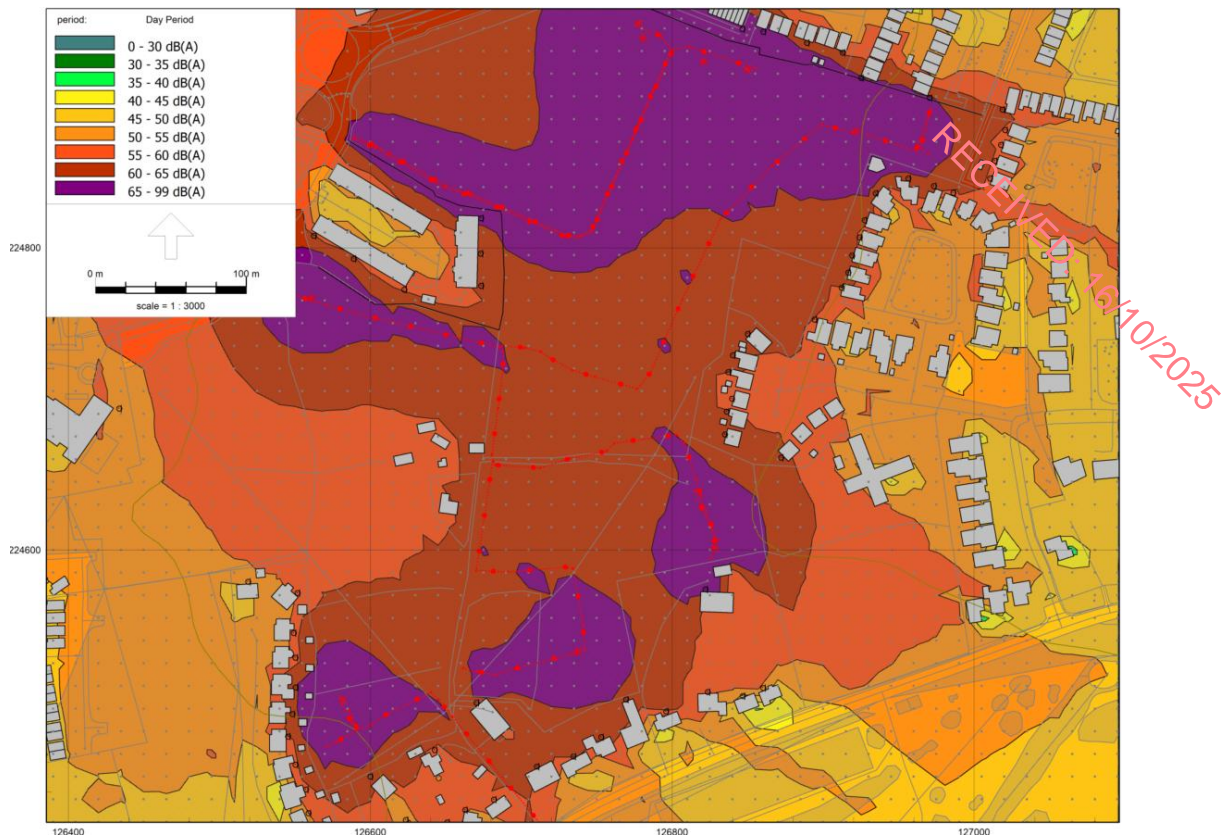


Figure 5 Predicted $L_{Aeq} 1h$ contours – Proposed Development construction scenario 16 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

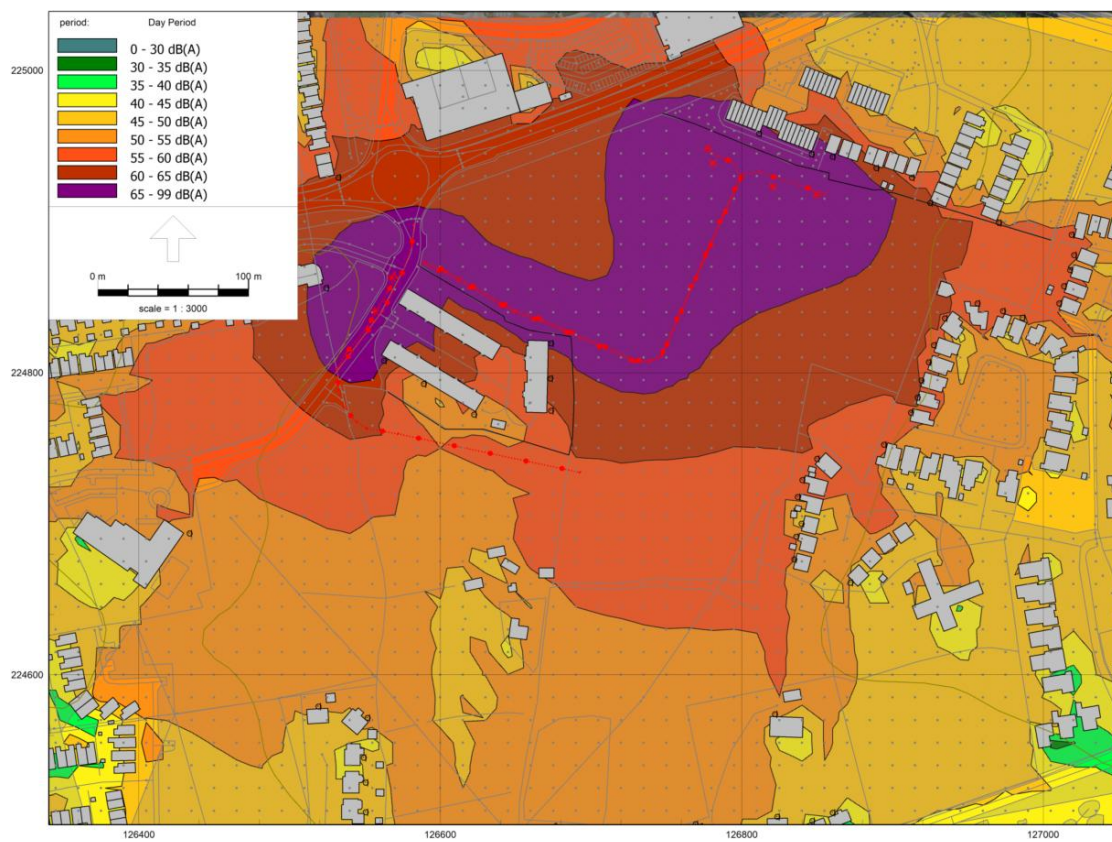


Figure 6 Predicted $L_{Aeq} 1h$ contours – Proposed Development construction scenario 17 (including potential LRD construction outside western site boundary) plus retail park and aquatic centre works.

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APPENDIX 11-6

**CUMULATIVE ONSITE & OFFSITE
CONSTRUCTION NOISE IMPACTS**

Appendix 11-6 Cumulative Onsite & Offsite Construction Noise Impacts

Table 1 Cumulative construction phase $L_{Aeq, 1h}$ levels (dB) and impacts – Scenario 12, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	56	56	0	49	Not significant
R02	58	59	1	49	Not significant
R03	59	60	1	49	Slight
R04	55	59	4	49	Not significant
R05	66	66	0	49	Moderate
R06	58	58	0	49	Not significant
R07	56	57	1	49	Not significant
R08	52	57	5	49	Not significant
R09	50	57	7	49	Not significant
R10	50	59	9	49	Not significant
R11	50	65	15	50	Slight
R12	51	65	14	50	Slight
R13	49	63	14	50	Slight
R14	52	61	9	50	Slight
R15	51	58	7	50	Not significant
R16	53	58	5	50	Not significant
R17	60	61	1	50	Slight
R18	65	65	0	50	Slight
R19	65	65	0	50	Slight
R20	65	66	1	50	Moderate
R21	66	66	0	50	Moderate
R22	58	61	3	50	Slight
R23	65	66	1	50	Moderate
R24	68	69	1	50	Moderate
R25	66	67	1	50	Moderate
R26	61	64	3	50	Slight
R27	58	62	4	50	Slight
R28	57	62	5	50	Slight
R29	56	61	5	50	Slight
R30	55	61	6	50	Slight
R31	55	61	6	50	Slight
R32	56	61	5	50	Slight
R33	55	62	7	49	Slight
R34	56	61	5	49	Slight
R35	56	61	5	49	Slight
R36	57	57	0	49	Not significant
R37	57	59	2	49	Not significant
R38	59	59	0	49	Not significant
R39	62	62	0	49	Slight
R40	61	62	1	49	Slight
R41	57	57	0	48	Not significant
R42	57	57	0	48	Not significant
R43	52	53	1	48	Not significant
R44	52	53	1	48	Not significant
R45	54	55	1	48	Not significant
R46	53	54	1	48	Not significant
R47	53	54	1	48	Not significant
R48	55	55	0	48	Not significant
R49	62	62	0	48	Slight
R50	60	60	0	48	Slight
R51	72	72	0	48	Significant
R52	58	58	0	48	Not significant

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Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R53	54	54	0	48	Not significant
R54	55	55	0	48	Not significant
R55	54	55	1	48	Not significant
R56	63	63	0	48	Slight
R57	60	60	0	48	Slight
R58	62	62	0	48	Slight
R59	55	55	0	48	Not significant
R60	55	55	0	48	Not significant
R61	56	56	0	48	Not significant
R62	70	70	0	48	Significant
R63	68	68	0	48	Moderate
R64	63	63	0	48	Slight
R65	63	63	0	48	Slight
R66	64	64	0	48	Slight
R67	60	60	0	48	Slight
R68	62	62	0	48	Slight
R69	60	60	0	48	Slight
R70	54	54	0	48	Not significant

Table 2 Cumulative construction phase $L_{Aeq,1h}$ levels (dB) and impacts – Scenario 12, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	55	55	0	49	Not significant
R02	58	59	1	49	Not significant
R03	59	60	1	49	Slight
R04	54	59	5	49	Not significant
R05	66	66	0	49	Moderate
R06	60	60	0	49	Slight
R07	59	60	1	49	Slight
R08	55	59	4	49	Not significant
R09	53	60	7	49	Slight
R10	53	63	10	49	Slight
R11	52	69	17	50	Moderate
R12	53	70	17	50	Significant
R13	53	67	14	50	Moderate
R14	54	63	9	50	Slight
R15	56	60	4	50	Slight
R16	62	65	3	50	Slight
R17	69	70	1	50	Significant
R18	65	65	0	50	Slight
R19	65	65	0	50	Slight
R20	65	66	1	50	Moderate
R21	66	66	0	50	Moderate
R22	59	61	2	50	Slight
R23	65	66	1	50	Moderate
R24	68	68	0	50	Moderate
R25	66	67	1	50	Moderate
R26	61	63	2	50	Slight
R27	58	62	4	50	Slight
R28	57	61	4	50	Slight
R29	56	61	5	50	Slight
R30	55	60	5	50	Slight
R31	55	60	5	50	Slight
R32	55	60	5	50	Slight
R33	55	61	6	49	Slight
R34	56	60	4	49	Slight
R35	56	60	4	49	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R36	57	57	0	49	Not significant
R37	57	59	2	49	Not significant
R38	59	59	0	49	Not significant
R39	62	62	0	49	Slight
R40	61	61	0	49	Slight
R41	57	57	0	48	Not significant
R42	57	57	0	48	Not significant
R43	52	54	2	48	Not significant
R44	51	53	2	48	Not significant
R45	54	56	2	48	Not significant
R46	53	54	1	48	Not significant
R47	53	54	1	48	Not significant
R48	55	55	0	48	Not significant
R49	62	62	0	48	Slight
R50	60	60	0	48	Slight
R51	72	72	0	48	Significant
R52	58	58	0	48	Not significant
R53	54	54	0	48	Not significant
R54	55	56	1	48	Not significant
R55	55	56	1	48	Not significant
R56	63	63	0	48	Slight
R57	60	60	0	48	Slight
R58	62	62	0	48	Slight
R59	55	56	1	48	Not significant
R60	55	56	1	48	Not significant
R61	56	56	0	48	Not significant
R62	70	70	0	48	Significant
R63	68	68	0	48	Moderate
R64	63	63	0	48	Slight
R65	63	63	0	48	Slight
R66	64	64	0	48	Slight
R67	60	60	0	48	Slight
R68	62	62	0	48	Slight
R69	60	60	0	48	Slight
R70	53	53	0	48	Not significant

Table 3 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 12, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	59	60	1	49	Slight
R05	66	66	0	49	Moderate
R06	64	64	0	49	Slight
R07	61	61	0	49	Slight
R08	56	61	5	49	Slight
R09	53	61	8	49	Slight
R10	53	66	13	49	Moderate
R11	53	71	18	50	Significant
R12	55	72	17	50	Significant
R23	65	66	1	50	Moderate
R24	68	68	0	50	Moderate
R25	67	67	0	50	Moderate
R26	62	64	2	50	Slight
R27	59	62	3	50	Slight
R28	58	61	3	50	Slight
R29	57	61	4	50	Slight
R30	56	60	4	50	Slight
R31	55	60	5	50	Slight

Table 4 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 12, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	66	66	0	49	Moderate
R06	64	64	0	49	Slight
R07	61	62	1	49	Slight
R08	57	61	4	49	Slight
R09	54	62	8	49	Slight
R10	53	66	13	49	Moderate

Table 5 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 13, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	56	56	0	49	Not significant
R02	57	58	1	49	Not significant
R03	58	59	1	49	Not significant
R04	53	59	6	49	Not significant
R05	65	65	0	49	Slight
R06	58	58	0	49	Not significant
R07	57	58	1	49	Not significant
R08	50	56	6	49	Not significant
R09	43	56	13	49	Not significant
R10	42	58	16	49	Not significant
R11	37	65	28	50	Slight
R12	38	65	27	50	Slight
R13	37	63	26	50	Slight
R14	38	60	22	50	Slight
R15	37	57	20	50	Not significant
R16	33	56	23	50	Not significant
R17	34	56	22	50	Not significant
R18	39	53	14	50	Not significant
R19	38	57	19	50	Not significant
R20	36	57	21	50	Not significant
R21	32	57	25	50	Not significant
R22	34	57	23	50	Not significant
R23	30	58	28	50	Not significant
R24	32	58	26	50	Not significant
R25	32	53	21	50	Not significant
R26	43	60	17	50	Slight
R27	43	60	17	50	Slight
R28	43	60	17	50	Slight
R29	44	60	16	50	Slight
R30	44	60	16	50	Slight
R31	45	60	15	50	Slight
R32	46	59	13	50	Not significant
R33	48	61	13	49	Slight
R34	50	60	10	49	Slight
R35	52	60	8	49	Slight
R36	52	53	1	49	Not significant
R37	52	57	5	49	Not significant
R38	53	55	2	49	Not significant
R39	48	48	0	49	Imperceptible
R40	53	56	3	49	Not significant
R41	47	49	2	48	Not significant
R42	46	48	2	48	Not significant
R43	49	50	1	48	Not significant
R44	48	50	2	48	Not significant
R45	53	54	1	48	Not significant
R46	51	53	2	48	Not significant
R47	56	56	0	48	Not significant

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R48	62	62	0	48	Slight
R49	61	62	1	48	Slight
R50	64	64	0	48	Slight
R51	54	55	1	48	Not significant
R52	65	65	0	48	Slight
R53	61	61	0	48	Slight
R54	57	58	1	48	Not significant
R55	53	54	1	48	Not significant
R56	53	54	1	48	Not significant
R57	46	47	1	48	Imperceptible
R58	48	49	1	48	Not significant
R59	50	51	1	48	Not significant
R60	51	52	1	48	Not significant
R61	49	49	0	48	Not significant
R62	52	53	1	48	Not significant
R63	54	54	0	48	Not significant
R64	52	53	1	48	Not significant
R65	55	55	0	48	Not significant
R66	54	55	1	48	Not significant
R67	53	53	0	48	Not significant
R68	53	53	0	48	Not significant
R69	57	58	1	48	Not significant
R70	53	53	0	48	Not significant

Table Error! No text of specified style in document. Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 13, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	55	55	0	49	Not significant
R02	56	58	2	49	Not significant
R03	57	59	2	49	Not significant
R04	53	58	5	49	Not significant
R05	65	65	0	49	Slight
R06	61	61	0	49	Slight
R07	61	61	0	49	Slight
R08	53	59	6	49	Not significant
R09	45	59	14	49	Not significant
R10	42	63	21	49	Slight
R11	40	69	29	50	Moderate
R12	42	70	28	50	Significant
R13	41	66	25	50	Moderate
R14	40	62	22	50	Slight
R15	40	58	18	50	Not significant
R16	41	62	21	50	Slight
R17	41	60	19	50	Slight
R18	40	55	15	50	Not significant
R19	39	57	18	50	Not significant
R20	37	57	20	50	Not significant
R21	35	56	21	50	Not significant
R22	36	56	20	50	Not significant
R23	33	57	24	50	Not significant
R24	36	57	21	50	Not significant
R25	34	53	19	50	Not significant
R26	44	60	16	50	Slight
R27	44	59	15	50	Not significant
R28	43	59	16	50	Not significant
R29	44	59	15	50	Not significant
R30	44	59	15	50	Not significant

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R31	45	59	14	50	Not significant
R32	46	59	13	50	Not significant
R33	48	60	12	49	Slight
R34	50	59	9	49	Not significant
R35	51	59	8	49	Not significant
R36	51	53	2	49	Not significant
R37	51	57	6	49	Not significant
R38	52	54	2	49	Not significant
R39	48	49	1	49	Not significant
R40	52	55	3	49	Not significant
R41	47	50	3	48	Not significant
R42	47	50	3	48	Not significant
R43	49	51	2	48	Not significant
R44	49	51	2	48	Not significant
R45	53	55	2	48	Not significant
R46	52	53	1	48	Not significant
R47	56	56	0	48	Not significant
R48	62	62	0	48	Slight
R49	61	62	1	48	Slight
R50	64	64	0	48	Slight
R51	55	56	1	48	Not significant
R52	65	65	0	48	Slight
R53	61	61	0	48	Slight
R54	58	58	0	48	Not significant
R55	54	54	0	48	Not significant
R56	54	55	1	48	Not significant
R57	47	49	2	48	Not significant
R58	50	51	1	48	Not significant
R59	50	52	2	48	Not significant
R60	50	52	2	48	Not significant
R61	49	50	1	48	Not significant
R62	51	53	2	48	Not significant
R63	53	54	1	48	Not significant
R64	52	52	0	48	Not significant
R65	54	55	1	48	Not significant
R66	54	55	1	48	Not significant
R67	53	54	1	48	Not significant
R68	52	53	1	48	Not significant
R69	56	57	1	48	Not significant
R70	52	52	0	48	Not significant

Table 7 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 13, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	57	59	2	49	Not significant
R05	65	65	0	49	Slight
R06	65	65	0	49	Slight
R07	64	64	0	49	Slight
R08	54	60	6	49	Slight
R09	47	61	14	49	Slight
R10	44	66	22	49	Moderate
R11	42	71	29	50	Significant
R12	42	72	30	50	Significant
R23	40	57	17	50	Not significant
R24	41	57	16	50	Not significant
R25	42	56	14	50	Not significant
R26	44	60	16	50	Slight

R27	44	59	15	50	Not significant
R28	44	59	15	50	Not significant
R29	44	59	15	50	Not significant
R30	44	58	14	50	Not significant
R31	45	58	13	50	Not significant

Table 8 Cumulative construction phase $L_{Aeq, 1h}$ levels (dB) and impacts – Scenario 13, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	65	65	0	49	Slight
R06	65	65	0	49	Slight
R07	64	65	1	49	Slight
R08	58	62	4	49	Slight
R09	50	61	11	49	Slight
R10	47	66	19	49	Moderate

Table 9 Cumulative construction phase $L_{Aeq, 1h}$ levels (dB) and impacts – Scenario 14, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	52	53	1	49	Not significant
R02	52	55	3	49	Not significant
R03	53	57	4	49	Not significant
R04	49	58	9	49	Not significant
R05	55	55	0	49	Not significant
R06	53	53	0	49	Not significant
R07	53	54	1	49	Not significant
R08	49	56	7	49	Not significant
R09	46	56	10	49	Not significant
R10	47	58	11	49	Not significant
R11	47	65	18	50	Slight
R12	47	65	18	50	Slight
R13	47	63	16	50	Slight
R14	48	61	13	50	Slight
R15	47	57	10	50	Not significant
R16	48	57	9	50	Not significant
R17	52	57	5	50	Not significant
R18	60	61	1	50	Slight
R19	59	61	2	50	Slight
R20	59	61	2	50	Slight
R21	59	61	2	50	Slight
R22	60	62	2	50	Slight
R23	61	63	2	50	Slight
R24	65	65	0	50	Slight
R25	64	64	0	50	Slight
R26	59	63	4	50	Slight
R27	51	61	10	50	Slight
R28	50	60	10	50	Slight
R29	50	60	10	50	Slight
R30	49	60	11	50	Slight
R31	49	60	11	50	Slight
R32	50	60	10	50	Slight
R33	53	61	8	49	Slight
R34	54	60	6	49	Slight
R35	54	60	6	49	Slight
R36	53	54	1	49	Not significant
R37	55	58	3	49	Not significant
R38	59	59	0	49	Not significant
R39	57	57	0	49	Not significant
R40	61	62	1	49	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R41	49	50	1	48	Not significant
R42	49	50	1	48	Not significant
R43	51	52	1	48	Not significant
R44	54	55	1	48	Not significant
R45	55	56	1	48	Not significant
R46	55	56	1	48	Not significant
R47	55	56	1	48	Not significant
R48	56	56	0	48	Not significant
R49	63	63	0	48	Slight
R50	60	60	0	48	Slight
R51	63	63	0	48	Slight
R52	57	58	1	48	Not significant
R53	56	56	0	48	Not significant
R54	55	55	0	48	Not significant
R55	49	51	2	48	Not significant
R56	54	55	1	48	Not significant
R57	54	54	0	48	Not significant
R58	50	51	1	48	Not significant
R59	49	51	2	48	Not significant
R60	51	51	0	48	Not significant
R61	59	59	0	48	Not significant
R62	59	59	0	48	Not significant
R63	67	67	0	48	Moderate
R64	66	66	0	48	Moderate
R65	62	62	0	48	Slight
R66	63	63	0	48	Slight
R67	57	57	0	48	Not significant
R68	57	57	0	48	Not significant
R69	56	57	1	48	Not significant
R70	51	51	0	48	Not significant

Table 10 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 14, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	51	52	1	49	Not significant
R02	52	55	3	49	Not significant
R03	52	56	4	49	Not significant
R04	49	57	8	49	Not significant
R05	56	56	0	49	Not significant
R06	56	56	0	49	Not significant
R07	58	58	0	49	Not significant
R08	52	59	7	49	Not significant
R09	49	60	11	49	Slight
R10	49	63	14	49	Slight
R11	50	69	19	50	Moderate
R12	49	70	21	50	Significant
R13	49	67	18	50	Moderate
R14	50	62	12	50	Slight
R15	52	59	7	50	Not significant
R16	58	63	5	50	Slight
R17	63	65	2	50	Slight
R18	60	61	1	50	Slight
R19	59	61	2	50	Slight
R20	59	61	2	50	Slight
R21	59	61	2	50	Slight
R22	60	62	2	50	Slight
R23	61	62	1	50	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R24	64	65	1	50	Slight
R25	64	64	0	50	Slight
R26	59	62	3	50	Slight
R27	51	60	9	50	Slight
R28	50	60	10	50	Slight
R29	49	59	10	50	Not significant
R30	49	59	10	50	Not significant
R31	48	59	11	50	Not significant
R32	50	59	9	50	Not significant
R33	52	60	8	49	Slight
R34	53	60	7	49	Slight
R35	53	59	6	49	Not significant
R36	53	54	1	49	Not significant
R37	54	58	4	49	Not significant
R38	58	59	1	49	Not significant
R39	57	57	0	49	Not significant
R40	61	62	1	49	Slight
R41	49	51	2	48	Not significant
R42	49	50	1	48	Not significant
R43	50	52	2	48	Not significant
R44	54	55	1	48	Not significant
R45	55	57	2	48	Not significant
R46	55	55	0	48	Not significant
R47	55	55	0	48	Not significant
R48	56	56	0	48	Not significant
R49	63	63	0	48	Slight
R50	60	60	0	48	Slight
R51	63	63	0	48	Slight
R52	57	57	0	48	Not significant
R53	56	56	0	48	Not significant
R54	55	55	0	48	Not significant
R55	50	52	2	48	Not significant
R56	55	55	0	48	Not significant
R57	54	55	1	48	Not significant
R58	50	51	1	48	Not significant
R59	50	52	2	48	Not significant
R60	50	52	2	48	Not significant
R61	59	59	0	48	Not significant
R62	58	59	1	48	Not significant
R63	67	67	0	48	Moderate
R64	66	66	0	48	Moderate
R65	61	62	1	48	Slight
R66	63	63	0	48	Slight
R67	57	57	0	48	Not significant
R68	57	57	0	48	Not significant
R69	55	56	1	48	Not significant
R70	50	50	0	48	Not significant

Table 11 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 14, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	52	56	4	49	Not significant
R05	58	58	0	49	Not significant
R06	59	59	0	49	Not significant
R07	60	61	1	49	Slight
R08	54	60	6	49	Slight
R09	50	61	11	49	Slight
R10	49	66	17	49	Moderate

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R11	50	71	21	50	Significant
R12	51	72	21	50	Significant
R23	61	62	1	50	Slight
R24	64	65	1	50	Slight
R25	64	65	1	50	Slight
R26	59	62	3	50	Slight
R27	51	60	9	50	Slight
R28	51	59	8	50	Not significant
R29	50	59	9	50	Not significant
R30	49	59	10	50	Not significant
R31	49	59	10	50	Not significant

Table 12 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 14, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	58	58	0	49	Not significant
R06	60	60	0	49	Slight
R07	61	61	0	49	Slight
R08	56	61	5	49	Slight
R09	52	61	9	49	Slight
R10	50	66	16	49	Moderate

Table 13 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 15, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	45	48	3	49	Imperceptible
R02	43	52	9	49	Not significant
R03	41	55	14	49	Not significant
R04	49	58	9	49	Not significant
R05	47	48	1	49	Imperceptible
R06	42	43	1	49	Imperceptible
R07	48	50	2	49	Not significant
R08	53	57	4	49	Not significant
R09	52	57	5	49	Not significant
R10	52	59	7	49	Not significant
R11	48	65	17	50	Slight
R12	48	65	17	50	Slight
R13	48	63	15	50	Slight
R14	47	61	14	50	Slight
R15	47	57	10	50	Not significant
R16	43	56	13	50	Not significant
R17	43	56	13	50	Not significant
R18	49	55	6	50	Not significant
R19	50	58	8	50	Not significant
R20	45	58	13	50	Not significant
R21	34	57	23	50	Not significant
R22	41	57	16	50	Not significant
R23	41	58	17	50	Not significant
R24	38	58	20	50	Not significant
R25	41	53	12	50	Not significant
R26	54	61	7	50	Slight
R27	54	61	7	50	Slight
R28	55	61	6	50	Slight
R29	55	61	6	50	Slight
R30	55	61	6	50	Slight
R31	55	61	6	50	Slight
R32	56	61	5	50	Slight
R33	58	63	5	49	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R34	59	62	3	49	Slight
R35	58	62	4	49	Slight
R36	48	49	1	49	Not significant
R37	57	59	2	49	Not significant
R38	56	58	2	49	Not significant
R39	40	43	3	49	Imperceptible
R40	52	56	4	49	Not significant
R41	35	46	11	48	Imperceptible
R42	35	44	9	48	Imperceptible
R43	45	48	3	48	Imperceptible
R44	45	49	4	48	Not significant
R45	45	49	4	48	Not significant
R46	44	48	4	48	Not significant
R47	44	48	4	48	Not significant
R48	43	48	5	48	Not significant
R49	44	49	5	48	Not significant
R50	45	49	4	48	Not significant
R51	42	47	5	48	Imperceptible
R52	42	47	5	48	Imperceptible
R53	35	42	7	48	Imperceptible
R54	40	47	7	48	Imperceptible
R55	43	48	5	48	Not significant
R56	39	45	6	48	Imperceptible
R57	40	45	5	48	Imperceptible
R58	40	46	6	48	Imperceptible
R59	43	47	4	48	Imperceptible
R60	41	45	4	48	Imperceptible
R61	38	43	5	48	Imperceptible
R62	44	48	4	48	Not significant
R63	44	46	2	48	Imperceptible
R64	41	44	3	48	Imperceptible
R65	34	44	10	48	Imperceptible
R66	35	43	8	48	Imperceptible
R67	36	41	5	48	Imperceptible
R68	42	46	4	48	Imperceptible
R69	49	51	2	48	Not significant
R70	39	41	2	48	Imperceptible

Table 14 Cumulative construction phase $L_{Aeq, 1h}$ levels (dB) and impacts – Scenario 15, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	44	48	4	49	Imperceptible
R02	43	53	10	49	Not significant
R03	41	54	13	49	Not significant
R04	49	57	8	49	Not significant
R05	48	48	0	49	Imperceptible
R06	45	45	0	49	Imperceptible
R07	51	53	2	49	Not significant
R08	58	61	3	49	Slight
R09	57	61	4	49	Slight
R10	57	64	7	49	Slight
R11	52	69	17	50	Moderate
R12	52	70	18	50	Significant
R13	52	67	15	50	Moderate
R14	51	63	12	50	Slight
R15	51	59	8	50	Not significant
R16	52	62	10	50	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R17	51	60	9	50	Slight
R18	50	56	6	50	Not significant
R19	49	57	8	50	Not significant
R20	46	57	11	50	Not significant
R21	37	56	19	50	Not significant
R22	43	57	14	50	Not significant
R23	44	57	13	50	Not significant
R24	43	57	14	50	Not significant
R25	43	54	11	50	Not significant
R26	53	60	7	50	Slight
R27	53	60	7	50	Slight
R28	54	60	6	50	Slight
R29	54	60	6	50	Slight
R30	54	60	6	50	Slight
R31	54	60	6	50	Slight
R32	55	60	5	50	Slight
R33	58	62	4	49	Slight
R34	59	62	3	49	Slight
R35	58	61	3	49	Slight
R36	48	50	2	49	Not significant
R37	57	59	2	49	Not significant
R38	56	57	1	49	Not significant
R39	42	46	4	49	Imperceptible
R40	51	55	4	49	Not significant
R41	39	47	8	48	Imperceptible
R42	39	47	8	48	Imperceptible
R43	49	51	2	48	Not significant
R44	49	51	2	48	Not significant
R45	49	53	4	48	Not significant
R46	44	48	4	48	Not significant
R47	43	48	5	48	Not significant
R48	43	48	5	48	Not significant
R49	48	53	5	48	Not significant
R50	49	52	3	48	Not significant
R51	46	49	3	48	Not significant
R52	42	48	6	48	Not significant
R53	38	45	7	48	Imperceptible
R54	41	47	6	48	Imperceptible
R55	44	48	4	48	Not significant
R56	41	46	5	48	Imperceptible
R57	42	47	5	48	Imperceptible
R58	41	46	5	48	Imperceptible
R59	43	49	6	48	Not significant
R60	45	49	4	48	Not significant
R61	42	46	4	48	Imperceptible
R62	48	51	3	48	Not significant
R63	47	49	2	48	Not significant
R64	45	47	2	48	Imperceptible
R65	37	47	10	48	Imperceptible
R66	37	45	8	48	Imperceptible
R67	37	44	7	48	Imperceptible
R68	45	48	3	48	Not significant
R69	49	51	2	48	Not significant
R70	39	43	4	48	Imperceptible

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Table 15 Cumulative construction phase $L_{Aeq\ 1\ h}$ levels (dB) and impacts – Scenario 15, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	42	54	12	49	Not significant
R05	48	48	0	49	Imperceptible
R06	48	49	1	49	Not significant
R07	54	56	2	49	Not significant
R08	58	62	4	49	Slight
R09	58	62	4	49	Slight
R10	57	66	9	49	Moderate
R11	52	71	19	50	Significant
R12	52	72	20	50	Significant
R23	49	58	9	50	Not significant
R24	47	58	11	50	Not significant
R25	49	57	8	50	Not significant
R26	52	60	8	50	Slight
R27	53	60	7	50	Slight
R28	53	60	7	50	Slight
R29	53	60	7	50	Slight
R30	54	59	5	50	Not significant
R31	54	59	5	50	Not significant

Table 16 Cumulative construction phase $L_{Aeq\ 1\ h}$ levels (dB) and impacts – Scenario 15, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	48	49	1	49	Not significant
R06	50	51	1	49	Not significant
R07	55	57	2	49	Not significant
R08	58	62	4	49	Slight
R09	58	62	4	49	Slight
R10	57	67	10	49	Moderate

Table 17 Cumulative construction phase $L_{Aeq\ 1\ h}$ levels (dB) and impacts – Scenario 16, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	54	55	1	49	Not significant
R02	55	57	2	49	Not significant
R03	56	58	2	49	Not significant
R04	52	59	7	49	Not significant
R05	63	63	0	49	Slight
R06	56	56	0	49	Not significant
R07	56	56	0	49	Not significant
R08	52	57	5	49	Not significant
R09	49	57	8	49	Not significant
R10	50	59	9	49	Not significant
R11	51	65	14	50	Slight
R12	53	65	12	50	Slight
R13	53	63	10	50	Slight
R14	45	61	16	50	Slight
R15	56	60	4	50	Slight
R16	53	58	5	50	Not significant
R17	54	58	4	50	Not significant
R18	58	59	1	50	Not significant
R19	58	61	3	50	Slight
R20	57	60	3	50	Slight
R21	58	60	2	50	Slight
R22	57	60	3	50	Slight
R23	60	62	2	50	Slight
R24	62	63	1	50	Slight
R25	64	64	0	50	Slight

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R26	60	63	3	50	Slight
R27	60	63	3	50	Slight
R28	59	62	3	50	Slight
R29	58	62	4	50	Slight
R30	58	62	4	50	Slight
R31	57	61	4	50	Slight
R32	57	61	4	50	Slight
R33	55	62	7	49	Slight
R34	56	61	5	49	Slight
R35	55	61	6	49	Slight
R36	56	56	0	49	Not significant
R37	55	58	3	49	Not significant
R38	61	61	0	49	Slight
R39	59	59	0	49	Not significant
R40	67	67	0	49	Moderate
R41	55	56	1	48	Not significant
R42	55	55	0	48	Not significant
R43	57	57	0	48	Not significant
R44	61	61	0	48	Slight
R45	63	63	0	48	Slight
R46	61	61	0	48	Slight
R47	59	60	1	48	Slight
R48	60	60	0	48	Slight
R49	63	63	0	48	Slight
R50	61	61	0	48	Slight
R51	64	64	0	48	Slight
R52	59	60	1	48	Slight
R53	59	59	0	48	Not significant
R54	59	59	0	48	Not significant
R55	56	57	1	48	Not significant
R56	52	52	0	48	Not significant
R57	56	56	0	48	Not significant
R58	57	57	0	48	Not significant
R59	50	51	1	48	Not significant
R60	51	51	0	48	Not significant
R61	57	57	0	48	Not significant
R62	57	58	1	48	Not significant
R63	62	62	0	48	Slight
R64	61	62	1	48	Slight
R65	67	67	0	48	Moderate
R66	65	65	0	48	Slight
R67	62	62	0	48	Slight
R68	62	62	0	48	Slight
R69	56	56	0	48	Not significant
R70	53	53	0	48	Not significant

Table 18 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 16, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	53	54	1	49	Not significant
R02	55	57	2	49	Not significant
R03	56	58	2	49	Not significant
R04	52	58	6	49	Not significant
R05	63	63	0	49	Slight
R06	60	60	0	49	Slight
R07	59	59	0	49	Not significant
R08	54	59	5	49	Not significant

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R09	52	60	8	49	Slight
R10	52	63	11	49	Slight
R11	54	69	15	50	Moderate
R12	55	70	15	50	Significant
R13	55	67	12	50	Moderate
R14	50	62	12	50	Slight
R15	62	63	1	50	Slight
R16	65	66	1	50	Moderate
R17	65	66	1	50	Moderate
R18	59	60	1	50	Slight
R19	58	60	2	50	Slight
R20	57	60	3	50	Slight
R21	57	60	3	50	Slight
R22	57	60	3	50	Slight
R23	60	61	1	50	Slight
R24	62	63	1	50	Slight
R25	64	64	0	50	Slight
R26	60	63	3	50	Slight
R27	60	63	3	50	Slight
R28	59	62	3	50	Slight
R29	58	61	3	50	Slight
R30	58	61	3	50	Slight
R31	57	61	4	50	Slight
R32	56	60	4	50	Slight
R33	55	61	6	49	Slight
R34	55	60	5	49	Slight
R35	55	60	5	49	Slight
R36	55	56	1	49	Not significant
R37	54	58	4	49	Not significant
R38	61	61	0	49	Slight
R39	59	59	0	49	Not significant
R40	67	67	0	49	Moderate
R41	55	55	0	48	Not significant
R42	54	55	1	48	Not significant
R43	57	58	1	48	Not significant
R44	60	60	0	48	Slight
R45	63	63	0	48	Slight
R46	61	61	0	48	Slight
R47	59	60	1	48	Slight
R48	60	60	0	48	Slight
R49	63	63	0	48	Slight
R50	61	61	0	48	Slight
R51	64	64	0	48	Slight
R52	59	59	0	48	Not significant
R53	58	58	0	48	Not significant
R54	58	59	1	48	Not significant
R55	56	56	0	48	Not significant
R56	53	53	0	48	Not significant
R57	55	56	1	48	Not significant
R58	57	57	0	48	Not significant
R59	50	52	2	48	Not significant
R60	51	52	1	48	Not significant
R61	57	57	0	48	Not significant
R62	57	58	1	48	Not significant
R63	62	62	0	48	Slight
R64	61	62	1	48	Slight
R65	67	67	0	48	Moderate

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Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R66	65	65	0	48	Slight
R67	62	62	0	48	Slight
R68	61	61	0	48	Slight
R69	55	56	1	48	Not significant
R70	52	52	0	48	Not significant

Table 19 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 16, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	56	58	2	49	Not significant
R05	63	63	0	49	Slight
R06	64	64	0	49	Slight
R07	62	62	0	49	Slight
R08	55	61	6	49	Slight
R09	53	61	8	49	Slight
R10	52	66	14	49	Moderate
R11	54	71	17	50	Significant
R12	57	72	15	50	Significant
R23	60	62	2	50	Slight
R24	62	63	1	50	Slight
R25	64	65	1	50	Slight
R26	60	63	3	50	Slight
R27	60	63	3	50	Slight
R28	59	62	3	50	Slight
R29	58	61	3	50	Slight
R30	58	61	3	50	Slight
R31	56	60	4	50	Slight

Table 20 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 16, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	63	63	0	49	Slight
R06	64	64	0	49	Slight
R07	62	62	0	49	Slight
R08	58	62	4	49	Slight
R09	54	61	7	49	Slight
R10	53	66	13	49	Moderate

Table 21 Cumulative construction phase $L_{Aeq\ 1h}$ levels (dB) and impacts – Scenario 17, 2 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	53	54	1	49	Not significant
R02	60	61	1	49	Slight
R03	67	67	0	49	Moderate
R04	59	62	3	49	Slight
R05	59	59	0	49	Not significant
R06	49	49	0	49	Not significant
R07	52	53	1	49	Not significant
R08	38	55	17	49	Not significant
R09	35	56	21	49	Not significant
R10	40	58	18	49	Not significant
R11	36	65	29	50	Slight
R12	37	65	28	50	Slight
R13	36	63	27	50	Slight
R14	37	60	23	50	Slight
R15	30	57	27	50	Not significant
R16	31	56	25	50	Not significant
R17	32	56	24	50	Not significant

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R18	34	53	19	50	Not significant
R19	37	57	20	50	Not significant
R20	37	57	20	50	Not significant
R21	30	57	27	50	Not significant
R22	37	57	20	50	Not significant
R23	31	58	27	50	Not significant
R24	31	58	27	50	Not significant
R25	30	53	23	50	Not significant
R26	41	60	19	50	Slight
R27	41	60	19	50	Slight
R28	41	60	19	50	Slight
R29	41	60	19	50	Slight
R30	42	60	18	50	Slight
R31	42	59	17	50	Not significant
R32	43	59	16	50	Not significant
R33	42	60	18	49	Slight
R34	40	59	19	49	Not significant
R35	41	59	18	49	Not significant
R36	40	46	6	49	Imperceptible
R37	40	56	16	49	Not significant
R38	40	52	12	49	Not significant
R39	33	41	8	49	Imperceptible
R40	37	53	16	49	Not significant
R41	31	46	15	48	Imperceptible
R42	31	43	12	48	Imperceptible
R43	31	46	15	48	Imperceptible
R44	30	47	17	48	Imperceptible
R45	30	47	17	48	Imperceptible
R46	29	47	18	48	Imperceptible
R47	30	46	16	48	Imperceptible
R48	31	46	15	48	Imperceptible
R49	34	47	13	48	Imperceptible
R50	35	47	12	48	Imperceptible
R51	43	47	4	48	Imperceptible
R52	27	46	19	48	Imperceptible
R53	33	42	9	48	Imperceptible
R54	26	46	20	48	Imperceptible
R55	29	46	17	48	Imperceptible
R56	34	44	10	48	Imperceptible
R57	40	45	5	48	Imperceptible
R58	42	46	4	48	Imperceptible
R59	38	45	7	48	Imperceptible
R60	32	43	11	48	Imperceptible
R61	36	43	7	48	Imperceptible
R62	32	45	13	48	Imperceptible
R63	42	45	3	48	Imperceptible
R64	34	41	7	48	Imperceptible
R65	36	44	8	48	Imperceptible
R66	41	45	4	48	Imperceptible
R67	40	43	3	48	Imperceptible
R68	37	45	8	48	Imperceptible
R69	49	52	3	48	Not significant
R70	50	51	1	48	Not significant

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Table 22 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 17, 4 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R01	52	53	1	49	Not significant
R02	60	61	1	49	Slight
R03	67	67	0	49	Moderate
R04	59	61	2	49	Slight
R05	61	61	0	49	Slight
R06	50	50	0	49	Not significant
R07	51	53	2	49	Not significant
R08	40	58	18	49	Not significant
R09	35	59	24	49	Not significant
R10	42	63	21	49	Slight
R11	43	69	26	50	Moderate
R12	43	70	27	50	Significant
R13	41	66	25	50	Moderate
R14	40	62	22	50	Slight
R15	34	58	24	50	Not significant
R16	39	62	23	50	Slight
R17	38	60	22	50	Slight
R18	37	55	18	50	Not significant
R19	37	57	20	50	Not significant
R20	37	57	20	50	Not significant
R21	30	56	26	50	Not significant
R22	37	56	19	50	Not significant
R23	33	57	24	50	Not significant
R24	35	57	22	50	Not significant
R25	33	53	20	50	Not significant
R26	41	60	19	50	Slight
R27	41	59	18	50	Not significant
R28	41	59	18	50	Not significant
R29	41	59	18	50	Not significant
R30	41	59	18	50	Not significant
R31	42	59	17	50	Not significant
R32	43	58	15	50	Not significant
R33	42	60	18	49	Slight
R34	41	58	17	49	Not significant
R35	43	58	15	49	Not significant
R36	41	48	7	49	Imperceptible
R37	42	56	14	49	Not significant
R38	42	51	9	49	Not significant
R39	35	44	9	49	Imperceptible
R40	38	53	15	49	Not significant
R41	31	46	15	48	Imperceptible
R42	32	46	14	48	Imperceptible
R43	33	48	15	48	Not significant
R44	33	48	15	48	Not significant
R45	32	51	19	48	Not significant
R46	32	46	14	48	Imperceptible
R47	30	46	16	48	Imperceptible
R48	31	46	15	48	Imperceptible
R49	34	51	17	48	Not significant
R50	35	48	13	48	Not significant
R51	46	49	3	48	Not significant
R52	29	46	17	48	Not significant
R53	33	44	11	48	Imperceptible
R54	28	46	18	48	Imperceptible
R55	31	47	16	48	Imperceptible
R56	34	45	11	48	Imperceptible
R57	40	46	6	48	Imperceptible

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R58	45	47	2	48	Imperceptible
R59	40	48	8	48	Not significant
R60	35	47	12	48	Imperceptible
R61	39	45	6	48	Imperceptible
R62	36	48	12	48	Not significant
R63	44	47	3	48	Imperceptible
R64	38	44	6	48	Imperceptible
R65	39	47	8	48	Imperceptible
R66	42	47	5	48	Imperceptible
R67	42	45	3	48	Imperceptible
R68	37	46	9	48	Imperceptible
R69	49	51	2	48	Not significant
R70	50	50	0	48	Not significant

Table 23 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 17, 6 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R03	67	67	0	49	Moderate
R05	61	61	0	49	Slight
R06	51	51	0	49	Not significant
R07	52	54	2	49	Not significant
R08	42	59	17	49	Not significant
R09	38	61	23	49	Slight
R10	42	66	24	49	Moderate
R11	42	71	29	50	Significant
R12	42	72	30	50	Significant
R23	37	57	20	50	Not significant
R24	38	57	19	50	Not significant
R25	39	56	17	50	Not significant
R26	41	60	19	50	Slight
R27	40	59	19	50	Not significant
R28	41	59	18	50	Not significant
R29	41	59	18	50	Not significant
R30	41	58	17	50	Not significant
R31	42	58	16	50	Not significant

Table 24 Cumulative construction phase $L_{Aeq 1h}$ levels (dB) and impacts – Scenario 17, 8 m.

Receptor	Masterplan LRD incl. Proposed Development	Masterplan LRD & retail & aquatic	Increase	Baseline	Impact
R05	61	61	0	49	Slight
R06	51	52	1	49	Not significant
R07	53	55	2	49	Not significant
R08	49	60	11	49	Slight
R09	47	61	14	49	Slight
R10	48	66	18	49	Moderate