

SILVERTOWN TUNNEL

**Preliminary
Environmental
Information Report:
Appendix 14.A**

Construction Noise

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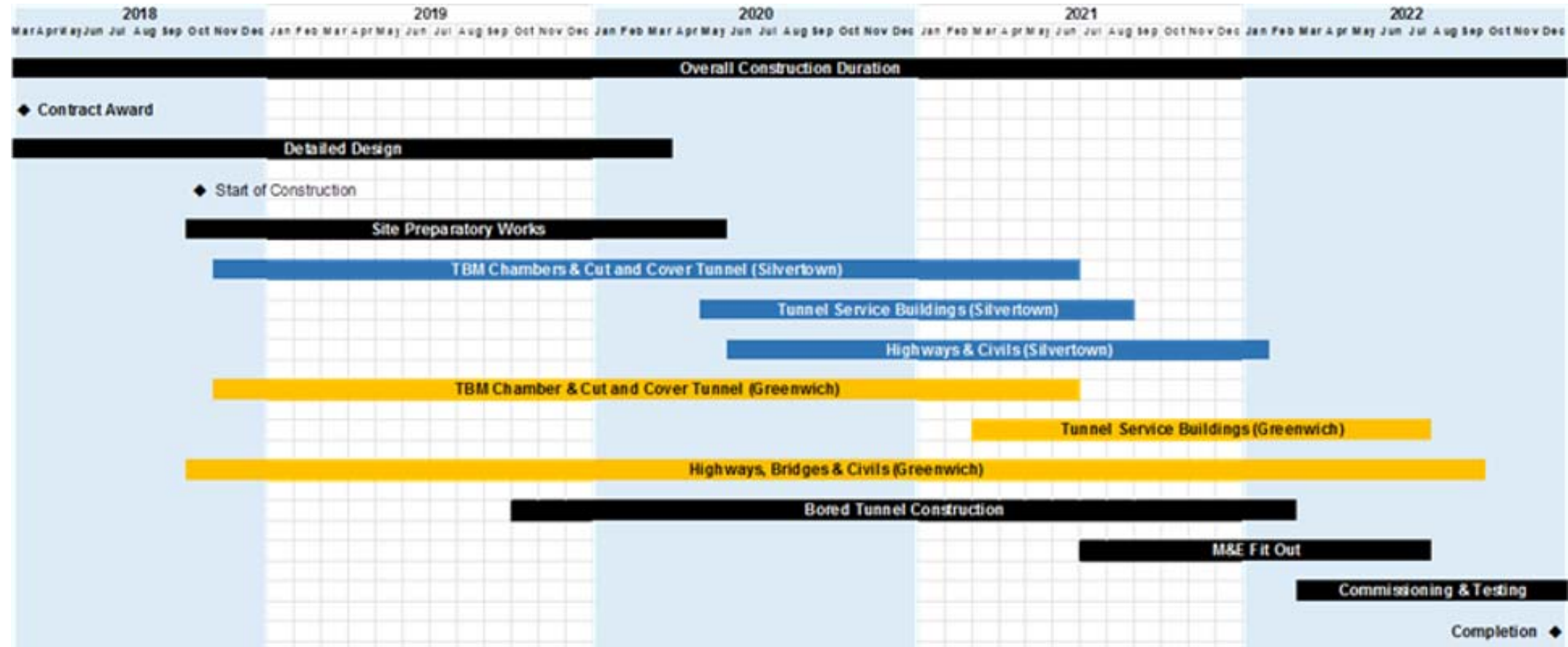
1.1 Introduction

- 1.1.1 This Appendix assesses the construction noise impacts upon residential sensitive receptors from surface operation during the construction phase of the proposed Silvertown Tunnel (hereinafter referred to as the Scheme).
- 1.1.2 The assessment has been based upon assumptions about the methodology to be used to construct the Scheme included in Volume 1 of the PEIR, Chapter 4 – Scheme Description and is based on typical methods that a competent contractor would have the capability and experience to adopt during the construction of the scheme.

1.2 Scheme description

- 1.2.1 The Scheme would provide a dual two-lane connection between the A102 Blackwall Tunnel Approach on Greenwich Peninsula and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing/Silvertown Way by means of twin tunnels under the River Thames.
- 1.2.2 The southern tunnel portal lies within the borough of Greenwich and the northern tunnel portal lies with the borough of Newham. Indicative site layouts for both the northern and southern construction sites are presented in the construction statement for different phases of construction.
- 1.2.3 It is anticipated that the construction of the tunnel and associated infrastructure would last for approximately four years. The construction statement estimates a construction start date of October 2018 and a construction finish date of 2022. The indicative construction programme provided in the Construction Statement is presented in Table 1.
- 1.2.4 Hours of work would be in line with standard good practice for major construction works. All non-tunnel construction works would be undertaken within weekday daylight hours and working generally limited to 7am to 7pm weekdays and 7am to 2pm on Saturdays. Works outside these hours would generally be subject to liaison with the local Environmental Health Officer (EHO).
- 1.2.5 Tunnelling works will be undertaken on a 24hour, 7 days per week basis on commencement of the Tunnel Boring Machine (TBM) launch for both tunnel drives.

Table 1 Indicative construction schedule



1.3 Methodology

BS 5228-1:2009+A1:2014

1.3.1 ‘BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise’ (BS5228) provides guidance concerning methods of predicting and measuring noise and assessing its impact on those exposed to it.

1.3.2 The method of predicting construction noise contained within BS5228 accounts for the following parameters:

- the type and number of plant and equipment on site;
- the sound power of the construction plant
- the relative full power operating time (on-time) of plant, as a percentage of the working day/assessment period;
- the distance to receptors;
- the intervening ground type; and
- acoustic screening by barriers or terrain.

1.3.3 The assumed type and number of plant for each phase of construction of the Scheme is set out in the indicative construction plant list in Table 2. The assumed sound power of the construction plant has been taken from the measured levels contained within BS5228 Appendix C and D. Where construction plant does not have a reference sound power level provided in BS5228 similar plant or manufacturer’s data has been used.

Table 1 Indicative construction plant itinerary

Construction Stage	Plant/Equipment	Quantity	Reference	Sound Power (LWA)
Site Preparatory Works	Telehandler:5t	2	C.4.54	107
	Tractor	1	C.4.74	108
	Concrete Pump	2	C.3.25	106
	Truck Mixer	1	C.4.20	108
	Tracked Excavator	1	C.8.12	102
	Dump Truck	2	C.8.13	113
	Breaker	2	C.1.9	118
TBM Launch	Rotary Piling Rig	5	C.3.14	111

Silvertown Tunnel Preliminary Environmental Information Report

Appendix 14.A: Construction Noise

Construction Stage	Plant/Equipment	Quantity	Reference	Sound Power (LWA)
Chamber	Substation:1MW	6	Manufacturer	80
	Generator 500 kVA	3	Manufacturer	80
	Bentonite Separation Plant	1	Manufacturer	105
	Lime Dosing Plant	1	C.4.89	107
	Batching Plant	1	D.6.11	#N/A
	Loader	1	C.6.34	104
	Tracked Excavator:30t	1	C.8.12	102
	Dump Truck	2	C.8.13	113
	Crane:Crawler:50t	3	C.3.22	108
	Concrete Pump	3	C.3.25	106
	Compactor Roller	1	C.5.24	112
Cut and Cover	Crane: Tower	2	C.4.48	104
	Crane: All Terrain: 50t	2	C.4.52	103
	Tracked Excavator:30t	1	C.8.12	102
	Loader	1	C.6.34	104
	Concrete Pump	3	C.3.25	106
	Telehandler	2	C.4.54	107
	Flat Truck	2	C.4.43	98
Tunnel Construction	Telehandler:5t	2	C.4.54	107
	Telehandler:3t	1	C.4.55	98
	Crane: Tower	2	C.4.48	104
	Crane: All Terrain: 50t	2	C.4.52	103
	Crane:Crawler:50t	3	C.3.22	108
	Shotcrete Pump	2	C.4.30	107
	Truck Mixer	1	C.4.20	108
	Concrete Pump	3	C.3.25	106
	Conveyor:800t/hr	1	C.10.20	105
Retained Cut	Rotary Piling Rig	3	C.3.14	111
	Tracked Excavator	2	C.8.12	102
Tunnel Services Building	Tracked Excavator	1	C.8.12	102
	Crane 50t	2	C.4.52	103
	Truck Mixer	1	C.4.20	108
	Concrete Pump	3	C.3.25	106
	Telehandler:5t	2	C.4.54	107
	Truck Mixer	1	C.4.20	108

Construction Stage	Plant/Equipment	Quantity	Reference	Sound Power (LWA)
Site Reinstatement Works	Telehandler:5t	2	C.4.54	107
	Telehandler:3t	1	C.4.55	98
	Dump Truck	2	C.8.13	113
	Loader	1	C.6.34	104
	Tractor	1	C.4.74	108
	Breaker	2	C.1.9	118
Road Construction Silvertown	Tracked Excavator	3	C.5.18	108
	Road Planer	2	C.5.7	110
	Dumpers	3	C.2.30	107
	Vibratory Roller	2	C.2.39	102
	Telescopic Handler	2	C.4.54	107
	Paver	2	C.5.32	112
	Roller Compactor	3	C.2.37	107
Road Construction Greenwich	Tracked Excavator	3	C.5.18	108
	Road Planer	2	C.5.7	110
	Dumpers	3	C.2.30	107
	Vibratory Roller	2	C.2.39	102
	Telescopic Handler	2	C.4.54	107
	Paver	2	C.5.32	112
	Roller Compactor	3	C.2.37	107
	Rotary Piling Rig	5	C.3.14	111
	Concrete Pump	3	C.3.25	106
	Truck Mixer	1	C.4.20	108

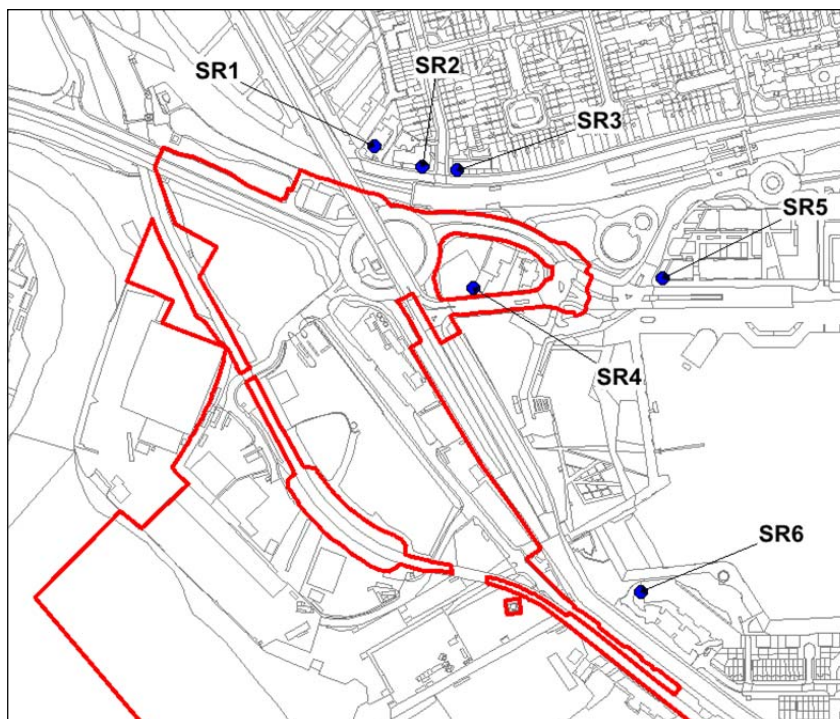
Identified residential sensitive receptors

1.3.4 On the northern construction site situated in Newham there are a number of residential receptors located within 300m of the site. Figure 1 and Table 3 present the selected worst case residential receptors which have been assessed on the northern construction site in Newham.

Table 2 Construction noise sensitive receptors northern portal

ID	Description	X Coordinate	Y Coordinate
1	ARDENNES HOUSE	539840	180867
2	120 VICTORIA DOCK ROAD	539885	180848
3	FOSTER COURT	539917	180845
4	28 TIDAL BASIN ROAD	539932	180736
5	ALASKA APARTMENTS	540107	180744
6	WESTERN BEACH APARTMENTS	540086	180453

Figure 1 Construction noise sensitive receptors northern portal

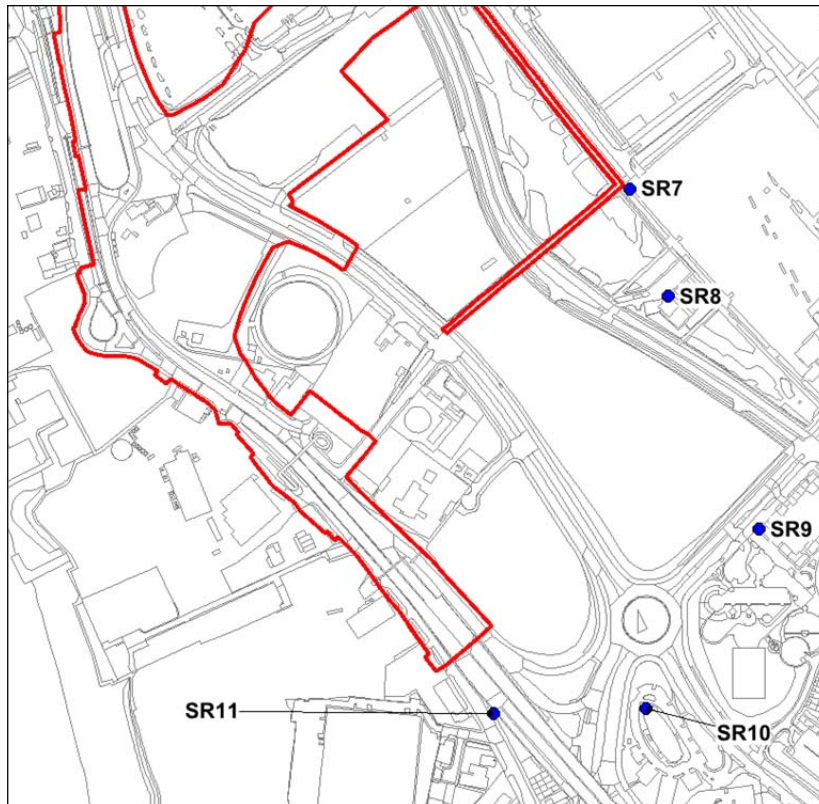


1.3.5 On the southern construction site situated in Greenwich there are a number of residential receptors located within 300m of the site as well as some developments which will have been completed by 2018 when construction begins. Figure 2 and Table 4 present the selected worst case residential receptors which have been assessed on the northern construction site in Newham.

Table 3 Construction noise sensitive receptors southern portal

ID	Description	X Coordinate	Y Coordinate
7	PROPOSED NEW DEVELOPMENTS WITH RESIDENTIAL ELEMENTS (PLANNING APPLICATIONS 12/1708, 12/2819, 12/2841, 13/2823, 13/2822/F, 12/2840, 13/2874 AND 13/2865/F)	539602	179503
8	RIVER WAY	539640	179395
9	HOLLY COURT	539730	179164
10	HOLIDAY INN EXPRESS	539618	178985
11	PROPOSED NEW HOTEL (PLANNING APPLICATION NUMBER 09/2796/F)	539466	178980

Figure 2 Construction noise sensitive receptors southern portal



Noise modelling assumptions

- 1.3.6 At this stage of the Scheme design there is no main works contractor. The percentage on-time for the typical plant that would be used during the construction phase has been assumed to be a conservative 80%. In reality it is expected that the majority of the plant would have a much lower percentage on time.
- 1.3.7 No account for screening from existing buildings has been assumed and noise has been predicted to propagate over hard ground.
- 1.3.8 All predicted construction noise levels are presumed to be façade noise levels with a 3dB correction added to the resultant noise level in accordance with BS5228.
- 1.3.9 Construction noise predictions assume a 2m hoarding around the north and south construction sites as indicated on the construction general arrangements.

1.4 Predicted construction noise levels

- 1.4.1 Construction model outputs for each phase of construction are shown in Plates 1-21 at the end of the Appendix. Predicted construction noise levels for each selected receptor are set out in Figures 3 to 13 and Tables 5 to 15

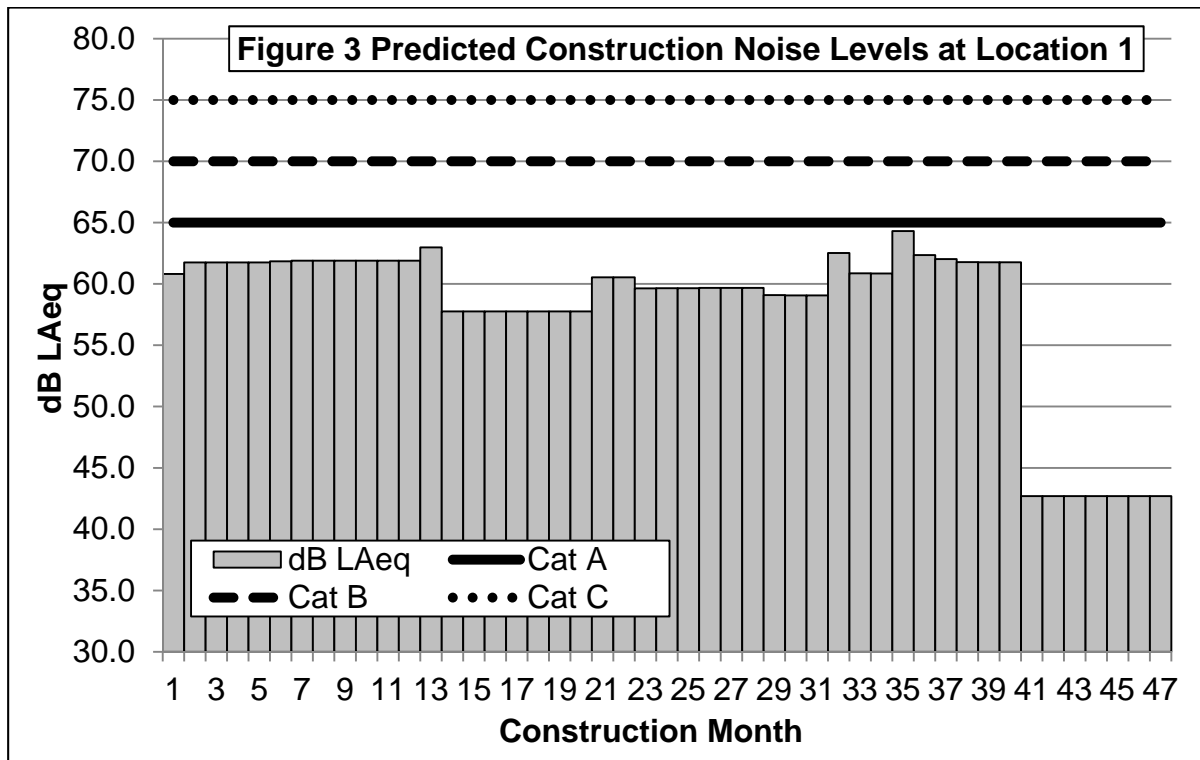


Table 4 Predicted Construction Noise Levels Month by Month Location 1

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB L _{Aeq}	60.8	61.8	61.8	61.8	61.8	61.8	61.9	61.9	61.9	61.9
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB L _{Aeq}	61.9	61.9	63.0	57.8	57.8	57.8	57.8	57.8	57.8	57.8
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB L _{Aeq}	60.5	60.5	59.6	59.7	59.7	59.7	59.7	59.7	59.1	59.1
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB L _{Aeq}	59.1	62.5	60.9	60.9	64.3	62.3	62.0	61.8	61.8	61.8
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB L _{Aeq}	42.7	42.7	42.7	42.7	42.7	42.7	42.7			

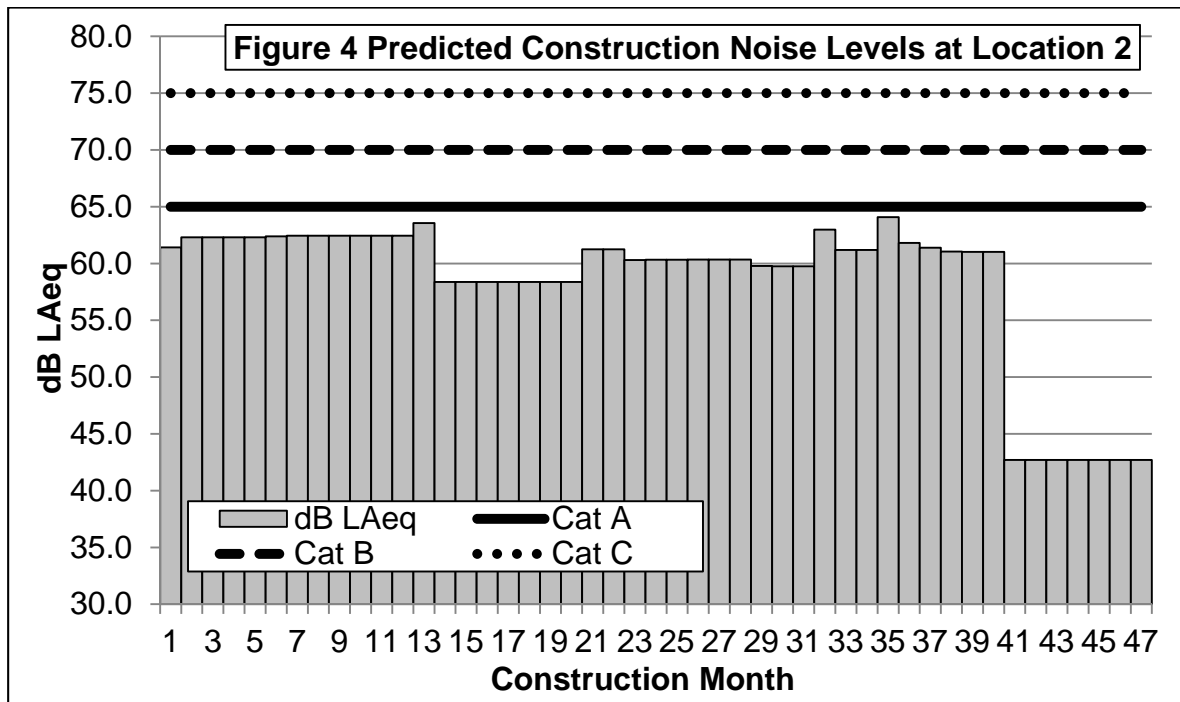


Table 5 Predicted Construction Noise Levels Month by Month Location 2

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	61.4	62.3	62.3	62.3	62.3	62.4	62.4	62.4	62.4	62.4
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	62.4	62.4	63.6	58.4	58.4	58.4	58.4	58.4	58.4	58.4
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	61.2	61.2	60.3	60.3	60.3	60.3	60.3	60.3	59.8	59.8
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	59.8	63.0	61.2	61.2	64.1	61.8	61.4	61.0	61.0	61.0
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	42.7	42.7	42.7	42.7	42.7	42.7	42.7			

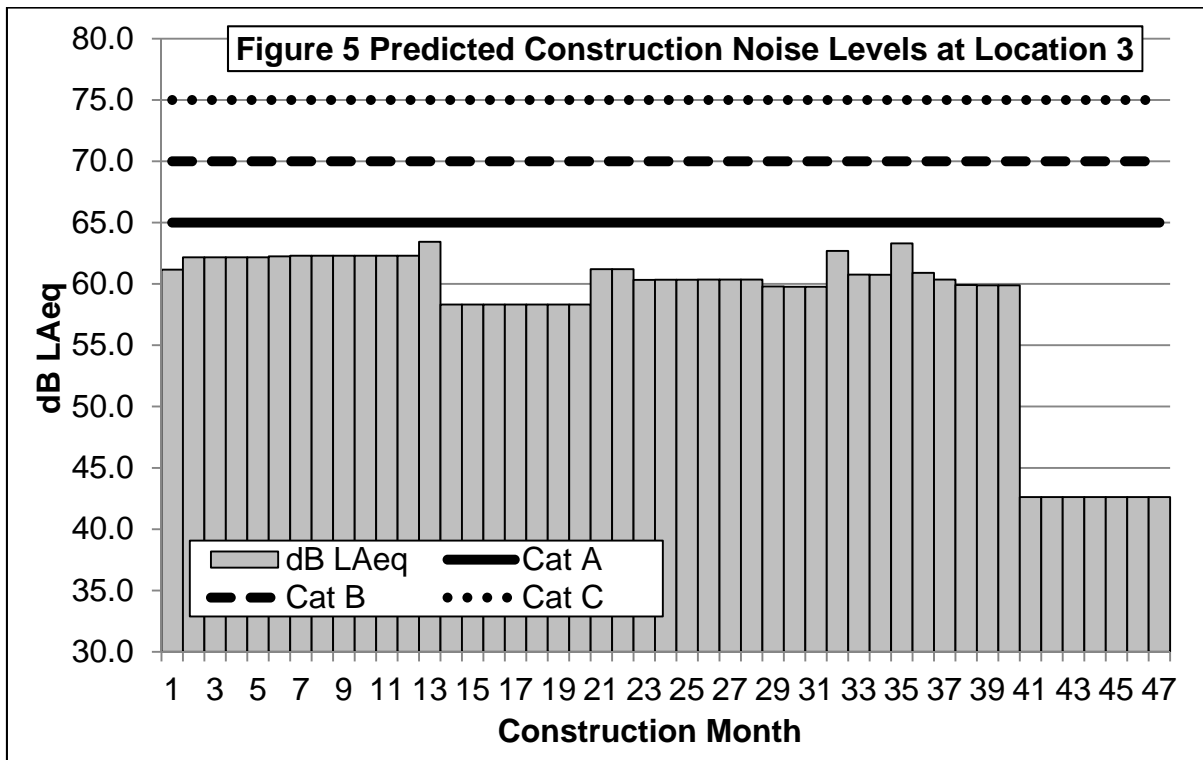


Table 6 Predicted Construction Noise Levels Month by Month Location 3

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB L _{Aeq}	61.2	62.2	62.2	62.2	62.2	62.2	62.3	62.3	62.3	62.3
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB L _{Aeq}	62.3	62.3	63.4	58.3	58.3	58.3	58.3	58.3	58.3	58.3
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB L _{Aeq}	61.2	61.2	60.3	60.3	60.3	60.4	60.4	60.4	59.8	59.8
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB L _{Aeq}	59.8	62.7	60.8	60.8	63.3	60.9	60.4	59.9	59.9	59.9
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB L _{Aeq}	42.6	42.6	42.6	42.6	42.6	42.6	42.6			

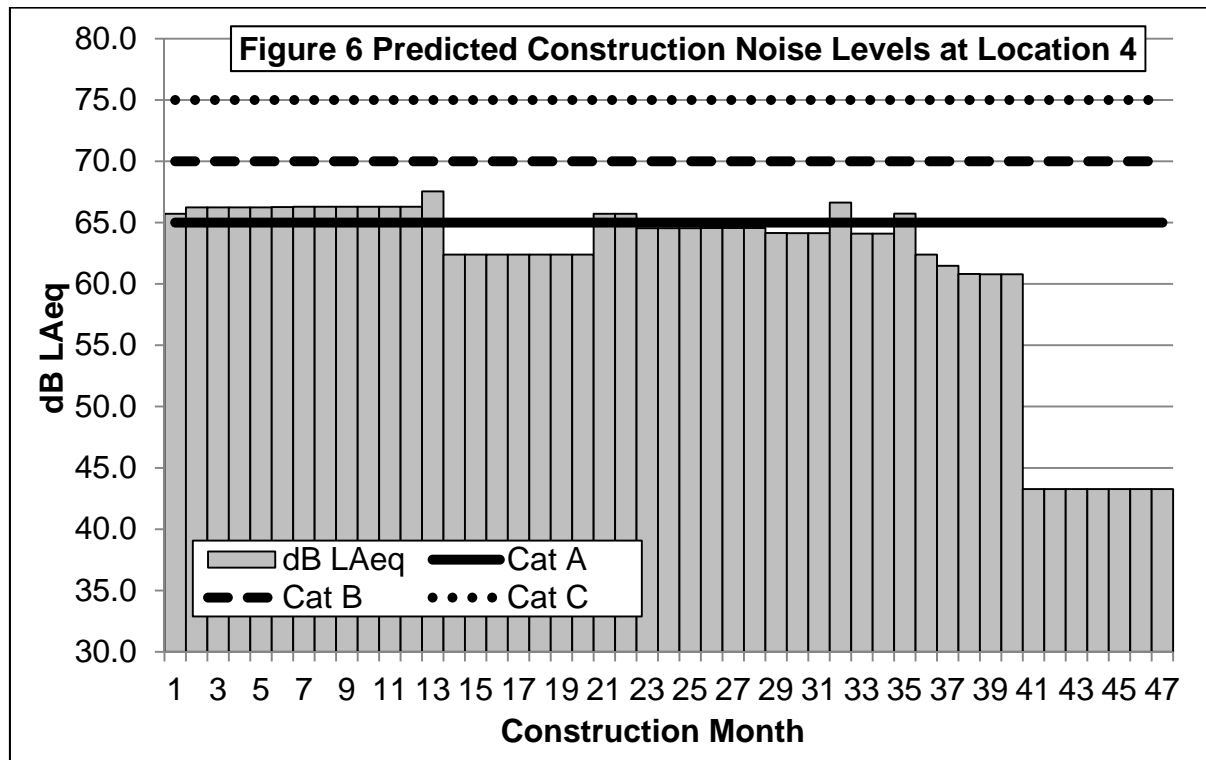


Table 7 Predicted Construction Noise Levels Month by Month Location 4

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB L _{Aeq}	65.7	66.2	66.2	66.2	66.2	66.3	66.3	66.3	66.3	66.3
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB L _{Aeq}	66.3	66.3	67.6	62.4	62.4	62.4	62.4	62.4	62.4	62.4
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB L _{Aeq}	65.7	65.7	64.5	64.6	64.6	64.6	64.6	64.6	64.2	64.1
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB L _{Aeq}	64.1	66.6	64.1	64.1	65.7	62.4	61.5	60.8	60.8	60.8
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB L _{Aeq}	43.3	43.3	43.3	43.3	43.3	43.3	43.3			

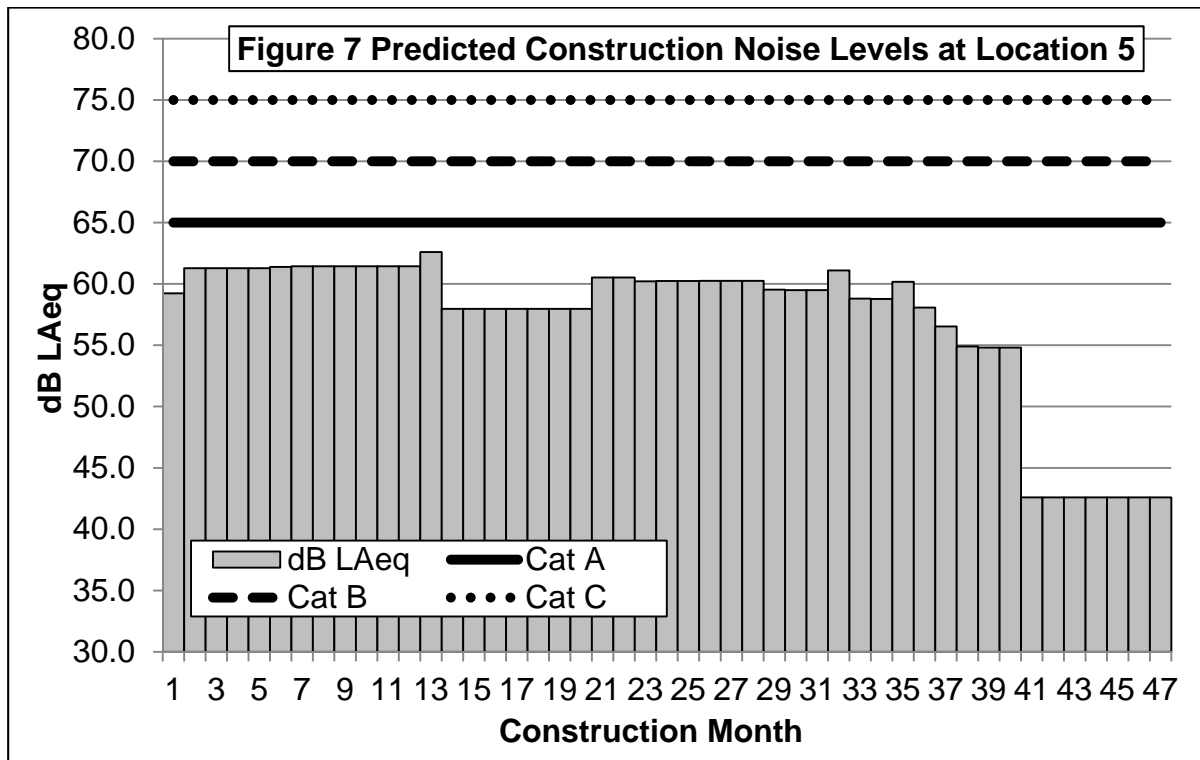


Table 8 Predicted Construction Noise Levels Month by Month Location 5

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	59.2	61.3	61.3	61.3	61.3	61.4	61.4	61.4	61.4	61.4
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	61.4	61.4	62.6	58.0	58.0	58.0	58.0	58.0	58.0	58.0
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	60.5	60.5	60.2	60.2	60.2	60.2	60.2	60.2	59.5	59.5
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	59.5	61.1	58.8	58.8	60.2	58.1	56.5	54.9	54.8	54.8
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	42.6	42.6	42.6	42.6	42.6	42.6	42.6			

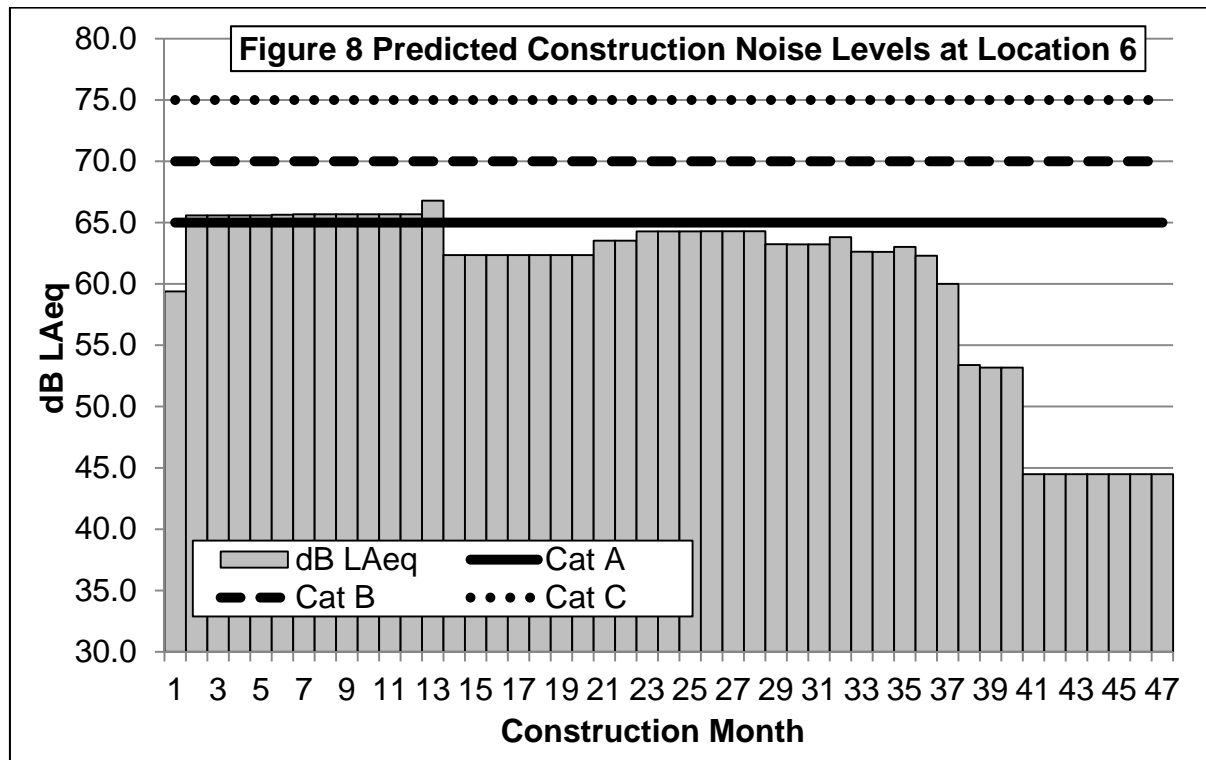


Table 9 Predicted Construction Noise Levels Month by Month Location 6

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	59.4	65.6	65.6	65.6	65.6	65.6	65.7	65.7	65.7	65.7
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	65.7	65.7	66.8	62.4	62.4	62.4	62.4	62.4	62.4	62.4
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	63.5	63.5	64.3	64.3	64.3	64.3	64.3	64.3	63.2	63.2
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	63.2	63.8	62.6	62.6	63.0	62.3	60.0	53.4	53.2	53.2
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	44.5	44.5	44.5	44.5	44.5	44.5	44.5			

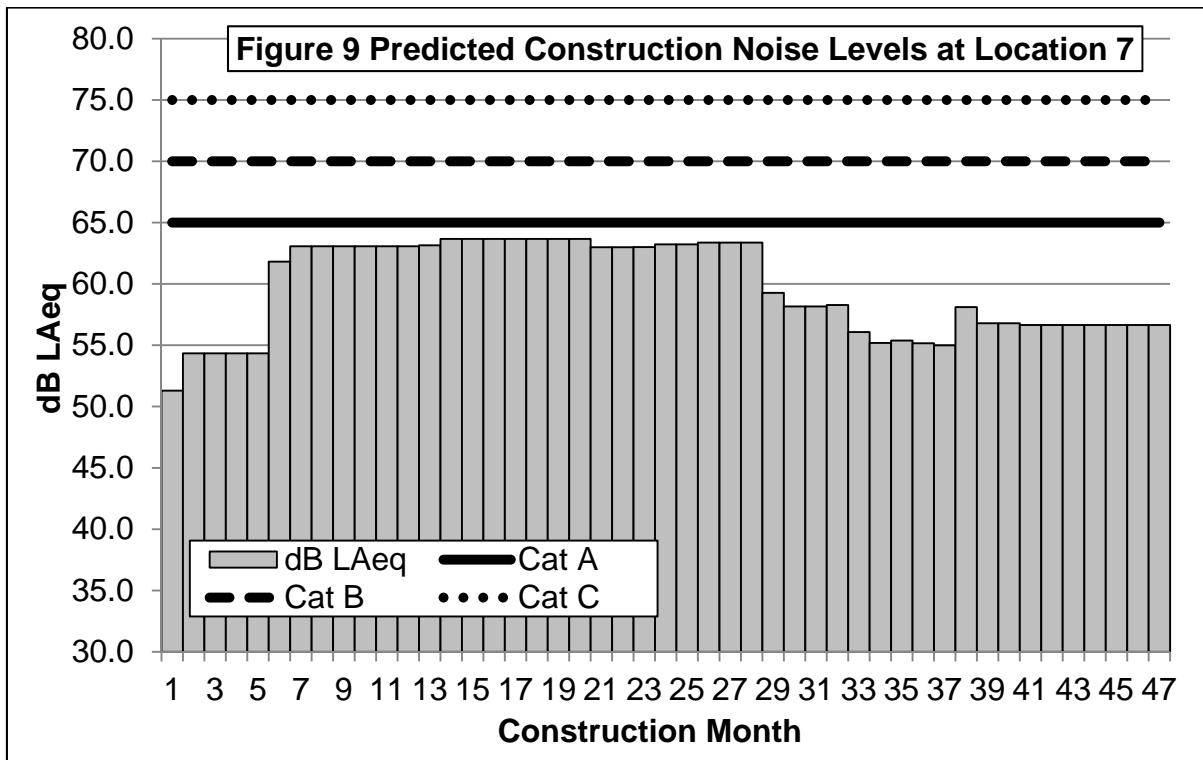


Table 10 Predicted Construction Noise Levels Month by Month Location 7

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	51.3	54.3	54.3	54.3	54.3	61.8	63.1	63.1	63.1	63.1
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	63.1	63.1	63.1	63.7	63.7	63.7	63.7	63.7	63.7	63.7
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	63.0	63.0	63.0	63.2	63.2	63.4	63.4	63.4	59.3	58.2
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	58.2	58.3	56.1	55.2	55.4	55.2	55.0	58.1	56.8	56.8
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	56.6	56.6	56.6	56.6	56.6	56.6	56.6			

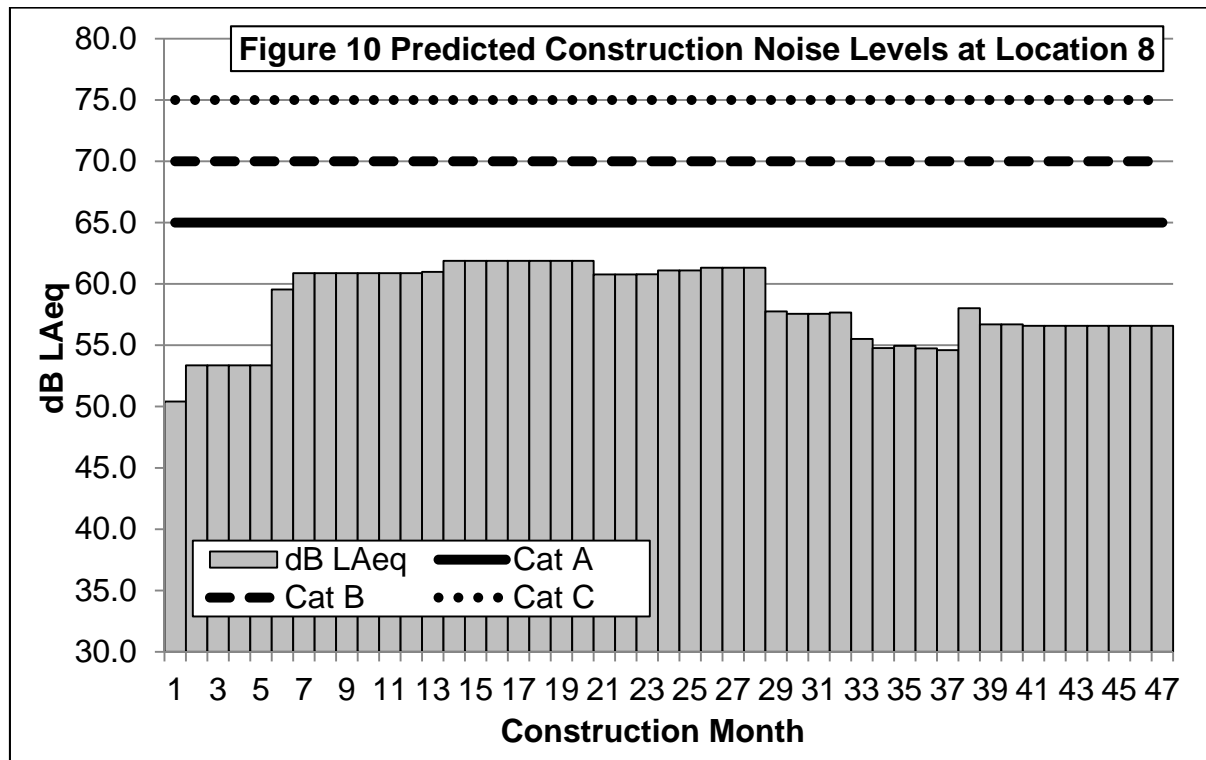


Table 11 Predicted Construction Noise Levels Month by Month Location 8

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	50.4	53.4	53.4	53.4	53.4	59.5	60.9	60.9	60.9	60.9
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	60.9	60.9	61.0	61.9	61.9	61.9	61.9	61.9	61.9	61.9
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	60.8	60.8	60.8	61.1	61.1	61.3	61.3	61.3	57.8	57.6
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	57.6	57.7	55.5	54.8	54.9	54.7	54.6	58.0	56.7	56.7
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	56.6	56.6	56.6	56.6	56.6	56.6	56.6			

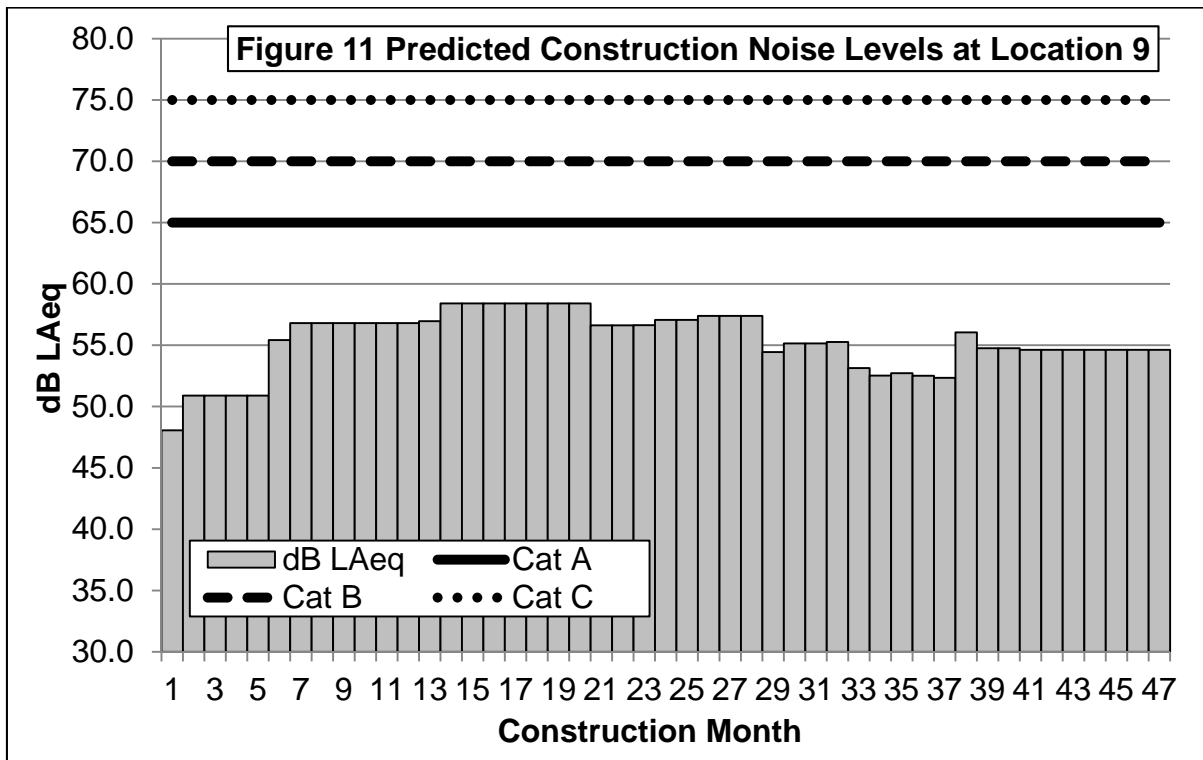


Table 12 Predicted Construction Noise Levels Month by Month Location 9

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	48.1	50.9	50.9	50.9	50.9	55.4	56.8	56.8	56.8	56.8
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	56.8	56.8	57.0	58.4	58.4	58.4	58.4	58.4	58.4	58.4
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	56.6	56.6	56.6	57.1	57.1	57.4	57.4	57.4	54.4	55.1
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	55.1	55.3	53.1	52.5	52.7	52.5	52.3	56.0	54.8	54.8
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	54.6	54.6	54.6	54.6	54.6	54.6	54.6			

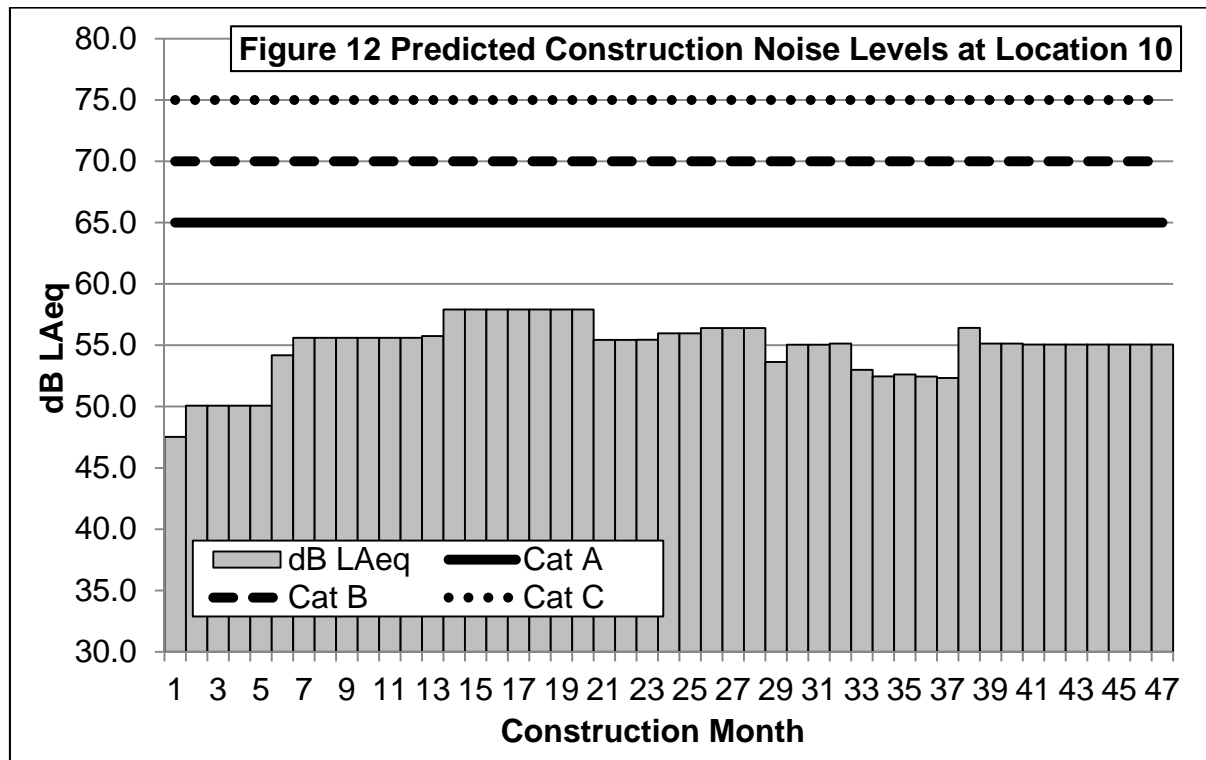


Table 13 Predicted Construction Noise Levels Month by Month Location 10

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	47.5	50.1	50.1	50.1	50.1	54.2	55.6	55.6	55.6	55.6
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	55.6	55.6	55.7	57.9	57.9	57.9	57.9	57.9	57.9	57.9
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	55.4	55.4	55.4	56.0	56.0	56.4	56.4	56.4	53.6	55.0
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	55.0	55.1	53.0	52.5	52.6	52.4	52.3	56.4	55.1	55.1
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	55.1	55.1	55.1	55.1	55.1	55.1	55.1			

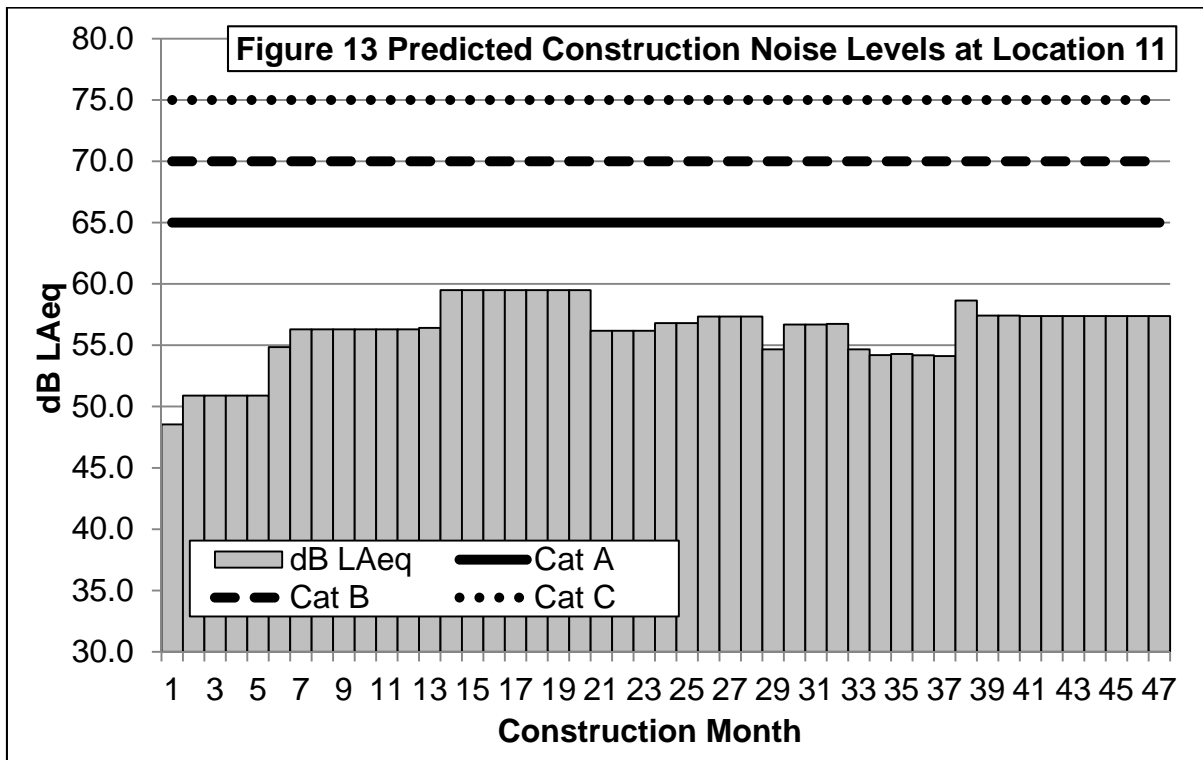


Table 14 Predicted Construction Noise Levels Month by Month Location 11

Construction Month	1	2	3	4	5	6	7	8	9	10
Construction Noise Level dB LAeq	48.5	50.9	50.9	50.9	50.9	54.9	56.3	56.3	56.3	56.3
Construction Month	11	12	13	14	15	16	17	18	19	20
Construction Noise Level dB LAeq	56.3	56.3	56.4	59.5	59.5	59.5	59.5	59.5	59.5	59.5
Construction Month	21	22	23	24	25	26	27	28	29	30
Construction Noise Level dB LAeq	56.2	56.2	56.2	56.8	56.8	57.3	57.3	57.3	54.7	56.7
Construction Month	31	32	33	34	35	36	37	38	39	40
Construction Noise Level dB LAeq	56.7	56.7	54.7	54.2	54.3	54.2	54.1	58.6	57.4	57.4
Construction Month	41	42	43	44	45	46	47			
Construction Noise Level dB LAeq	57.4	57.4	57.4	57.4	57.4	57.4	57.4			

1.4.2 A summary of the predicted range of construction noise levels during the daytime over the construction phase period of the Scheme is presented in Table 16.

Table 15 Construction Noise Level Range

Receptor ID	Predicted Range		Exceeds Category A Noise Level	Exceeds Category B Noise Level	Exceeds Category C Noise Level
	Max	Min			
1	64.3	42.7	NO	NO	NO
2	64.1	42.7	NO	NO	NO
3	63.4	42.6	NO	NO	NO
4	67.6	43.3	YES	NO	NO
5	62.6	42.6	NO	NO	NO
6	66.8	44.5	YES	NO	NO
7	63.7	51.3	NO	NO	NO
8	61.9	50.4	NO	NO	NO
9	58.4	48.1	NO	NO	NO
10	57.9	47.5	NO	NO	NO
11	59.5	48.5	NO	NO	NO

1.4.3 The predicted construction noise levels presented in Table 16 indicate that none of the identified residential receptors would exceed Category B or Category C threshold levels indicating that construction noise levels during the daytime would be below 70dB LAeq.

1.4.4 Construction noise levels would remain below 65 dB LAeq at the majority of receptors with the exception of Receptors 4 and 6 which are both located adjacent to the northern construction site in the Borough of Newham.

PLATE 1 Construction Noise Assessment Model Output Month 1

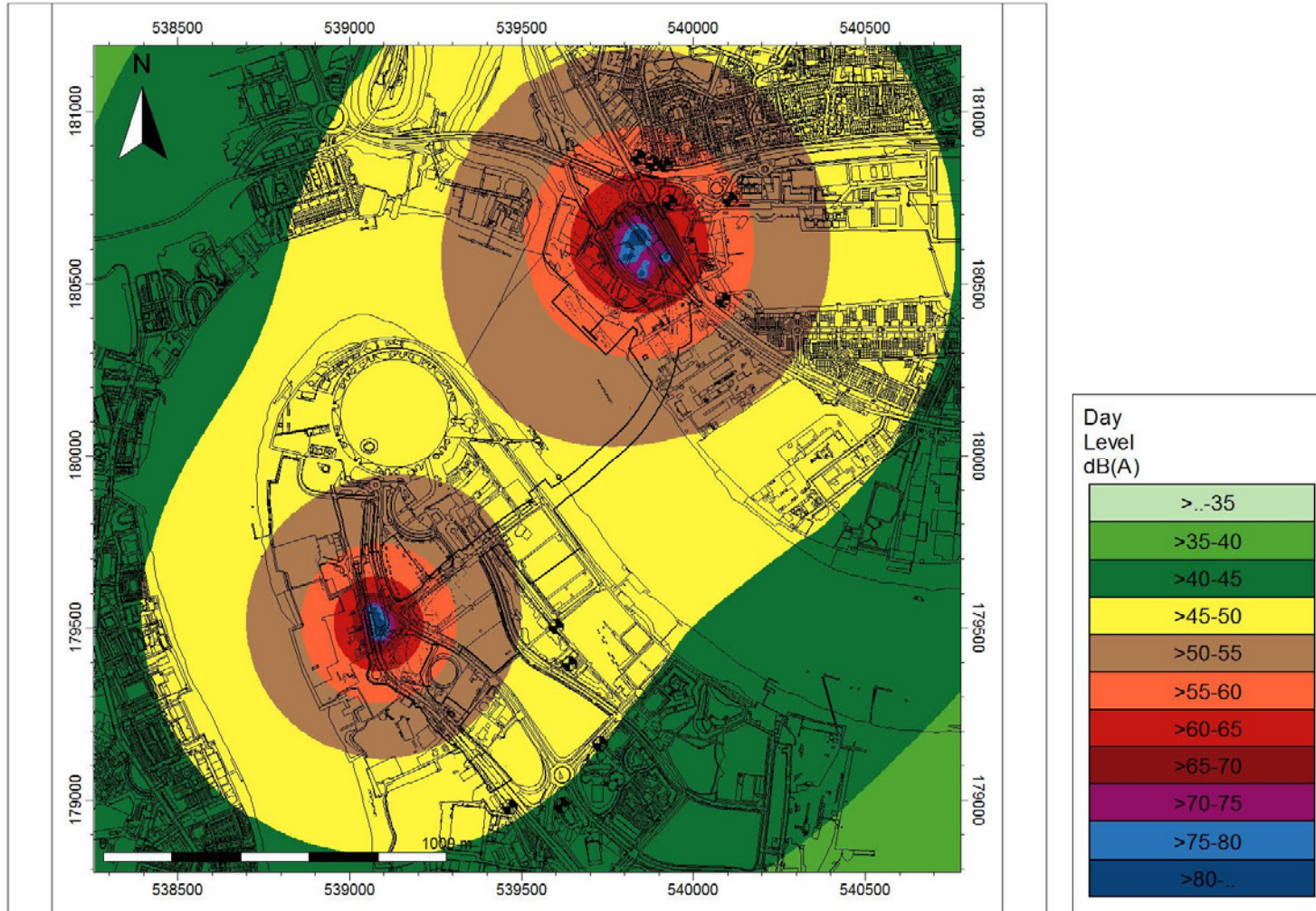


PLATE 2 Construction Noise Assessment Model Output Month 2 to 5

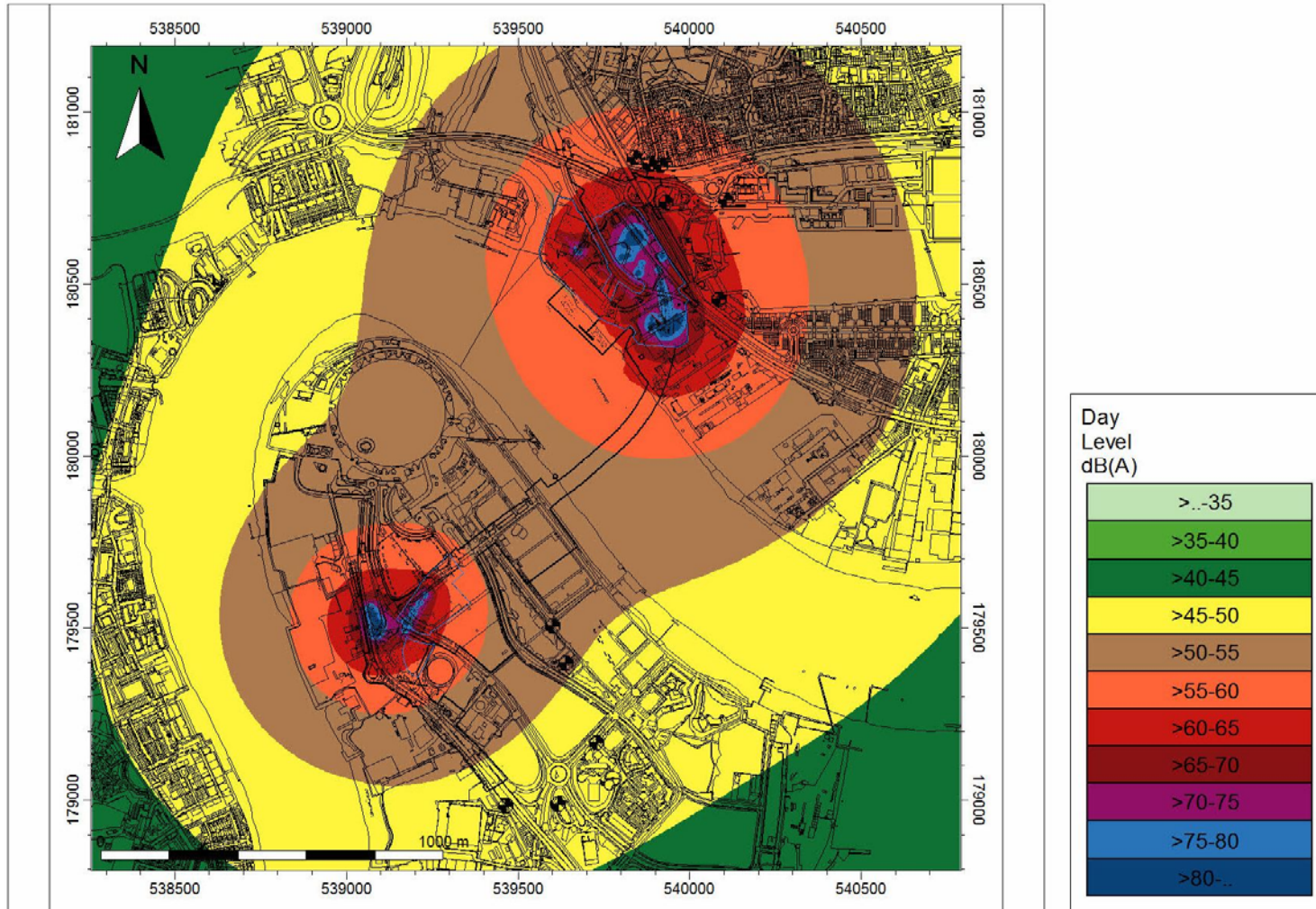


PLATE 3 Construction Noise Assessment Model Output Month 6

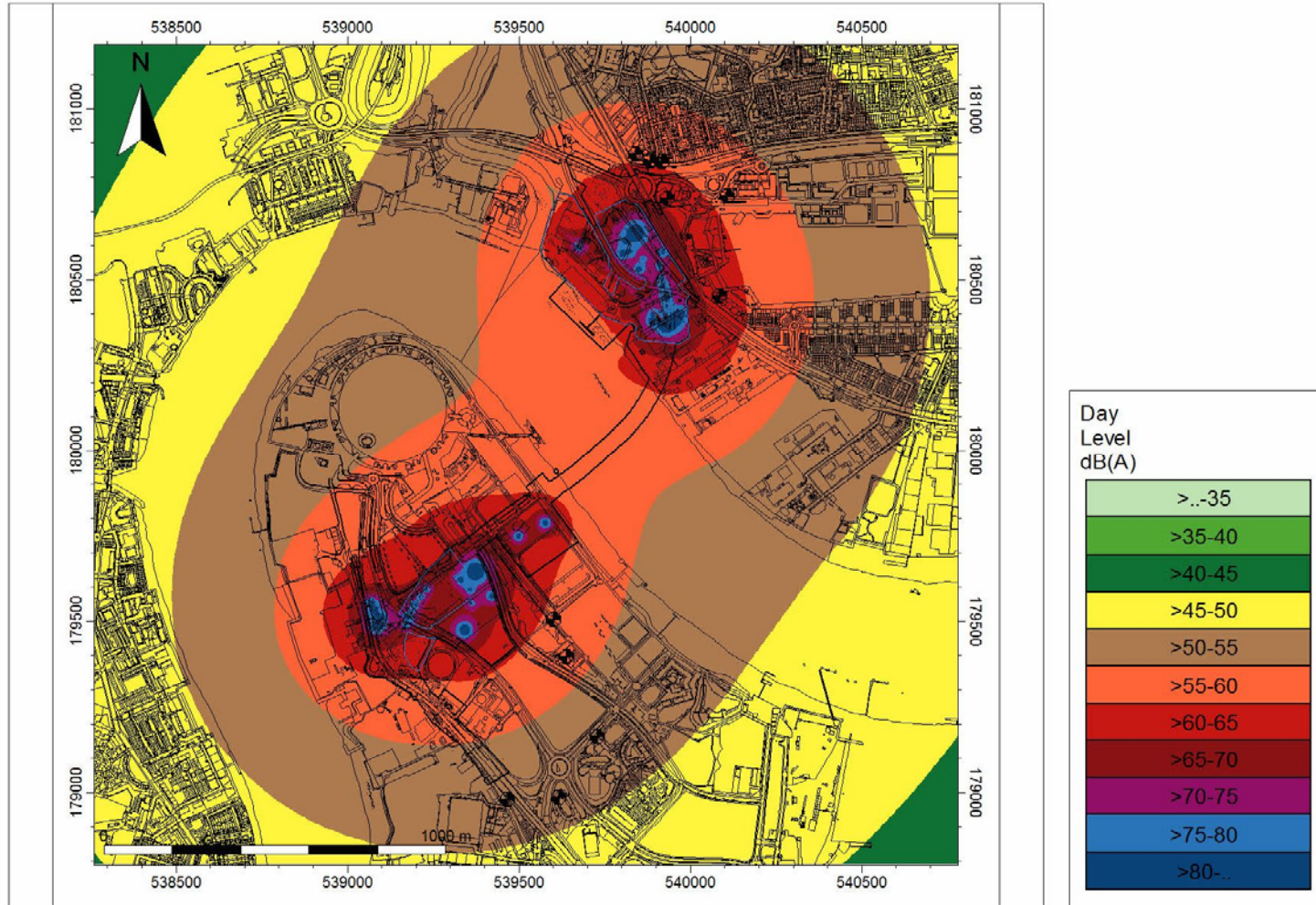


PLATE 4 Construction Noise Assessment Model Output Month 7 to 12

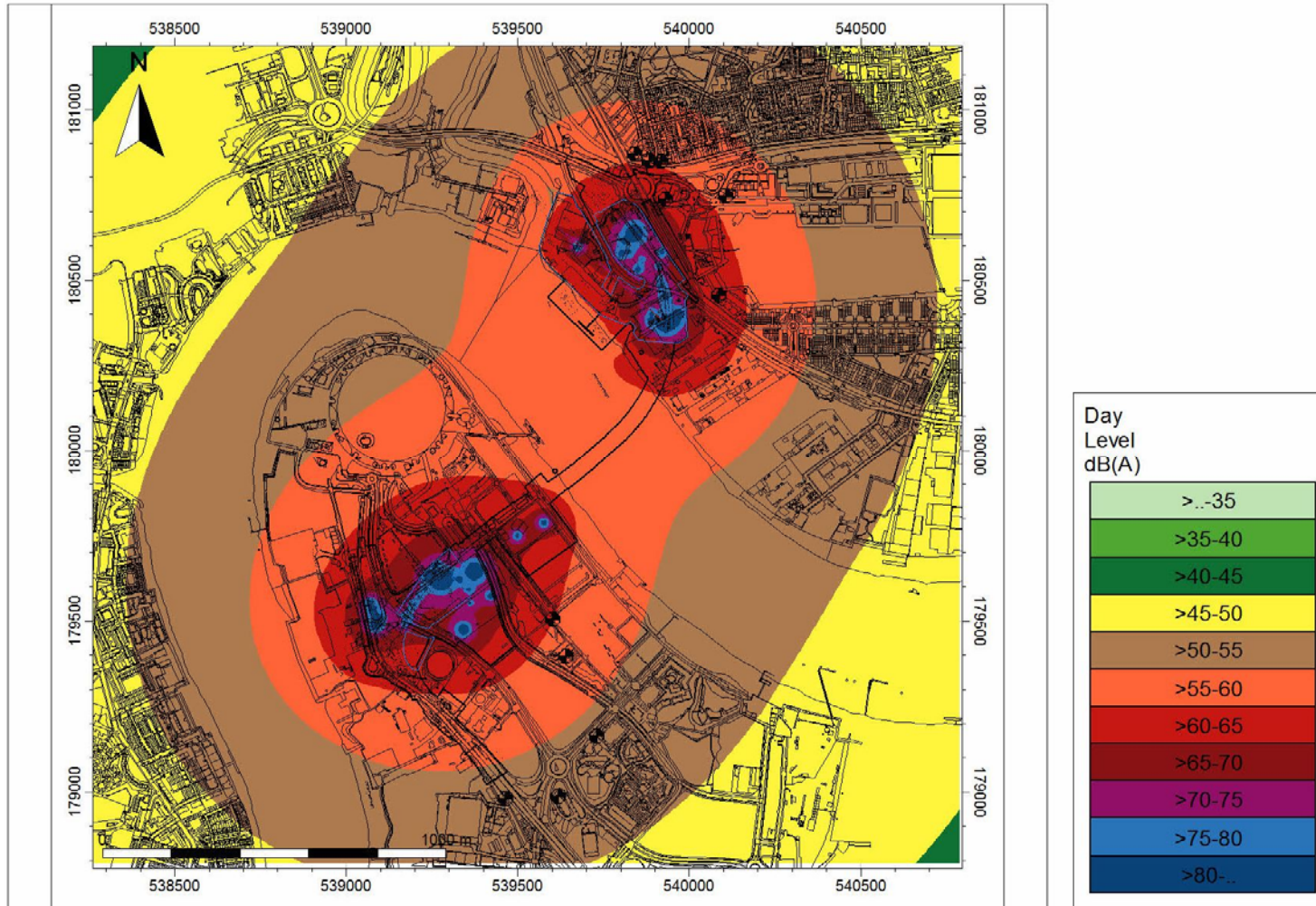


PLATE 5 Construction Noise Assessment Model Output Month 13

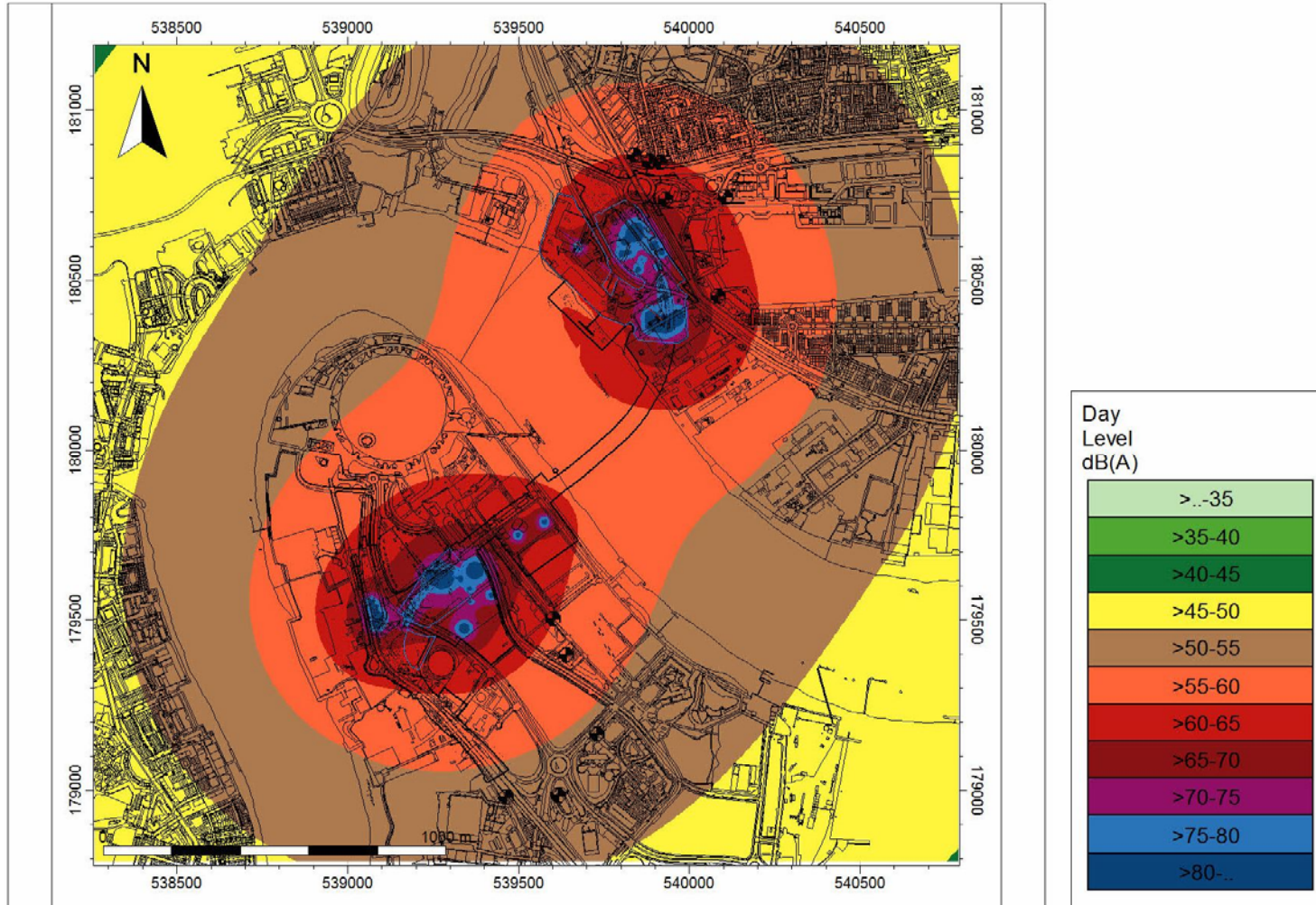


PLATE 6 Construction Noise Assessment Model Output Month 14 to 20

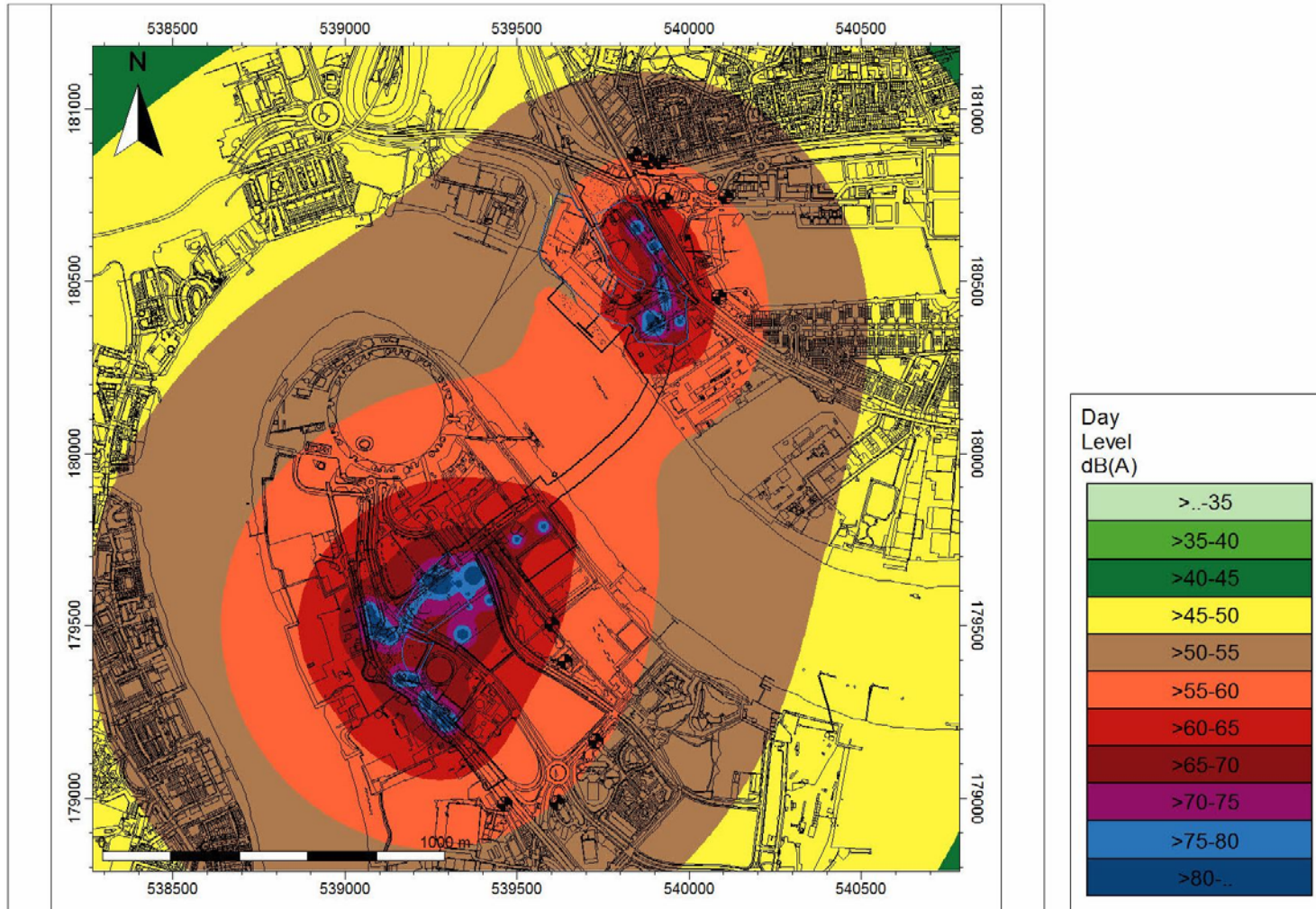


PLATE 7 Construction Noise Assessment Model Output Month 21 to 22

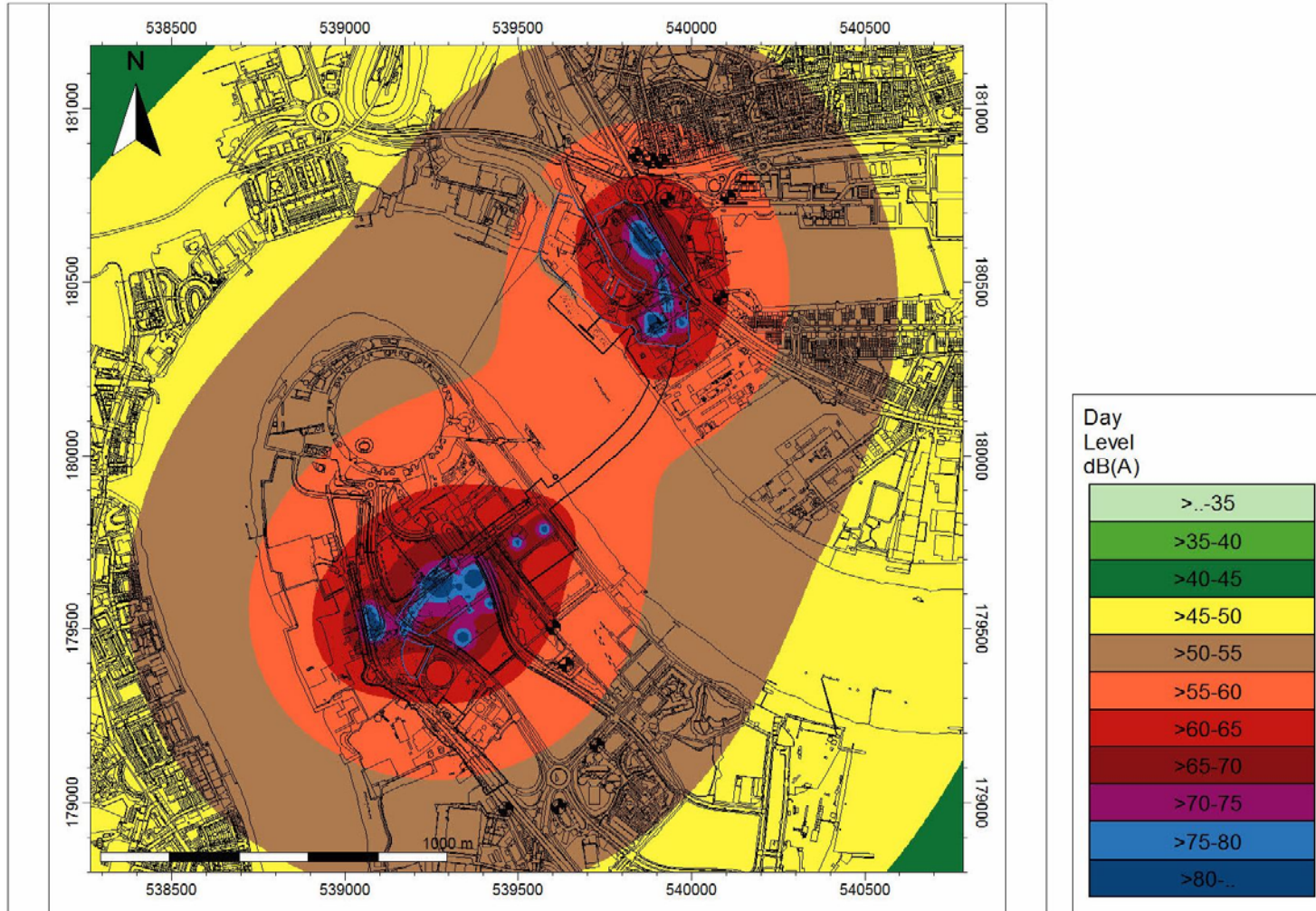


PLATE 8 Construction Noise Assessment Model Output Month 23

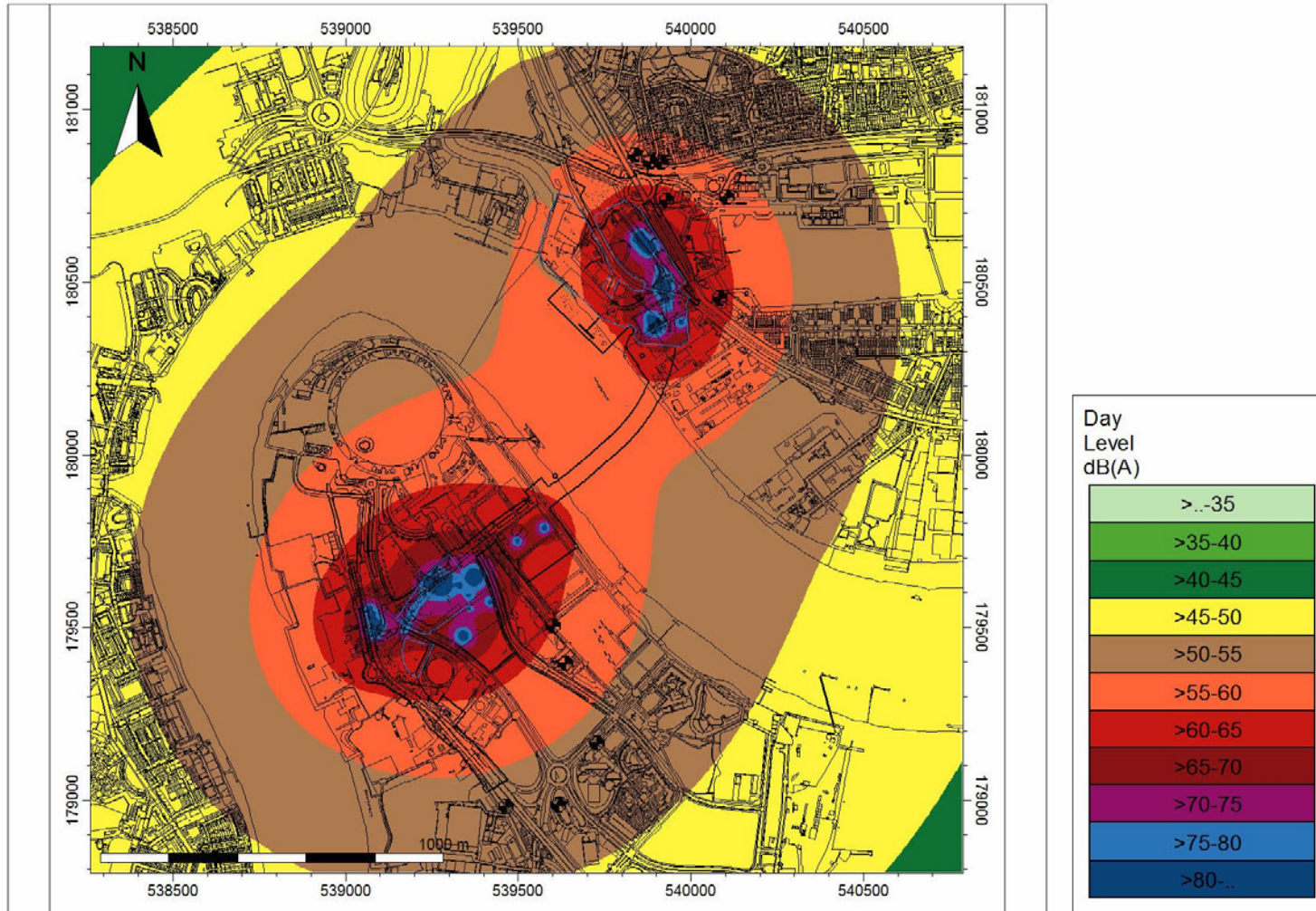


PLATE 9 Construction Noise Assessment Model Output Month 24 to 25

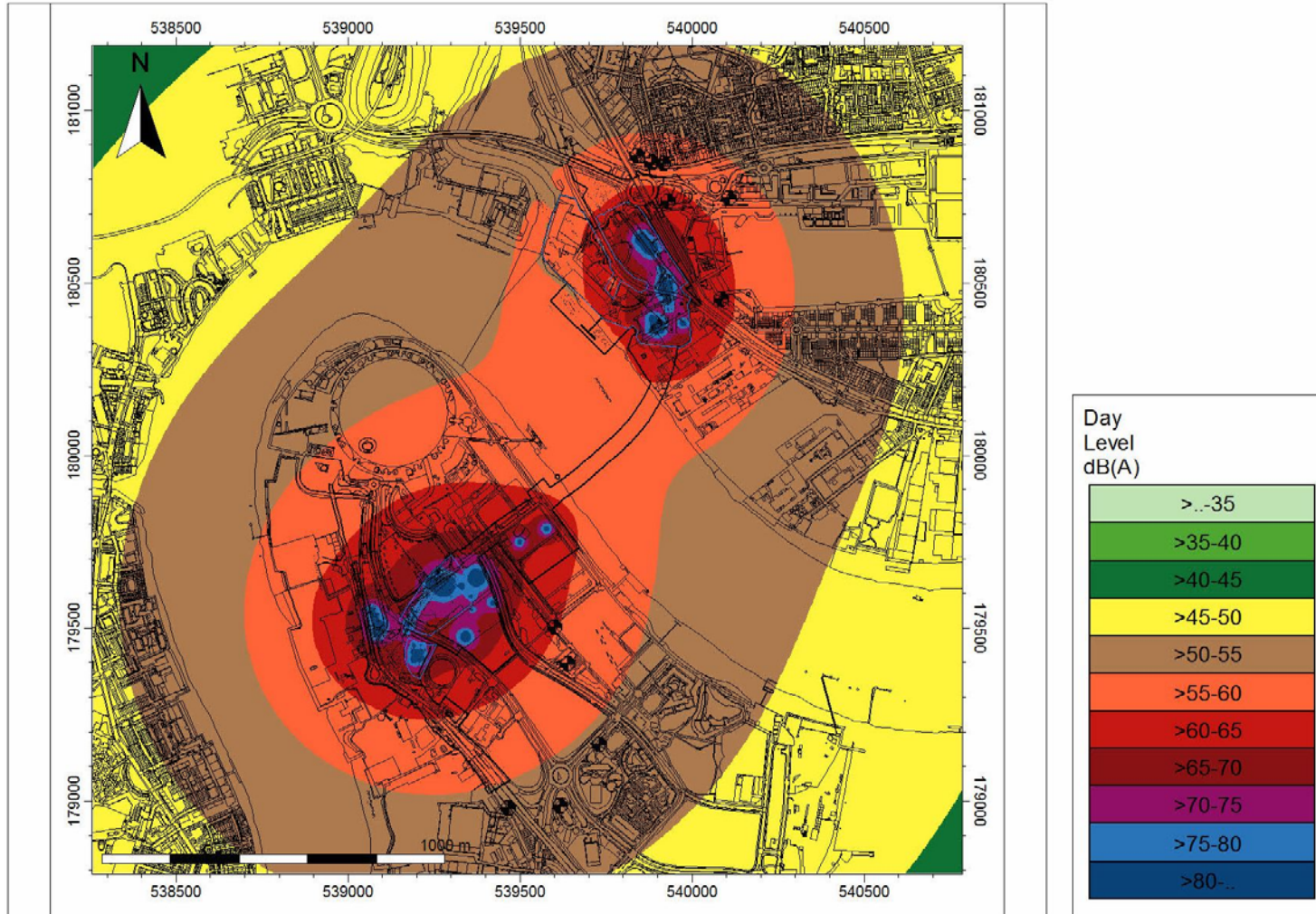


PLATE 10 Construction Noise Assessment Model Output Month 26 to 28

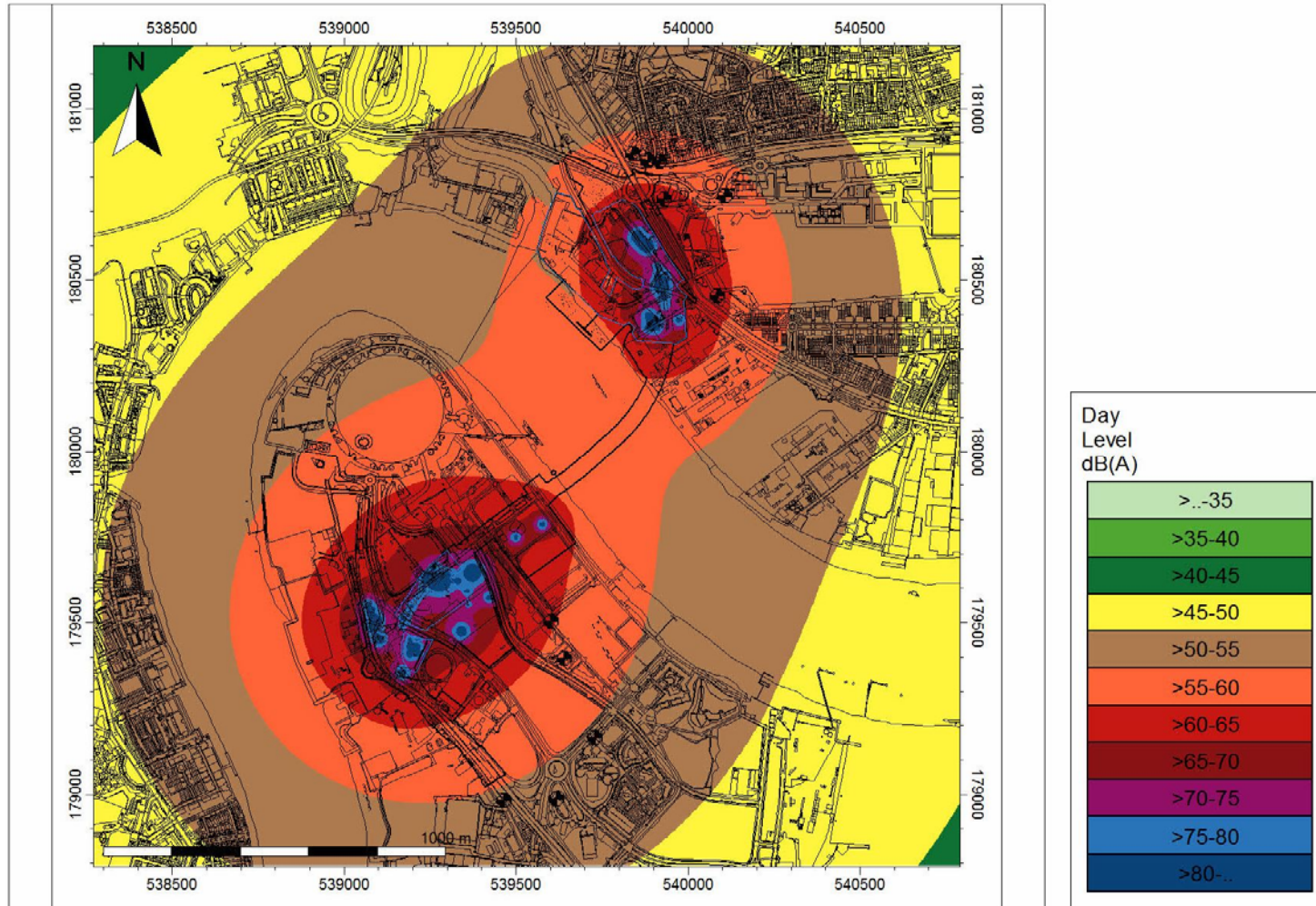


PLATE 11 Construction Noise Assessment Model Output Month 29

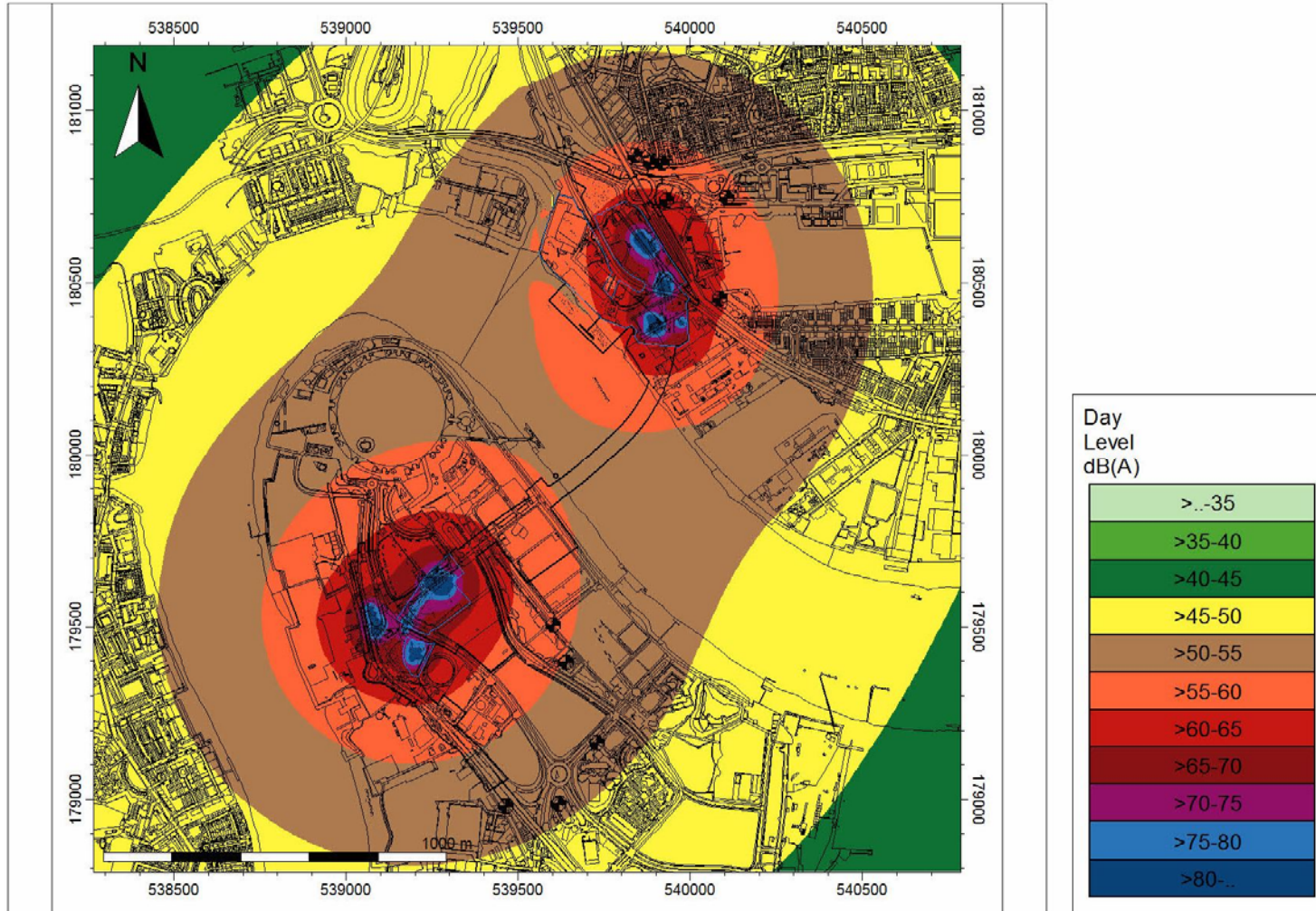


PLATE 12 Construction Noise Assessment Model Output Month 30 to 31

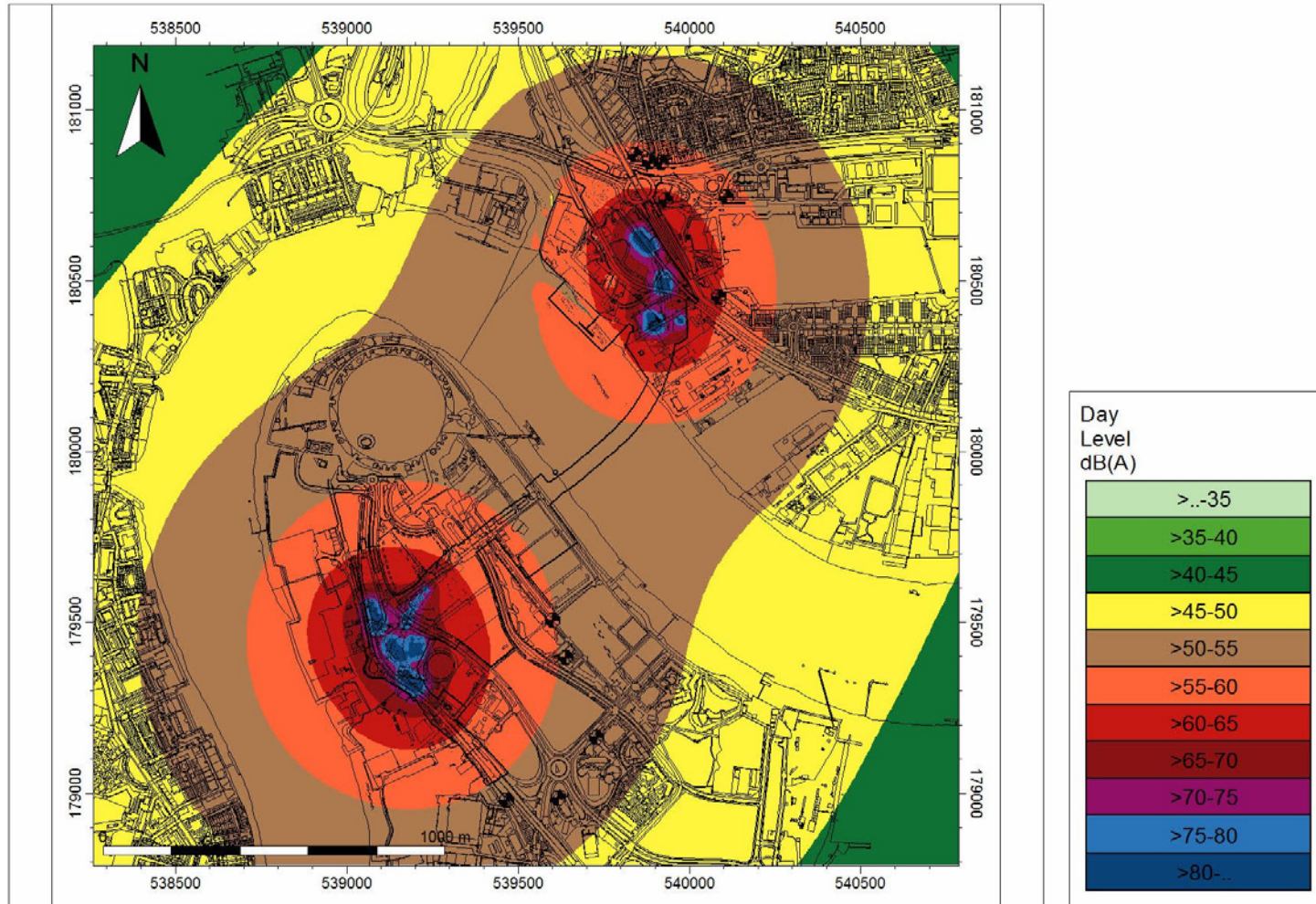


PLATE 13 Construction Noise Assessment Model Output Month 32

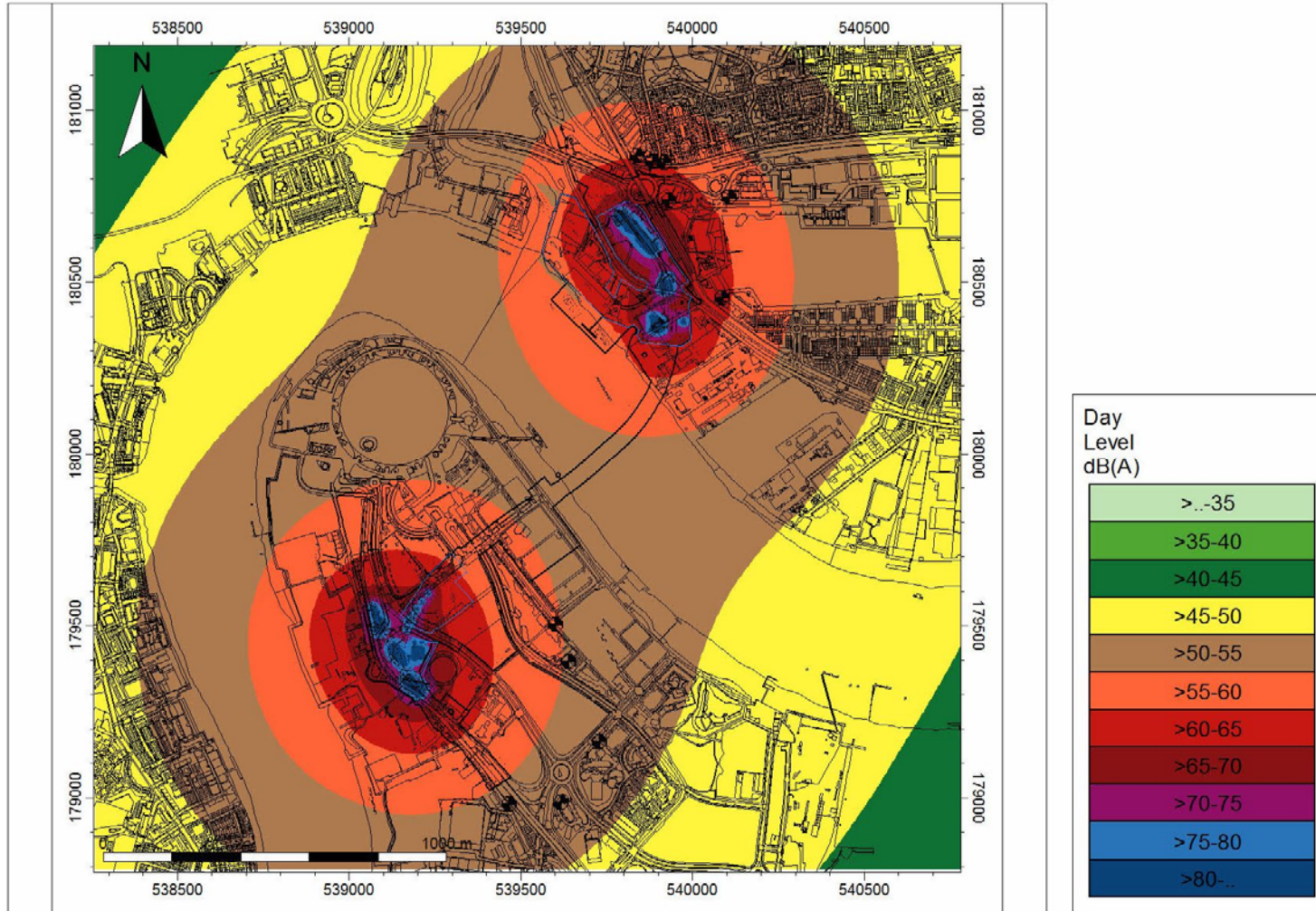


PLATE 14 Construction Noise Assessment Model Output Month 33

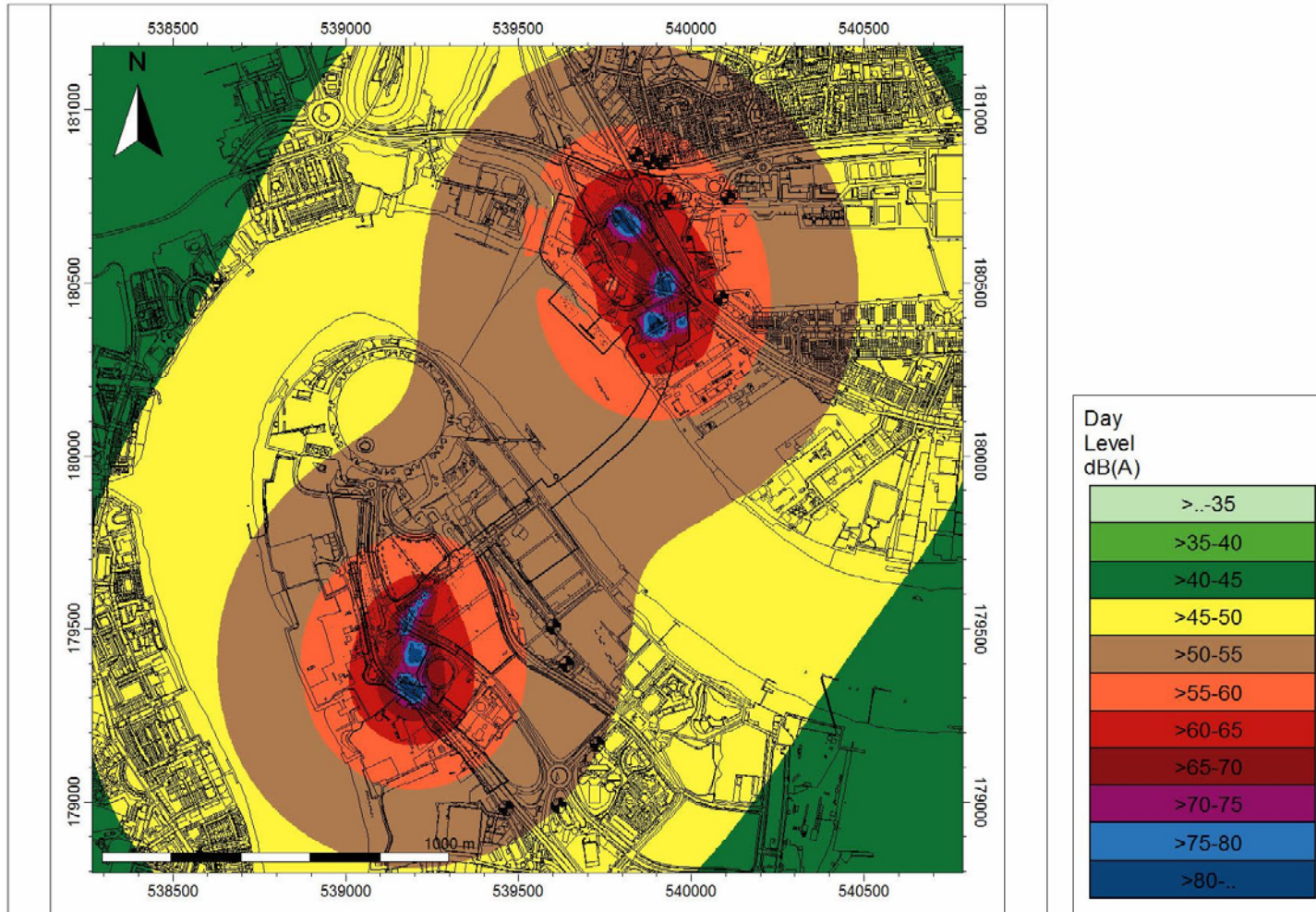


PLATE 15 Construction Noise Assessment Model Output Month 34

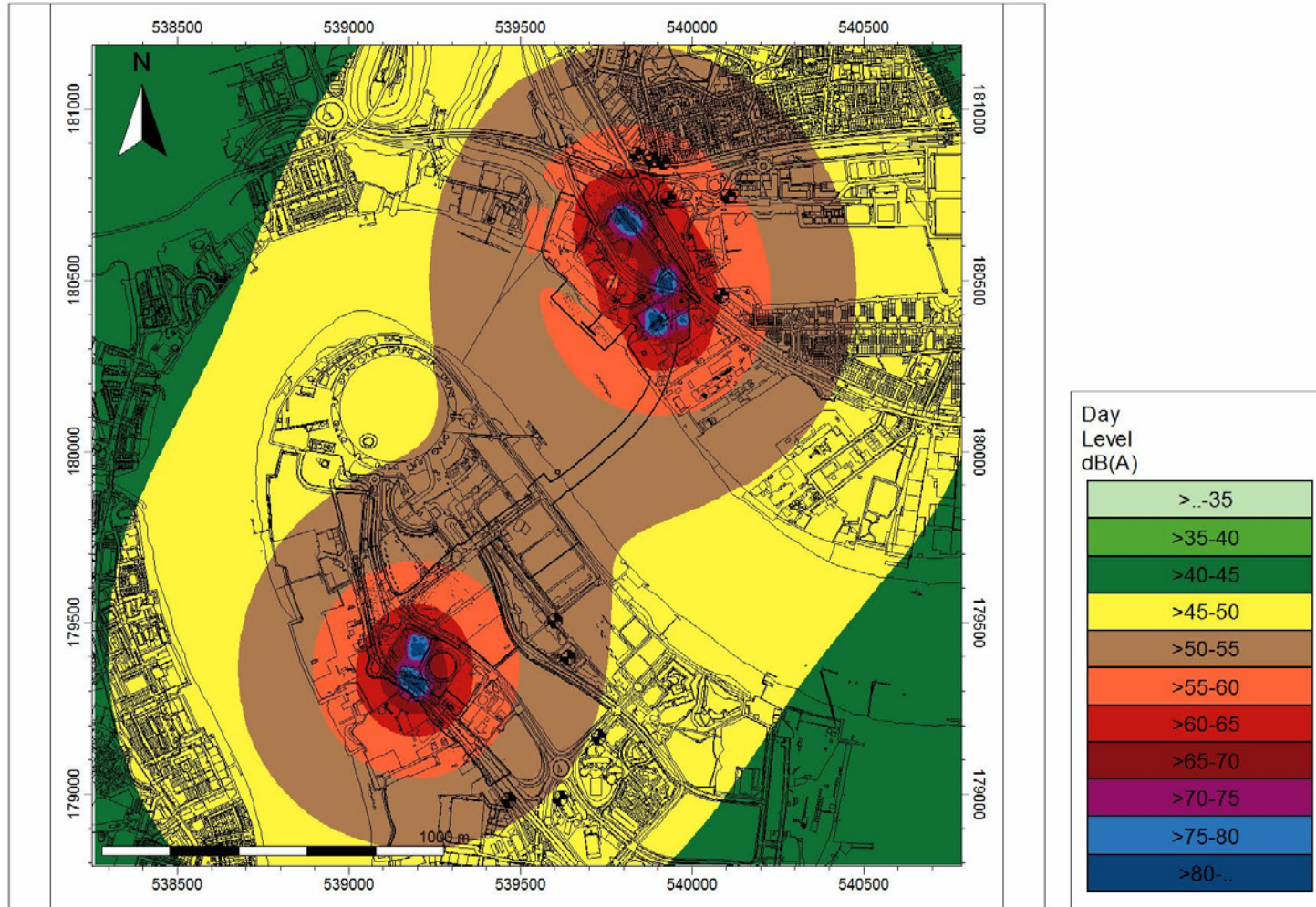


PLATE 16 Construction Noise Assessment Model Output Month 35

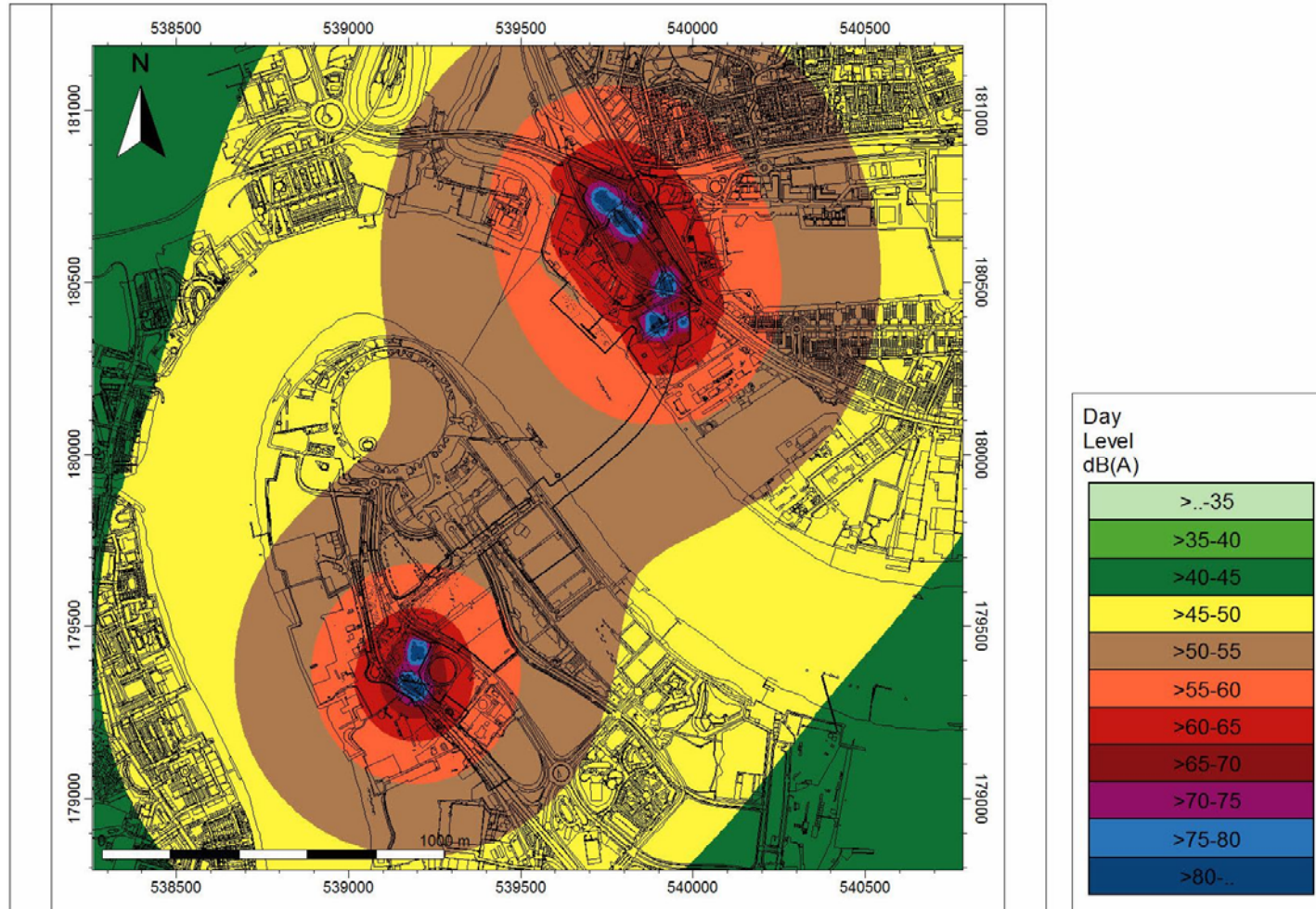


PLATE 17 Construction Noise Assessment Model Output Month 36

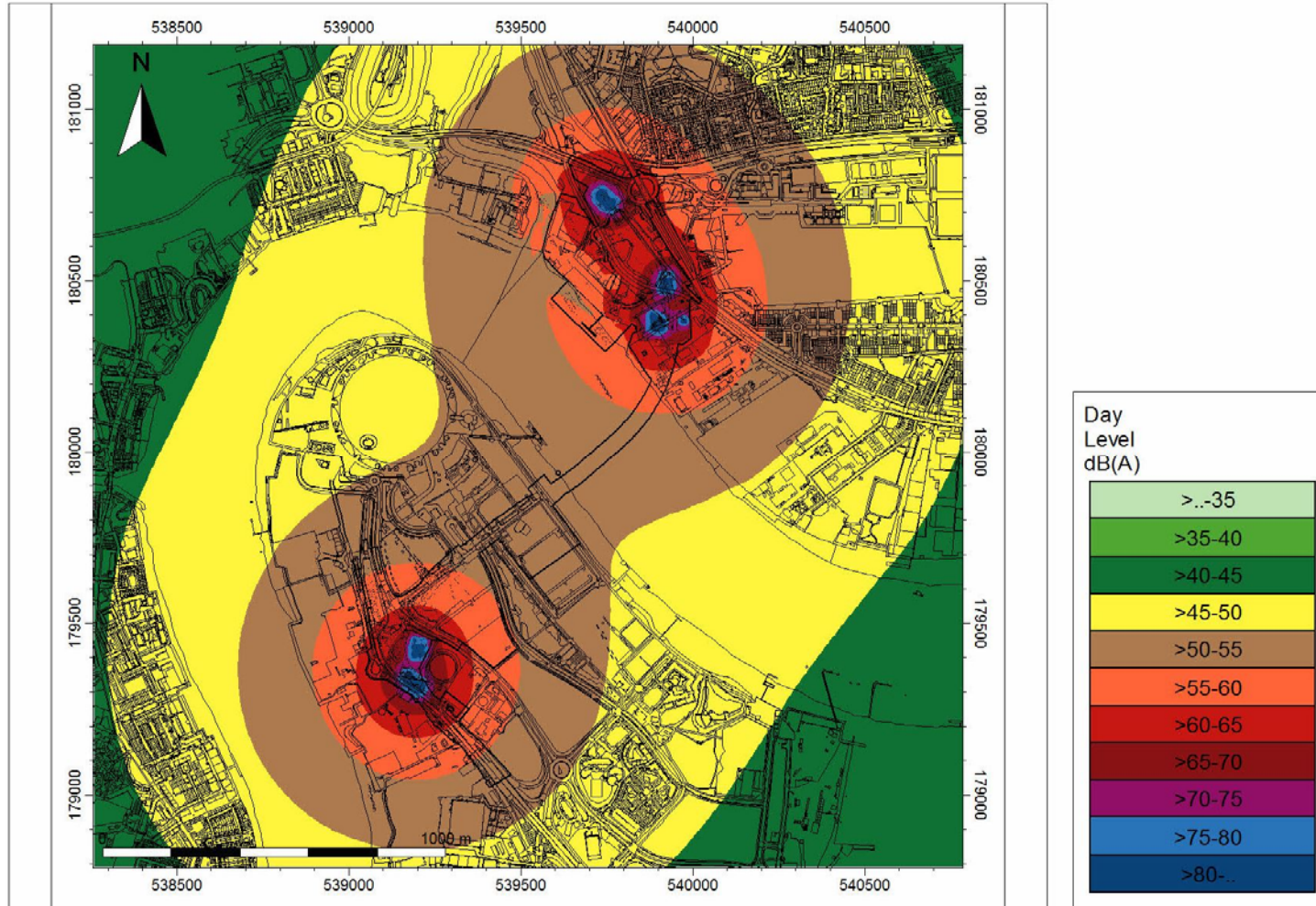


PLATE 18 Construction Noise Assessment Model Output Month 36

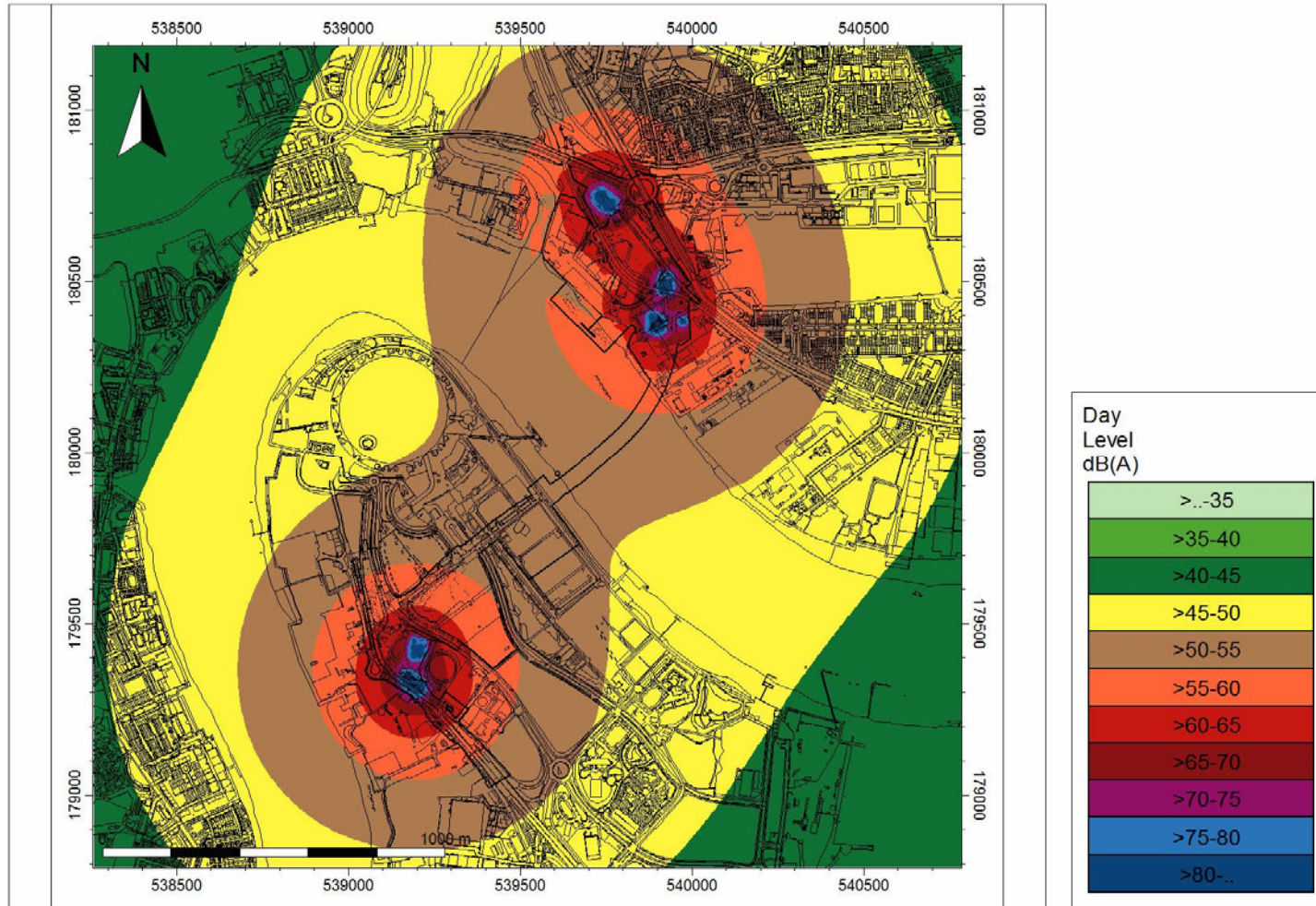


PLATE 19 Construction Noise Assessment Model Output Month 38

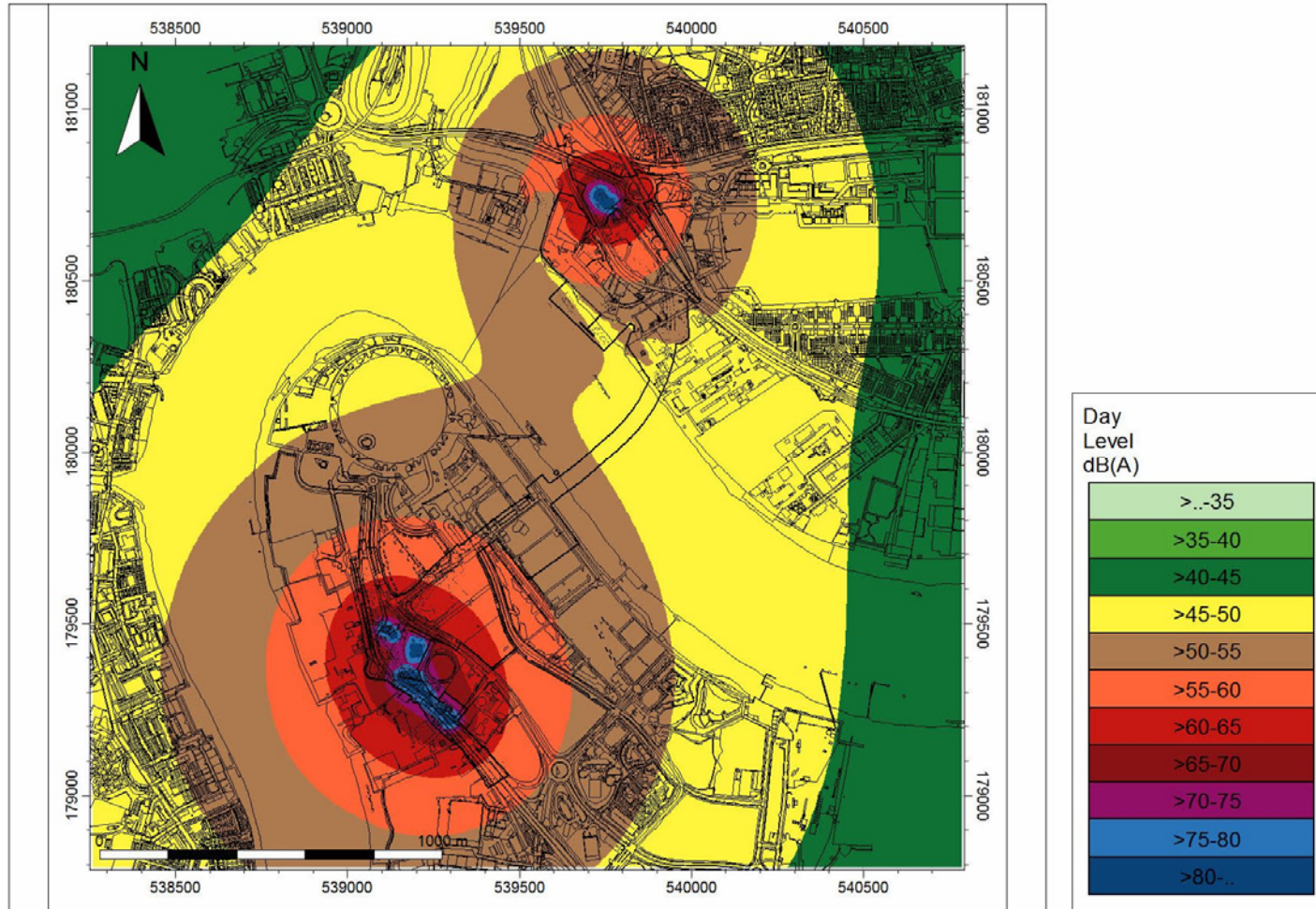


PLATE 20 Construction Noise Assessment Model Output Month 39 to 40

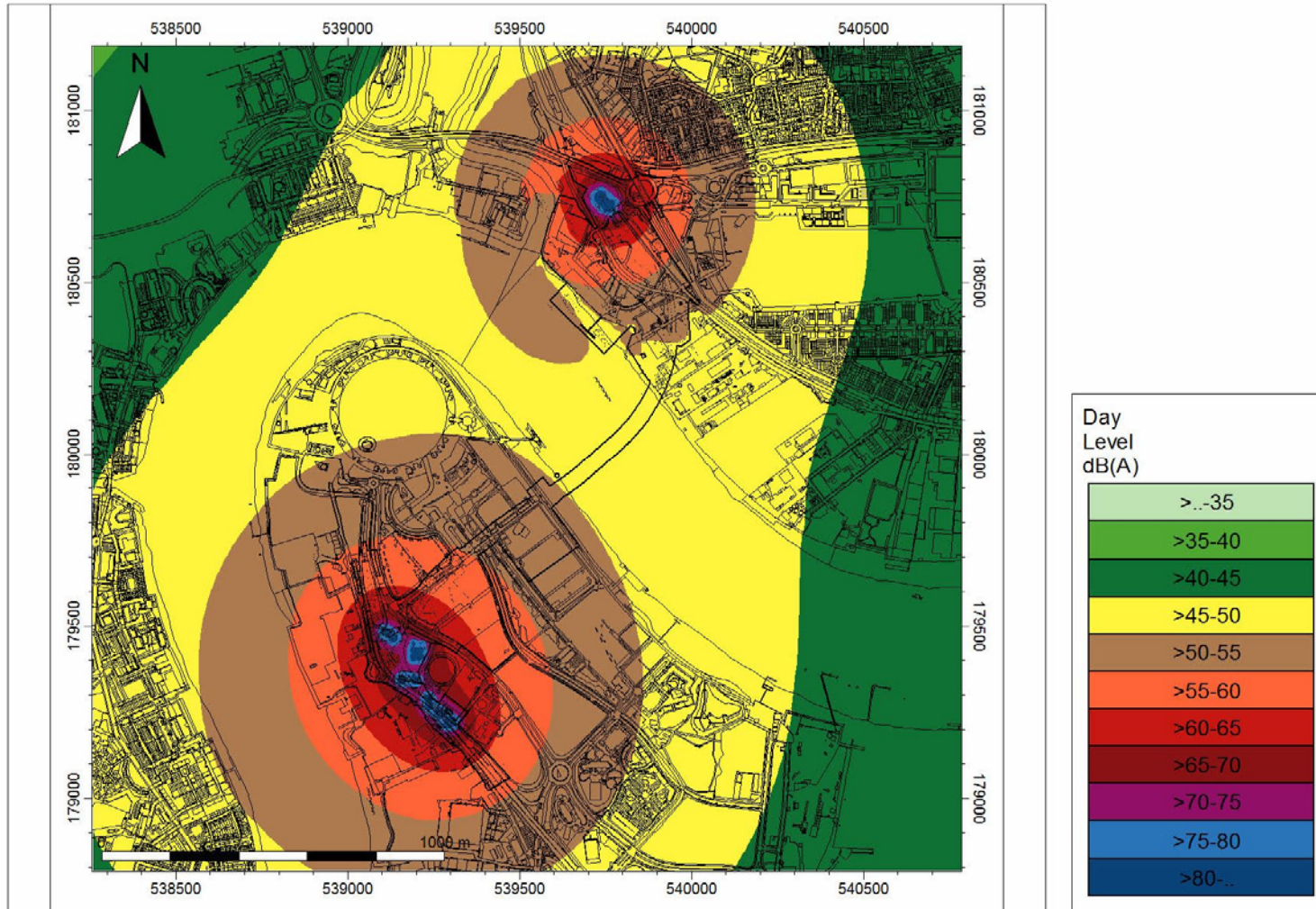


PLATE 21 Construction Noise Assessment Model Output Month 41 to 47

