

Before the Board of Inquiry
Waterview Connection Project

in the matter of: the Resource Management Act 1991

and

in the matter of: a Board of Inquiry appointed under s 149J of the Resource Management Act 1991 to decide notices of requirement and resource consent applications by the NZ Transport Agency for the Waterview Connection Project

Expert Caucusing Joint Report to the Board of Inquiry – Planning

Dated: 16 March 2011

EXPERT CAUCUSING JOINT REPORT TO THE BOARD OF INQUIRY

INTRODUCTION

1. This joint signed report is written in response to the outstanding construction noise and vibration condition issues identified at Board of Inquiry Hearing on 9 March 2011 and the Joint Planning Caucusing Statement dated 8 March 2011 (specifically in respect of the later, paragraphs 36, 44 and 45).
2. A caucusing meeting **was held on 15 March 2011.**
3. Attendees at the meeting were:
 - 3.1. Amelia Linzey (Planning consultant for the NZTA)
 - 3.2. Tania Richmond (Planning consultant for Auckland Council and Auckland Transport)
 - 3.3. Murray Kivell (Planning consultant for the Board of Inquiry and author of the Section 42A report)
 - 3.4. Owen Burn (Planning consultant for the NZTA)
 - 3.5. Mike Foster (Strategic Planning Advisor for the NZTA)
4. Also in attendance, Jenny Vince, Planning consultant for the NZTA.

NOISE AND VIBRATION CONSTRUCTION CONDITIONS

5. The intent of the agreed revisions to the noise and vibration construction conditions is to provide:
 - 5.1. Greater certainty on the process for construction noise management. In particular, the conditions have been revised to reflect the process illustrated and proposed to be included in Appendix D of the Construction Noise and Vibration Noise Management Plan, as set out in the supplementary evidence statement of Ms Wilkening, 28 February 2011, paragraph 29 (**Annexure A**);
 - 5.2. Clarity on the timing and roles of Auckland Council, residents and the NZTA in the assessment of what is 'practicable' and in the certification of the process; and
 - 5.3. Providing linkages between the conditions and the process of the management plan.

Resolved

6. Agreed to amend proposed **Condition CNV.1, CNV.2, CNV.4 and CNV.13** as provided in **Annexure B**, 15 March 2011 (this version of conditions includes amendments agreed at the Planning Caucusing of 8 March 2011).
7. Following planning caucusing the noise experts joined the caucusing session and collectively the attendees confirmed the revisions.

SOCIAL CONDITIONS

Resolved

8. The following amendment was accepted by all:

SO.2:

In addition to Condition SO.1 (b) above, where noisy construction activities (that are projected to exceed the Noise Criteria in the CNVMP) are proposed in close proximity or adjacent to schools / childcare centres, the NZTA shall, when preparing their SSNMP (in accordance with Condition CNV.1) give specific consideration to options to carry out these works outside school hours or during school holidays as a mitigation option.

VEGETATION

Resolved

9. Notwithstanding the unresolved issue of ecological mitigation (addressed by ecological experts), it was agreed by all that the ongoing operational maintenance within designation areas (defined in the advice note of Condition V.8) is sufficient. On this basis, the unresolved issue of paragraph 45 of the Planning Caucusing Report, 8 March 2011, is resolved.

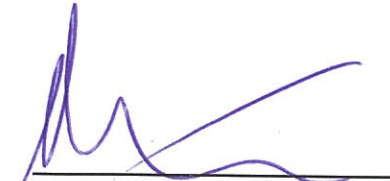
Date: 16 March 2011

Amelia Linzey (Planning consultant for the NZTA)

Tania Richmond (Planning consultant for Auckland Council and Auckland Transport)

Owen Burn (Planning consultant for the NZTA)

Murray Kivell (Planning consultant for BOI and author of the Section 42A Report)

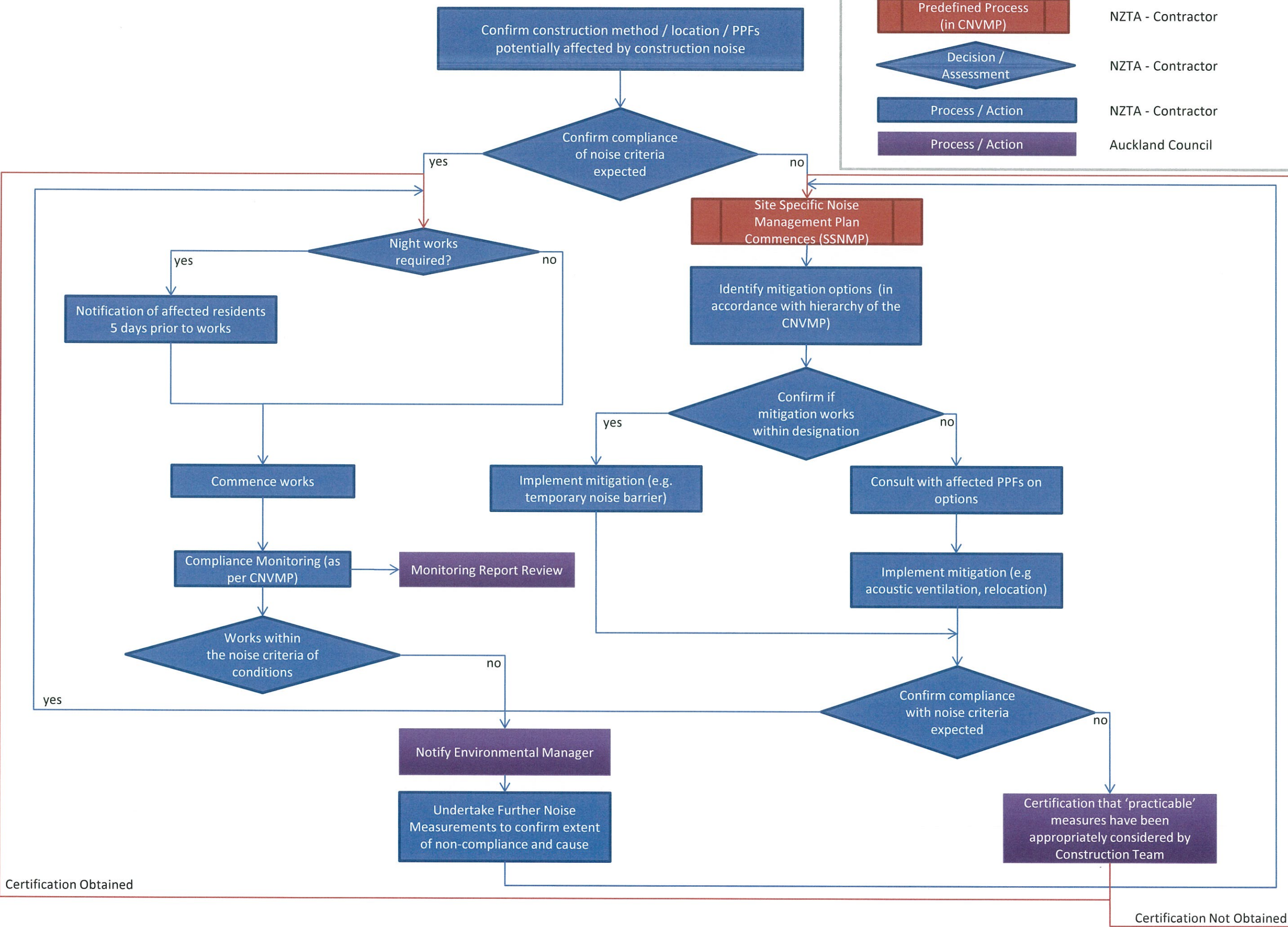


Mike Foster (Strategic Planning Advisor for NZTA)

ATTACHMENT A: PROCESS SCHEMATIC FOR CONSTRUCTION NOISE MITIGATION

Summary Process for Construction Activities and Noise Assessment / Mitigation Response

KEY:	
Flowchart Element	Responsibility
<div>Predefined Process (in CNVMP)</div>	NZTA - Contractor
<div>Decision / Assessment</div>	NZTA - Contractor
<div>Process / Action</div>	NZTA - Contractor
<div>Process / Action</div>	Auckland Council



ATTACHMENT B: AGREED CONDITIONS

Note: Agreed changes made during the Planning Caucusing on the 8th March 2011 are shown as red underlined, agreed changes made during the Planning Caucusing on the 16th March 2011 are shown as green underlined.

Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.1	<p>The NZTA shall finalise and implement through the CEMP, a Construction Noise and Vibration Management Plan (CNVMP) throughout the entire construction period of the Project.</p> <p>The CNVMP shall describe the measures adopted to, as far as practicable, meet:</p> <p>(a) the noise criteria set out in Conditions CNV.2 and 3 below; and</p> <p>(b) the vibration criteria set out in Condition CNV.4 below; <u>or</u></p> <p>(c) <u>where (a) or (b) cannot be met, the process that will be followed to appropriately mitigate noise and vibration effects including methods that may be applied outside the designation.</u></p> <p>The CNVMP shall be provided to the Auckland Council at least 20 working days prior to construction activities being undertaken for review and certification that the CNVMP, as a minimum, addresses the following:</p> <ul style="list-style-type: none"> (i) Construction noise and vibration criteria (Conditions CNV.2, CNV.3, and CNV.4); (ii) Hours of operation, including times and days when noisy and/or vibration inducing construction activities would occur; (iii) Machinery and equipment to be used; (iv) Vibration testing of equipment to confirm safe distances to buildings prior to construction; (v) Preparation of building condition surveys of critical dwellings prior to, during and after completion of construction works; (vi) Roles and responsibilities of personnel on site; (vii) Construction operator training procedures; (viii) Methods for monitoring and reporting on construction noise and vibration; (ix) A hierarchy of mitigation options that will be assessed for the Project noise mitigation, including alternative strategies where full compliance with the relevant noise and/or vibration criteria cannot be achieved; (x) Management schedules containing site specific information; (xi) Measures for liaising with and notifying potentially affected receivers of proposed construction activities and the potential for noise and vibration effects, specifically: <ul style="list-style-type: none"> • PPFs located within 35 metres of underground excavation works along the tunnel alignment shall receive prior notification no
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Proposed Noise and Vibration (CNV) Conditions – Construction

	<p>greater than 7 days (and not less than 24 hours) prior to the commencement of works.</p> <ul style="list-style-type: none"> • Methods for ensuring affected residents are notified of scheduled night-time works (i.e. any works during the hours of 20:00 to 06:30) at least 5 days prior to the commencement of any such work. • Maps showing PPFs to be notified shall be included within the CNVMP. <p>(xii) Methods for receiving and handling complaints about construction noise and vibration;</p> <p>(xiii) Measures for preventing the occurrence of rogue fly rock, including management of charge weights and face loading procedures, stemming of charge holes and profiling of the face to maintain minimum burden (face cover);</p> <p>(xiv) Investigations of the practicability of implementing Building Modification mitigation, as required in accordance with Conditions ON.6 and ON.11 , prior to commencement of construction within 100m of the relevant PPFs; and</p> <p>(xv) <u>The process for developing</u> Site Specific Noise Management Plans (SSNMP), <u>including</u> templates and <u>a</u> certification process for Auckland Council (in accordance with Condition CNVMP.12.13) to confirm <u>the</u> process of SSNMP review of noise mitigation options <u>where, the modelled/predicted levels or subsequent actual levels exceed the criteria in Conditions CNV.2 and/or CNV.4.</u></p>
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Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.2

Except where certified by the Council through the SSNMP (in accordance with Condition CNV.13), construction noise (excluding noise from blasting Monday to Saturday inclusive) shall be measured and assessed in accordance with NZS 6803:1999 “Acoustics – Construction Noise” and shall, ~~as far as practicable,~~ comply with the following criteria:

Note: In Condition CNV.2 (T) means a duration between 15 minutes and 60 minutes, in accordance with NZS6803:1999.

(a) Project Construction Noise Criteria: Residential Receivers

Time of week	Time period	Project Construction Noise Criteria (Long Term Construction) dB		
		Sectors 1 to 7	Sectors 8 and 9	All Sectors
		L _{Aeq} (T)	L _{Aeq} (T)	L _A F _{max}
Monday – Saturday	0630–0730	60	45	75
	0730–1800	70	70	85
	1800–2000	65	65	80
	2000–0630	60	45	75
Sundays and Public Holidays	0630–0730	45	45	75
	0730–1800	60	45	85
	1800–2000	45	45	75
	2000–0630	45	45	75

(b) Project Construction Noise Criteria: Commercial and Industrial Receivers

Time period	Project Construction Noise Criteria (Long Term Construction) dB
	L _{Aeq} (T)
0730–1800	70
1800–0730	75

Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.2 cont.

(c) Project Construction Noise Criteria: Internal Structure-borne Noise from tunnelling for Residential Receivers

Time period	Project Construction Noise Criteria Inside	
0600–2200	35 dB L _{Aeq(T)}	All habitable rooms
2200–0600	30 dB L _{Aeq(T)}	Bedrooms

(d) Project Construction Noise Criteria: Internal noise for Licensed Educational Facilities

Time period (School Days)	Project Construction Noise Criteria Inside	
Teaching Hours	45 dB L _{Aeq(T)} or existing, whichever is the higher	Classrooms, library, offices, teaching, laboratories, manual arts, workshops
Teaching Hours	40 dB L _{Aeq (T)} or existing, whichever is the higher	School hall, lecture theatres

Note: In Condition CNV2(d) "Teaching hours" means:

Primary schools and Kindergartens: 9am to 3pm

Unitec: 8am to 9pm

Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.3

Project Construction Noise Criteria: Airblast (excluding Sundays)

Category	Type of Blasting Operations	Peak Sound Pressure Level (L _{Zpeak} dB)
Human Comfort Limits		
Sensitive Site	Operations lasting longer than 12 months or more than 20 Blasts	115 dB for 95% blasts per year. 120 dB maximum unless agreement is reached with occupier that a higher limit may apply
Sensitive Site	Operations lasting less than 12 months or less than 20 Blasts	120 dB for 95% blasts per year. 125 dB maximum unless agreement is reached with occupier that a higher limit may apply
Occupied non-sensitive sites such as factories and commercial premises	All blasting	125 dB maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications of levels that can be shown to adversely affect the equipment operation
Damage Control Limits		
Structures that include masonry, plaster and plasterboard in their construction and also unoccupied structures of reinforced concrete or steel construction	All Blasting	133 dB unless agreement is reached with owner that a higher limit may apply.
Service structures such as pipelines, powerlines and cables located above ground	All Blasting	Limit to be determined by structural design methodology

Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.4

Except where certified by the Council through the SSNMP (in accordance with Condition CNV.13), construction vibration received by any building shall be measured and assessed in accordance with the German Standard DIN 4150-3:1999 “Structural vibration – Part 3: Effects of vibration on structures”, and shall, ~~as far as practicable,~~ comply with the criteria set out as follows:

Type of structure	Short-term vibration			Long-term vibration	
	PPV at the foundation at a frequency of			PPV at horizontal plane of highest floor	
	1 – 10Hz (mm/s)	1 – 50 Hz (mm/s)	50 – 100 Hz (mm/s)	PPV at horizontal plane of highest floor (mm/s)	
Commercial/Industrial	20	20 – 40	40 – 50	40	10
Residential/School	5	5 – 15	15 – 20	15	5
Historic or sensitive structures	3	3 – 8	8 – 10	8	2.5

CNV.5

Notwithstanding Condition CNV.3 above,

(a) Blasting activities shall be conducted so that 95% of the blasts undertaken (measured over any twenty blasts on the foundation of any building outside the designation boundary) shall produce peak particle velocities not exceeding 5mm/s and 100% of the blasts undertaken shall produce peak particle velocities not exceeding 10mm/s irrespective of the frequency of the blast measured.

(b) Construction activities, which occur within Sectors 1, 6, 8 and 9 which are identified in Technical Report no. G.19 Assessment of Vibration Effects, as being at a ‘High Risk’ of exceeding the DIN 4150-3:1999 criteria (being excavation, piling, compaction and drilling) shall be conducted so that 95% of the activities undertaken (measured over at least 20 representative samples of the relevant activity on any residential building) shall produce peak particle velocities not exceeding the relevant criterion in DIN 4150-3:1999 and 100% of the activities undertaken shall not exceed 10mm/s irrespective of the frequency of the activity measured.

Proposed Noise and Vibration (CNV) Conditions – Construction

CNV.6	<p>Blasting shall be undertaken between 09:00h and 17:00h, Monday to Saturday, except that blasting may be undertaken between 09:00h and 17:00h on Sundays where:</p> <ul style="list-style-type: none"> (a) The blasting is at least 50m inside the Sector 8 tunnel; (b) The blasting produces peak particle velocities at any residential building not exceeding 0.5mm/s; and (c) The Project construction noise criteria set out in Condition CNV.2(a)–(d) for Sundays are complied with.
CNV.7	<p>Where practicable, permanent (traffic) noise barriers, required in any Sector as Detailed Mitigation Options for operational noise following completion of the Project (in accordance with Conditions ON.3 to ON.5) shall be erected prior to noise generating construction works. Where this is not practicable, temporary noise mitigation measures shall be implemented in accordance with the CNVMP.</p>
CNV.8	<p>Pile driving or pile removal shall not be undertaken at night (i.e. during the hours of 20:00 – 06:30).</p>
CNV.9	<p>The concrete batch plants shall be fully enclosed.</p>
CNV.10	<p>If noise and vibration monitoring, as required by Conditions CNV.2 and CNV.4 and the CNVMP, indicates that temporary relocation is required for residents at 1510 Great North Road during construction, then at least 1 months notice shall be given to the leaseholder at 1510 Great North Road to confirm relocation requirements.</p> <p><u>If noise and vibration monitoring of the tunnelling works for the Project (in accordance with CNV.1), indicates that the noise or vibration criteria of Conditions CNV.2(c) or CNV.4 will potentially be exceeded and that temporary relocation will be offered for residents at 1510 Great North Road, then relocation (and temporary transportation) shall be arranged with the leaseholder at 1510 Great North Road for tenants (with at least 1 months notice to the leaseholder prior to relocation). Any accepted offer of relocation is to be in place prior to tunnelling works within 50m of the building at 1510 Great North Road.</u></p>
<u>CNV.11</u>	<p><u>For all other properties, if noise and vibration monitoring of the tunnelling works for the Project (in accordance with CNV.1), indicates that the noise or vibration criteria of Conditions CNV.2(c) or CNV.4 will potentially be exceeded, then the process set out in the CNVMP will be undertaken including Site Specific Noise Management Plans. Where relocation for residents is proposed, notification of such relocation with residents and property owners will be undertaken in accordance with the processes contained in the CNVMP.</u></p>
CNV.12	<p>Any relocation required by CNV.10 shall not take place at least 10 working days prior to or during Unitec Examinations <u>and shall not commence over exam periods.</u></p>
CNV.13	<p><u>The</u> SSNMPs (required by Condition CNV.1(xv)) above, shall be submitted to the</p>

Proposed Noise and Vibration (CNV) Conditions – Construction

	<p>Council Noise Officer and Council Compliance Officer for review and certification at least 5-7 working days prior to the proposed works commencing. <u>A decision</u> Certification or otherwise will be provided by the Council within 35 working days of receipt of the SSNMP. Works will not commence until certification is received from Auckland Council. <u>The Council may, at its discretion, waive the requirement for SSNMPs to be submitted to the Council where an SSNMP is required.</u></p> <p><i><u>Advice note: It is accepted that the criteria of CNV.2 and CNV.4 may not be met at all times, but that the NZTA will take all practical steps to achieve compliance, taking into account the hierarchy of mitigation options outlined in Condition CNV.1 (ix) .</u></i></p>
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