# Draft construction noise and vibration management plan

Transmission Gully Project

26 July 2011

NZTA 345PN WS10 - R292E





# **Record of amendment**

Amendment number	Description of change	Effective date	Updated by
A	Initial draft issued for internal peer review	4/5/2010	MS
В	Updated construction programme incorporated	24/8/2010	SC
С	Updated for consistency with AEE, and inclusion of vibration criteria	27/5/2011	MS
D	References to plans updated	20/7/2011	SC
E	Blasting added	26/7/2011	SC

# **Contents**

1.	Introduction	4
1.1	Contact details	4
2.	Project overview	5
2.1	Construction methodology	5
2.2	Timeframe	6
2.3	Location plan	6
3.	Criteria	7
3.1	Construction sound	7
3.2	Construction vibration	7
3.3	Hours of operation	8
4.	Affected properties	9
4.1	Noise assessment locations	9
4.2	Vibration assessment locations	11
4.3	Historic structure	12
5.	Stakeholder engagement	13
6.	Noise sources	14
7.	Vibration sources	16
8.	Mitigation	17
9.	Schedules	18
10.	Monitoring	19

10.1	Noise	19
10.2	Vibration	19
10.3	Building condition surveys	20
11.	Complaints	21
12.	Documentation	22
12.1	File	22
12.2	Web site	22
12.2 12.3	Web site Reporting	22 22

## 1. Introduction

This is a draft construction noise and vibration management plan (CNVMP) for the Transmission Gully Project. It has been prepared to demonstrate the format and nature of the content that will be in the final construction noise and vibration management plan. At this stage, many of the required details are unknown and therefore this draft has either generic data or spaces in which the details will be inserted.

The final construction noise and vibration management plan will detail noise limits, predicted levels, mitigation measures, monitoring requirements, and communication and complaint procedures, for:

State highway: SH1

Project: Wellington RONS - 5. Transmission Gully

NZTA PROMANN ID 5064

Construction location: Linden to MacKays Crossing, through Transmission Gully; and link roads

Construction start date: December 2015
 Construction finish date: November 2021

Designation number: TBCNZTA CSVue permit number: TBC

The objective of this plan is to provide a framework for construction noise and vibration management to ensure that noise and vibration levels at neighbouring buildings remain within reasonable limits throughout the works.

#### 1.1 Contact details

Role	Name	Organisation	Phone	Email
Client	Peter Ward	NZTA	04 910 8185	peter.ward@nzta.govt.nz
Engineer	Mark Edwards	Opus	04 471 7000	mark.edwards@opus.co.nz
Acoustics advisor	Stephen Chiles	URS	03 374 8566	stephen_chiles@urscorp.com
Contractor	To be appointed			
Contractor's acoustics advisor	To be appointed			
Council – Noise/ Environmental Health	To be confirmed			
Public complaint contact number	To be confirmed			
Web site manager	To be confirmed			

The contractor will be responsible for ensuring that this construction noise and vibration management plan is correctly implemented. He/she will review all documentation relating to construction noise before it is issued.

All site personnel will be required to read and sign the construction noise and vibration induction form appended to this plan and any relevant schedules. If required, specific training will be provided for site personnel.

# 2. Project overview

The Transmission Gully Project is a proposed new 27 kilometre highway (SH1) between Linden and MacKays Crossing. It is one element of the Wellington Northern Corridor (Levin to Wellington) Road of National Significance. The majority of the project will be constructed on greenfield sites, with all earthworks occurring within the designation boundary. At either end and in the middle the new alignment ties in with the existing SH1 and SH58 respectively. There will be 29 bridges and structures built along the alignment.

## 2.1 Construction methodology

In order to complete the project in the stipulated time (before the end 2021), construction has been programmed on the basis of work being undertaken on 3 fronts simultaneously.

Front 1 - State Highway 58 to Cannons Creek - (16830 m - 23600 m)

Front 2 – MacKays Crossing to State Highway 58 - (00000 m – 16830 m)

Front 3 - Cannons Creek to Linden - (23600 m - 27700 m)

The following tables will be filled in to provide an overview of the construction methodology and timeline.

Front 1, Year	Construction activities
Year 1	•
Year 2	•
Year 3	•
Year 4	•
Year 5	•
Year 6	•

Front 2, Year	Construction activities
Year 1	•
Year 2	•
Year 3	•
Year 4	•
Year 5	•
Year 6	•

Front 3, Year	Construction activities
Year 1	•
Year 2	•
Year 3	•
Year 4	•
Year 5	•
Year 6	•

## 2.2 Timeframe

As detailed in the previous section, the total construction duration will be in the order of 6 years with the road being constructed on three fronts simultaneously.

## 2.3 Location plan

Plans will be attached to this CNVMP, based on the Construction Access Plans AC01-21 in the project plan set. The plans show the extent of the works including the locations of bridges and site compounds. The main site compound will be at the SH58 interchange, with other compounds at the Toomey property and at the two tie-ins to the existing SH1. Indicative locations of satellite compounds and stockpile areas are also shown.

## 3. Criteria

#### 3.1 Construction sound

The long-term construction criteria from NZS 6803:1999 are generally appropriate for this project. These will be proposed as the basis for designation conditions. Exceptions will be sought for night works and works in close proximity to dwellings in Linden. At Linden and MacKays Crossing significant night works will be required to minimise disruption of the existing SH1. This section will be updated to reflect the final designation conditions.

In summary, the following limits apply for construction sound at one metre from the façades of the nearest neighbours (other than where exceptions are agreed for night works or works close to dwellings):

Day	Time	L <sub>Aeq(1h)</sub>	L <sub>AFmax</sub>
Weekdays	0630h - 0730h	55 dB	75 dB
	0730h - 1800h	70 dB	85 dB
	1800h - 2000h	65 dB	80 dB
	2000h - 0630h	45 dB	75 dB
Saturday	0630h - 0730h	45 dB	75 dB
	0730h - 1800h	70 dB	85 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB
Sundays and public	0630h - 0730h	45 dB	75 dB
holidays	0730h - 1800h	55 dB	85 dB
	1800h - 2000h	45 dB	75 dB
	2000h - 0630h	45 dB	75 dB

NZS 6803:1999 "Acoustics - Construction noise"

#### 3.2 Construction vibration

As the majority of construction will occur during the daytime, the main construction vibration issue is building damage. For this project criteria based on British Standard BS 5228-2:2009 are proposed as they cover building damage, damage to other objects and human perception. These will be proposed as the basis for designation conditions as follows.

Construction vibration and airblast will be managed to comply with the Category A criteria in the following table as far as practicable. If measured or predicted vibration and airblast levels exceed the Category A criteria then a suitably qualified expert shall be engaged to assess and manage construction vibration and airblast to comply with the Category A criteria as far as practicable. If construction vibration exceeds the Category B criteria then construction activity shall only proceed if approved by the territorial authority and if there is continuous monitoring of vibration levels and effects on those buildings at risk of exceeding the Category B criteria, by suitably qualified experts.

Receiver	Details	Category A	Category B
Occupied dwellings	Night-time 2000h - 0630h	0.3 mm/s PPV	1 mm/s PPV
	Daytime 0630h - 2000h	1 mm/s PPV	5 mm/s PPV
	Blasting – vibration	5 mm/s PPV	10 mm/s PPV
	- airblast	120 dB L <sub>ZPeak</sub>	-
All buildings	Vibration - transient		BS 5228-2*
	(including blasting)	5 mm/s PPV	Table B.2
	Vibration - continuous		BS 5228-2*
			50% of Table B.2 values
	Airblast	-	133 dB L <sub>Zpeak</sub>

<sup>\*</sup>BS 5228-2:2009 "Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration"

## 3.3 Hours of operation

To comply with the above conditions, work at the site will generally only be conducted on Monday to Saturday between 0630h - 2000h, with some further restrictions in the morning and evening shoulder periods (0630h - 0730h and 1800h - 2000h).

Exceptions will be night works associated with the tie-ins at Linden in particular and MacKays Crossing to a lesser extent.

# 4. Potentially affected properties

For the majority of the route there is a significant setback from the earthworks boundary to the adjacent properties. The closest affected properties for each section of road have been identified in the following tables in Sections 4.1 and 4.2.

### 4.1 Noise assessment locations

Construction noise will be audible across a wide area covering numerous houses. The nearest houses will generally be most affected and therefore assessing compliance with noise limits at those 'controlling points' will also ensure compliance at other houses further away. The following locations have been identified as the controlling points for construction noise.

Chainage	Address	Building type/comments	Distance to works
400	Unknown address	Residential	40 m
1100	396 SH1 Paraparaumu-Paekakariki	Residential	160 m
1300	525 SH1 Paraparaumu-Paekakariki	Residential	90 m
1600	394 SH1 Paraparaumu-Paekakariki	Residential	10 m
1700	384 SH1 Paraparaumu-Paekakariki	Residential	50 m
1800	378 SH1 Paraparaumu-Paekakariki	Residential	100 m
2000	347 SH1 Paraparaumu-Paekakariki	Residential	50 m
2000-2500	330 SH1 Paraparaumu-Paekakariki 324 SH1 Paraparaumu-Paekakariki 324 SH1 Paraparaumu-Paekakariki 374 SH1 Paraparaumu-Paekakariki	Residential	70 m
2800	370 SH1 Paraparaumu-Paekakariki	Residential	200 m
3000-11000		Large offsets	500 m minimum 2 km typical
11700	555 Paekakariki Hill Rd	Residential	440 m
18000- 12500	516 Paekakariki Hill Rd 510 Paekakariki Hill Rd 504A Paekakariki Hill Rd 504 Paekakariki Hill Rd	Residential	200 m
12500- 14000	462 Paekakariki Hill Rd 436A Paekakariki Hill Rd 436E Paekakariki Hill Rd 450 Flightys Rd 450A Flightys Rd 448 Flightys Rd 430 Flightys Rd 412 Flightys Rd	Residential	300 m

Chainage	Address	Building type/comments	Distance to works
	390 Flightys Rd 298C Paekakariki Hill Rd		
14000	350 Flightys Rd	Residential	200 m
14200	344A Flightys Rd	Residential	135 m
14500	317 Flightys Rd	Residential	50 m
14900	247A Flightys Rd	Residential	100 m
15200	247B Flightys Rd	Residential	200 m
15300	247 Flightys Rd	Residential	
15700	207 Flightys Rd	Residential	140 m
16100	129F Flightys Rd	Residential	170 m
16200	129E Flightys Rd	Residential	220 m
16200- 16800	129D Flightys Rd 129C Flightys Rd 39 Flightys Rd	Residential	300 m
16900- 17500 (SH58)	53A Paremata Haywards Rd blg2 53B Paremata Haywards Rd 53A Paremata Haywards Rd 33 Paremata Haywards Rd	Residential	50 m
17500- 19300	75f Paremata Haywards Rd 85 Paremata Haywards Rd 6 Young Nicks Lane 44 Bradey Rd 111B Bradey Rd 111A Bradey Rd	Residential	100 m
19500- 24000		Residential	500 m
24200	500 Takapu Rd	Residential	140 m
24600	439 Takapu Rd	Residential	270 m
24600- 25200	1–15,4–20 Carnavon Pl 4–26 Cardiff Cres 116–150 Sievers Gr	Residential	200 m
25300	106 Sievers Gr	Business	40 m
25200-2800	109 Gear Tce (sports club) 16-26 Rose St 2-4 Gillies Pl		200 m

Chainage	Address	Building type/comments	Distance to works
	88 Ernest St 10–12 Ribbonwood Tce 21b Japonica Cres 23 Japonica Cres		
27000- onwards	Various	Linden	5 m
Whitby Link	54 James Cook Dr 57 James Cook Dr 1 Spyglass Ln 55 James Cook Dr 2 Spyglass Ln 53 James Cook Dr	houses at Whitby end only	5m
Waitangirua Link 900m	67 Exploration Way		40m
Waitangirua Link	<ul><li>216-220 Warspite Ave (marae)</li><li>261 Warspite Ave</li><li>1 Commerce Cres (church)</li></ul>	Warspite Ave end	5m
Kenepuru Link	11 Bluff Rd 9 Bluff Rd 7 Bluff Rd 6 Bluff Rd 5 Bluff Rd 4 Bluff Rd 3 Bluff Rd 1 Bluff Rd 2 Bluff Rd 24 Japonica Cres		100m

### 4.2 Vibration assessment locations

The following locations have been identified as the controlling points for construction vibration. Vibration levels only approach the vibration criteria at houses relatively close to the works and therefore, unlike the noise assessment, houses that are further away do not need to be assessed. The section of the alignment in Linden from Chainage 27000 onwards has a number of properties 5 to 20 metres from the alignment, which are potentially affected by construction vibration.

Two specific historic structures are discussed separately in Section 4.3.

Chainage	Address	Building type/comments	Distance to works
400	Unknown address	Residential	40 m
1600	394 SH1 Paraparaumu-Paekakariki	Residential	10 m
1700	384 SH1 Paraparaumu-Paekakariki	Residential	50 m
2000	347 SH1 Paraparaumu-Paekakariki	Residential	50 m
14500	317 Flightys Rd	Residential	50 m
16900- 17500 (SH58)	53A Paremata Haywards Rd blg2 53B Paremata Haywards Rd 53A Paremata Haywards Rd 33 Paremata Haywards Rd	Residential	50 m
25300	106 Sievers Gr	Business	40 m
27000- onwards	Various	Linden	5 m
Whitby Link	54 James Cook Dr 57 James Cook Dr 1 Spyglass Ln 55 James Cook Dr 2 Spyglass Ln 53 James Cook Dr	houses at Whitby end only	5 m
Waitangirua Link	216–220 Warspite Ave (marae) 261 Warspite Ave 1 Commerce Cres (church)	Warspite Ave end	5m

### 4.3 Historic structures

St Josephs Church by State Highway 58 is over 20 metres from the works. Predictions show that for most activities there should be no risk of structural or cosmetic damage from construction vibration at this distance. However, given the historic interest of this building it is recommended that in addition to condition surveys before and after construction, there should be monitoring of vibration levels when works are conducted within 50 metres of the Church.

While the alignment is also over 20 metres from the brick containment vessel in the Te Puka valley, earthworks will be required approximately 10 metres away. Predictions show that cosmetic damage is possible at this distance from compaction. It is recommended that all equipment operating within 20 metres of the brick containment vessel should be subject to individual vibration assessment, and compaction equipment should be selected to minimise vibration. Again, in addition to condition surveys before and after construction, there should be monitoring of vibration levels when works are conducted within 50 metres of the vessel.

# 5. Stakeholder engagement

A key aspect of this construction noise management plan is stakeholder engagement. A site contact for the public for the duration of the works will be appointed. The contractor will communicate with the community on the following construction noise issues:

- There will always be a contact person available on site during works, and their contact details will be prominently displayed at the entrance to the site(s) so that they are clearly visible to the public.
- Prior to the works a newsletter or similar will be distributed to all neighbours within at least 100 metres of the
  works. The newsletter will provide contact details and will detail the overall nature of the works. The same
  information will also be published in an advertisement in a local newspaper.
- Individual notification will be provided and meetings offered to all neighbours within 50 metres of the works. For any neighbours within approximately 20 metres of the works individual consultation will be continued throughout the works in that vicinity.
- Further information will be regularly provided to all neighbours with an update on the progress of the works, and the specific activities (including locations) due to be undertaken next. This may be provided by newsletters or possibly by email. Updates will be provided every two or three months.
- Prior to any particularly noisy processes identified in a construction noise management schedule, the nearest
  affected neighbours will be contacted individually. Neighbours will be informed of the proposed timing of the
  specific works and where practicable any times which are particularly sensitive for neighbours will be avoided.

# 6. Noise sources

The following table lists indicative equipment representative of the more significant types anticipated. The sound level for each item of equipment has generally been taken from library data in British Standard BS 5228-1:2009. The equipment and calculations are to be confirmed by the contractor prior to construction, and during initial site noise monitoring the validity of this data will be confirmed and adjusted where necessary for the major items of equipment.

Equipment	Model	Туре	Estimated	Data reference
			L <sub>Aeq</sub> at 10 m	
Excavator	Contractor to confirm	40 tonne	80 dB	BS 5228
Scraper	Contractor to confirm	30 tonne	80 dB	BS 5228
Haul truck	Contractor to confirm	40 tonne	88 dB	BS 5228
Water truck	Contractor to confirm		76 dB	BS 5228
Generator	Contractor to confirm		59 dB	BS 5228
Fuel tanker	Contractor to confirm		76 dB	BS 5228
Waste truck	Contractor to confirm		78 dB	BS 5228
Batching plant	Contractor to confirm		86 dB	URS estimate
Crushing plant	Contractor to confirm		88 dB	URS estimate

The following table shows the key activities likely to generate significant noise, and shows the approximate duration of the activity and the equipment that is likely to be used.

Task	Activities	Duration of task	Equipment
Mobilisation	Establishment of main compound and satellite office	ТВС	ТВС
Roadworks - Earthworks	3 earthworks crews will be used in parallel to form a front. It has been assumed that all soil will be rippable with a dozer. Short-haul earth movements will be performed with a scraper, and long-haul movements will be using trucks.	TBC	3×excavator 3×scrapers 1×long haul truck
Roadworks – Pavement	Spreading / chipping fill. Rolling and compaction. Paving	ТВС	Dozer Spreading / chipping fill. Roller Paving
Roadworks - finishing	Roadside furniture, line marking, restorations. Vehicle movements	ТВС	
Bridgeworks	Extensive earthworks will be required to reach the base in many instances. Equipment similar to roadworks. Bridgework will involve concrete fabrication at the site. There is no need for 24-hour pours. An 80t pile rig will be used, but there will be no driven piling	TBC	Auger Truck mounted concrete pump Crane / winch Generator
Batching plant at site base	The main site compound is proposed to be located near the interchange with SH58. The exact location is yet to be determined. The concrete batching plant is expected to be a major noise source, as will vehicle movements in general	Majority of project	
Laydown areas	8 laydown areas have been considered along the site. Several vehicles will be operational in the area at once, along with generators etc	TBC	3×excavator 3×scrapers 1×long haul truck Generator Water truck filling Repairing activities (grinder etc)
Vehicle movements		Entire project	Long haul truck passbys (25%)
Nightworks at the SH1 tie-ins		ТВС	Excavator Road roller Asphalt paver
Crushing excavated rock	Loader will take rock from nearby stockpile and load into crusher	ТВС	Articulated loader  Mobile crushing plant

# 7. Vibration sources

The following table shows key activities likely to generate vibration and details of equipment. Where available, measurements/estimates of vibration from that equipment have been included. The validity of this data will be confirmed and adjusted where necessary once site works have commenced.

Activities	Equipment	Equipment details	Vibration data
Vibratory compaction	TBC	TBC	TBC
Bored piles for bridgework	TBC	TBC	TBC
Blasting in the Wainui Saddle area	TBC	TBC	TBC

# 8. Mitigation

Indicative calculations have been conducted for the main items of equipment based on the outline construction methodology and minimum distances to the nearest neighbours. On this basis the following general noise control measures have been identified as likely to be required to maintain compliance with the construction noise limits and conform to good practice:

Equipment/process	General noise control measures
Earthworks	Only use required power and size of equipment
	Fit engine exhausts with silencers
	Operate equipment in a quiet and efficient manner
	Do not leave equipment idling unnecessarily
	Regularly inspect and maintain equipment
Crushing	Locate crusher remote (at least 100 m) from residences and shielded by stockpiles or terrain
Blasting	Blast at regular times each day and inform the community of the blasting programme
	Use multiple charges in a delay sequence
Tie-ins at Linden / MacKays Crossing	Operational noise barriers to be installed at an early stage
	Schedule particularly noisy activities as early as possible in the evening
	Provide respite periods by limiting the number of consecutive nights worked near residences
	Identify any particularly sensitive times for activities such as schools, and avoid nearby works during those times. Works near schools may be best during weekends or school holidays
	Use quiet reversing alarms/methods
	Avoid conflicts with community events
Main compound at SH58	Provide screening of batching plant / locate at least 100 m from residences for daytime operation
Laydown areas	Locate generators shielded from residences
(including main compound)	Use designated routes and access points for deliveries
	Provide a working area for efficient unloading of deliveries
	Avoid delivery trucks waiting around the site
	Combine loads to reduce number of deliveries where possible
Vehicle movements	Minimise engine revs when passing nearby houses
	Minimise usage of Paekakariki Hill Road and Ranui Heights by staff shuttle buses
Staff	Include construction noise and vibration management as part of site induction procedures (refer Section 13)
	Implement an incentive scheme to prevent shouting and swearing
	Communicate using the radio/phone
	Require all staff to read the Construction Noise Management Schedule for each particular task
	Hold regular toolbox/tailgate noise management briefings

## 9. Schedules

For each significant activity/location within 50 metres of neighbours a separate schedule will be prepared. The schedule will identify the potentially affected neighbours and confirm the proposed methodology and equipment to be used.

Predictions of construction noise will be made using the calculator on www.acoustics.nzta.govt.nz. These calculations will be used to identify where specific mitigation measures are required, which will be recorded in the schedule.

Predictions of vibration can be made using the guidance in BS 5228-2.

The schedule will detail any specific monitoring or communication requirements.

The schedule will be read and signed by all site personnel involved in the work, prior to the activity commencing.

# 10. Monitoring

#### 10.1 Noise

Noise monitoring shall be conducted by the staff in accordance with NZS 6801:2008 and NZS 6803:1999, using the NZTA construction monitoring survey sheet and procedures (www.acoustics.nzta.govt.nz). Trained noise monitoring staff will be listed in this section.

Noise monitoring will be conducted using the following equipment. The calibrator will be verified by an accredited laboratory annually and the sound level meter and microphone biannually.

Equipment	Make	Model	Serial	Last verification
Sound level meter				
Software				
Microphone				
Calibrator				
Wind shield				
Tripod				
Other				

The provisional monitoring programme for each type of activity is:

- When the works start to verify the sound levels assumed for each of the major items of equipment, and to assess the effectiveness of noise control measures and implementation of this plan.
- At regular intervals during the works, at least every two weeks, to check ongoing compliance with the construction noise limits.
- During critical phases of construction, such as during the use of heavy earth moving machinery and other noisy activities within 50 metres of neighbours.
- As required by a construction noise management schedule.

Measurements should be conducted at the nearest locations from the list in Section 4.1.

Following each noise survey, the results will be reported on the NZTA survey report template and any issues discovered will be investigated. Results will be recorded on the project web page on www.acoustics.nzta.govt.nz.

#### 10.2 Vibration

Vibration monitoring will be conducted in accordance with ISO 4866:2010. A list of trained vibration monitoring staff will be maintained.

Vibration monitoring will be conducted using the equipment detailed below.

Equipment	Make	Model	Serial	Last verification
Vibration meter				
Accelerometer/geophone				
Other				

Measurements should be conducted at the nearest locations from the list in Sections 4.2 and 4.3.

## 10.3 Building condition surveys

For all locations within 50 metres of a significant vibration source as identified in Section 7, a building condition survey will be conducted prior to the works.

Qualified building survey staff who will conduct building condition surveys should be indentified in this plan.

A report will be prepared for each building surveyed including:

- · A description of the building condition and any existing cosmetic and structural damage,
- · Sketches and photographs showing the location and extent of any existing damage such as cracks, and
- Verification of the report by the surveyor and building owner.

Following the works all building condition surveys will be repeated. Reports will be prepared including:

- · Sketches and photographs of any new damage, and
- · Verification of the report by the surveyor and building owner.

# 11. Complaints

The following procedure shall be followed for all noise complaints:

- 1. All noise and vibration complaints should be immediately directed to the project complaints contact.
- 2. As soon as the complaint is received it will be recorded on the project web page on www.acoustics.nzta.govt.nz.
- 3. An initial response will be made and recorded on the project web page. Depending on the nature of the complaint the initial response could be to immediately cease the activity pending investigation, or to replace an item of equipment. However, in some cases it might not be practicable to provide immediate relief. The complainant and council will be informed of actions taken. Contact details for council are recorded in the Introduction section of this plan.
- 4. Where the initial response does not address the complaint, further investigation, corrective action and follow-up monitoring shall be undertaken as appropriate. The complainant and council will be informed of actions taken.
- 5. All actions will be recorded on the project web page and the complaint will then be closed.

# 12. Documentation

#### 12.1 File

A construction noise and vibration management file will be established. This document will be updated to identify who manages it, where the physical file is kept, and the correct location of all electronic files relating to construction. The construction noise and vibration management file will contain the following sections:

- Section 1 Construction noise and vibration management plans
  - This Construction Noise and Vibration Management Plan and any revisions
  - Construction Noise and Vibration Management Schedules
  - Construction noise induction sheets
- Section 2 Consultation and complaints registers
- Section 3 Noise and vibration monitoring
  - Site survey sheets and associated aerial photographs
  - Site survey summary sheet
  - Survey reports
  - Survey and equipment operating procedures
  - Current and past equipment kit details and calibration summary
  - Copies of calibration certificates
- Section 4 Mitigation register

#### 12.2 Web site

The following information will also be recorded on the project construction noise web page on www.acoustics.nzta.govt.nz:

- This Construction Noise and Vibration Management Plan and any revisions,
- · Construction Noise and Vibration Management Schedules,
- Noise and vibration survey results, and
- Complaints.

The use of the web site for this project will be administered by a nominated person to be listed in Section 1. People granted access to the web site will be listed here.

## 12.3 Reporting

The following information will be provided to the council contact in the stated timeframe. We note that these items and timeframes will be updated to reflect the final designation conditions. Contact details will be provided in the introduction of this plan.

Information	Timeframe
Construction Noise and Vibration Management Plan	At least one week before works commence
Construction Noise and Vibration Management Schedules	At least one week before specific works commence
Noise/vibration survey report	Within one week of monitoring
Noise/vibration complaint initial report	Within twenty-four hours
Noise/vibration complaint closed	Within one week of closing complaint

This information will all be sent by email with files in pdf format.

# 13. Construction noise and vibration induction

Project: Transmission Gully

The contractor will communicate the following during induction processes.

There are several residential and commercial neighbours in close proximity to the works, where noise and vibration limits apply. To ensure limits are achieved, all staff are responsible for good noise and vibration management.

- 1. When arriving at work, please drive slowly on site and keep revs to a minimum. Keep stereos off and do not slam doors.
- 2. No shouting or swearing on site. Either walk over and talk to somebody or use a radio/phone.
- 3. Be careful with tools and equipment. Place them down and do not drop them.
- 4. Do not drag materials on the ground. Place them down when you arrive at the work area.
- 5. Equipment and vehicles should not be left running when not in use.
- 6. When loading trucks try not to drop material from a height. Load softer material at the bottom.
- 7. Noise enclosures should always have all doors/hatches closed when the equipment is in use.
- 8. Stationary equipment such as pumps and generators should be located away from neighbours.
- 9. All equipment is to be well maintained.
- 10. Other than works on the existing State Highways, no noisy works shall be conducted outside the hours of 0730h to 1800h Monday to Saturday (and generally no work at all shall be conducted outside the hours of 0630h to 2000h).
- 11. If you see anything/anyone making unnecessary noise and vibration then stop it/them. If the source cannot be stopped then report it to the site manager.
- 12. It is essential that good relationships are maintained with the local community. Any queries from members of the public should be responded to politely and referred to the site manager. Staff shall assist the public to make contact with this person. Staff shall not enter into debate or argue with members of the public.
- 13. No potentially noisy work is to be conducted until all staff involved in the task have read and signed the Construction Noise and vibration Management Schedule for that task.

Name	Company	Signed	Date