
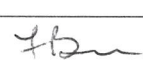



# Construction Noise, Vibration & Out of Hours Management Plan

Wanneroo Road / Joondalup Drive Interchange Project

Project number:	W01024
Document number:	W01024-EN-MPL-0002
Revision date:	25/09/2018
Revision:	0

## Document Approval

Rev.	Date	Prepared by	Reviewed by	Approved by	Remarks
A	10/09/18	C Weatherald	F Bell	P Fazio	
Signature:					
B	10/09/18	C Weatherald	F Bell	P Fazio	
Signature:					
0	25/9/2018	C Weatherald	F Bell	P Fazio	City of Wanneroo and City of Joondalup Approval
Signature:					
Signature:					

# Details of Revision Amendments

## Document Control

The Project Manager is responsible for ensuring that this plan is reviewed and approved. The Project Environment Manager is responsible for updating this plan to reflect changes to contract and other requirements, as required.

## Amendments

Any revisions or amendments must be approved by the Project Manager and/or client before being distributed / implemented.

## Revision Details

Revision	Details
A	MRWA Review
B	MRWA 2 <sup>nd</sup> Review
0	Approved by City of Wanneroo and City of Joondalup

# Contents

- 1. Purpose and Scope .....4
- 2. Project Impacts ..... 6
- 3. Project Compliance Requirements .....7
  - 3.1 Contract Clauses .....7
  - 3.2 Specific Conditions of Local, State and Commonwealth Legislation .....8
- 4. Project Objectives .....9
- 5. Controls Used to Manage Construction Noise and Vibration.....10
- 6. Monitoring .....12
  - 6.1 Noise and Vibration Monitoring .....12
  - 6.2 Plan of Monitoring Locations .....12
- 7. Out of Hours Works .....13
  - 7.1 Justification for works .....13
  - 7.2 Out of Hours Activities.....14
  - 7.3 Determination of assigned levels .....15
  - 7.4 Noise levels of equipment at sensitive receptors .....15
  - 7.5 Equipment Details .....16
  - 7.6 Emergency Works.....19
  - 7.7 Complaints Procedure.....19
- 8. References .....20

## 1. Purpose and Scope

This Plan is a Sub Plan to the Project Environmental Management Plan (W01024-EN-MPL-0001) and affords management of construction noise, vibration and out of hours works on the Wanneroo Road / Joondalup Drive Interchange Project (this Project) for the impacts to the environment and/or community. This Sub Plan has been excised from this Project's, Project Environmental Management Plan for the purpose of review and approval by the Local Government Authorities.

CPB Contractors has been contracted by Main Roads WA to provide Pre-Award Services at Wanneroo Road / Joondalup Road Interchange Project. CPB Contractors has been appointed Principal Contractor in accordance with West Australian Occupational Safety and Health Legislation.

The Contract commences on site 26 August 2018 with a completion date 31 July 2020.

The project is a future-focused solution to support current and projected levels of traffic resulting from residential and industrial development in Perth's northern suburbs. The upgrade will remove bottlenecks and reduce travel times on:

- Wanneroo Road - currently used as an alternate route to the Mitchell Freeway; and
- Joondalup Drive - a significant east-west access corridor between Mitchell Freeway, Joondalup City Centre and the expanding residential communities to the east of Wanneroo Road.

The replacement of a busy signalised intersection with a free-flowing interchange will provide immediate safety benefits and shorter, more predictable journey times for all road users.

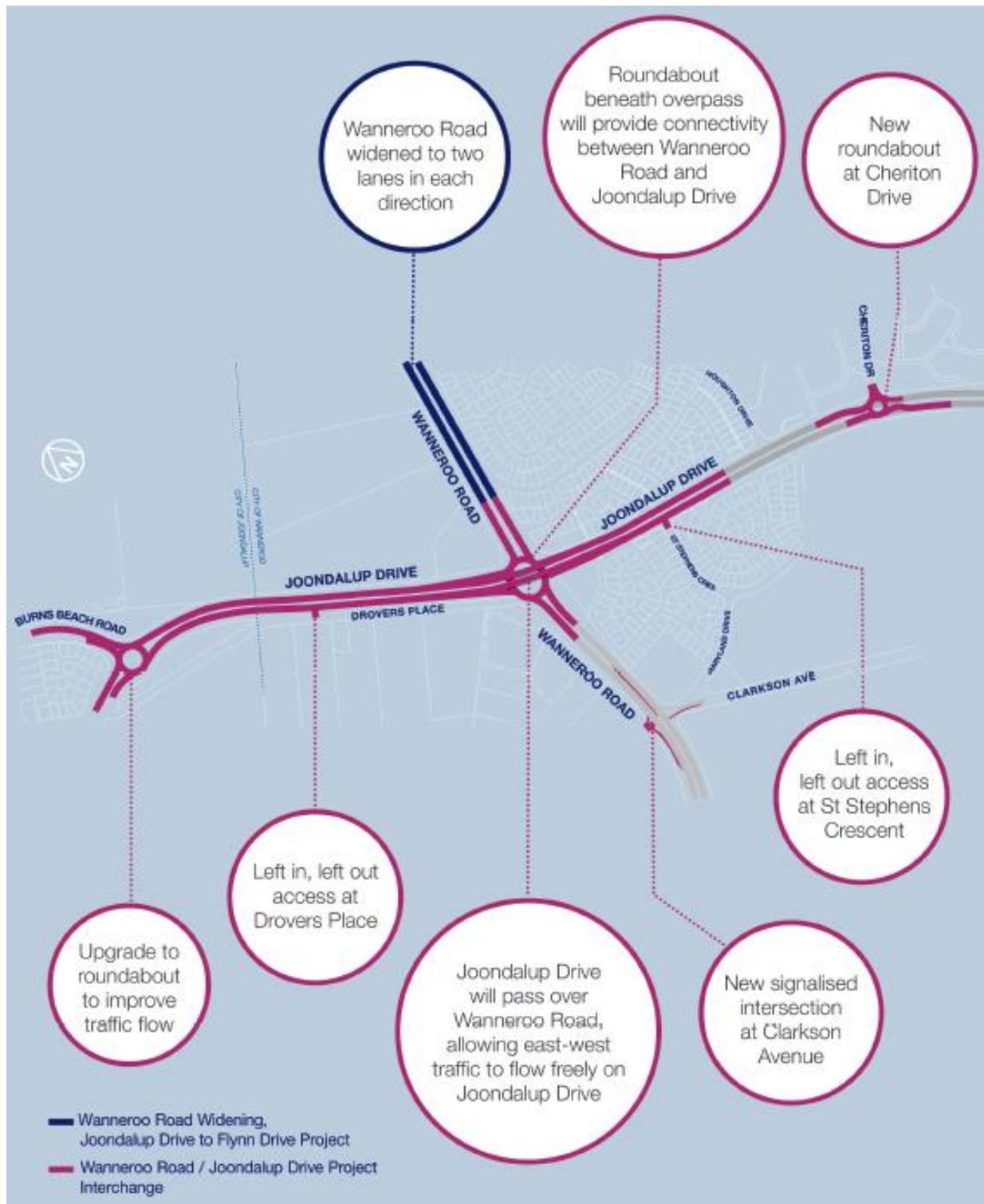
The Project Works include:

- Grade separation of Joondalup Drive going over Wanneroo Road with two lanes in each direction
- New roundabout at current intersection of Joondalup Drive and Cheriton Drive
- New signalised intersection at Wanneroo Road and Clarkson Avenue
- Modifications to intersections with local roads (Drovers Place and St Stephen Crescent)
- A roundabout with two or three lanes
- Retaining walls and noise walls on intersection quadrants
- Road furniture, fencing, drainage, landscaping and street lighting
- Shared paths and bus facilities
- Driveways and accommodation works

A project concept alignment plan is depicted in Figure 1.

Activities conducted on the project that have the potential to create noise and vibration issues are discussed in Section 2.

Figure 1: Project concept alignment.



## 2. Project Impacts

Table 1: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Removal of vegetation and topsoil	Noise emissions	Low to medium noise impact (short duration) for sensitive receivers adjacent to vegetation and topsoil removal works along the entire length of the alignment
Operation and maintenance of plant and machinery Transport of cut and fill Vehicle movements	Noise emissions	Increased noise impacts along the entire length of the alignment
Traffic diversions	Noise emissions	Increased noise impacts to sensitive receivers from diversion of traffic
Installation of retaining walls	Noise emissions	Increased noise impacts to sensitive receivers
Excavation of cut Placement of fill / earthworks	Noise and vibration emissions	Increased noise and vibration impacts to sensitive receivers
Surfacing (asphalt / compaction)	Noise and vibration emissions	Increased noise impacts along the entire length of the alignment
Removal and rehabilitation of existing redundant roads	Noise and vibration emissions	Increased noise impacts to sensitive receivers resulting from the removal and rehabilitation of existing roads

### 3. Project Compliance Requirements

#### 3.1 Contract Clauses

Specific contract clauses and references which set limits and/or govern noise and vibration on the project are discussed in Table 2.

Table 2: Contract Clauses

Contract Document Reference	Contract Clause/Reference	Limit/Requirement
Contract No. C239/16	9.4 (j) Construction Noise	i. The Contractor must comply with the Environmental Protection Act 1986 (WA) and the Environmental Protection (Noise) Regulations 1997 (WA).
		ii. The Contractor must establish, implement and maintain a Construction Noise and Vibration Management Plan to the satisfaction of the LGA.
		iii. The Contractor must: Provide the Main Roads' Representative with the current: A. Construction Noise and Vibration Management Plan which will be placed on the Main Roads' website for public information; B. Minimise the effects of noise on the occupants of adjacent properties by the use of silenced plant or by operating plant as far away as practicable from those properties; and C. Limit working hours on those construction activities which generate significant noise.
Contract No. C239/16	9.4 (k) Vibration	i. The Contractor must establish, implement and maintain a Construction Noise and Vibration Management Plan.
		ii. The Contractor must limit ground vibrations in adjoining properties by ensuring that the ground particle velocities from any necessary operation of vibratory compaction or percussion equipment cause minimum nuisance and do not exceed any such limit that could result in damage to property, and at most 5 mm/s.
		iii. The Contractor must seek to minimise the effects of vibrations in adjoining properties through the use of non-vibrating or lower vibrating construction methodologies or by operating plant as far away as practicable from those properties.
		iv. A baseline vibration measurement must be taken at two locations and at the time nominated by Main Roads' Representative. The measurements must be taken at the commencement of construction activities involving the operation of vibratory compaction or percussion equipment.
		v. The Contractor must continuously monitor vibration levels during construction activities involving the operation of vibratory compaction or percussion equipment, with real time notification when predetermined vibration limits are exceeded, and provide a copy of the measurements to the Main Roads' Representative each month
		vi. If complaints of nuisance levels of vibration from residents occur, the Contractor must advise Main

Contract Document Reference	Contract Clause/Reference	Limit/Requirement
		Roads' Representative and respond to any complaint at the earliest opportunity but no later than 24 hours after the complaint is received. In addition, the Contractor must take vibration measurements at the affected residence. If the vibration limits specified in clause 9.4(k)(ii) are exceeded, the Contractor must modify the construction method to reduce vibration.
	9.5 (q) Other Nuisances	The Contractor must take all reasonable actions necessary to prevent, or otherwise minimise, nuisance to others generated by its construction activities. These nuisances include: <ul style="list-style-type: none"> <li>i. Glare to nearby traffic and adjacent residences where work is permitted to occur outside the normal daylight hours;</li> <li>ii. Exhaust emissions from poorly maintained vehicles and machinery; and</li> <li>iii. Any activity that may directly or indirectly create a nuisance to the public at large.</li> </ul>

### 3.2 Specific Conditions of Local, State and Commonwealth Legislation

Conditions of local, State and Commonwealth legislation that apply specific criteria to the management of noise and vibration on the project are discussed in Table 3.

Table 3: Legislative Conditions

Document Reference	Relevant Condition	Limit/Requirement
<i>Environmental Protection Act 1986</i>	Prevention, control and abatement of environmental harm and conserving, preserving, protecting, enhancing and managing the environment	Approval to undertake an assessed proposal, with conditions.
<i>Environmental Protection (Noise) Regulations 1997</i>	Regulations that set noise limits for industry and methods for assessing and controlling noise	Approval of out of hour's noise management required through LGA. The Regulations do not establish a noise level limit for construction activities, but require best practice measures to be implemented, including: <ul style="list-style-type: none"> <li>• Construction work undertaken in accordance with Section 4 of <i>AS 2436:2010 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites</i></li> <li>• The equipment used was the quietest reasonably available</li> </ul>



## 4. Project Objectives

Based on the requirements defined in specific contract clauses and references, conditions of approvals, the findings of project risk management processes and the potential impacts to the community, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions:

Table 4: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of non-compliant monitoring results	Zero	At all times	Project Manager
Number of nuisance complaints as a result of non-compliant activities	Zero	At all times	Project Manager
Number of incidents of damage caused by vibration	Zero	At all times	Project Manager

## 5. Controls Used to Manage Construction Noise and Vibration

Controls that are adequate to minimise noise and vibration and to reduce risk to the lowest acceptable rating achievable are implemented before any relevant works commence. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The below control measures are applicable to both day and night construction works. There is more importance placed on night activities as these are generally more sensitive for residents. Controls used on this project are described in Table 5.

Table 5: Noise and Vibration Controls

Control	Accountability
<b>Noise</b>	
Undertake construction activities within nominated hours of work to comply with contractual and legal requirements. For out of hours construction work (outside 7:00 am to 7:00 pm Monday to Saturday), the City of Wanneroo and City of Joondalup will receive additional notification prior to commencement as described in Section 7 of this plan.	Project Manager
Construction activities are to be undertaken in accordance with AS 2436-2010 <i>Guide to noise and vibration control on construction, maintenance and demolition sites</i> .	Project Manager
Undertake construction activities within the nominated hours of work to comply with contractual and legal requirements.	Project Manager
Out of hours construction work must be approved by the Project Manager or Construction Manager. All equipment must be serviced and maintained according to manufacturer's recommendations, or more frequently if required to minimise noise generated.	Project Manager
Undertake high noise generating works in accordance with project obligations.	Project Manager
Where intermittent high frequency noise is a high risk, and pending safety requirements, the least noise-intrusive reversing alarms must be used such as broadband (croakers) in lieu of tonal alarms.	Project Manager
In accordance with contractual requirements, early consultation must be conducted with community stakeholders on the likely impacts of activities likely to cause disruption.	Project Manager
Limiting the hours of work where possible in response to community concerns.	Project Manager
Equipment to be used should be the quietest reasonably available.	Project Manager
Noise attenuation of fixed and mobile plant as required in order to achieve as low as reasonably practicable (ALARP) noise levels through fitting more efficient silencers or exhaust silencer and keeping enclosure panels (where fitted) closed.	Project Manager
Construct and maintain temporary noise barriers to shield significant noise generating activities or plant as required at sensitive receptors.	Project Manager
Adjust the Project Traffic Management Plan/Plans to minimise noise impacts as required.	Project Manager
Any fixed plant (generators, lighting towers etc) are to be oriented in such a way so that the noise end faces away from residences.	Project Manager
Where practicable, shipping containers, transportable buildings or the like, are to be located to provide shielding between a noise source and residence.	Project Manager
Mobile equipment should not be left to idle when not in use.	Project Manager
Liaison with adjacent construction projects (MRIA Wanneroo Widening) to ensure that simultaneous operations do not cause additional/unexpected outcomes	Project Manager
<b>Vibration</b>	
Ensure a baseline vibration measurement is undertaken at two locations and at the time nominated by Main Roads' Representative. The measurements must be taken at the	Project Manager

Control	Accountability
commencement of construction activities involving the operation of vibratory compaction or percussion equipment.	
Undertake a dilapidation survey prior to construction activities commencing for all properties within 100 metres of the construction work.	Project Manager
Undertake construction activities within nominated hours of work to comply with contractual and legal requirements. For out of hours construction work (outside 7:00 am to 7:00 pm Monday to Saturday), the City of Wanneroo and City of Joondalup will receive additional notification prior to commencement as described in Section 7 of this plan.	Project Manager
Construction activities are to be undertaken in accordance with AS 2436-2010 <i>Guide to noise and vibration control on construction, maintenance and demolition sites</i> .	Project Manager
Work practices predicted to generate non-compliant vibration must be amended prior to commencing works to the extent required to comply with applicable limits.	Project Manager
All equipment is serviced and maintained according to, as a minimum, the original equipment manufacturers (OEM) recommendations, or more frequently if required to minimise vibration generated. Where the OEM requirements are not available then industry best practice maintenance is applied.	Project Manager
<p>Ensure that ground particle velocities from any necessary operation of vibratory compaction or percussion equipment cause minimum nuisance and do not exceed any such limit that could result in damage to property, and at most 5 mm/s.</p> <p>Baseline measurements will be taken and initially, traditional vibratory rollers will be used. Should the use of typical equipment cause the max permissible velocities to be exceeded then we will seek to minimise the effects of vibrations in adjoining properties through the use of non-vibrating or lower vibrating construction methodologies or by operating plant as far away as practicable from those properties</p>	Project Manager
Advise Main Roads' Representative and respond to any residence complaint no later than 24 hours after the complaint is received and take vibration measurements at the affected residence where deemed necessary.	Project Manager
If project specified vibration limits are exceeded modify the construction method to reduce vibration.	Project Manager
Liaison with adjacent construction projects (MRIA Wanneroo Widening) to ensure that simultaneous operations do not cause additional/unexpected outcomes	Project Manager

## 6. Monitoring

Noise and vibration monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in Synergy.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Project Manager to ensure all monitoring is performed according to these requirements.

### 6.1 Noise and Vibration Monitoring

Table 6 provides the construction noise and vibration monitoring to be undertaken on the project.

Table 6: Noise & Vibration Monitoring

Location	Parameter	Methodology	Frequency
<b>Noise</b>			
Entire site	Condition of machinery and vehicles during pre-starts	In accordance with plant maintenance procedures / manuals	Daily for plant Weekly for vehicles
Sensitive receptors / dependent on complaints	Noise levels	In response to / dependent on complaints	As required / opportunistically
Entire Site	Number of noise complaints received	Review the number of noise complaints received as per the complaints register	Weekly and monthly
<b>Vibration</b>			
Two properties nearest to vibratory works	Vibration levels not to exceed any such limit that could cause damage to property or exceed prescribed limits	Vibration meter	Baseline vibration measurement at the commencement of construction activities involving the operation of vibratory compaction or percussion equipment.
Affected residences	Take vibration measurements at the affected residences in the event of complaints.	Vibration meter	Following specific complaints
Construction area	Condition of machinery and vehicles during pre-starts	In accordance with plant maintenance procedures / manuals	Daily for plant Weekly for vehicles
Dependent on impact area location	Vibration impacts – as required to monitor compliance	Vibration meter	Following specific complaints

### 6.2 Plan of Monitoring Locations

Noise and vibration monitoring locations will be in accordance with the Contract and agreement with Main Roads' Representative.

## 7. Out of Hours Works

This plan is in support of CPB Contractor's application for approval to undertake out of hour's construction works intermittently across the duration of the project. Due to the size and complexity of the project, including changes to the scope of work, exact dates for out of hour's works are not presently prescribed. Approval of this plan by the City of Wanneroo and City of Joondalup meets the Projects notification requirements to the City of Wanneroo and City of Joondalup as prescribed in the Regulations. In addition, the Project will notify the City of Wanneroo and City of Joondalup in advance of any out of hours works in accordance with the Contract.

Where out of hours activities occur, noisier activities will be undertaken where practicable before 10.00 pm, by way of scheduling different activities for different times in the same location or by undertaking the same activities in different areas. Where possible, those activities less sensitive to noise and vibration will be undertaken during the 10.00 pm to 7.00 am period.

Noise sensitive receptors (such as local residents) that may be affected by excessive construction noise or vibration will be notified a minimum of 24 hours in advance of the intended work program. A copy of the notification will also be provided to the City of Wanneroo and City of Joondalup. The notification template is included in Appendix A.

Project information, including traffic updates and out of hours works notifications can be accessed via the dedicated project page on the Main Roads WA website - [Wanneroo Road and Joondalup Drive Interchange](#).

Publications such as the project newsletter will be produced periodically and circulated to promote key project milestones or activities. These will be posted onto the website and distributed via electronic broadcast (to registered parties).

### 7.1 Justification for works

The Project intends to carry out the majority of construction works during normal daytime construction hours of 7.00 am to 7.00 pm, Monday to Saturday (excluding Sundays and public holidays).

Constraints to completing all works within normal construction hours, such as safety of workers and the public, traffic volumes and spatial limitations, require some construction works to be completed outside of these daytime hours.

For example, wherever work is within close distance of a trafficked lane, that lane must be closed to enable construction work to be carried out in a safe environment. Daytime traffic volumes on both Wanneroo Road and Joondalup Drive are high. Lane closures will only be permitted by Main Roads WA and the City of Wanneroo and City of Joondalup for limited periods during normal working hours and, in any case may still result in significant disruption to the road network.

Situations where out of hours work may be required include enabling works along the existing alignment (service location and relocation), tie-in of temporary diversions, lane closures for installation of temporary hard traffic barrier systems and reconstructing intersections where traffic needs to be progressively shifted (under approved traffic management plans) to follow construction phasing and providing and maintaining access to properties.

As road construction works are typically scattered throughout the project and progress along the alignment, construction noise and vibration impacts also move from one location to the next, such that the same residences are not affected for the entire duration of scheduled works.

## 7.2 Out of Hours Activities

Table 7 provides a description of potential out of hours construction activities.

Table 7: Out of Hours Activities, Hazards and Risks

Project Activity	Typical Equipment	Environmental Hazard	Environmental Risk
Operation and maintenance of plant and machinery Transport of cut and fill Vehicle movements	Front end loader Skid steer Excavator Grader Water truck Tipper truck	Noise emissions	Increased noise impacts along the length of the road alignment
Traffic management, Traffic diversions, Temporary traffic barrier installation	Truck mounted attenuator 4WD light vehicle Semi-trailer truck Franna crane Hand tools Rotary hammer drill	Noise emissions	Increased noise impacts to sensitive receivers from diversion of traffic
Surfacing (asphalt / compaction) Concreting	Asphalt paver Pavement profiler Concrete agitator truck Concrete pump truck Concrete vibrator	Noise and vibration emissions	Increased noise and vibration impacts along the length of the road alignment
Removal and rehabilitation of existing redundant roads at tie-in areas	Front end loader Skid steer Excavator Grader Water truck Tipper truck	Noise and vibration emissions	Increased noise and vibration impacts to sensitive receivers
Service location	Vacuum excavator	Noise emissions	Increased noise impacts to sensitive receivers
Ground integrity testing	Cone Penetration Testing truck	Noise emissions	Increased noise impacts to sensitive receivers
Fauna trapping and inspections	4WD Light Vehicle	Noise emissions	No increase to baseline noise levels
Lighting	Light tower	Noise emissions	No increase to baseline noise levels Increase in fugitive light

### 7.3 Determination of assigned levels

The indicative assigned noise levels, as prescribed by the Regulations, for noise sensitive locations are provided in Table 8. These are based on a nominal influencing factor of + 6 dB(A).

Table 8 Assigned noise levels for noise sensitive receptors, dB(A)

Time of day	Assigned level		
	L <sub>A</sub> 10	L <sub>A</sub> 1	L <sub>A</sub> Max
7.00 am to 7.00 pm Monday to Saturday (Day)	51	61	71
9.00 am to 6.00 pm Sunday and public holidays (Sunday)	46	56	71
6.00 pm to 10.00 pm all days (Evenings)	46	56	61
10.00 pm on any day to 7.00 am Monday to Saturday and 9.00 am Sunday and public holidays (Night)	41	51	61

### 7.4 Noise levels of equipment at sensitive receptors

Due to the varying nature of construction works, associated noise generated during construction and location of noise sensitive receptors across the project area, calculating the predicted noise level at each sensitive receptor is not practical.

In order to assess likely noise levels received, the distance from source at which the nominated assigned level is met has been calculated for each of the major items of equipment likely to be used during night works – refer Table 10. This distance has been calculated on the basis of using the 'soft ground' formula within AS 2436-2010.

For each of the major items of equipment that may be used during works, the distance at which a noise level of 41 dB(A) is predicted is provided in Table 10. Typical types and models of equipment are listed, although final machine choice may vary due to availability.

In order to minimise noise impacts from construction equipment, operation of such equipment will be minimised out of hours, with as much use as possible scheduled during normal construction hours. Where the equipment must be used out of hours, where practicable, this will be scheduled to occur prior to 10pm. Use of noisy equipment will be limited as far as practicable between 10.00 pm and 7.00 am Monday to Saturday and between 10.00 pm and 9.00 am on Sunday and public holidays.

## 7.5 Equipment Details

Representative sound power levels of major items of equipment that may be used during works for typical road construction activities are set out in Table 10. Noise levels are derived from manufacturer's guidelines and Appendix A, Table A1 of AS 2436-2010.

Equipment listed in Table 10 has been categorized and colour coded (column 4) based on the blow midpoint sound power levels:

- Quieter Equipment (Green) – Sound power level of 107dBA or less, requiring a separation distance of 250 metres.
- Standard Equipment (Orange) – Sound power level of 108dBA to 114dBA, requiring a separation distance of 500 metres.
- Noisy Equipment (Red) – Sound power of 115 dBA or greater, requiring a separation distance of more than 500 metres.

Table 10: Equipment sound power level

Activity	Equipment	Sound power level (mid-point) (dBA)	Distance (m) to $L_{A10} = 41$ dBA
Air tools	Compressor	101	229
	Hand scabbler	98	174
Clearing vegetation	Chain saw (Stihl MS200T, Stihl MS660)	109	479
	Chipper	105	331
	Stump grinder	105	331
Concreting	Concrete agitator truck (6 wheel, 8 wheel)	109	479
	Concrete pump truck (Putzmeister line pump (26 m, 32 m))	108	437
	Concrete mixer	105	331
	Concrete vibrator	103	275
Earthworks / excavation	30 tonne excavator (Komatsu PC300)	111	575
	Grader (Cat 140M)	110	525
	20 tonne excavator (Komatsu PC200)	109	479
	Dozer (Cat D6)	109	479
	Front end loader (Cat 950K)	109	479
	Grader (Cat 120M)	108	437
	14 tonne excavator (Komatsu PC138)	107	398
	Water truck (JCB or similar)	107	398



Activity	Equipment	Sound power level (mid-point) (dBA)	Distance (m) to L <sub>A10</sub> = 41 dBA
	Front end loader (Cat 930H)	105	331
	Backhoe (Case 580T)	104	302
	Skid steer loader/pozi track (Bobcat)	103	275
	7 tonne mini excavator	97	158
	1.5 tonne mini excavator	95	132
Geotechnical investigations and drilling	CPT	97	158
	Robin pump (grouting)	90	83
	Drill rig (truck mounted)	85	52
	Drill rig (directional)	84	48
Generators	70 kVA generator	85	52
	30 kVA generator	83	44
	5 kVA generator	80	33
	2 kVA generator (petrol)	75	21
	20 kVA generator	74	19
Lifting	50 tonne all terrain crane	110	525
	25 tonne Franna crane (Terex Mac 25)	110	525
	20 tonne Franna crane (Terex AT 20)	107	398
	Cherry picker	105	331
	3 tonne telehandler	95	132
	Elevated work platform	95	132
Lighting	Light tower	75	21
Line marking	Line marking truck	107	398
Material delivery / removal	Semi-trailer (articulated truck)	107	398
	Truck (tipper or flatbed)	107	398
	Hiab	107	398
	Truck (8 wheel and trailer)	107	398
	Water blaster (3000 psi)	107	398

Activity	Equipment	Sound power level (mid-point) (dBA)	Distance (m) to $L_{A10} = 41$ dBA
Other tools	Welder	105	331
	Hand tools (electric) (grinders)	102	251
	Rotary hammer drill (Ramset, Bosch, Hilti)	75	21
Pavement works	Pavement profiler (excavation)	111	575
	Asphalt paver (laying)	108	437
Saw cutting (concrete or asphalt)	Concrete / asphalt saw (Husqvarna K1250)	117	1000
Service location	Concrete corer	96	145
	Vacuum excavator	96	145
	Vacuum excavator (quietest available)	86	58
Spread / backfill / compaction	Roller (vibrating or oscillating) (Hamm 3412VIO)	108	437
	Plate compactor (Wacker DPU 6055)	108	437
	Rammer tamper (jumping jack) (Wacker BS50-2)	108	437
Traffic management	Truck mounted attenuator	107	398
Vehicles	4WD light vehicle	100	209

## 7.6 Emergency Works

Under this plan, the Wanneroo Road / Joondalup Drive Interchange Project is able to conduct emergency works required for the project, without any further approval and without providing notifications to residences potentially effected by such works. Where practicable the project will advise the Main Roads WA Customer Information Centre (CIC).

Emergency works refer to works such as, but not limited to:

- Works required to reinstate security to the site, to prevent unauthorized access of the public to the project work area
- Works related to any repairs or reinstatement of project works
- Works required in the interests of safety to the public

## 7.7 Complaints Procedure

The Main Roads WA Customer Information Centre (CIC) is manned by trained customer service staff 24 hours a day. The CIC team are provided with regular updates regarding the project works including notifications of out of hour's works.

Complaints and enquiries received by the City of Wanneroo and/or City of Joondalup must be directed to the Main Roads WA Customer Information Centre (CIC).

If the CIC is unable to adequately respond to the enquiry, the CIC customer service representative will take the residents details and then contact the nominated project team member. The project team member will provide further information to resolve the enquiry. Pending the outcome, either the CIC customer service representative or the project Community and Stakeholder Engagement representative will contact the resident with further information.

Complaints are to be addressed within 24 hours of receipt.

## 8. References

- Environmental Protection (Noise) Regulations 1997
- Australian Standard 2436 – 2010: Guide to Noise Control on Construction, Maintenance and Demolition Sites

## OUT OF HOURS WORK NOTIFICATION

### Wanneroo Joondalup Interchange Project

<Insert LGA Name> - Notice of Planned Works

**Attention:** <Insert LGA Environmental Health Officer's name>

**From:** <Insert name>

**Date:** <Insert date>

**Subject:** <Insert subject of out of hours work notification>

### Details

CPB Contractors Pty Ltd (CPB) wish to notify the <insert LGA> that additional hours (<insert out of hours, e.g. nightshift – 7 pm to 7 am>) are required to be worked for <insert activity and location> for <insert time period and dates>.

<insert why works are required>. <insert why works cannot occur during normal working hours>.

Equipment required for the task includes:

- <insert list of equipment, including sound power levels>

<Insert detailed description of proposed works, including diagrams>

Given the location of the proposed work, the adjusted assigned noise levels for these activities are:

- <insert appropriate noise levels from Table 10 in the Construction Noise, Vibration and Out of Hours Management Plan>

Noise and vibration will be managed for this work as per the attached Construction Noise, Vibration and Out of Hours Management Plan <attach plan>. Additional controls for this work are:

- <insert any additional controls required>

The following noise sensitive premises have been identified as potentially being impacted:

- <insert noise sensitive premises>

These premises will be notified of the proposed works 24 hours prior to commencement. This notification will include the following contact details for complaints:

- Phone No. – xxx
- Email – [xxx@cpbcon.com.au](mailto:xxx@cpbcon.com.au)