

## Out of Hours Work Protocol

### Document and Revision History

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1	14/09/2021	Updated following AA consultation	Rachael Labruyere	Krissy Vajda
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### Review and Endorsement

Review date	Details	Reviewed by

## Glossary/Abbreviations

Abbreviation	Details
AA	Acoustic Advisor
CNVIS	Construction Noise and Vibration Impact Statement
CNVMP	Construction Noise and Vibration Management Plan
CoA	Conditions of Approval
dB(A)	A measure of A-weighted sound levels
DPIE	Department of Planning, Industry and Environment
EPA	Environmental Protection Authority (NSW)
ER	Environmental Representative
ICNG	Interim Construction Noise guidelines
NCA	Noise Catchment Area
NML	Noise Management Level as defined by the NSW EPA and in compliance with the ICNG. NMLs may be referred to as noise objectives in this document
OOHW	Out of Hours Work (work outside the standard hours of construction stipulated in the planning approval conditions)
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Secretary	The Secretary of the New South Wales Department of Planning, Industry and Environment
Sensitive receiver	A sensitive receiver may refer to persons, facilities, structures or organisms that can be impacted by noise and/or vibration such as residents, students, specialist medical equipment, heritage structures and marine mammals etc.
SSI	State Significant Infrastructure

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## 1 Introduction

This document outlines the process for preparing, considering, assessing, managing and approving Out of Hours Works on the Botany Rail Duplication Project (the Project) for works to be undertaken under SSI-9714 approval.

Out Of Hours (OOH) work that is subject to an EPL does not require OOH approval as detailed in this protocol. Works carried out under this protocol will be coordinated with any works subject to an EPL.

### 1.2 Purpose

This document has been developed to comply with various SSI Conditions of Approval (CoAs). Table 1 indicates where these requirements have been addressed.

**Table 1: Out of Hours Work SSI CoAs**

Condition Number	Condition	Protocol Reference
E16	<p>Notwithstanding Conditions E14, E15 and E19 work may be undertaken outside the hours specified in the following circumstances:</p> <ul style="list-style-type: none"> <li>(a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or</li> <li>(b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or</li> <li>(c) an approval has been obtained for a controlled activity under the Airports Act 1996; or</li> <li>(d) where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or</li> <li><b>(e) work approved under an Out-of-Hours Work Protocol for work not subject to an EPL as required by Condition E29; or</b></li> <li>(f) construction that causes LAeq(15 minute) noise levels:               <ul style="list-style-type: none"> <li>(i) no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and</li> <li>(ii) no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and</li> <li>(iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and</li> <li>(iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or</li> </ul> </li> <li>(g) negotiated agreements with directly affected residents. Note: Section 5.24(1)(e) of the EP&amp;A Act requires that an EPL be substantially consistent with this approval.</li> </ul>	This Protocol
E17	<p>On becoming aware of the need for emergency works in accordance with Condition E16, the Proponent must notify the AA, ER and the EPA (if an EPL applies) of the need for that work. The Proponent must use best endeavours to notify all noise and/or vibration affected occupants of sensitive land uses of the likely impact and duration of those works.</p>	Section 5.6

E18	<p>Except as permitted by an EPL, out-of-hours work that may be regulated through the Out of Hours Work Protocol as per Condition E28 includes, but is not limited to:</p> <p>(a) carrying out work that, during standard hours, would result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "Risk Management"; or</p> <p>(b) where the relevant road authority has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to road network performance and a road occupancy licence will not be issued; or</p> <p>(c) where the relevant utility service operator has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to the operation and integrity of the utility network; or</p> <p>(d) where an approval is required for a controlled activity in accordance with the Airports Act 1996; or</p> <p>(e) work undertaken in a rail possession for operational or safety reasons. Note: Other out-of-hours works can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for works not subject to an EPL.</p>	Section 4.2
E19	<p>Except as permitted by an EPL or approved through the Out of Hours Work Protocol in Condition E29, highly noise intensive work must only be undertaken:</p> <p>(a) between the hours of 8:00 am to 6:00 pm Monday to Friday;</p> <p>(b) between the hours of 8:00 am to 1:00 pm Saturday; and</p> <p>(c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour between each block where the work is likely to impact the same noise sensitive receivers.</p> <p>For the purposes of this condition, 'continuously' includes any period during which there is less than one (1) hour between ceasing and recommencing any of the work.</p> <p>Note: This condition does not prevent a negotiated agreement being reached with affected sensitive receivers as per Condition E16.</p>	Section 4.1
E26	<p>The Proponent must provide respite* for sensitive land uses where work is undertaken outside hours specified in Condition E14 and E15 and exceeds the NML by 25 dB(A) or are greater than 75 dB(A) (LAeq(15 min)), whichever is the lesser at the façade of the building of a residential receiver.</p> <p>(The noise level must be reduced by 5dB where the noise contains annoying characteristics and increased by 10dB if the property has been treated or offered at-property noise treatment) Note * respite can be any combination of days or hours where out of hours work would not be more than 5dB(A) above the rating background level at any residence</p>	Section 5.5 and CNVMP
E27	<p>In order to undertake work outside hours specified in Condition E14 and E15, the Proponent must identify appropriate respite* required by Condition E26, and/or additional mitigation measures required by Condition E28, for out-of-hours work in consultation with the community at each affected location on at least a 3 monthly basis.</p> <p>This consultation must include (but not be limited to) providing the community with a three-monthly forward schedule of likely out of</p>	Section 5.5 and CNVMP

	<p>hours works. The schedule must include: (a) an indicative schedule of likely out-of-hours work for a period no less than three (3) months; (b) a description of the potential work, location and duration; (c) the noise characteristics and likely noise levels of the work; and (d) likely mitigation and management measures to be implemented and/or offered. The outcomes of the community consultation (including any agreed alternative arrangements), the identified respite periods and the scheduling of the likely out-of-hour works must be provided to the AA, ER and EPA. Note * respite periods can be any combination of days or hours where out of hours works would not be more than 5dB(A) above the rating background level at any residence.</p>	
E28	<p>Additional mitigation measures such as temporary alternative accommodation or other agreed mitigation measure, must be offered/ made available to residents affected by out-of-hours work (including where utility work is being undertaken for the project) where the construction noise levels, between:</p> <p>(a) 10:00 pm and 7:00 am, Monday to Friday;  (b) 10:00 pm Saturday to 8:00 am Sunday; and  (c) 6:00 pm Sunday and public holidays to 7:00 am the following day unless that day is Saturday then to 8:00am, are predicted to exceed the NML by 25 dB(A) or are greater than 75 dBA (LAeq(15 min)), whichever is the lesser and the impact is planned to occur for more than two (2) nights over a seven (7) day rolling period.</p> <p>The NML must be reduced by 5 dB where the noise contains annoying characteristics and increased by 10 dB if the property has been treated or offered at-property noise treatment. The noise levels and duration requirements identified in this condition may be changed through an EPL applying to the CSSI.</p>	Section 5.5 and CNVMP
E29	<p>An Out-of-Hours Work Protocol must be prepared to describe the process for the consideration, management and approval of work which is outside the hours defined in Conditions E14 and E15 and E19 and that is not subject to an EPL.</p> <p>The Protocol must be approved by the Planning Secretary before commencement of out of hours work. The Protocol must be prepared in consultation with the AA. The Protocol must:</p> <p>(a) provide a process for the consideration of out-of-hours work against the relevant noise management level and vibration criteria (including ground-borne noise), including the determination of low and high-risk activities;  (b) provide a process for the identification of mitigation measures for residual impacts, including respite periods in consultation with the community at each affected location, consistent with the requirements of Condition E26 and E27, and additional mitigation measures in accordance with Condition E28;  (c) identify procedures to facilitate the coordination of out-of-hours works approved by an EPL to ensure appropriate respite is provided;  (d) identify an approval process that considers the risk of activities, proposed mitigation, management and coordination, including where:</p> <p style="padding-left: 40px;">(i) low risk activities can be approved by the ER in consultation with the AA, and</p>	<p>This Protocol</p> <p>a) Section 5  b) Section 5.5  c) Section 5.1  d) Section 5.2  e) Section 5.4, Section 5.5 and Communication Strategy</p>

	<p>(ii) high risk activities can be approved by the ER in consultation with the AA, and the approval provided to the Planning Secretary for information before work commences; and (e) identify arrangements to notify EPA and community for approved out of hours works, which maybe detailed in the Communication Strategy</p>	
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## 2. Protocol Consultation, Endorsement and Approval

The Out of Hours Work Protocol needs to meet the following consultation, endorsement and approval requirements in accordance with the Project Conditions of Approval (CoA).

### 2.0 Consultation

The OOHW protocol was prepared in consultation with the Acoustic Advisor (AA). This protocol has been provided to the EPA for consultation and comment.

The response to consultation is provided in Appendix B.

### 2.1 Review

The OOHW Protocol will be reviewed by the Independent Environmental Representative (ER) and AA. Any comments received will be addressed on the next submission of the protocol.

### 2.2 Approval

Approval of this Protocol is to be attached to the document version approved by the Secretary. The Protocol must be approved by the Planning Secretary before commencement of out of hours works (under the Protocol).

### 2.3 Protocol amendments

Any minor amendments to the Protocol may be approved by the ER. What constitutes a “minor” amendment is subject to the discretion of the ER, but includes changes that:

- Are editorial in nature
- Do not increase the type or magnitude of impact on the environment or community when considered individually or cumulatively
- Do not compromise the ability of the Project to meet approval or legislative requirements.

Any major amendments to the Protocol must be submitted to the Secretary for approval.

### 2.4 Justification

Justification for OOHW not subject to an EPL that are regulated through this Protocol are summarised in Table 2.

**Table 2: Justification for OOHW regulated through this Protocol**

Category	OOHW Justification
A. Safety or emergency work (CoA E16)	(a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons, (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm (c) an approval has been obtained for a controlled activity under the Airports Act 1996



Category	OOHW Justification
B. Low impact work (CoA E16(f))	<p>Construction that causes:</p> <ul style="list-style-type: none"> <li>i. <math>L_{Aeq(15\text{ minute})}</math> noise levels no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and</li> <li>ii. <math>L_{Aeq(15\text{ minute})}</math> noise levels no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and</li> <li>iii. Continuous or impulsive vibration values no more than the preferred values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006) , measured at the most affected residence, and</li> <li>iv. Intermittent vibration values measured at the most affected residence no more than the preferred values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006)</li> </ul>
C. Other out-of-hours works (CoA E68)	<p>(a) works which could result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "Risk Management – Principles and Guidelines"</p> <p>(b) where the relevant road network operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to road network operational performance</p> <p>(c) where the relevant utility service operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to the operation and integrity of the utility network</p> <p>(d) where an approval is required for a controlled activity in accordance with the Airports Act 1996</p> <p>(e) work undertaken in a rail possession for operational or safety reasons.</p>
D. Negotiated agreement (ICNG)	where negotiated agreements with directly affected residents and sensitive land uses have been reached

### 3. Roles and Responsibilities

Key roles and responsibilities associated with this Protocol are summarised in Table 3.

**Table 3: Out of Hours Work Roles and Responsibilities**

Role	Responsibilities
ARTC Environment Manager	The ARTC Environment Manager, is responsible for monitoring the effectiveness of the Protocol. Correspondence with DPIE will be undertaken by ARTC via the respective online portal/hub.
JH Environment Manager	The JH Environment Manager is responsible for monitoring the effectiveness of the protocol and for preparing/implementing the noise and vibration assessments plans/procedures and obtaining the necessary approval for OOHW
Independent Environmental Representative	CoA A25 provides a comprehensive list of the ER's responsibilities. This includes review and approval of OOHW applications submitted in accordance with this Protocol. The ER must consult with the AA prior to approving OOHW applications.
Acoustic Advisor	CoA A28 requires an Acoustic Advisor be appointed to the project. The AA is to act as the Secretary's

Role	Responsibilities
	independent point of contact for all noise and vibration matters on the project. Refer to conditions A31 and for a comprehensive description of the AAs responsibilities. CoA E29 requires the AA is consulted on the development of this protocol and the approval of works through the OOHW Application process detailed in this protocol.
Secretary of the NSW Department of Planning, Industry and Environment	The Secretary is responsible for approval of this Protocol.
ARTC Community Engagement Manager	The Community Engagement Manager is responsible for ensuring that JH are compliant with all communication requirements associated with OOHW.
JH Community Engagement Manager	The JH Community Engagement Manager is responsible for the implementation of communication and stakeholder engagement requirements relevant to the Project, including coordination and preparation of community consultation and notifications.

## 4. Out of Hours Work

### 4.1 Standard construction hours

Work must only be undertaken during the following specified construction hours (CoA E14 and E15):

- 7:00 am to 6:00 pm Mondays to Fridays, inclusive;
- 8:00 am to 6:00 pm Saturdays; and
- at no time on Sundays or public holidays.

High noise impact works must only be undertaken during the following hours unless permitted by and EPL or approved under this Protocol:

- 8:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm Saturday and
- If continuously, not exceeding three (3) hours, within a minimum cessation of work of not less than one hour between each block (as the same noise sensitive receivers).

### 4.2 OOH Work

Out of Hours (OOH) work is defined as any work that is undertaken outside of standard construction hours. Refer to CoA E16 which details some works which may be undertaken outside the standard construction hours including:

- Delivery of Materials required by the NSW Police Force or other authority for safety reasons;
- Emergency Works
- Approved controlled activities under the Airports Act 1996
- Approved work under an EPL
- Work approved under an Out of Hours Work Protocol (for work not subject to an EPL)
- Low noise impact works (ref CoA E16(f))
- Under a negotiated community agreement with affected residents

In accordance with CoA E18 and CoA E28 OOH works that could be regulated under this Out of Hours Protocol include, but not limited to:

- High Risk works as assessed under AS/NZs ISO 31000:2009 “Risk Management”
- High Risk works as advised in writing by the relevant road authority
- High Risk works as advised in writing by the relevant utility service operator
- Approved controlled activities under the Airports Act 1996

Work undertaken in a rail possession for operational or safety reasons

## 5. Out of Hours Approval Process

### 5.1 OOH Work Approval Process

Figure 1 details the approval process for OOH work under this Protocol.

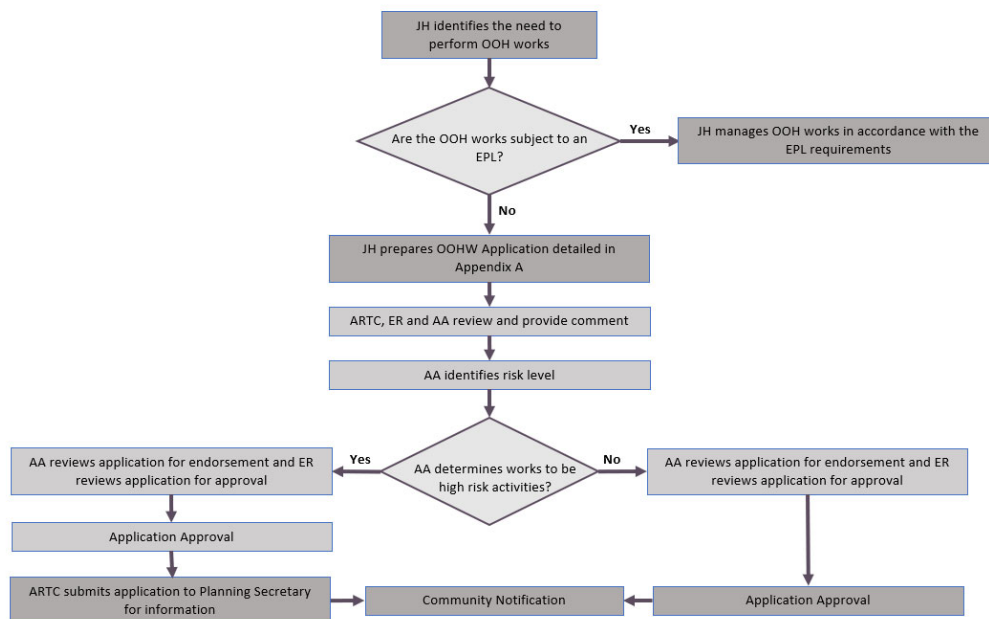


Figure 1: Out of Hours Approval Process

## 5.2 Noise and Vibration Assessment

### 5.2.1 Noise Assessment

A quantitative noise assessment for OOH work is to be carried out in accordance with the Interim Construction Noise Guideline (DECC, 2009) as presented below for works outside the scope of the CNVIS/Gatewave Model. Where works are included within the CNVIS/Gatewave model, outputs from the model will be used in the place of noise predictions detailed in Step 2 below. Noise calculations will consider the noise source, character, barriers (or screening), distance to the nearest receiver/s and geographical extent of impacts and be used to determine the scope of mitigation measures. The calculations and assessment results will be submitted for review and approval as detailed in Appendix A.

<p><b>Step 1:</b> Rating Background Levels(RBL)/Noise Management Levels (NML)</p>	<p>Determine the RBLs for potentially impacted residential receivers or NMLs for non-residential receivers e.g. from the Environmental Impact Statement, Review of Environmental Factors or Construction Noise and Vibration Impact Statement.</p>
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<b>Step 2: Predicted/ Anticipated Noise Levels</b>	Determine the predicted anticipated noise levels either from pre-established sources (e.g. Environmental Impact Statement, detailed quantitative noise assessment, monitoring data from similar work such as verification monitoring or equivalent monitoring carried out for previous projects) or if predicted anticipated noise levels have not already been established, use the below table to estimate anticipated noise aspects for the noisiest plant/equipment.		
	<b>Noise Aspect</b>	<b>If anticipated predicted noise levels have not already been established, select the most applicable value for each noise aspect below</b>	<b>dBA Value</b>
	<b>1. Estimated predicted plant / equipment noise level at 10 metres</b> <small>Including +5 dBA penalty for annoying activities as per ICNG (refer to Appendix B for other predicted noise level data)</small>	Hand-held tamper, impact sheet piling rig	105
		Rail grinder, ballast regulator, concrete/rock saw, excavator hammer, jackhammer, rock-breaker	95
		Mainline tamping machine, pin puller, dynamic track stabiliser, large bulldozer, chainsaw, large excavator, pour fill/ballast, water cart, super-sucker, front-end loader, vibratory or bored piling	85
		Asphalt paver, backhoe, small bulldozer, mulcher, concrete pump/mixer/agitator, tower/mobile crane, small excavator, grader, forklift, welder, wheeled-loader, Standard Penetration Testing	80
		Truck, spreader, whacker packer, cherry-picker, fence post driver, electric drill, drill rig	75
		Lighting tower, small generator	70
		Light vehicle, hand-tools (no impact), small cement mixer	65
	<b>2. Noise source character</b>	Non-continuous use (plant/equipment to operate for less than half the time)	- 5
	<b>3. Local screening</b>	Existing screening between site and receiver (buildings, cuttings, canopies, etc.)	- 5
		Temporary screening to be implemented near work site	- 10
		Acoustic shed or enclosure	- 25
	<b>4. Distance attenuation</b>	< 10 metres	0
		10 to 20 metres	- 5
20 to 35 metres (Residential)		- 10	
35 to 60 metres		- 15	
60 to 100 metres (Hospital)		- 20	
100 to 180 metres		- 25	
180 to 350 metres		- 30	
350 to 1,000 metres	- 40		
<i>(Ref: TfNSW OOH Protocol)</i>			
<b>Step 3: Exceedances</b>	Compare the anticipated predicted noise levels to the applicable RBLs/NMLs, and calculate the exceedances/determine the initial risk rating. Refer to Table 6 for the relevant risk ratings associated with exceedances of the RBLs/NMLs.		
<b>Step 4: Consideration of Additional Mitigation Measures</b>	Determine the applicable mitigation measures (refer section 5.3 below), which will be implemented and provide justification for any applicable measures that will not be implemented.		
<b>Step 5: Consideration of OOH approved under an EPL</b>	OOHW Permits including noise predictions and respite periods for works under an EPL will be reviewed and cumulative impacts considered and relevant mitigation measures implemented (as required) and coordinated to ensure appropriate respite is provided.		

### 5.2.2 Vibration assessment

An assessment of vibration intensive activities that may impact sensitive receivers or structures will be required for out of hours vibration intensive works. The proposed OOH activities will be assessed for compliance with safe working distances for:

- Cosmetic and/or structural impacts (including safe working distances)
- Human comfort impacts due to vibration and ground borne noise.

Assessment will be undertaken in accordance with vibration criteria established using the "Assessing vibration" a technical guideline (DEC, 2006), BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and the German Standard DIN 4150-3: Structural Vibration- effects of vibration

on structures (for structural damage). The indicative safe working distance guide is presented Table 4.

**Table 4: Vibration Estimated Safe Working Buffer Distances (m)**

Vibration Significant Plant Item	Reinforced or frame structures	Unreinforced or light framed structures (BS7385) <sup>2</sup>	Structurally unsound heritage structures (DIN 4150-3) <sup>2</sup>
Concrete/road saw	5	5	5
Excavator (tracked) <15t + hydraulic hammer	5	5	10
Excavator (tracked) <35t + hydraulic hammer	5	10	10
Excavator (tracked) <50t + hydraulic hammer	5	10	20
Drill Rig	5	5	10
Pneumatic hammer (jackhammer)	5	5	5
Piling rig – bored (rock)	5	5	5
Piling rig – bored (soft ground)	5	5	5
Piling rig – impact hammer (high)	15	30	65
Piling rig – impact hammer (typical)	10	15	35
Piling rig – vibratory driven	10	20	50
Terrain leveller	5	5	5
Vibratory roller <25t padfoot	5	10	20
Vibratory roller <13t smooth drum – high vibration	5	5	15
Vibratory roller <13t smooth drum – low vibration	5	5	10
Wacker packer	5	5	5

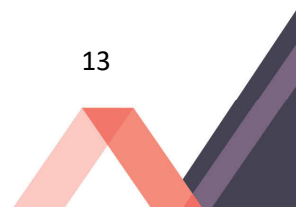
1. Minimum working distances are in 5m increments only to account for the intrinsic uncertainty of this screening method.
2. Minimum working distance based on vibration screening criterion which reduced the cosmetic damage levels det by BS7385 by 50% due to potential dynamic magnification
3. A building condition inspection should determine whether a heritage item is structurally unsound

### 5.2.3 OOHW Risk Level

The project will use the criteria detailed in Table 5 to determine potential risk limitations of the works and establish appropriate mitigation measures. The standard hours and OOHW periods are depicted in Figure 2. The OOHW periods are further defined as OOHW Period 1 and 2. The AA will review this assessment and determine the overarching risk level for the works (as detailed in Figure 1) including nominating additional mitigation measures where applicable.

**Table 5: OOHW risk level**

	dBA above NML	Risk limitations
<b>Low risk</b>		
OOHW period 1	<5	--
	≥5	OOHW may be undertaken for a maximum of: <ul style="list-style-type: none"> <li>2 consecutive evenings and/or nights per calendar week; and</li> <li>3 evenings and/or nights per calendar week; and</li> <li>10 evenings and/or nights per calendar month.</li> </ul>
OOHW period 2	<5	--



	dBA above NML	Risk limitations
	≥5	OOHW may be undertaken for a maximum of: <ul style="list-style-type: none"> <li>• 2 consecutive evenings and/or nights per calendar week; and</li> <li>• 3 evenings and/or nights per calendar week; and</li> <li>• 10 evenings and/or nights per calendar month.</li> </ul>
<b>Medium/High risk</b>		
OOHW period 1	≥5	OOHW are undertaken for more than: <ul style="list-style-type: none"> <li>• 2 consecutive evenings and/or nights per calendar week; or</li> <li>• 3 evenings and/or nights per calendar week; or</li> <li>• 10 evenings and/or nights per calendar month.</li> </ul>
OOHW period 2	≥5	OOHW are undertaken for more than: <ul style="list-style-type: none"> <li>• 2 consecutive evenings and/or nights per calendar week; or</li> <li>• 3 evenings and/or nights per calendar week; or</li> <li>• 10 evenings and/or nights per calendar month.</li> </ul>

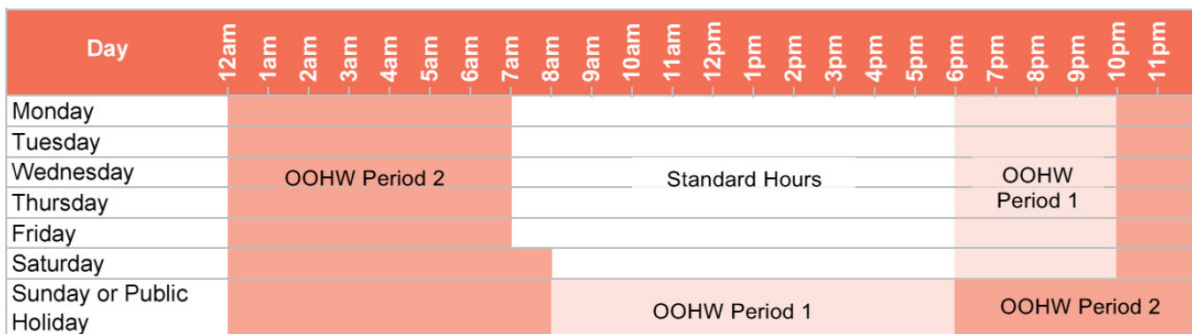


Figure 2: Construction Hours

### 5.3 Additional Mitigation Measures

The results of the noise and vibration assessment may identify noise exceedances of the RBL/NML or works within the minimum working distances which trigger the need for additional mitigation measures for nearby sensitive receivers. Table 6 provides details of the mitigation measures to be applied associated with the calculated exceedances of the RBL/NML. Depending on the exceedance above typical background noise levels mitigation could include, specific notification, verification monitoring, respite periods or respite offers. Table 7 provides a description of the mitigation measures.

In the event works are proposed within a properties minimum working distances, the mitigation measures to be applied are presented in Table 8.

In the event groundborne noise is predicted for the works, noise impacts will be assessed against the NML for the property (taking into account façade loss) and the relevant mitigation measures detailed below will be implemented.

Table 6: Additional Noise Mitigation Measures

Construction Hours	dB(A) above RBL	dB(A) above NML	Additional Mitigation Measures (Table 5)
Monday-Friday	5-10	<5	-

(6pm-10pm) Saturday (7am-8am, 6pm-10pm)	>10 to 20	5 to 15	PN, RP, DR
	>20 to 30	>15 to 25	PN, V, SN, RO, RP, DR
	>30	>25	PN, V, SN, RO, RP, DR
Sunday (8am-6pm)			
	5-10	<5	PN
	>10 to 20	5 to 15	PN, V, SN, RO, RP, DR
Monday – Saturday (10pm-7am, 10pm-12am)	>20 to 30	>15 to 25	PN, V, SN, RO, RP, DR
	>30	>25	PN, V, SN, RO, RP, DR
Sunday/PH (12am-8am, 6pm-12am)			

Notes: PN = Project notification, SN = Specific notification and individual briefings or phone calls, V = Verification monitoring, DR = Duration reduction, RP = Respite period, RO = Project respite offer.

**Table 7: List of Additional Noise Mitigation Measures (AMM)**

Abbrev.	AMM	Descriptions and Guidance
PN	Project Notification - Letterbox-Drop (generic to the project)	A newsletter is produced and distributed to the local community via letterbox-drop and the project mailing list. These newsletters provide an overview of current and upcoming works across the project and other topics of interest. The objective is to engage, inform and provide project-specific messages. Advanced warning of potential disruptions (e.g. traffic changes or noisy works) can assist in reducing the impact on the community. Content and newsletter length is determined on a works basis. The geographic extent of letterbox-drops is generally centred on the immediate surrounding community and rarely extends beyond 100 metres from the works site.
SN	Specific Notification - Individual Briefings/Phone Calls/Emails	Specific notifications would be letterbox-dropped or hand-distributed to identified stakeholders no later than seven days ahead of construction activities that are likely to exceed the RBLs/NMLs. This form of communication is used to support periodic notifications or to advertise unscheduled works. The geographic extent of specific notifications is generally centred on the immediate surrounding community and is dependent on the predicted noise level above NML. Typically this will be 100m from the works site.  Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Communications representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project.  Phone calls and/or emails detailing relevant information would be made to identified/affected stakeholders within seven days of proposed work. Phone calls and/or emails provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs etc.
V	Verification Monitoring	Where it has been identified that specific construction activities are likely to exceed the relevant Rating Background Levels (RBL) and/or Noise Management Levels (NMLs), monitoring may be conducted at the affected receiver(s) or a nominated representative location (typically the nearest receiver where more than one receiver have been identified). Monitoring can be in the form of either unattended logging or operator attended surveys. The purpose of monitoring is to inform the relevant personnel when the RBL/NML has been exceeded so that additional management measures may be implemented.
DR	Duration Reduction	In some circumstances reducing the direct impact on the community can result in impacts for longer periods. In these instances where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked in a specific period so that the ongoing duration of the impacts can be reduced. The project team should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Reduction in accordance with CoA E16(g) and E27.

Abbrev.	AMM	Descriptions and Guidance
RP	Respite Period	The purpose of a project specific respite is to provide residents subjected to lengthy periods of noise and/or vibration impacts respite during OOH periods. Respite periods are considered for affected receivers to provide a period of either no or limited noise impacts. This can be in the form of stopping or limiting works onsite during these periods
RO	Respite Offer	Respite offers are offers made to affected receivers to provide a period of either no or limited noise impacts. This could include dinner/movie vouchers may be offered on a case-by-case basis or temporary alternative accommodation in accordance with CoA E28

**Table 8: List of Additional Vibration Mitigation Measures (AMM)**

Abbrev.	AMM	Descriptions and Guidance
PS	Pre-construction Survey	Surveys must be offered to the owners of surface and sub-surface structures and other relevant assets identified at risk of damage.
VVM	Vibration Verification Monitoring	Where properties are identified as within the recommended generic minimum working distances, vibration monitoring will be carried out to determine specific minimum working distances that will prevent cosmetic and structural damage.
ACM	Alternative Construction Methodology	If the monitoring identifies that vibration is likely to exceed the screening criteria for cosmetic damage, further analysis will be undertaken, including consideration of different construction methods with lower source vibration levels.
VN	Vibration Notification	If the potential vibration exceedance is likely to occur more than once or extend over a period of 24 hours, owners and occupiers will be provided with a schedule of the potential exceedances for the duration of the exceedance (and at a minimum on a monthly basis), unless agreed by the owner and occupier.

### 5.4 Community Notifications

Community notifications are used to inform receivers of noise and vibration impacts from OOHW. The community will be notified at least 7 days prior to the works commencing. Community notifications usually comprise of letterbox-dropped or hand distributed notification letters to identified stakeholders prior to the commencement of work. Where respite periods have been identified as per CoA E27, the community will be consulted on a three monthly basis and include a three monthly schedule of likely out of hours works. All community notifications will include contact details so members of the community have the opportunity to find out more information, ask questions and provide feedback.

### 5.5 Community Consultation and Respite

Consultation would be undertaken with the community affected by the out of hours works to coordinate appropriate respite periods, in accordance with CoA E27. For works near community, religious, educational institutions and noise and vibration sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) consultation would be undertaken where noise and/or vibration generating works are



predicted above the criteria identified in the Section 5.2.1, to satisfy CoA E26 and CoA E27. Noise generating works would not be time tabled within sensitive periods, where reasonable and feasible and preferences for noise mitigation would be accommodated, where practicable.

Residential receivers affected by construction noise and/ or vibration from the Project will be determined through a noise assessment (either included in the CNVIS/Gatewave or calculated using the methodology listed in this protocol)

To satisfy CoAE27, consultation with the community to determine appropriate respite periods for OOHW would be undertaken where works are:

- undertaken outside standard construction hours (Section 4.1); and
- likely to exceed the noise and vibration objectives identified in CoA E26 and E28.

The consultation as detailed in CoA E27 would include, but not be limited to providing the community

with:

- a schedule of likely OOHW for a period no less than three (3) months;
- a description of the potential work, location and duration;
- the noise characteristics and likely noise levels of the Work; and
- likely mitigation and management measures to be implemented and/or offered.

To satisfy CoA E21, all OOHW undertaken on the Project, including works undertaken by third parties (such as utility relocations), would be coordinated to ensure respite periods are provided in accordance with CoA E26, E27 and E28. Where this is unable to be achieved, provision of temporary alternative accommodation or mitigation to impacted noise sensitive receivers would be considered.

#### **5.5.1 Negotiated Agreement with Sensitive Receivers**

Occasionally, a negotiated agreement for particular OOH work will be formed with the potentially affected sensitive receivers in accordance with Condition E16(g) and E27 of the planning approval. These negotiated agreements would be undertaken and documented by as part of an OOH application. Upon ER approval of any OOH applications containing negotiated agreements, John Holland will forward the negotiated agreement documentation to the EPA for information.

### **5.6 Emergency Works**

Occasionally there may be a need to undertake emergency works outside of standard work hours. In this situation, the works are permitted to proceed without prior approval, provided that the works were:

- Unforeseen, and
- Required to avoid the loss of life, damage to property or prevent environmental harm.

On becoming aware of the need to undertake emergency works in accordance with Condition E17, John Holland will notify ARTC, the AA, the ER and the EPA (if it is required under an EPL if relevant) of the need to undertake the works. This notification should be in the form of a written email or text message. The requirements for notifying the EPA will be dictated in the conditions of the EPL if relevant.

JH will use best endeavours to notify all potentially noise and/or vibration affected sensitive receivers of the likely impact and duration of those works at the earliest opportunity.

### **5.7 Review and Approval**

OOHW applications will be completed using the OOH Work Application Form presented in Appendix A. Completed forms will be submitted via Acconex for review a minimum of 5 days prior to the proposed works unless agreed with the AA or the works are justified under CoA E16 Emergency. The AA is required to review the approval process and identify a risk level

for the proposed OOH work and categorise the risk level as “low risk activities” or “high risk activities” for the purposes of notification.

low risk activities –can be approved by the ER in consultation with the AA, and

high risk activities - can be approved by the ER in consultation with the AA, and the approval provided to the Planning Secretary for information before work commences;

Table 9 presents the factors to be considered by the AA when determining the risk rating of the proposed works.

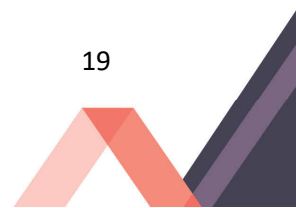
**Table 9: Risk Level Consideration**

	<b>Consideration</b>
<b>Predicted Noise Exceedance</b>	Degree of predicted noise level exceedance above the Rating Background Level or Noise Management Level as appropriate
<b>5 dBA Penalty</b>	If 5 dBA penalty is required for 'high noise impact works' such as rock breaking.
<b>Certainty</b>	Rating background levels, noise management levels or predicted noise impacts are not well understood
<b>Past Experience</b>	Nature of works are new, in a new location or have not been undertaken by the contractor on the project already
<b>Negotiated Agreement with Sensitive Receivers</b>	No negotiated agreement with sensitive receivers has been obtained in accordance with Condition E16(g) and E27
<b>Potential Sleep Disturbance</b>	Likely to generate potential sleep disturbance (RBL + 15dB or greater)
<b>Non-Residential Receivers</b>	Impacted non-residential receivers operate during same period of proposed OOH works
<b>Special Events</b>	The timing and location of special events in the area of the proposed OOH works may be scheduled at the same time or immediately before or after the special event (e.g. festivals, public gatherings, etc.)
<b>ARTC and JH Manager Feedback</b>	Feedback from the ARTC and JH Environmental Managers for the area will provide the AA an understanding of the types and requirements of surrounding sensitive receivers.
<b>Sensitive Receivers</b>	Moderate impact sensitive receivers (e.g. standard residential, medium density receivers) or high impact sensitive receivers (e.g. residential home for the elderly, high density unit blocks, persistent complainers, residents deemed to have 'construction noise fatigue')
<b>High Impact Works</b>	Prolonged high noise or vibration intensive activities

## Appendix A - Out of Hours (OOH) Work Application Form

This application and all applicable appendices must be submitted to ARTC at least 15 business days prior to the commencement of the proposed OOH work.

OOH Application Form BRD-JHG-NV-0000-FRM-00001 rev.0	
1. OOH Application	
<b>Contractor:</b>	
<b>Approval Documentation:</b>	
<b>Application Title:</b>	
<b>Application Date:</b> (Original submission date)	
2. Proposed OOH Work Details	
<b>Description of works:</b> Attach a map indicating the location of works, plant/equipment locations and sensitive receivers and any applicable Road Occupancy Licences	Work Methodology
	List of plant/equipment to be used (worst case scenario) including equipment SWLs (as presented in the CNVIS or Section 5.1.1 of this protocol as required).
	Details and distance to nearest sensitive receiver
<b>Timing of works:</b> Including the sequence and details of specific activities proposed (start and completion dates and times) where works are anticipated to be undertaken outside standard hours.*	OOH Daytime
	OOH Evening (up to 10pm)
	OOH Night (10pm – Midnight)
	OOH Night (Midnight – 7am)
<b>Occasions:</b> State the number of occasions anticipated (worst-case).	
<b>Justification:</b> Explain the need for the works to be undertaken during the proposed OOH periods and justify why works cannot occur during standard hours	



<b>Noise and Vibration Assessment</b> Attach assessment including noise calculations. Details should be based on the CNVIS/Gateway Model or Section 5.1.1 of this protocol (as relevant)	
<b>Community Consultation</b> Attach copies of all documentation to the application.	Community Agreement (CoA E16(g)) <input type="checkbox"/> Community Agreement Respite (CoA E27) <input type="checkbox"/> Community Agreement issued to EPA <input type="checkbox"/> Community Notification <input type="checkbox"/> Distribution Map <input type="checkbox"/>
<b>Additional Mitigation Measures</b> Tick as appropriate and attach details	Project Notification <input type="checkbox"/> Specific Notification <input type="checkbox"/> Verification Monitoring <input type="checkbox"/> Duration Review <input type="checkbox"/> Respite Period <input type="checkbox"/> Respite Offer <input type="checkbox"/>
<b>Cumulative Impact Assessment</b> Include details of concurrent works carried out under an EPL or by a third party and any additional mitigation measures/respite requirements identified	
<b>Proposed Works</b> AA to determine Low/High Risk (as per CoA E29 notification requirements)	

### 3. Contractor's Signature

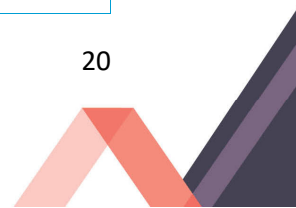
<b>Contractor's Signature:</b>	
<b>Name:</b>	
<b>Title:</b>	
<b>Contact Number:</b>	
<b>Date:</b>	

### 4. Contractor's Contact Details

Contractor Personnel	Name	Mobile
Manager Environment: pp		
Manager Communications:		
Contractor's Representative:		
Contractor's 24hr contact person:		

### Endorsement and Approval

Role	Signature	Date	Comments
ARTC Environment Manager			



<b>Acoustic Advisor</b>			
<b>Environmental Representative</b>			

## Appendix B – EPA Consultation Response

**From:** George Orel <[George.Orel@epa.nsw.gov.au](mailto:George.Orel@epa.nsw.gov.au)>  
**Sent:** Wednesday, 30 March 2022 9:19 AM  
**To:** Rachael Labruyere-JHG <[Rachael.Labruyere@jhg.com.au](mailto:Rachael.Labruyere@jhg.com.au)>  
**Cc:** Kasey Hills <[Kasey.Hills@epa.nsw.gov.au](mailto:Kasey.Hills@epa.nsw.gov.au)>  
**Subject:** RE: Botany Rail Duplication and Botany Yard Signalling EPL Application

Hi Rachel,

Thank you for previously providing the Botany Rail Duplication Out of Hours Protocol – John Holland, dated 23/1/2022.

The EPA understands that the protocol is required as a condition of planning approval and provides an “out of standard hours works” approval pathway for activities not regulated by an EPL. The EPA does not therefore have a regulatory role for the works, and/or responsibility for the protocol. The EPA does not review or endorse noise management plans or Out of Hours Works Protocols as these fall outside of the licencing framework which it controls.

I trust this information is of assistance. Please let me know if you would like to discuss any of the above or require further information.

Regards,

**George Orel**  
A/Unit Head  
Regulatory Operations – Metropolitan North  
NSW Environment Protection Authority  
D 02 9995 6849 | M 0499 488 528



[www.epa.nsw.gov.au](http://www.epa.nsw.gov.au) @NSW\_EPA

*The EPA acknowledges the traditional custodians of the land and waters where we work. As part of the world's oldest surviving culture, we pay our respect to Aboriginal elders past, present and emerging.*

Report pollution and environmental incidents 131 555 or +61 2 9995 5555