

Transport for Tomorrow- Sydney Metro West Enabling Works

Out of Hours Work Protocol

Document revision and history

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A	14/12/2021	Revision A	K. Ramalingam	J. Ambler	J. Ambler
B	8/12/2022	Addressing Condition D38(e) and D51	T. Moore	J. Ambler	J. Ambler

Terms and definitions

The following terms, abbreviations and definitions are used in this protocol:

Terms and definitions

Term	Definition
AA	Acoustic Advisor
AMM	Additional Mitigation Measures
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise Vibration Management Plan
CNVS	Construction Noise Vibration Standard
CSSI	Critical State Significant Infrastructure
dB	Decibels
DNVIS	Detailed Noise and Vibration Impact Statement
DNVS	Detailed Noise and Vibration Standard
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPL	Environmental Protection Licence
ER	Environmental Representative
GNVIS	General Noise and Vibration Impact Statement
ICNG	Interim Construction Noise Guidelines
MCoA	Ministers Condition of Approval
NCA	Noise Catchment Area
NML	Noise Management Level
OOHW	Out of Hours Work
PPV	Peak Particle Velocity
RBL	Rating Background Level
TfT	Transport for Tomorrow
VDV	Vibration Dose Value

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1. Introduction

This Out-of-Hours (OOHW) Protocol for the Sydney Metro Enabling Works (the Project) has been prepared by Transport for Tomorrow (TfT) in accordance with Ministers Conditions of Approval (MCoA) D38 of the CSSI 10038.

This Protocol has been prepared by TfT for works completed on the Sydney Metro West project (CSSI 10038). TfT works will be completed as per the Sydney Metro West Phasing Report Phase E - Existing Rail Corridor Enabling Works.

This Protocol defines the process for assessment and approval of work undertaken outside standard construction hours (out-of-hours work) that is not subject to an Environment Protection Licence (EPL) and should be read in conjunction with the Construction Noise and Vibration Management Procedure in Construction Environmental Management Plan (CEMP) of Transport for Tomorrow.

This document has also been written to align with Sydney Metro documents, including the Sydney Metro West Construction Noise and Vibration Standard (v4.3).

1.1 Scope

This Protocol is prepared for all works proposed to be undertaken outside of approved construction hours, with the exclusion of those where requirements of Condition D37(b) (being 'Low Impact') are met.

This Protocol applies to TfT works completed on the Sydney Metro West project (CSSI 10038).

This Protocol outlines the consideration, management and approval of works outside the approved construction hours, as required under the MCoA D38 of the CSSI 10038. The requirements of MCoA D38 and where they are addressed in this document are provided in Table 1.

Table 1 Requirements of MCoA D38 of CSSI 10038

MCoA Requirement	Where addressed
D38 An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of work which are outside the hours defined in Conditions D35 and D36 of this schedule. The Protocol must be approved by the Planning Secretary before commencement of the out-of-hours work. The Protocol must be prepared in consultation with the ER, AA and EPA. The Protocol must provide:	This Protocol Section 1.2
(a) identification of low and high-risk activities and an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where: <ul style="list-style-type: none"> (i) the ER and AA review all proposed out-of-hours activities and confirm their risk levels. (ii) low risk activities can be approved by the ER in consultation with the AA and (iii) high risk activities that are approved by the Planning Secretary 	Section 5
(b) a process for the consideration of out-of-hours works against the relevant NML and vibration criteria	Section 4
(c) a process for selecting and implementing mitigation measures for residual impacts in consultation with the community at each affected location, including respite periods consistent with the requirements of Condition D50 of this schedule. The measures must take into account the predicted noise levels and the likely frequency and	Section 6

	duration of the out-of-hours works that sensitive land user(s) would be exposed to, including the number of noise awakening events	
(d)	procedures to facilitate the coordination of out-of-hours work including those approved by an EPL or undertaken by a third party, to ensure appropriate respite is provided and	Section 7
(e)	notification arrangements for affected receivers for all approved out-of-hours works and notification to the Planning Secretary of approved low risk out-of-hours works	Section 5.1, 6.3 and 6.4
	This condition does not apply if the requirements of Condition D37(b) of this schedule are met	Note
	Note: Out-of-hours work is any work that occurs outside the construction hours identified in Condition D35 and D36 of this schedule.	Note

1.2 Protocol Review and Approval

In accordance with MCoA D38 the Out of Hours Work Protocol must meet the following consultation, review, and approval requirements:

- Be prepared in consultation with the NSW Environment Protection Authority (EPA)
- Be prepared in consultation with the Acoustic Advisor (AA) and Environmental Representative (ER)
- Be approved by the Planning Secretary before the commencement of the OOHW.

This document will be provided to the EPA for consultation and both the AA and ER will review and comment on this document prior to submission and approval from the Planning Secretary. The AA should provide endorsement of this document as part of the CEMP.

1.3 Roles and Responsibilities

The roles and responsibilities of various personnel on the Out-of-Hours Works Management and Approval are listed below in the Table 2

Table 2: Roles and responsibilities of OOHW Management and Approval

Roles	Responsibilities
Acoustic Advisor	<p>MCoA A32 requires an AA to be appointed. The AA is to act as an independent point of contact for all noise and vibration matters under the planning approval. Refer to MCoA A36 for a comprehensive description of the AA's responsibilities.</p> <p>Section 5 includes descriptions of the AA's responsibilities with respect to reviewing and identifying risk level for OOHW.</p>
Environmental Representative	<p>The CSSI planning approval conditions require an ER to be appointed to the project. The ER is to act as an independent point of contact for all environmental and planning approval compliance matters. Refer to MCoA A30 for a comprehensive list of the ER's responsibilities.</p> <p>Section 5 includes descriptions of the ER's responsibilities with respect to reviewing and approving OOHW.</p>

Place Manager (Community)	A Sydney Metro Place Manager has been allocated to the Project. The Place Manager is responsible for ensuring that all project communication requirements with the surrounding community are being complied.
Transport for Tomorrow Environmental Manager	The Transport for Tomorrow Environment Manager is responsible for ensuring environmental risks of the Project are identified and appropriate mitigation measures are implemented. The Environment Manager is also responsible for ensuring environmental compliance with statutory, approval and proponent requirements. It is their duty to obtain and update all environmental licences, approvals and permits as required.
Sydney Metro Environmental Manager	The Sydney Metro Environment Manager is responsible for ensuring that all environmental management requirements associated with this Project are being complied.

2. Management Documents and Requirements

2.1 Ministers Conditions of Approval

The Ministers CoA relevant to this Protocol are listed in Table 3 below.

Table 3: Relevant MCoAs to the OOHW Protocol

MCoA	Requirement	Document Reference
D35	Work must only be undertaken during the following hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive. (b) 8:00am to 6:00pm Saturdays, and (c) at no time on Sundays or public holidays.	Section 3.1
D36	Except as permitted by an EPL, highly noise intensive work that results in an exceedance of the applicable NML at the same receiver must only be undertaken: (a) between the hours of 8:00 am to 6:00 pm Monday to Friday, (b) between the hours of 8:00 am to 1:00 pm Saturday, and (c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour. 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.	Section 7.1
D37	Notwithstanding Conditions D35 and D36 of this schedule work may be undertaken outside the hours specified in the following circumstances:	Section 3.1 Note: As per MCoA D37
a)	(a) Safety and Emergencies, including: (i) for the delivery of materials required by the NSW Police Force or other authority for safety reasons, or	(b), this Protocol does not apply to those works

	<p>(ii) 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.</p> <p>On becoming aware of the need for emergency work in accordance with (a)(ii) above, the AA, the ER, the Planning Secretary, and the EPA must be notified of the reasons for such work. The Proponent must use best endeavours to notify as soon as practicable all noise and/or vibration affected sensitive land user(s) of the likely impact and duration of those work.</p>	meeting the definition of Low Impact OOHV.
b)	<p>b) Low Noise Impact Work, including:</p> <p>(i) construction that causes LAeq (15 minute) noise levels: no more than 5 dB(A) above the rating background level at any residence in accordance with the ICNG, and no more than the 'Noise affected' NMLs specified in Table 3 of the ICNG at other sensitive land user(s), and</p> <p>(ii) construction that causes LAF_{max} (15 minute) noise levels: no more than 15 dB(A) above the rating background level at any residence, or</p> <p>(iii) construction that causes:</p> <p>continuous or impulsive vibration values, measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DECC, 2006), or</p> <p>intermittent vibration values measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DECC, 2006).</p>	
c)	<p>(c) By Approval, including:</p> <p>(i) where different construction hours are permitted or required under an EPL in force in respect of the CSSI or</p> <p>(ii) works which are not subject to an EPL that are approved under an Out-of-Hours Work Protocol as required by Condition D38 of this schedule or</p> <p>(iii) negotiated agreements with directly affected residents and sensitive land user(s).</p>	
d)	<p>d) By Prescribed Activity, including:</p> <p>(i) tunnelling (excluding cut and cover tunnelling and surface works) are permitted 24 hours a day, seven days a week, or</p> <p>(ii) concrete batching at the Clyde construction site is permitted 24 hours a day, seven days a week, or</p> <p>(iii) delivery of material that is required to be delivered outside of standard construction hours in Condition D35 of this schedule to directly support tunnelling activities, except between the hours 10:00 pm and 7:00 am to / from the Five Dock and Westmead construction sites and to / from Burwood North construction site using any roads / streets other than directly from Parramatta Road, or</p>	Section 3.1

	<p>(iv) haulage of spoil except between the hours of 10:00 pm and 7:00 am to / from the Five Dock and Westmead construction sites and to / from Burwood North construction site using any roads / streets other than directly from Parramatta Road, or</p> <p>(v) work within an acoustic shed where there is no exceedance of noise levels under Low Noise Impact Work circumstances identified in (b) above.</p>	
D39	<p>All reasonable and feasible mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria:</p> <p>(a) construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009),</p> <p>(b) vibration criteria established using the Assessing vibration: a technical guideline (DECC, 2006) (for human exposure),</p> <p>(c) Australian Standard AS 2187.2 - 2006 "Explosives - Storage and Use - Use of Explosives" (for human exposure),</p> <p>(d) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions", and</p> <p>(e) the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage for structurally unsound heritage items).</p> <p>Any work identified as exceeding the noise management levels and / or vibration criteria must be managed in accordance with the Noise and Vibration CEMP Sub-plan.</p> <p>Note: The ICNG identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level.</p>	Section 6
D40	<p>All reasonable and feasible mitigation measures must be applied when the following residential ground-borne noise levels are exceeded:</p> <p>(a) evening (6:00 pm to 10:00 pm) — internal LAeq (15 minute): 40 dB(A); and</p> <p>(b) night (10:00 pm to 7:00 am) — internal LAeq (15 minute): 35 dB(A).</p> <p>The mitigation measures must be outlined in the Noise and Vibration CEMP Sub-plan, including in any Out-of-Hours Work Protocol, required by Condition D38 of this schedule.</p>	Section 6
D41	<p>Noise generating work in the vicinity of potentially affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories, and operating theatres) resulting in noise levels above the NMLs must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.</p>	Section 6.1

D42	<p>Industry best practice construction methods must be implemented where reasonably practicable to ensure that noise levels are minimised around sensitive land user(s). Practices must include, but are not limited to:</p> <ul style="list-style-type: none"> (a) use of regularly serviced low sound power equipment, (b) temporary noise barriers (including the arrangement of plant and equipment) around noisy equipment and activities such as rock hammering and concrete cutting, and (c) use of alternative construction and demolition techniques. 	CEMP (Appendix E: Operational Control Procedures- Environmental Risk Action Plan)
D43	<p>Detailed Noise and Vibration Impact Statements (DNVIS) must be prepared for any work that may exceed the NMLs, vibration criteria and / or ground borne noise levels specified in Conditions D39 and D40 of this schedule at any residence outside construction hours identified in Condition D35 of this schedule, or where receivers will be highly noise affected. The DNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the works. A copy of the DNVIS must be provided to the AA and ER before the commencement of the associated works. The Planning Secretary and the EPA may request a copy(ies) of the DNVIS.</p>	The DNVIS
D50	<p>All work undertaken for the delivery of Stage 1 of the CSSI, including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided. The Proponent must:</p> <ul style="list-style-type: none"> (a) reschedule any work to provide respite to impacted noise sensitive receivers so that the respite is achieved in accordance with Condition D51 of this schedule, or (b) consider the provision of alternative respite or mitigation to impacted noise sensitive receivers, and (c) provide documentary evidence to the AA in support of any decision made by the Proponent in relation to respite or mitigation. <p>The consideration of respite must also include all other approved Critical SSI, SSI and SSD projects which may cause cumulative and / or consecutive impacts at receivers affected by the delivery of Stage 1 of the CSSI.</p>	Section 7.2
D51	<p>In order to undertake out-of-hours work outside the work hours specified under Condition D35 of this schedule, appropriate respite periods for the out-of-hours work must be identified in consultation with the community at each affected location on a regular basis. This consultation must include (but not be limited to) providing the community with:</p> <ul style="list-style-type: none"> (a) a progressive schedule for periods no less than three (3) months, of likely out-of-hours work, (b) a description of the potential work, location and duration of the out-of-hours work, (c) the noise characteristics and likely noise levels of the work, and 	Section 7.1

(d) likely mitigation and management measures which aim to achieve the relevant NMLs under Condition D39 (including the circumstances of when respite or relocation offers will be available and details about how the affected community can access these offers).

The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hour work must be provided to the AA, EPA and the Planning Secretary.

Note: Respite periods can be any combination of days or hours where out-of-hours work would not be more than 5 dB(A) above the RBL at any residence.

2.2 Sydney Metro West Construction Noise and Vibration Standard

Sydney Metro West has developed a Construction Noise and Vibration Standard (CNVS) to:

- Establish a framework for managing construction noise and vibration impacts and adopting appropriate mitigation measures (including minimum requirements),
- Form part of the Project's Environmental Impact Statement,
- Form part of the contract requirements that Sydney Metro's Principal Contractors must comply with and
- Set minimum requirements around all works undertaken outside approved hours, including need for and development of Detailed Construction Noise and Vibration Impacts Statements (DNVIS).

The CNVS establishes a consistent strategy for the assessment, mitigation and monitoring of noise and vibration generated by construction activities. It defines a minimum standard for managing noise and vibration impacts that considers currently best practice guidelines and other regulatory requirements. It is included in the Sydney Metro West Environmental Impact Statements. This protocol has been prepared in accordance with the CNVS.

2.3 Construction Noise and Vibration Management Procedure

As per the Sydney Metro West Phasing Report, the requirement of MCoA C5 to prepare CEMP Subplans is not applicable to the TtT work scope (Phase E), hence a separate Construction Noise and Vibration Management Plan has not been prepared. As an alternative, A Noise and Vibration Management Procedure is included in the Transport for Tomorrow's Construction Environmental Management Plan (CEMP) under the Appendix E: Operational Control Procedures: Environmental Risk Action Plan.

The Noise and Vibration Management Procedure in the TtT CEMP provides a strategic overview of how the requirements of the Sydney Metro CNVS will be applied to activities or locations for the Project, as well as meeting relevant requirements under the MCoA and Environmental Impact Statement. The procedure also links to the community and stakeholder consultation processes and explains how receivers will be consulted throughout the construction phase with regard to impacts and mitigations.

2.4 Detailed Noise and Vibration Impact Statements (DNVIS)

While quantitative noise assessments are documented in initial environmental assessments (the EIS), a more refined assessment is undertaken as part of a DNVIS prepared under MCoA D43, based upon an improved understanding of the exact equipment and construction methodology to be used for the Project, not known at the time of the preparation of the EIS.

In accordance with the CNVS, the DNVIS is required to be developed to support applications for OOHW, where requirements of D43 are triggered. In this context, a DNVIS will be prepared to address expected OOHW activities and activities generating highly noise affected impacts on receivers. The DNVIS will:

- Assess and document the anticipated noise impacts at noise sensitive receivers of proposed work activities, prior to the commencement of those activities.
- Remove assumptions made in the Environmental Impact Statement including the Noise and Vibration Technical Paper.
- Focus on specific activities or locations and consider works carried out inside and outside of standard working hours.
- Include mitigation measures identified through consultation with affected sensitive land user(s)

The AA will review and endorse the DNVIS (as per AA role described at MCoA36(e)) and a copy of the DNVIS must be provided the AA and ER before the commencement of the associated works.

The DNVIS includes a noise and vibration assessment of the proposed works, however it is acknowledged that additional OOHW or minor changes to proposed methodologies may occur. Additionally, the DNVIS is written at the commencement of the Project, at which point specific dates and approvals (for example, Road Occupancy Licenses) may not be known. As such, the DNVIS is supported by the Transport for Tomorrow Out-of-Hours Work Permit, which is prepared closer to the time of the works and provides a record with compliance with the requirements of this Protocol (refer to Section 3.3 for additional information).

3. OOHW Assessment and Approval

3.1 OOHW

OOHW are any works that are undertaken outside of approved hours defined in the Project MCoA. This may be required for a variety of reasons, including oversized deliveries, emergency works, reduced impacts on the community and/or environment, etc.

MCoA D35 establishes works are to be carried out only during the following hours:

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

MCoA D37 recognises there are times where works outside the above hours are unavoidable and may be undertaken under specific circumstances, including:

- In the case of safety and other emergencies
- Low Noise Impact Works for which noise and vibration activities are below a set criteria
- By approval under this Protocol or by negotiated agreements
- By Prescribed activity.

Due to greater community sensitivity to noise and vibrations impacts from works undertaken outside approved hours, an OOHW process is required to address preparing, assessing and approving all OOHW prior to their commencement.

3.2 OOHW Justification

Construction work associated with the Project will be undertaken in accordance with the assessment and management approach outlined in the Interim Construction Noise Guidelines (ICNG). The ICNG requires that work proposed outside of approved construction hours must be appropriately justified. In general, OOHW undertaken during public infrastructure projects necessary to sustain the operational integrity of roads, is considered justified in the ICNG.

3.3 OOHW Permit

As per MCoA D38(a) approval of OOHW is dependent upon the types of activity proposed. The works must be categorised by risk and the approved framework as follows:

- (a) the ER and AA review all proposed out-of-hours activities and confirm their risk levels,
- (b) low risk activities can be approved by the ER in consultation with the AA, and
- (c) high risk activities are approved by the Planning Secretary.

To facilitate this process, the Transport for Tomorrow Out-of-Hours Work Permit will be utilised (refer to Appendix A).

The OOHW Permit is to be used for all OOHW applications to ensure due diligence is undertaken by requiring the applicant to:

- Provide justification for the works to be undertaken outside of approved hours,
- Adequately assess the noise impacts at nearest receivers,
- Demonstrate mitigation measures being implemented, and
- Request formal review and approval by Sydney Metro prior to commencement.

The OOHW Permit ensures that a preliminary quantitative noise assessment is undertaken for every application, supported by the DNVIS and noise and vibration impact assessments as described in this Protocol.

Once prepared the OOHW Permit is submitted to the Place Manager, Sydney Metro Environment Manager, AA, ER for review. Any of the reviewers may provide comments on the application, which need to be adequately addressed by the contractor in a resubmitted application to the satisfaction of the comment provider(s).

3.4 OOHW Review and Approval

All OOHW for the Tft Sydney Metro Enabling Works requires review and endorsement by the AA and in accordance with MCoA D38, approval by either the ER, or in the case of 'high risk' works, by the Secretary. The requirements of these conditions are to be specifically addressed in each OOHW application as relevant.

Further details about the classification of 'high risk' work is detailed in [Section 5](#).

For any proposed OOHW, process identified as described below and shown in [Figure 1](#) will be undertaken:

1. An OOHW Permit will be prepared that summarises the activities, equipment required, location and duration and include a detailed justification for works.

2. The OOHWP Permit will be submitted to the Environment Team to include assessment outcomes. Where an existing activity has been assessed under the DNVIS, no further assessment is required. New activities or changes of activities described in the DNVIS will be assessed (refer to [Section 4](#)) to determine predicted noise impacts and appropriate mitigation measures (refer to [Section 6.1](#)).
3. The Transport for Tomorrow (TfT) Environment Manager will determine whether the justification for the OOHWP works is satisfactory and that the noise assessment and mitigation measures are appropriate and will allocate the appropriate risk category.
4. The OOHWP Permit will be submitted to the ER/AA/Sydney Metro for review and confirmation of risk allocation (ER and AA only). The AA will endorse the OOHWP Permit and if confirmed as low risk, the ER will approve, or if confirmed as high risk, approval will be sought from the Planning Secretary (refer to [Section 5](#)).
5. Community consultation and notification will be undertaken in accordance with the Project Communication Strategy (refer to [Section 6](#)).
6. Mitigation measures and monitoring as identified in the OOHWP Permit will be undertaken during the works (refer to [Section 8](#) and the Project's Construction Noise and Vibration Monitoring Program)

The process for undertaking planned OOHWP is provided in [Figure 1](#).

Sydney Metro Enabling Works

Out of Hours Work (OOHW)

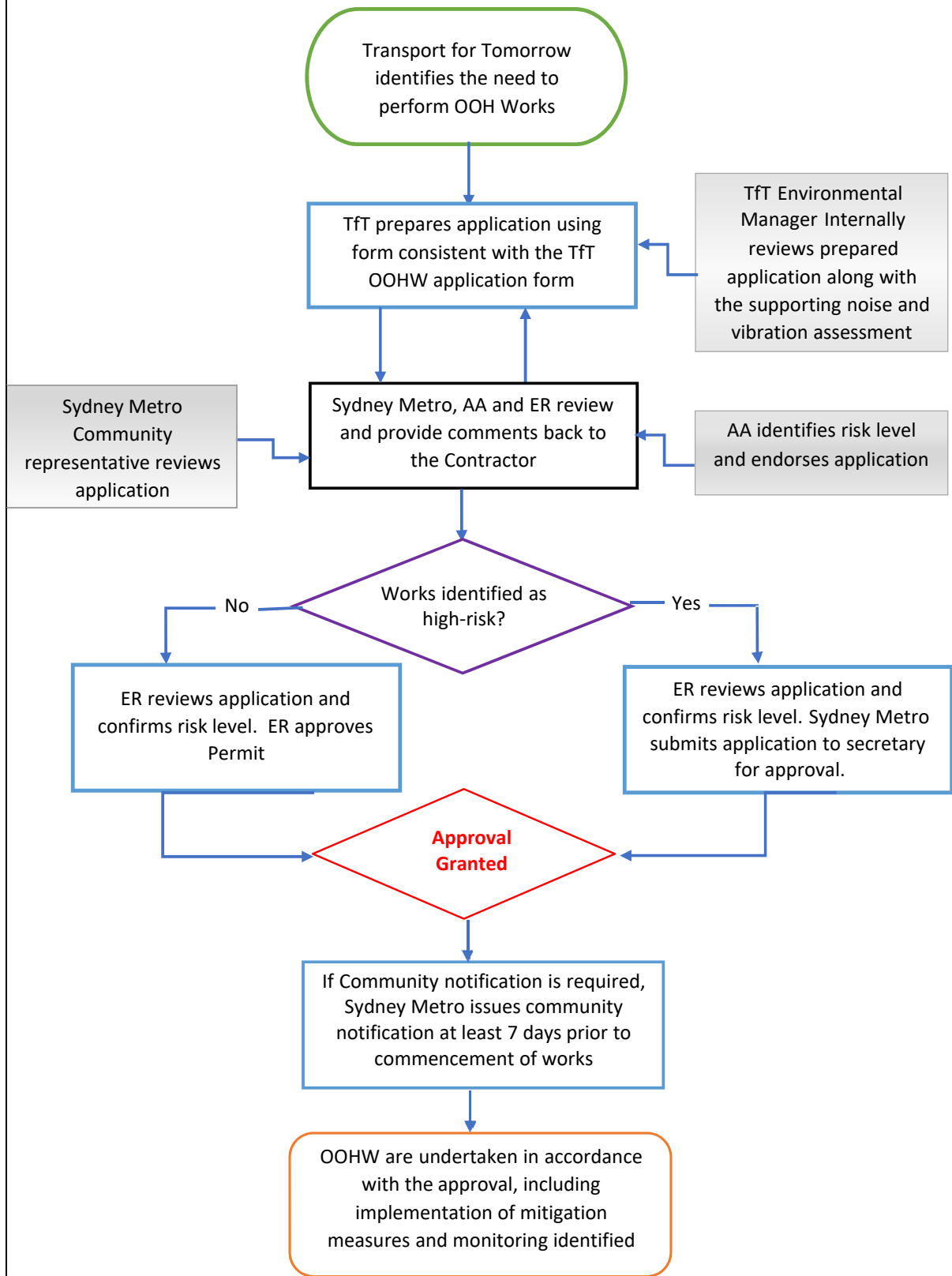


Figure 1 OOHW Process Flow chart

3.5 Emergency Works

Occasionally there may be a need to undertake emergency works outside of standard working hours, including:

- for the delivery of materials required by the NSW Police Force or other authority for safety reasons or
- 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.

On becoming aware of the need for emergency work in accordance with MCoA D37 (a)(ii), Transport for Tomorrow (TfT) will notify Sydney Metro, the AA, the ER, and Sydney Metro will notify the Planning Secretary and the EPA (if required) providing the reasons for such work.

Best endeavours will be made to notify as soon as practicable all noise and/or vibration affected sensitive land user(s) of the likely impact and duration of those work, with as much details as possible regarding:

- Scope,
- Location,
- Hours,
- Duration,
- Types of equipment to be used, and
- Likely impacts.

On the following workday of completion of any emergency works being undertaken, a summary will be provided to Sydney Metro, the AA and ER, including:

- Date, time, duration and cause of the emergency,
- Description of emergency works undertaken,
- Mitigation measures implemented to address the impacts of the emergency works, and
- Actions/Measures taken or to be taken to prevent or mitigate recurrence of the emergency.

The process for undertaking emergency OOHW is provided in [Figure 2](#).

Sydney Metro Enabling Works

Emergency Out of Hours Work (OOHW) Process

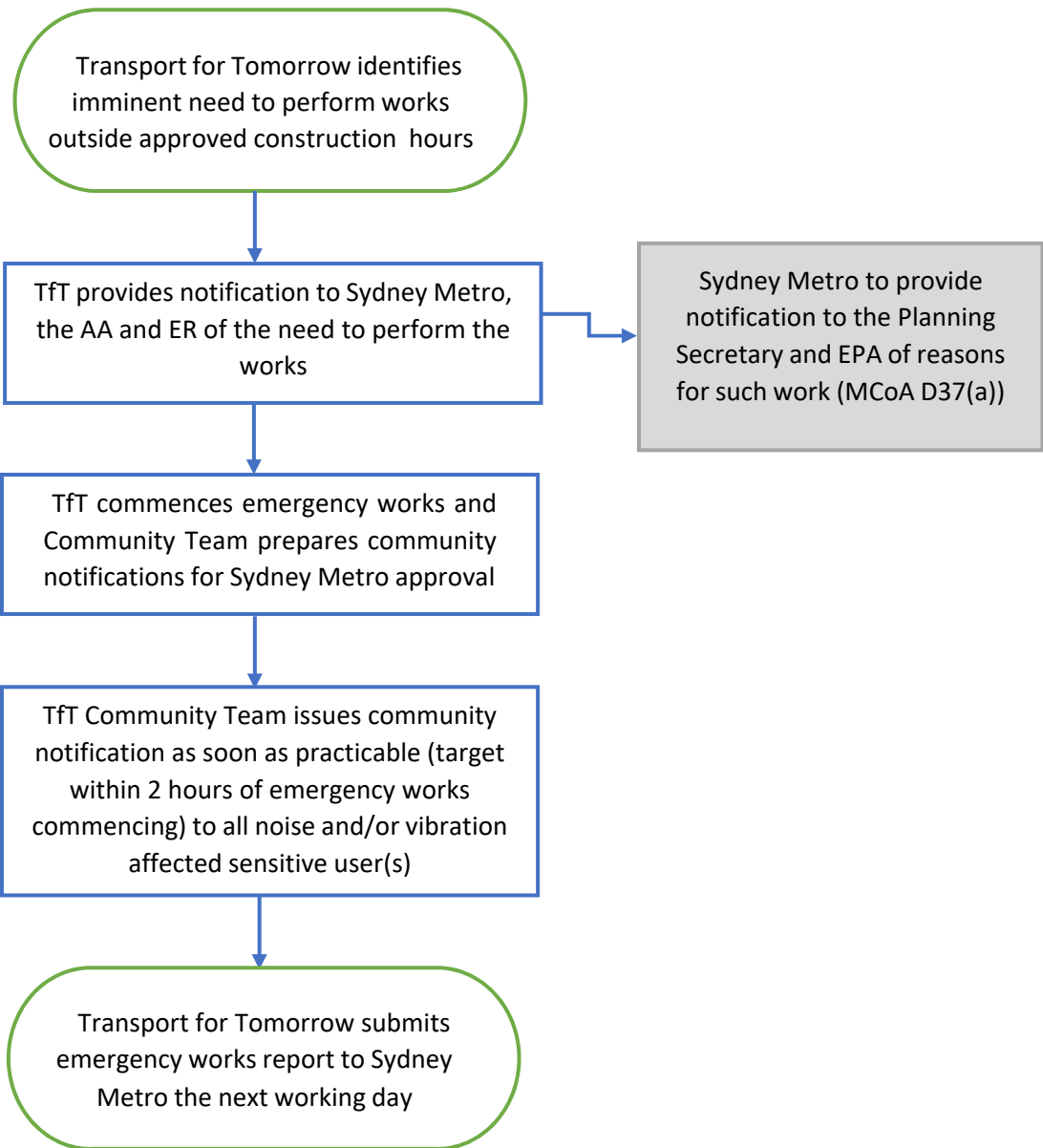


Figure 2 Emergency OOHW Flowchart

4. OOHW Impact Assessment

4.1 Noise and vibration assessment criteria

Guidelines for establishing project-specific noise and vibration criteria to guide the application of mitigation measures are described in [Section 8](#) of the Transport for Tomorrow CEMP and includes the following:

- (a) Air-borne and ground-borne noise - the Interim Construction Noise Guideline (DECC, 2009),

Note: The Interim Construction Noise Guideline identifies ‘particularly annoying’ activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level (NML).

- (b) Vibration (human comfort) - Assessing vibration: a technical guideline (DECC, 2006)
- (c) Building damage - BS 7385 Part 2-1993 “*Evaluation and measurement for vibration in buildings Part 2*” as they are “applicable to Australian conditions”
- (d) Heritage items - *German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage)* (applicable when a heritage-listed structure is identified in poor condition).
- (e) Additional mitigation for residual impacts - *RMS Construction Noise and Vibration Guideline – Version 1, 2016*

Project-specific Noise Management Levels (NMLs) and sleep disturbance criteria for each Noise Catchment Area (NCA) within the project area will be applied as per the Sydney Metro West Environmental Impact Statement - Westmead to The Bays and Sydney CBD.

4.2 Noise and vibration assessment

4.2.1 Assessment Method

Where OOHW is proposed, information from the DNVIS will be used to predict noise and vibration impacts. Where the proposed OOHW activity is different from those presented in the DNVIS, a noise assessment to determine the noise and vibration impacts of the proposed OOHW will be undertaken. These supplementary assessments will use an appropriately detailed noise prediction tool. TfT will utilise the TfNSW Noise Estimation Tool (DMS-FT-150) to complete its own assessment. This provides opportunity to proactively plan OOHW and make adjustments as necessary.

Each assessment of proposed OOHW will incorporate quantitative prediction of the noise level and extent of noise impact that activities will have on potentially affected sensitive receivers, based on inputs including location, and the types and number of construction machinery operating at any one time.

Vibration will be assessed based initially on standard safe working distances of selected vibration-intensive equipment. Vibration resulting from TfT activities will be managed in accordance with the TfT CEMP and below:

- for structural damage vibration - British Standard BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2.
- for human exposure to vibration the acceptable vibration - values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006) which includes British Standard BS 6841:1992 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz).

4.2.2 Reporting

A report for each noise assessment will be provided to each OOHW application, and will include:

- details of the nature and scope of each activity, including times, location(s) of works, duration;
- plant and equipment to be used with estimated equipment sound power levels (including 5 dB penalty where applicable for annoying characteristics);
- justification of the need to work outside approved hours;
- relevant noise management levels and vibration criteria;
- an evaluation of predicted noise levels with a summary of the number of exceedances;
- assessment of sleep disturbance, including number of sleep awakening events;
- assessment of vibration (whether works are likely to be within safe working distances for selected plant); and
- recommended standard and additional mitigation measures. Additional mitigation measures will be recommended based on the CNVS and predicted levels of exceedance at each identified sensitive receiver.

5. High and Low Risk Activities Approval

The proposed OOHW will be classified as either low or high risk, which will then be subject to the relevant approval pathway:

- Low risk activities can be approved by the ER in consultation with the AA, and
- High risk activities are approved by the Planning Secretary.

The following definition of high and low risk activities has been prepared to minimise the frequency and duration of works with unacceptable noise and/or vibration impacts, as shown in Table 4.

Table 4 Classification of Low and High Risk OOHW

Low Risk	High Risk
<p>Works that do not trigger the three 'high risk' criteria for residential receivers</p> <p>Works that are not considered high risk following consultation with the AA and Sydney Metro Communications Manager</p>	<p>As a default risk level, OOHW will be categorised as 'high risk' if all of the following three criteria apply:</p> <ul style="list-style-type: none"> • The type and sensitivity of the affected noise sensitive receivers is categorised as either Moderate Impact receivers (e.g. standard residential/typical density) or High Impact receivers (e.g. elderly/high density/persistent complainers/residents experiencing construction noise fatigue); and • The predicted noise level of the OOHW has a likelihood for potential sleep disturbance (i.e., Rating Background Level + 15 dB or more); and • The type of and intensity of noise emitted from the OOHW is categorised as High Impact (e.g; prolonged high noise and/or vibration intensive activities), <p>For non-residential receivers, OOHW may be considered as 'high risk' if undertaken during trading hours and in close proximity to their place of business (for example, during Saturday evening trading hours). Since each non-residential receiver has different business needs, it is imperative that the Sydney Metro Communications Manager and the AA discuss each OOHW application to better understand how the proposed OOHW would impact the business.</p>

As part of their review, using the default risk level as a 'starting point', the AA and ER will consider all other relevant factors to confirm or adjust the nominated risk level. These relevant factors include:

- Those identified in the Sydney Metro West CNVS;
- Those listed in Table 5 of this document;
- Third Party permits; and
- Any other factors the AA considered relevant in their professional opinion.

These factors may cause the default risk level to be modified from either 'high risk' to 'low risk' (or vice versa), as the AA/ER deems appropriate in their professional opinion.

Once the AA & ER has confirmed the final risk level for the OOHW application and indicated the risk level on the application (including any risk identification commentary), they will sign and date the application in the format of endorsement for the AA and review for the ER. Following this, approval will be granted by the ER in consultation with the AA (for low risk works) or DPE (for high risk works).

Table 5 Risk Level Considerations

Type	Risk Level Considerations
Predicted Noise Exceedance	The degree of predicted noise level exceedance above the RBL or NMLs appropriate
Certainty	Whether RBLs, NMLs or predicted noise impacts are not well understood
Past Experience	Nature of works are new, in a new location or have not been undertaken by the contractor on the project already
Negotiated Agreement with Sensitive Receivers	Whether negotiated agreements have been obtained in accordance with MCoA D38
Potential Sleep Disturbance	Whether the activity is likely to exceed the Project's sleep disturbance criteria
Non-Residential Receivers	Whether the impacted non-residential receivers operate within the same time period as scheduled OOHW.
Special Events	The timing and location of special events in the area of the proposed OOHW may be scheduled at the same time or immediately before or after the special event (e.g., festivals, public gatherings etc.)

Following approval by the ER or the Planning Secretary, the approved OOHW Permit will be provided to the construction team by the Transport for Tomorrow Environment Manager. Mitigation measures that relate to the OOHW will be:

- Implemented prior to OOHW (such as specific conditions that relate to the community).
- Communicated to relevant workforce and site personnel before each shift to introduce/reinforce work restrictions, management measures and expected workforce behaviour.
- Implemented during OOHW and monitored by Transport for Tomorrow to confirm/validate the noise predictions where required by the permit.

Following the OOHW, Transport for Tomorrow will review any lessons learnt and monitoring data to help inform future OOHW activities and mitigation measures and minimise impacts.

5.1 External Approval Notification of OOH Works

In accordance with CoA D38(a)(iii), if the proposed OOHW includes high risk activities, approval of the OOHW will be sought from the Secretary.

The AA receives information on OOHW and respite through approval of the OOHW Permits. The avenue for providing this information to EPA and DPE shall be through the addition of nominated EPA and DPE representatives to the distribution lists for Newsletters (three (3) month programme) and Notifications (seven (7) day program). These consultation tools are also posted on the Sydney Metro website.

Notification to the Planning Secretary of approved low risk out-of-hours is to be provided via the Monthly ER and AA reports.

6. Mitigation measures and consultation

This section sets out the standard construction noise and vibration mitigation measures to be implemented in the Sydney Metro West Enabling project and delivered via relevant procedures, systems, environmental assessment, construction environmental management and all relevant contract documentation.

For this project, the standard mitigation measures listed in Sydney Metro CNVS (v4.3) shall be applied where feasible and reasonable in order to minimise the potential noise and vibration impacts at the surrounding Noise Sensitive Receivers. The mitigation measures for residual impacts includes consultation with the community at each affected location and includes respite periods consistent with the requirements of Condition of Approval D50. The measures take into account the predicted noise levels and the likely frequency and duration of the out-of-hours works that sensitive land user(s) would be exposed to, including the number of noise awakening events.

All reasonable and feasible mitigation measures must be applied when the following residential ground-borne noise levels are exceeded:

- (a) evening (6:00 pm to 10:00 pm) — internal LAeq (15 minute): 40 dB(A); and
- (b) night (10:00 pm to 7:00 am) — internal LAeq (15 minute): 35 dB(A).

6.1 Mitigation

Works outside approved hours are typically undertaken at a time most people are more sensitive to noise and vibration and background levels of noise are quieter. This increases the level of risk for adverse impacts on the community.

Transport for Tomorrow will implement all reasonable and feasible measures for noise mitigation and management described in its CEMP (Appendix E) regardless of predicted noise levels. These actions will include as a minimum:

- management of behaviour such as avoiding shouting and swearing, turning off idling equipment when not in use, avoiding impulsive noise (metal on metal contact),
- selection of quieter equipment such as smaller, lower powered, newer, or better maintained.
- examining alternative technologies and methods to complete activities more quietly
- programming to avoid noisy activities after midnight as far as practicable (such as hammering, sawing etc.)

- use of screens and enclosures to reduce noise emissions from equipment.
- adequate consultation and notification (as described below)

In addition to the above standard mitigation measures, the additional mitigation measures described in the CNVS (Section 5) and referenced in Appendix E of the CEMP (Noise and Vibration Environmental Risk Action Plan) will be implemented as far as they are reasonable and feasible.

6.2 Additional Mitigation Measures

The implementation of the standard mitigation measures, compliance with maximum sound power levels for plant and equipment, construction hour management and standard community consultation measures should significantly reduce the noise and vibration impacts on nearby sensitive receivers. However, some exceedances of the construction noise and vibration management levels are likely to be unavoidable. Where there is potential exceedances of the construction noise and vibration management levels, the following additional mitigation measures are applied as outlined in Table 6, 7 and 8.

Table 6: Additional Mitigation Measures:

Measure	Description	Abbreviation
Alternative Accommodation	Alternative accommodation options may be provided for residents living in close proximity to construction works that are likely to incur unreasonably high impacts over an extended period of time. Alternative accommodation will be determined on a case-by-case basis.	AA
Monitoring	Where it has been identified that specific construction activities are likely to exceed the relevant noise or vibration goals, noise or vibration 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 noise or vibration goal has been exceeded so that additional management measures may be implemented.	M
Individual briefings	Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Communications representatives from the contractor 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.	IB
Letter box drops	For each Sydney Metro 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 and 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 project-by-project basis. Most projects distribute notifications on a monthly basis. Each newsletter is graphically designed within a branded template	LB

Project specific respice offer	The purpose of a project specific respice offer is to provide residents subjected to lengthy periods of noise or vibration respice from an ongoing impact.	RO
Phone calls and emails	Phone calls and/or emails detailing relevant information would be made to identified/affected stakeholders within 7 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.	PC
Specific notifications	Specific notifications would be letterbox dropped or hand distributed to identified stakeholders no later than 7 days ahead of construction activities that are likely to exceed the noise objectives. This form of communication is used to support periodic notifications, or to advertise unscheduled works.	SN

In circumstances where following application of the standard mitigation measures, the LAeq(15minute) construction noise and vibration levels are still predicted to exceed the Noise Management Level, the relevant Additional Mitigation Measures (AMM) are considered to determine any offset strategies for these impacts (Table 7,8,9).

The following steps need to be carried out to determine the Additional Mitigation Measures to be implemented:

- Determine the duration (time period) when the work is to be undertaken.
- Determine the level of exceedance above the NML.
- From the AMM table, identify the additional mitigation measures to be implemented (abbreviation codes are explained in Table 6).

Table 7: Additional Mitigation Measures: Airborne Construction Noise

Time Period		Mitigation Measures			
		Predicted LAeq (15minute) noise level Above NML			
		0 to 10 dB	10 to 20 dB	20 to 30 dB	> 30 dB
Standard	Mon-Fri (7.00 am - 6.00 pm)	-	LB	LB, M, SN	LB, M, SN
	Sat (8.00 am - 1.00 pm)				
	Sun/Pub Hol (Nil)				
OOHW (Evening)	Mon-Fri (6.00 pm - 10.00 pm)	LB	LB, M	LB, M, SN, RO	LB, M, SN, IB, PC, RO
	Sat (1.00 pm - 10.00 pm)				
	Sun/Pub Hol (8.00 am - 6.00 pm)				
OOHW (Night)	Mon-Fri (10.00 pm - 7.00 am)	LB	LB, M, SN, RO	LB, M, SN, IB, PC, RO, AA	LB, M, SN, IB, PC, RO, AA
	Sat (10.00 pm - 8.00 am)				
	Sun/Pub Hol (6.00 pm - 7.00 am)				

Table 8: Additional Mitigation Measures: Ground-borne Construction Noise

Time Period		Mitigation Measures		
		Predicted LAeq (15minute) noise level Above NML		
		0 to 10 dB	10 to 20 dB	> 20 dB
Standard	Mon-Fri (7.00 am - 6.00 pm)	No NML for GBN during standard hours, refer to Table 18		
	Sat (8.00 am - 1.00 pm)			
	Sun/Pub Hol (Nil)			
OOHW (Evening)	Mon-Fri (6.00 pm - 10.00 pm)	LB	LB, M, SN	LB, M, SN, IB, PC, RO
	Sat (1.00 pm - 10.00 pm)			
	Sun/Pub Hol (8.00 am - 6.00 pm)			
OOHW (Night)	Mon-Fri (10.00 pm - 7.00 am)	LB, M, SN	LB, M, SN, IB, PC, RO, AA	LB, M, SN, IB, PC, RO, AA
	Sat (10.00 pm - 8.00 am)			
	Sun/Pub Hol (6.00 pm - 7.00 am)			

Table 9: Additional Mitigation Measures: Ground-borne Vibration

Time Period		Mitigation Measures
		Predicted Vibration Levels Exceed Maximum Levels
Standard	Mon-Fri (7.00 am - 6.00 pm)	LB, M, RO
	Sat (8.00 am - 1.00 pm)	
	Sun/Pub Hol (Nil)	
OOHW (Evening)	Mon-Fri (6.00 pm - 10.00 pm)	LB, M, IB, PC, RO, SN
	Sat (1.00 pm - 10.00 pm)	
	Sun/Pub Hol (8.00 am - 6.00 pm)	
OOHW (Night)	Mon-Fri (10.00 pm - 7.00 am)	LB, M, IB, PC, RO, SN, AA
	Sat (10.00 pm - 8.00 am)	
	Sun/Pub Hol (6.00 pm - 7.00 am)	

6.3 Consultation

Consultation on respite with the affected community will be undertaken to meet the requirements of MCoA D51, as described in Section 7.1.

In line with MCoA D41, noise generating work in the vicinity of potentially affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories, and operating theatres) resulting in noise levels above the NMLs must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution. Sensitive periods and potential alternative arrangements will be determined by the consultation process described on the Community Consultation Strategy to be implemented by Sydney Metro.

The process of consultation and notification will be coordinated between TfT, Metro and Department of Planning and Environment. Sydney Metro will interface with the Planning Secretary for relevant conditions of approval.

6.4 Community Notification

Community notifications can be used as a mitigation measure for receivers of noise and vibration impacts as a result of OOHW.

Community notifications usually comprise of letterbox-dropped or hand-distributed notification letters to identified stakeholders prior to the commencement of works. Communities are more likely to understand and accept the impacts from noise and vibration if they are provided with honest detailed information and commitments on mitigation measures to be implemented that are adhered to by the project prior to the works commencing.

Community notification requirements are included in the CNVS and outlined in the Community Communications Strategy. Specific notifications of OOHW events will be issued to potentially affected sensitive receivers at least five days, and not more than 14 working days, prior to the OOHW commencing.

OOHW notifications will be prepared generally in accordance with the CNVS and will:

- Be undertaken by letterbox drop or email
- Clearly outline the reason that the work is required to be undertaken outside standard construction hours specified
- Include a diagram that clearly identifies the location of the proposed works in relation to nearby cross streets and local landmarks
- Include details of relevant time restrictions that apply to the proposed works
- Clearly outline in plain English, the location, nature, type of work, scope and days and dates and hours of the proposed works
- Outline expected noise impact of the works on potentially affected noise sensitive receivers
- Detail mitigation and management measures and proposed respite periods
- Clearly state how complaints may be made and additional information obtained
- Include the number of the 24-hour telephone complaints line, site contact where available and the Project website address.

In accordance with MCoA D45, landowners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage will also be notified prior to OOHW that generate vibration commencing near those properties.

If the potential exceedance is to occur more than once, or extend over a period of 24 hours, landowners and occupiers would be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the landowner and occupier.

6.5 Negotiated Agreements

A negotiated agreement for particular OOHW may be formed with the potentially affected sensitive receiver in accordance with MCoA D37(c)(iii). These negotiated agreements would be undertaken and documented by the Sydney Metro Place Manager and will be included as evidence for relevant OOHW applications.

A substantial majority of those sensitive receivers that are contactable need to agree to support the negotiated agreement for it to be considered. 'Contactable' is defined as having correspondence (either verbal or written) from receivers within a two-week timeframe. The Land Use Survey, noise and vibration assessment for OOHW (either as part of or in addition to the DNVIS) and the Place Manager will advise of potentially affected sensitive receivers to be contacted.

Upon approval of any OOHW applications containing negotiated agreements, Sydney Metro will forward the negotiated agreement documentation to the Secretary for information at least one week prior to the OOHW commencing.

7. Scheduling and Respite

7.1 Respite

Providing respite is an important component of reducing impacts to potentially affected receivers. OOHW, including work undertaken by other projects, must be coordinated to ensure respite periods are not impacted (discussed further in Section 7.2).

Consultation is critical in ensuring the community's expectations are managed, their concerns are heard, appropriate respite and other mitigation is implemented and works outside of approved hours are not unexpected. As per MCoA D51, appropriate respite periods for the OOHW will be identified in consultation with the community at each affected location on a regular basis. This consultation will include providing the community with:

- a progressive schedule for periods no less than three (3) months, of likely out-of-hours work,
- a description of the potential work, location and duration of the out-of-hours work,
- the noise characteristics and likely noise levels of the work; and
- likely mitigation and management measures which aim to achieve the relevant NMLs under MCoA D39 (including the circumstances of when respite or relocation offers will be available and details about how the affected community can access these offers).

The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hour work will be provided to the AA, EPA, ER and the Planning Secretary as a D51 report prepared by Sydney Metro and submitted quarterly to these third parties. The D51 report relies on information of TtTs consultation activities captured in Consultation Manager.

Respite periods can be any combination of days or hours during which receivers are not impacted by works resulting in noise levels greater than 5 dB(A) above the RBL at any residence. There are three main forms of respite to be considered for the Project, described further below.

Consultation between the community, adjacent works, relevant councils, Sydney Metro and TtT occur on a regular basis to ensure adequate mitigations are applied to affected receivers. This includes but is not limited to meetings held with local councils, letter box drops, phone calls, door knocking and the project webpage with additional information. Cumulative impacts from TtT and adjacent works are to

be communicated collectively within monthly Sydney Metro community notifications and/or newsletters.

7.1.1 High noise or vibration emitting works

For high noise or vibration emitting works a respite scenario of three hours on followed by one hour off will be implemented in accordance with MCoA D36 and CNVS Section 4.2. This will apply to the following activities unless otherwise agreed by potentially impacted receivers:

- Use of power saws, such as used for cutting timber, masonry, road pavement or steel work,
- Grinding metal, concrete or masonry,
- Rock drilling,
- Line drilling,
- Vibratory rolling,
- Bitumen milling or profiling,
- Jackhammering, rock hammering or rock breaking,
- Rail tamping and regulating and
- Impact piling.

7.1.2 Project specific respite offers

The CNVS (Section 5) requires project specific respite offers are to be made for all OOHW that are predicted to generate impacts that exceed the criteria (refer to CNVS Section 5.1) for the applicable OOHW period. The purpose of a project specific respite offer is to provide residents subjected to lengthy periods of noise or vibration a respite from an ongoing impact. Respite may be offered in the form of a reduction or absence of noise emissions for a period of time, or by removing the affected receiver from the noise emission point source (e.g., dinner/movie tickets).

If a project specific respite offer is required, a decision on the type of offer will be determined on a case-by-case basis and considering, but not limited to, the following factors:

- the predicted maximum exceedance level
- the predicted exceedance levels and associated duration and timings of those exceedance levels
- the overall duration of the predicted exceedance levels
- surrounding land uses
- community feedback
- any other OOHW (Sydney Metro or otherwise) that have affected or will affect the same receivers concurrently or within three days of either the start or end of the proposed OOHW.

7.1.3 Alternative Accommodation

As described in the CNVS (Section 5), alternative accommodation options may be provided for residents living in close proximity to construction works that are likely to incur unreasonably high impacts over an extended period of time. Specific triggers for alternative accommodation are provided in CNVS Section 5.2.

As per the project specific respite offers, alternative accommodation will be determined on a case-by-case basis, in consideration of the same contributing factors as listed in 7.1.2. Alternative accommodation will be offered by the Place Manager in consultation with each triggered receiver, to understand and align with their respite preferences.

7.2 Scheduling

As part of the noise and vibration assessment process under MCoA D50, Transport for Tomorrow will ensure all OOHW undertaken for the delivery of the CSSI, including works undertaken by a third party, are coordinated to implement appropriate respite and/or mitigation measures for potentially affected sensitive receivers and ensure respite would be coordinated to ensure agreed respite is provided.

Works undertaken as part of this OOHW Protocol will be scheduled to minimise or avoid any impact to agreed respite due to:

- other works, which may have been approved via other pathways, such as negotiated agreements (MCoA D37(c)(iii));
- works associated with other major projects or known third parties works which may also reduce the respite provided to the community.

Scheduling of these activities will consider in each case the reduction in respite due to other approved works. Ideally, works will be scheduled to occur within the same OOHW period to preserve non-work periods. To achieve this, consultation will be undertaken with the project environment team, Place Manager, Transport for Tomorrow construction team and, where possible, applicable third parties to ensure works can be coordinated to satisfy MCoA D37.

In accordance with the REMMS (NV18), Transport for Tomorrow will participate with Sydney Metro forum that coordinates between potentially interacting projects to minimise concurrent or consecutive works in the same areas, where possible. Specific mitigation strategies would be developed to manage impacts. Depending on the nature of the impact, this could involve adjustments to construction program or activities of Sydney Metro West or of other construction projects.

8. OOHW Monitoring

Noise and Vibration monitoring of OOHW will be conducted as determined by a DNVIS, TfNSW Tool Noise Estimation Tool (DMS-FT-150) or as triggered by the additional mitigation measures described in the CNVS. These monitoring requirements will be identified on the OOHW Permit.

APPENDIX A – OOHW PERMIT

Transport for Tomorrow: Sydney Metro West Enabling Works Out of Hours Work Permit

Document details

Title	TfT Sydney Metro West Enabling Works - Out of Hours Work Permit
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Document revision history and sign off

Revision	Date	Revision description	Prepared	Reviewed	Approved
Rev A					

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1. Permit Reference

This Out of Hours Works Permit (the Permit) of Transport for Tomorrow is to be used for review and approval of Out of Hours Work (OOHW) on the Sydney Metro West project.

Each Permit and all relevant information must be submitted to Sydney Metro by 15 business days prior to the commencement of the proposed OOH work.

1	Permit Reference	Activity Details
1a	Application Title: E.g., 'Station St Service relocation works'.	
1b	Application Number	
1c	Application Date: (resubmission date in parentheses if applicable).	
1d	Revision Number:	
1e	Description of works location and layout figure attached as Appendix A (Y/N):	

2. Out of Hours Work (OOHW) Details

2	OOHW Details	Activity Details
2a	Activity reference from DNVIS	
2b	<p>Are the works consistent with the description in the DNVIS (Y/N)?</p> <p>If 'No', detail any changes from the activity description provided in DNVIS:</p> <p>Or</p> <p>Description of activities if not included in DNVIS:</p> <ul style="list-style-type: none"> • Work Methodologies • Plant/equipment to be used • Location of works or plant/equipment offset from receivers • Justification 	
2c	<p>Timing details, including:</p> <ul style="list-style-type: none"> • Duration - commencement and completion of total activity • Start and end times per shift • Breakdown of major activities across each shift including any activity/plant specific timing or duration restrictions to be applied. 	

2	OOHW Details	Activity Details
	Please include this as a separate attachment if works exceed one shift.	
2d	Are the works being undertaken under a Third-Party permit (e.g., Road Occupancy Licenses)? (Y/N) Include evidence in Appendix E .	
2e	Applicable category of OOHW as described in MCoA D37.	(a) Safety and Emergencies (b) Low Impact (c) By Approval (d) By Prescribed activity

3. Noise and Vibration Assessment Outcomes and Mitigation Measures

3	Noise and vibration assessment outcomes and mitigation measures	
3a	1. For works consistent with a DNVIS attach: <ul style="list-style-type: none"> i. Relevant list of worst-case scenario receiver noise levels noting required Additional Mitigation Measures (AMM - as per Sydney Metro CNVS) as Appendix B. ii. Noise and Vibration assessment results as Appendix C. 2. For works not consistent with a DNVIS please complete an alternative Noise and Vibration Assessment and attach outcomes in Appendix B and C as described above.	
3b	Confirmation works comply with definition of Low Impact OOHW as per MCoA D37 (b)	
3c	Outline the activity specific noise mitigation measures to be implemented for these works.	
3d	Describe any AMM that are identified as applicable for consideration but not being implemented, with justification as to why not.	
3e	Are any residential receivers or other sensitive receivers identified as triggering the noise sleep disturbance criteria as described in a DNVIS or Noise and Vibration Assessment?	
3f	Are any proposed vibration generating activities forecast to exceed the following criteria (Y/N)? If yes, please provide details: (a) 2.5mm/s PPV (worst case scenario) for heritage structures.	
	(b) Vibration (worst case scenario) for the human comfort VDV criteria relevant to the proposed works.	

3 Noise and vibration assessment outcomes and mitigation measures		
	(c) Vibration (worst case scenario) for the cosmetic damage PPV criteria applicable to the proposed works.	

4. Monitoring Summary

4 Monitoring Summary			
	Type of monitoring required: e.g. • Noise or Vibration • Attended or Unattended	Reason for monitoring. E.g. • Heritage item • Triggered by noise impacts • Potential sleep disturbance • Potential vibration impact	Proposed location of monitoring (note subject to change based on location of closest sensitive receiver at the time the monitoring is occurring).
4a			
4b			
4c			

5. Cumulative Impacts

5 Cumulative Impacts		
5a	Will any other surface OOHV activities impact the same receivers, either concurrently or upon the following night period of the start or end of these proposed works?	
5b	If Yes, how have the proposed works been coordinated to ensure appropriate respite is provided?	

6. Community Consultation

6 Community Consultation (Sydney Metro West Community Team)		
6a	What community consultation has been undertaken already?	
6b	What community consultation is planned to be undertaken?	
6c	If drafted, attach any applicable Community Notification as Appendix D.	

7. Contractor's Signatures

7 Contractor's Signatures		
Contractor's Identification of Risk Level. Does not apply to Low Impact OOH	Circle Low or High risk whichever is applicable.	
	LOW	HIGH
Justification for Risk Level: Does not apply to Low Impact OOH		
Contractor's Signature:		
Name:		
Title:		
Contact Number:		
Date:		

8. Determination

	Step 1: Review and Acceptance from Sydney Metro	Step 2a: AA confirmation of risk level (does not apply to Low Impact OOHV)	Step 3a: ER confirmation of risk level (does not apply to Low Impact OOHV)	<ul style="list-style-type: none"> Step 4: Approval ER (Low Risk) DPE (High Risk) N/A (Low Impact OOHV)
		AA confirmed risk level (circle): LOW or HIGH	ER confirmed risk level (circle): LOW or HIGH	
		Step 2b: AA Endorsement	Step 3b: ER Review	
Name:				
Role:				
Date				
Signature:				
Comments:				
Conditions:				

Appendix A	Location of Works Map
Appendix B	Receiver Noise Levels Table
Appendix C	Noise and Vibration Assessment Results
Appendix D	Community Notification
Appendix E	Evidence of Third-Party Approval

APPENDIX B - POSSESSION CALENDAR

Location	Weekend	Configuration	Date/Time of Possession
Westmead	17	5 (Up & Down Suburbans Live)	23/10/2021 to 24/10/2021
Westmead	29	6 (Up Main Live)	15/01/2022 to 16/01/2022
Westmead	32	5 (Up & Down Suburbans Live)	5/02/2022 to 6/02/2022
Westmead	33	7 (Down Main West platform 4 only) - Up Main, Up & Down Sub Live (extend to Parramatta platform)	12/02/2022 to 13/02/2022
Westmead	36	6 (Down Main West platform 4 only) - Up Main, Up & Down Sub Live (extend to Parramatta platform)	5/03/2022 to 6/03/2022
Westmead	44	6	30/04/2022 to 1/05/2022
Westmead	48	7 (Down Main West platform 4 only) - Up Main, Up & Down Sub Live (extend to Parramatta platform)	28/05/2022 to 29/05/2022
Westmead	49	5 (Up & Down Suburbans Live)	4/06/2022 to 5/06/2022
Westmead	8	6 (Up Main Line Live)	20/08/2022 to 21/08/2022
Westmead	13	5	24/09/2022 to 25/09/2022
Westmead	23	6 (Down Main Line Live)	3/12/2022 to 4/12/2022
North Strathfield	37	9	12/03/2022 to 13/03/2022
North Strathfield	50	9	11/06/2022 to 12/06/2022
North Strathfield	4	9	23/07/2022 to 24/07/2022
North Strathfield	17	9	22/10/2022 to 23/10/2022
North Strathfield	18	9	29/10/2022 to 30/10/2022
North Strathfield	37	9	11/03/2023 to 12/03/2023

*Indicative possession calendar for the project – subject to change

APPENDIX C - CONSULTATION

Consultation Summary per CSSI condition A6

Stakeholder	Date Issued	Date Comments Received	Consultation Evidence	Comments Received	Comments Addressed
EPA	30/11/21	3/12/21	Email included below	EPA confirmed no comments on the Tft OOHW Protocol	NA
AA	3/12/21	14/12/21	Meeting held 8/12/21 Note below	Comments received via email in regard to Sleep Disturbance and specific CoA compliance	Yes
ER	3/12/21	14/12/21	Meeting held 8/12/21 Note below	Comments received via email in regard to Community Consultation and specific CoA compliance	Yes

Ambler, Jason

From: Jacqueline Ingham <Jacqueline.Ingham@epa.nsw.gov.au>
Sent: Friday, 3 December 2021 9:09 AM
To: Ambler, Jason
Cc: Moore, Tahli; Mark Jansons; Afnan Fazli
Subject: RE: Sydney Metro West Out-of-Hours Works Protocol - Transport for Tomorrow

CAUTION - This email was sent from outside Laing O'Rourke

Hi Jason

The EPA's position on post approval management plans, including Out-of-Hours Works Protocols required under a consent, is to encourage the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives.

However, we do not approve or endorse these documents as our role is to set environmental objectives for environmental management and not to be directly involved in the development of strategies to achieve those objectives. Therefore we will not be providing comments on the Protocol.

The EPA may however request such documents are submitted with Environment Protection Licence applications (if required) or variations to ensure compliance with s45 of the POEO Act and to support those decisions.

Regards

Jacqui

Jacqueline Ingham
Unit Head
Regulatory Operations
NSW Environment Protection Authority
D 02 9995 5795 | M 0409 472 413



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

From: Ambler, Jason <jambler@transfort.com.au>
Sent: Tuesday, 30 November 2021 2:32 PM
To: Jacqueline Ingham <Jacqueline.Ingham@epa.nsw.gov.au>

Cc: Moore, Tahli <TMoore@TransforT.com.au>

Subject: Sydney Metro West Out-of-Hours Works Protocol - Transport for Tomorrow

Hi Jacqueline,

Transport for Tomorrow (TfT) is a partnership between Laing O'Rourke, KBR and Transport for NSW to deliver rail upgrades across the Sydney network, and we have been engaged to complete works on the Sydney Metro West Concept and Stage 1 project ([SSI 10038](#)).

Condition of Approval D38 of SSI 10038 requires an **Out-of-Hours Work Protocol** to be prepared in consultation with EPA. As such, please see attached the TfT Out of Hours Work Protocol, developed for our works under **Sydney Metro West Concept and Stage 1**. We would appreciate any feedback by COB 14 December 2021, or alternatively, please let us know at your earliest convenience if EPA does not wish to provide comment.

Please make contact using the details below should there be any questions or queries regarding the above/attached. Many Thanks.

Kind Regards

Jason Ambler
Environment and Sustainability Manager
Transport for Tomorrow



Email: jambler@transfort.com.au

Mobile: 0415 737 750

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

Moore, Tahli

Subject: TFT - OOHW Protocol
Location: Microsoft Teams Meeting

Start: Wed 8/12/2021 12:30 PM
End: Wed 8/12/2021 1:30 PM

Recurrence: (none)

Meeting Status: Meeting organizer

Organizer: Moore, Tahli

Required Attendees: Ambler, Jason; Jo Robertson; larry.clark@acousticstudio.com.au

Optional Attendees: Sarah Lepre; Matthew Marrinan; Ramalingam, Kanimozhi

Hey All –

Pulling together a meeting to go through the OOHW Protocol sent through for TFT Brownfields

Regards,

Tahli Moore

Environmental and Sustainability Advisor – MEW



Laing O'Rourke Australia

Mob: 0439 217 046

Email: tmoore@transfort.com.au

APPENDIX D - ENDORSEMENT AND APPROVAL

ACOUSTICS ADVISOR ENDORSEMENT SYDNEY METRO WEST (SSI 10038)

Review of	Enabling Works: Out of Hours Works Protocol	Reviewed document reference:	Transport for Tomorrow – Sydney Metro West Enabling Works Out of Hours Protocol.
Prepared by:	Larry Clark, Alternate Acoustics Advisor		Revision B Dated: 8/12/2022
Date of issue:	8 December 2022		Received as file <i>T4T OOHW Protocol Word_V2</i> by email 8 December 2022

As approved Alternate Acoustics Advisor (AA) for the Sydney Metro West project, I endorsed Rev A of the Transport for Tomorrow (TfT) Sydney Metro West – Enabling Works - Out of Hours (OOH) works protocol, and I provided comments on a draft version of Rev B. The document has been revised to provide more detail around Conditions of Approval (CoA) D38(e) and D51.

I note that works by TfT's are done during rail possessions, sometimes mid-week but more usually over a weekend. It is not appropriate to include respite periods, other than for Highly Noise Intensive works, within a possession. Respite periods are therefore usually provided by nights of no works before or after the possession, or by offers of alternate accommodation, or by offers of vouchers such as for cinemas, or by scheduling the timing of works in some location to minimise impacts on businesses. This is usually done immediately preceding OOH works, when sufficient detail is available, and provided to affected receivers by community notifications, to best identify specific mitigation measures in consultation with those potentially affected receivers. The outcomes are then provided to me as Acoustics Advisor, and others, during fortnightly meetings. Further details on outcomes are provided in a D51 report, and the Planning Secretary is also informed of approved low risk Out of Hours works in the Acoustic Advisor's monthly reports.

I'm satisfied that Rev B dated 8 December 2022 is suitable for submission to the Department of Planning & Environment (DPE) for approval. I endorse Rev B of the Out of Hours (OOH) works protocol, as received by email 8 December 2022, for submission to DPE.



Larry Clark, Metro West Alternate Acoustics Advisor

Ben Armstrong
Director Sustainability, Environment & Planning
Sydney Metro - Metro West
Transport for NSW
PO Box K659
HAYMARKET NSW 1240

8 December 2022

REF: OOHW PROTOCOL REV_B

Dear Ben

RE: Sydney Metro Phase E – Existing Rail Corridor Enabling Works: Out of Hours Works Protocol (Rev B)

I refer to Sydney Metro's (SM) submission of the following revised document required by Condition D38 of the Sydney Metro West Infrastructure Approval (SSI 10038) which was approved by the Department of Planning and Environment (DPE) on 11 March 2021:

- Sydney Metro West, Transport for Tomorrow- Sydney Metro West Enabling Works Out of Hours Work Protocol (OOHW Protocol) (Rev B_8/12/2022)

It is noted that:

- The Sydney Metro West, Transport for Tomorrow- Sydney Metro West Enabling Works is the same works package referred to as Phase E – Existing Rail Corridor Enabling Works in the Metro West Phasing Report Rev 1.4.
- Under Condition D38, the OOHW Protocol Rev A was developed in consultation with the EPA, the AA and the ER.
- The purpose of this revision is to address AA and ER comments, including addressing Condition 38(e) and D51
- The Acoustic Advisor for the project has reviewed previous versions of the document and has endorsed this revised version of the document as being suitable for issue to DPE for approval.

As the approved Environmental Representative for the Sydney Metro West; I confirm that the ER has been consulted on this revised OOHW Protocol as required of Condition D38.

Yours sincerely



Greg Byrnes
Environmental Representative – Sydney Metro West
CC: Matthew Marrinan, Sarah Lepre, Vishal Thakur