Planning Approval Consistency Assessment Form

SM-17-00000111

Metro Body of Knowledge (MBoK)

Assessment name:	S2B Package 4 MCL – Use of crane at 6 Broughton Street, Canterbury
Prepared by:	Amy Taylor and Ryan O'Leary
Prepared for:	Sydney Metro
Assessment number:	SWM24
Status:	Final
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Planning approval:	SSI 8256
Date required:	13/12/2021
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For information – do not alter:

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Status:	Final
Version:	3.0
Date of issue:	27 November 2020

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The Planning Approval Consistency Assessment Form should be completed in accordance with SM-17-00000103 Planning Approval Consistency Assessment Procedure.

1. Existing Approved Project
Planning approval reference details (Application/Document No. (including modifications)): SSI 8256 Sydney Metro City & Southwest – Sydenham to Bankstown (S2B) Mod 1 Revised station design for Bankstown Station
Date of determination: Infrastructure Approval date – 12 December 2018 Modification 1 Approval date – 22 October 2020
Type of planning approval: Critical State Significant Infrastructure

Description of existing approved project you are assessing for consistency:

The Marrickville, Canterbury and Lakemba Station Upgrades (MCL) is one of the stages of the Sydenham to Bankstown upgrade (herein referred to as the Southwest Metro (SWM) Project) as described in the project's delivery strategy. The MCL upgrades to Sydney Metro standards correspond to work package No. 4 which are being undertaken by Haslin/Stephen Edwards Joint Venture (HSE JV). Upgrade works at Canterbury Station involves the following:

- Refurbish and repurpose rooms of existing concourse booking office, platform building 1 and 2;
- Remove existing stair & canopy to Platform 1. Provide a new lift & stair to Platform 1 including associated canopies;
- Regrade platform as per Sydney Metro's requirement and provide drainage, platform screen doors, platform edge screens and mechanical gap fillers to Platform 1 and 2;
- Provide a new lift to platform 2 including associated canopies;
- Construction of the Sydney Metro Services Building;
- Provide new security gates to concourse entry;
- New cabling and containment for LV services and lighting;
- Clad the southern side of station concourse booking office, and refurbish the building. Provide a new opening onto Canterbury Road for existing retail;
- Remove the existing planter beds to Broughton Street;
- Remove the canopy directly over the existing planter bed facing Broughton Street;
- Remove existing brick retaining wall from station concourse forecourt entry adjacent to Canterbury road;
- Provide accessible entries from both Canterbury Road and Broughton Street to station concourse;
- Replace the existing vertical protection (anti-throw) screens to the station concourse bridge;
- Renew lighting to the concourse, footbridge, platform buildings, platforms and ramp to Platform 2;

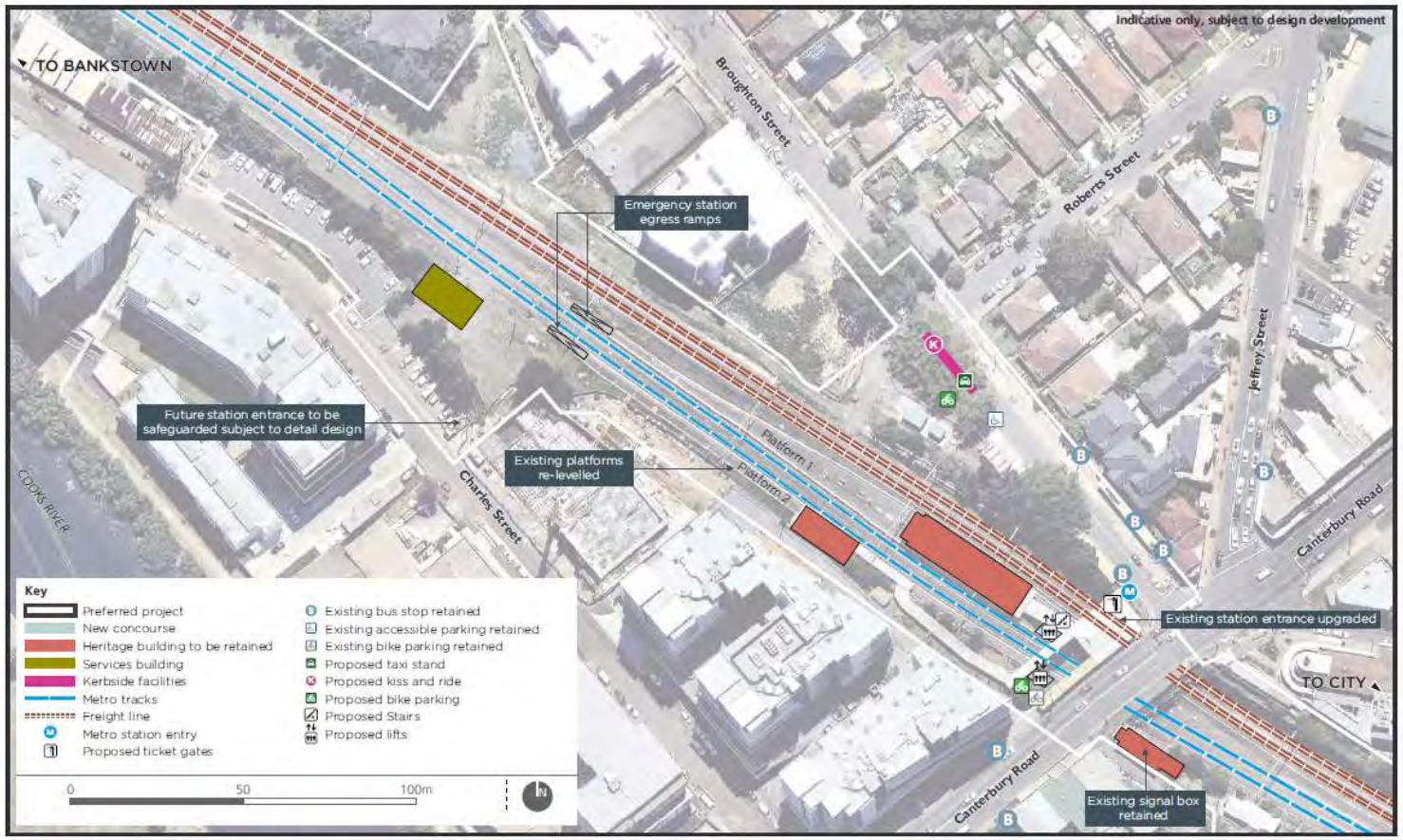
- Repair the existing booking office roof and associated stormwater system. Repaint, repoint and repair existing platform buildings;
- Replace existing balustrade on Platform 2 ramp and continue new fencing to platform building 2 with new. Resurface asphalt finish to Platform 2 ramp and contain asphalt edges with steel flat bar;
- Installation of new CSR cable route;
- Installation of security and segregation fencing;
- Canterbury Road bridge parapet works (city and country side); and
- Replacement of existing bus shelters on Broughton Street.

Section 2.4.7 of the SPIR addresses temporary leases required during construction of the project (also noted within Section 8.2.3 of the Environmental Impact Statement (EIS)). It is noted that some areas of land would need to be temporarily leased or occupied for construction compounds and other work sites during construction of the project. The majority of these sites would be located within the rail corridor, which would minimise the potential for direct impacts on land use and property. However, there would be some construction compounds and work sites located outside the rail corridor, generally within road reserves or other council owned land.

Section 7.11.12 (Socio-economic impacts) of the SPIR has noted that due to the constraints associated with the use of an operational rail corridor, there is a need for some additional land to be leased to allow construction.

This Planning Approval Consistency Assessment (PACA) has been produced to assess potential impacts of temporary lease of private property for the establishment and use of a crane associated with the Canterbury Station upgrades, and to determine whether those impacts can be appropriately managed under the current Conditions of Approval, Revised Environmental Mitigation Measures, management plans, procedures and strategies.

The current approved project boundary and indicative layout of key design elements around Canterbury Station are identified in the figures below.



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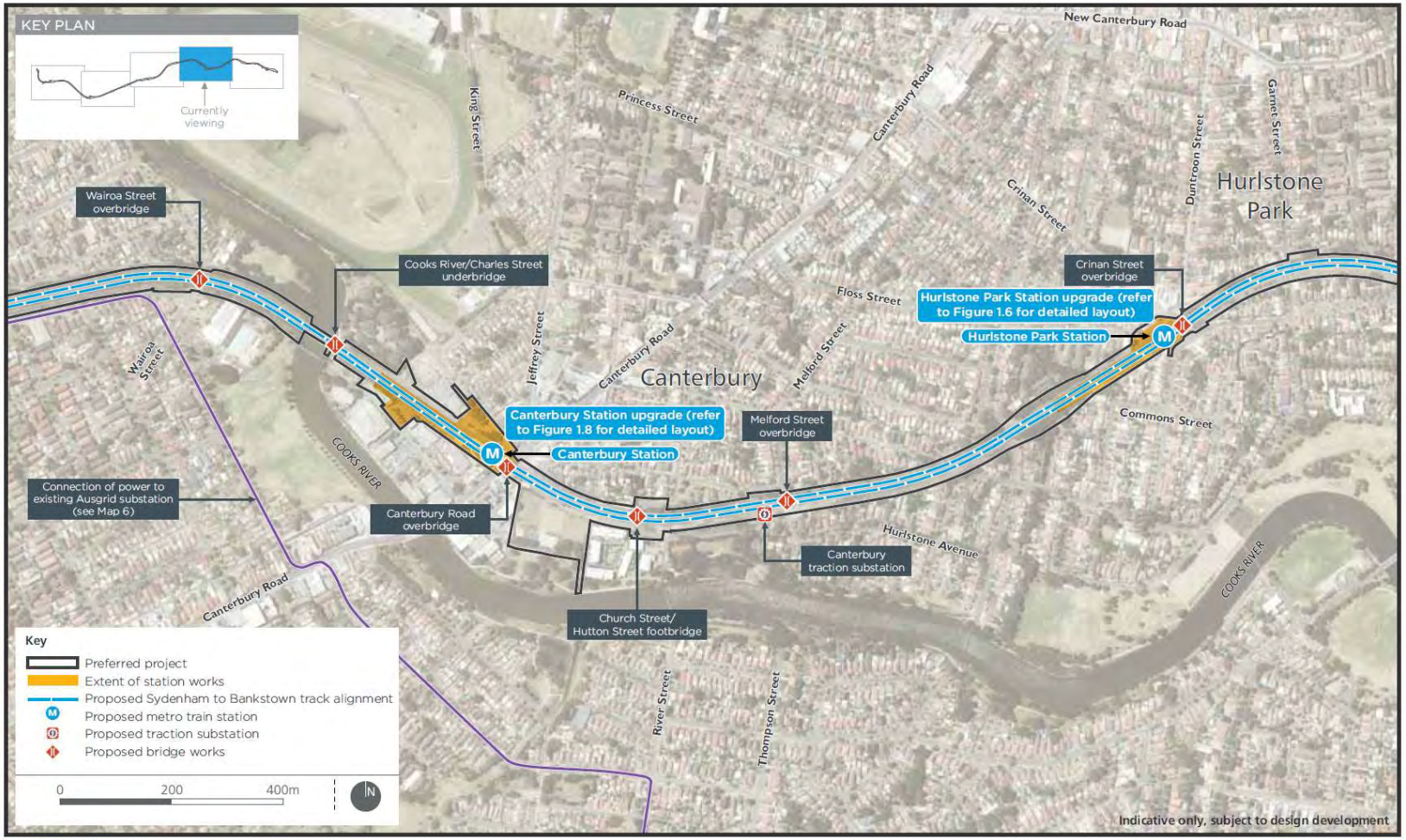
Canterbury Station - indicative layout of key design elements

FIGURE 9.4



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Preferred project infrastructure and features - map 2

FIGURE 1.1

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Preferred project area - construction activities - map 2

FIGURE 2.1

Relevant background information (including EA, REF, Submissions Report, Director General's Report, MCoA):

- The Sydney Metro City & Southwest – Sydenham to Bankstown – State Significant Infrastructure Assessment (SSI 8256), dated 12th December 2018
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Environmental Impact Statement, dated 7th September 2017
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Submissions and Preferred Infrastructure Report, June 2018
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Submissions Report, September 2018
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Instrument of Approval, dated 12th December 2018.

All proposed works identified in this assessment would be undertaken in accordance with the mitigation measures identified in the EIS, Submissions and Preferred Infrastructure Report, the Submission Report and the conditions of approval.

2. Description of proposed development/activity/works

Describe ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities/authorities, wastes generated or hazardous substances/dangerous goods used.

This PACA relates to the occupation of the vacant lot at 6 Broughton Street, Canterbury (the site) (see Appendix A) for the establishment of a crane pad and use of a crane on the site. The site is adjacent to an existing laydown area in the Australian Rail Track Corporation (ARTC) corridor currently occupied by HSE JV. HSE JV already have approval for use of this existing laydown area. The proposed crane establishment shall utilise both 6 Broughton Street and the existing ARTC laydown area on the downside of the site which is the subject of this PACA.

The indicative crane pad, crane location, slew path and vehicle access are shown in Appendix A. Access will be via the 6 Broughton Street access gate and from the rail corridor. The site will be used for the purposes outlined above, in addition to the following and the like:

- Direct Cone Penetrometer (DCP) Testing
- Topsoil stripping in crane pad area
- Access route improvement by placing of sand and Densely Graded Base (DGB) to create a solid driveway and crane setup pad

- Establishment of a crane pad
- Delivery of 250-tonne crane elements such as crane counterweights and lifting equipment i.e. chains and spreader bar
- Delivery of the Under Line Crossing (ULX) pits for installation. It is the service reticulation path via conduits below the trainline that ties into the pits.

Indicative machinery to be used in the site for the crane includes:

- Bogie
- Truck and Dog
- 250-tonne Crane
- Telehandler
- 13-tonne roller (low vibration mode) (indicative)

The site will be used for crane setup which is likely to be a 250-tonne crane. Note, the use of the site is required when a crane larger than and equal to 100 tonnes is to be used. This is the only area large enough to safely establish a crane equal to or larger than 100 tonnes.

This land is located outside, but adjacent to the Project Boundary as defined by the EIS/SPIR (see Appendix A).

No hazardous substances/chemical or dangerous good will be stored at the vacant lot, being 6 Broughton Street.

The use of the site will not impede or infringe any existing operational utilities or authorities during its works.

Any waste generated on site will be disposed of in a Grasshopper skip bin. Topsoil waste generated will be stockpiled for respreading prior to the site being handed back to the landowner. An environmental assessment will be conducted on the site to identify any hazardous materials but upon visual inspection there is no clear evidence or signs of contamination.

The associated ancillary facility (material and equipment laydown, etc.) will be sought separately through condition of approval (CoA) A17.

The vacant lot will be returned to its original state and land use when handed back to the landowner.

3. Timeframe

When will the proposed change take place? For how long?

The proposed area would be used intermittently during the construction period for the crane. Dates include:

- 13 December 2021 to 14 January 2021 (includes Shutdown 2)
- 31 January to 11 February 2022 (Week 31 to Week 32)
- 14 March to 1 April 2022 (Week 37 to Week 39).

Note that Week 31 to Week 32 and Week 37 to Week 39 are only contingency. The abovementioned dates are inclusive of weekends.

The mobile crane will be used 24/7 during shutdown/possession periods and during standard construction hours outside of possession periods.

Preparation works for the site for crane pad establishment will occur from 6 to 13 December 2021.

Standard construction hours are from Monday to Friday 7am to 6pm and Saturday 8am to 6pm. Where any construction works are required to be undertaken outside of standard construction hours, these works would be subject to an Out of Hours Works Application Permit.

4. Site description

Provide a description of the site on which the proposed works are to be carried out, including, Lot and Deposited Plan details, where available. Map to be included here or as an appendix. Detail of land owner.

The site is an approximately 460 m^2 vacant lot at 6 Broughton Street, Canterbury, 2193 (Lot 5 & Plan DP828270) (see Appendix A). A lease agreement has been prepared and issued to the landowner on 22 November 2021. This will be signed following approval of this PACA (i.e. use of the proposed site). A copy of the signed licence agreement for 6 Broughton Street has been received from the landowner for use of the site from 8 December 2021 to 1 April 2022 and is included in Appendix B for reference.

Existing hoarding at the site will be retained. However, if required, existing hoarding may be removed and replaced by new temporary fencing with Sydney Metro shade cloth attached. Access to the site will be from the gate on 6 Broughton Street identified in Appendix A.

5. Site Environmental Characteristics

Describe the environment (i.e., vegetation, nearby waterways, land use, surrounding land use), identify likely presence of protected flora/fauna and sensitive area.

The site is a vacant lot with multi-storey apartment blocks on the adjoining properties. The site is relatively flat, with the lowest point draining to the rail corridor and the ARTC laydown area and is covered with grass and various shrubby weeds.

One stormwater pit exists on the corner of the roadway in front of the adjacent building (8 Broughton Street) and is approximately 30 m from the property. The stormwater pit will be protected with erosion and sediment controls as detailed in the revised erosion and sediment control plan (ESCP).

6. Justification for the proposed works

Address the need for the proposed works, whether there are alternatives to the proposed works (and why these are not appropriate), and the consequences with not proceeding with the proposed work.

The crane (likely to be 250-tonne) is required in the installation of the Under-Line Crossing (ULX) pits to be installed over the periods identified in Section 3. The HSE Senior Project Engineer has determined the size of the crane required based on the lifting capacity, clearance and slew distance. The crane will drive onto site however setup will take a number of hours to set outriggers and counterweights ready for delivery of pits.

The crane cannot be located anywhere else due to the size limit. The Metro Services Building (MSB) was considered however due to ongoing excavations, a crane of such capacity cannot be safely setup. Accessing through the shared driveway to the ARTC compound via 8 Boughton Street is not feasible due to the expected crane size. Heavy vehicles manoeuvring in a tightly restricted alignment would pose a hazard to the community. By accessing through the 6 Broughton Street access point, the public interface is greatly reduced as it is a private driveway to the property.

7. Control Measures

Will a project and site specific EMP be prepared? Are appropriate control measures already identified in an existing EMP?

Works will be completed under the project Construction Traffic Management Plan (CTMP), Construction Environmental Management Plan (CEMP) and sub-plans, including the Construction Noise and Vibration Management Plan (CNVMP), Construction Heritage Management Plan (CHMP), Construction Soil and Water Management Plan (CSWMP) and Overarching Community Consultation Strategy (OCCS).

A site-specific Environmental Control Map (ECM) and ESCP will be updated with mitigation measures to account for the crane establishment and operation.

10. Impact Assessment – Construction

Attach supporting evidence in the Appendices if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No impacts to native fauna are anticipated from the proposed works.	No additional measures required.	Y	Y	
Water	The topsoil stockpile will be stored onsite. The ESCP will be updated to include controls for stockpile. The site access and crane pad is to be built from stabilised sand and DGB. There are no local drainage lines within the property. A spill kit will be readily accessible while works are being undertaken.	No change from the EIS and SPIR. Comply with mitigation measures as stated within the CEMP and Sub-Plans. Stripping and stockpiling of topsoil will be managed in accordance with the “Blue Book” Managing Urban Stormwater: Soils and Construction Volume 1, Landcom (2004).	Y	Y	
Air quality	There will be minor localised dust impacts from vehicle and material movements by machinery. Wetting down of any exposed surfaces will be undertaken to suppress dust. The extent of impacts is considered to be consistent with the impacts assessed within the EIS/SPIR.	No additional measures required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Noise vibration	The establishment of the crane pad is required prior to Shutdown 2 and would be completed during standard daytime hours. The use of the 250-tonne crane and delivery of ULX pits would be required throughout project possessions, which includes out of hours work (OOHW). Works in this area would increase noise and vibration impacts to surrounding residents for the crane establishment and operation. Due to proximity noise and vibration impacts may be closer to the receiver than was assessed originally in the EIS/SPIR. All work outside of standard construction hours would be assessed under an OOHW Application. Mitigation Measures in the OOHW Application will be followed.	Two Construction Noise and Vibration Impact Statements (CNVISs) have been produced for the below activities (see Appendix C): - Establishment of the crane pad - Operation of the 250t crane. Proposed control measures include: - A Building Condition Survey / dilapidation assessment will be undertaken on the 4 Broughton Street high rise property prior to works commencing and following feedback received from the 'Keeping You Informed' letter-box drop. - Vibration monitoring of 4 Broughton Street within the safe working distance will be undertaken when the crane pad is being installed, especially for the smooth drum roller. - Should vibration monitoring identify an exceedance of the identified vibration criteria for the building at 4 Broughton Street, vibration intensive works will cease, and advice sought from the project vibration specialist for additional mitigation measures and assessment.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Aboriginal heritage	The temporary use of the site will involve removal of topsoil to facilitate creation of the crane pad. This is not expected to impact on Aboriginal heritage. Given that the site has been previously disturbed and cleared, establishment of the crane pad will operate under the unexpected finds protocol. The site will operate under an unexpected finds protocol should indigenous heritage be encountered.	No additional measures required.	Y	Y	
Non-Aboriginal heritage	A number of buildings within the Canterbury Station precinct surrounding these works are heritage listed. However, due to the distance of the site (>150m) from the heritage items located at the train station, use of the site will not have an impact to any known heritage items or places. No deep excavation works will be undertaken, only topsoil stripping where required so the risk of unexpected finds occurring is very minimal. As there is very limited potential for finding archaeological heritage items and work will be undertaken in accordance with the Unexpected Finds Protocol.	No additional measures required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Community and stakeholder	The proposed land use may cause minor temporary disruption to community members and stakeholders, particularly those that live adjacent to the works through noise and vibration, visual impact and traffic movements. Refer to the Traffic aspect and noise and vibration aspect for further details. Lighting, namely lighting towers, during night time possessions will be required. Lighting will be directed away from the properties so as minimise impacts to surrounding residents. Note that details for the crane establishment will be included in the Shutdown 2 notification which is currently being drafted and is expected to be distributed ~16/17 December 2021. A copy of the signed lease agreement has been received from the landowner for use of the site from 8 December 2021 to 1 April 2022 and is included in Appendix B.	Community consultation and notifications. Implementation of control measures as per the CEMP, CEMP sub-plans, OCCS and CTMP.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Traffic	Traffic management will be in place as per the CTMP as heavy vehicles access the site. Note, there is potential for minimal queuing while construction traffic enters and exits the site. Pedestrian access along Broughton Street via the footpath would be impacted during traffic movements only and would be managed by the use of traffic controllers. Access to surrounding private properties will be maintained during the use of the site.	Implementation of control measures as per the CEMP and CTMP. The CTMP will be updated as required to include adequate traffic management during the use of this property. A Traffic Control Plan (TCP) (see Appendix E) will be in place to manage vehicles (delivery trucks, etc.) entering and exiting from Broughton Street into 6 Broughton Street. Toolbox talks will be undertaken to remind HSE JV workers and contractors of their obligation to be considerate of parking in the area and ideally park some distance (e.g. 100 m away) to ensure sufficient parking remains.	Y	Y	
Waste	Topsoil stripping will be required as part of the crane pad establishment. Topsoil generated will be stockpiled for respreading prior to the site being handed back to the landowner.	Implementation of control measures as per the ECM and ERSED plan. Topsoil will be reinstated once works have been completed.	Y	Y	
Social	As above for Community and Stakeholder.	No additional measures required.	Y	Y	
Economic	No change from the EIS and SPIR.	No additional measures required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Visual	The use of the site, traffic controls and heavy vehicles will be visible. The visual aspects of these activities are expected particularly from the neighbouring residential properties as part of a major construction project and an operating rail corridor. The impacts will be temporary only and are consistent with large infrastructure projects. There is existing hoarding with shade cloth in place which will reduce the visual prominence of the works from the public domain. Some light spill may occur from the works, either from lighting towers or heavy vehicles. Light spill will be minimised by pointing lights away from residential properties and the roadway, towards the works. There is a lighting plan for the coming possessions. Potential visual impacts are temporary only and are considered to be consistent with the EIS and SPIR.	No additional measures required. Visual impacts are to be managed in accordance with the Visual Amenity Management Plan (VAMP).	Y	Y	
Urban design	No change from the EIS and SPIR.	No additional measures required.	Y	Y	
Geotechnical	Land will be stabilised (using stabilised sand and DGB) during the establishment of the crane pad, which includes the stripping of topsoil. Upon completion of the use of the site, the topsoil will be re-established in areas where it has been removed for the crane pad. No changes are anticipated to the geotechnical aspect of the site.	No additional measures required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Land use	The SPIR has noted that due to the constraints associated with the use of an operational rail corridor, there is a need for some additional land to be leased to allow construction. As such, the use of this site is considered to be consistent with the EIS and SPIR.	Mitigation measure LU3 commits to restoring temporary use areas, including public open space, to their pre-existing condition (as a minimum) as soon as practicable following completion of construction. This would be undertaken in consultation with the landowner. Pre-condition reports would be prepared prior to the commencement of works to ensure that rehabilitation would be to a satisfactory standard.	Y	Y	
Climate Change	No change from the EIS and SPIR.	No additional measures required.	Y	Y	
Risk	Risk of encountering contaminated land when stripping topsoil.	Assessment of contamination will be visual and olfactory observation (i.e. asbestos material or soil staining).	Y	Y	
Other	No change from the EIS and SPIR.	No additional measures required.	Y	Y	
Management and mitigation measures	No change from the EIS and SPIR.	No additional measures required.	Y	Y	

11. Impact Assessment – Operation

Attach supporting evidence in the Appendix if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No change from the EIS and SPIR.	N/A	Y	Y	
Water	No change from the EIS and SPIR.	N/A	Y	Y	
Air quality	No change from the EIS and SPIR.	N/A	Y	Y	
Noise vibration	No change from the EIS and SPIR.	N/A	Y	Y	
Aboriginal heritage	No change from the EIS and SPIR.	N/A	Y	Y	
Non-Aboriginal heritage	No change from the EIS and SPIR.	N/A	Y	Y	
Community and stakeholder	No change from the EIS and SPIR.	N/A	Y	Y	
Traffic	No change from the EIS and SPIR.	N/A	Y	Y	
Waste	No change from the EIS and SPIR.	N/A	Y	Y	
Social	No change from the EIS and SPIR.	N/A	Y	Y	
Economic	No change from the EIS and SPIR.	N/A	Y	Y	
Visual	No change from the EIS and SPIR.	N/A	Y	Y	
Urban design	No change from the EIS and SPIR.	N/A	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Geotechnical	No change from the EIS and SPIR.	N/A	Y	Y	
Land use	No change from the EIS and SPIR.	N/A	Y	Y	
Climate Change	No change from the EIS and SPIR.	N/A	Y	Y	
Risk	No change from the EIS and SPIR.	N/A	Y	Y	
Other	No change from the EIS and SPIR.	N/A	Y	Y	
Management and mitigation measures	No change from the EIS and SPIR.	N/A	Y	Y	

12. Consistency with the Approved Project

Based on a review and understanding of the existing Approved Project and the proposed modifications, is there is a transformation of the Project?	No. The proposed works would not transform the project. The project would continue to provide a metro rail line between Sydenham and Bankstown.
Is the project as modified consistent with the objectives and functions of the Approved Project as a whole?	Yes. The proposed works would be consistent with the objectives and functions of the Approved project.
Is the project as modified consistent with the objectives and functions of elements of the Approved Project?	Yes. The changes identified in this assessment are consistent with the objectives and functions of the elements of the Approved Project.
Are there any new environmental impacts as a result of the proposed works/modifications?	All risks would be adequately addressed through the application of the mitigation measures in the above tables. No new environmental risks are outstanding.
Is the project as modified consistent with the conditions of approval?	Yes. The proposed works would be consistent with the conditions of approval.
Are the impacts of the proposed activity/works known and understood?	Yes. The impacts of the proposed works are understood and will be mitigated in accordance with the CEMP, CEMP sub-plans, CTMP, OCCS and any other measures as directed by Council, TfNSW and the Sydney Coordination Office (SCO).
Are the impacts of the proposed activity/works able to be managed so as not to have an adverse impact?	Yes. The impacts of the proposed works can be managed so as to avoid an adverse impact. The Unexpected Finds Protocol (UFP) will be implemented for any unexpected finds.

13. Other Environmental Approvals

Identify all other approvals required for the project:	OOHW Approvals from Sydney Metro. Landowner's consent (see Appendix B).

Author certification

To be completed by person preparing checklist.

I certify that to the best of my knowledge this Consistency Checklist: • Examines and takes into account the fullest extent possible all matters affecting or likely to affect the environment as a result of activities associated with the Proposed Revision; and • Examines the consistency of the Proposed Revision with the Approved Project; is accurate in all material respects and does not omit any material information.			
Name:	Amy Taylor	Signature:	
Title:	Environmental Advisor		
Company:	HSE JV	Date:	13/12/2021

This section is for Sydney Metro only.

Application supported and submitted by			
Name:	Yvette Buchli	Date:	10/12/2021
Title:	Associate Director Planning Approvals	Comments:	
Signature:			

Based on the above assessment, are the impacts and scope of the proposed activity/modification consistent with the existing Approved Project?

Yes	☒	The proposed activity/works are consistent and no further assessment is required.
No	☐	The proposed works/activity is not consistent with the Approved Project. A modification or a new activity approval/ consent is required. Advise Project Manager of appropriate alternative planning approvals pathway to be undertaken.

Endorsed by			
Name:	Fil Cerone	Date:	10 December 2021
Title:	Director, City & Southwest Sustainability Environment and Planning	Comments:	
Signature:			

Appendix A – Site Layout

Figure 1 - Site location at 6 Broughton Street, Canterbury.

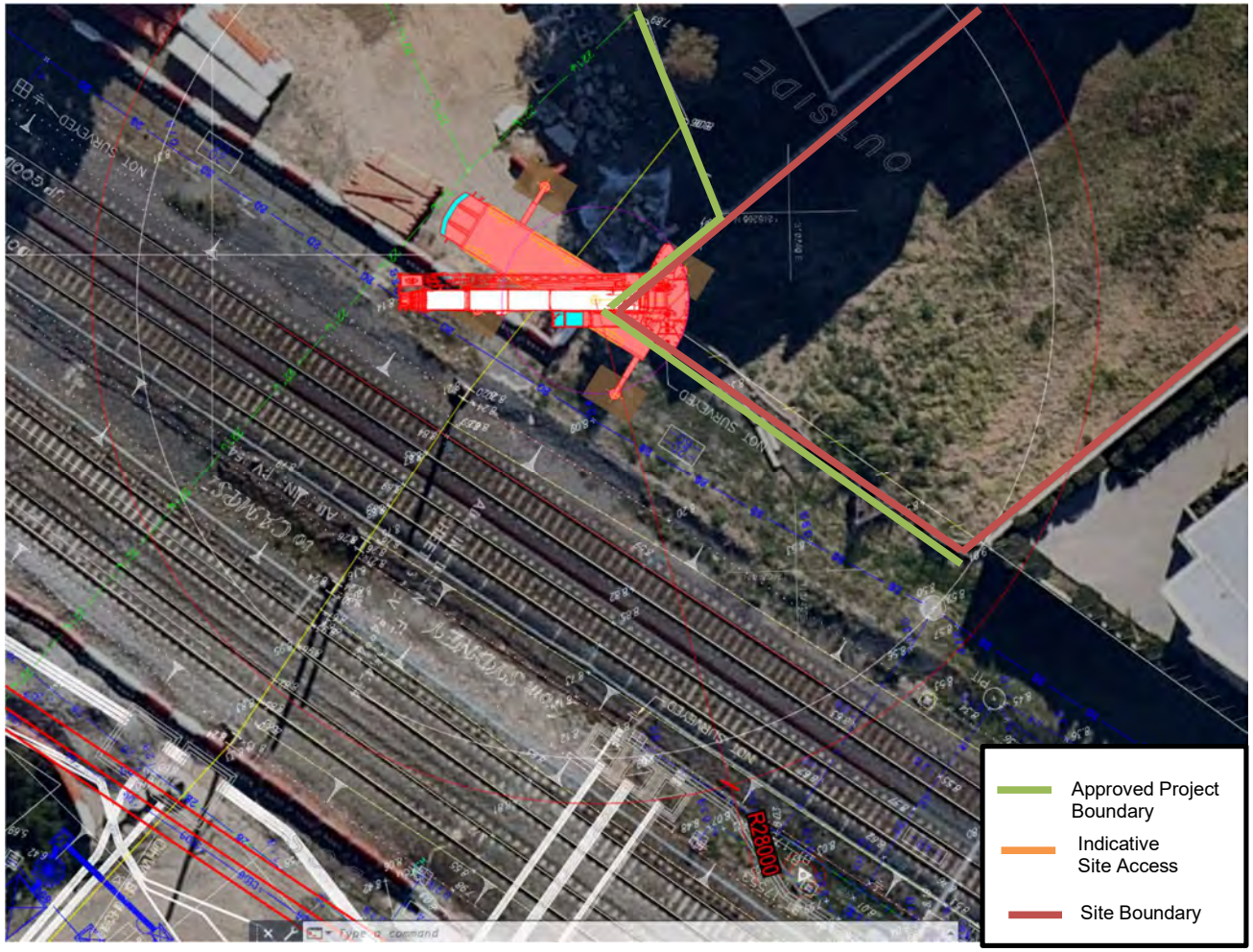


Figure 2 – Indicative crane establishment and operations plan.

Appendix B – Landowner's Consent (Signed Licence Agreement)

Date 2021

XZ International Holding Pty Ltd 59 166 610 108

AND

Haslin Constructions Pty Ltd 051102124

LICENCE AGREEMENT

Lot 5/DP828270 – 6 Broughton Street,
Canterbury NSW 2193

THIS AGREEMENT dated 22 day of November 2021

BETWEEN **XZ International Holding Pty Ltd ABN 59 166 610 108** 43 Anderson Rd Mortdale

AND **Haslin Constructions Pty Ltd ACN 051102 124** Suite 2, 2-4 Merton St SUTHERLAND NSW 2232 **(Licensee)**

RECITALS

A. The Licensor is the registered proprietor of the whole of the land comprised in title reference and known as [6 Broughton Street, Canterbury NSW 2193].

B. The Licensor has agreed to grant the exclusive right to use, and the Licensee has agreed to take a licence of the portion of the land highlighted in red at Annexure A subject to the terms and conditions herein ("the Land").

OPERATIVE PART

1. Interpretation

This agreement is governed by the laws of New South Wales and the parties submit to the non-exclusive jurisdiction of the courts of that state.

In the interpretation of this agreement:

(a) References to legislation or provisions of legislation include changes or re-enactments of the legislation and statutory instruments and regulations issued under the legislation;

(b) Words denoting the singular include the plural and vice versa, words denoting individuals or persons include bodies corporate and vice versa, references to documents or agreements also mean those documents or agreements as changed, novated or replaced, and words denoting one gender include all genders;

(c) Grammatical forms of defined words or phrases have corresponding meanings;

(d) Parties must perform their obligations on the dates and times fixed by reference to the capital city of New South Wales;

(e) Reference to an amount of money is a reference to the amount in the lawful currency of the Commonwealth of Australia;

(f) If the day on or by which anything is to be done is a Saturday, a Sunday or a public holiday in the place in which it is to be done, then it must be done on the next business day;

(g) References to a party are intended to bind their executors, administrators and permitted transferees; and

(h) Obligations under this agreement affecting more than one party bind them jointly and each of them severally.

2. Licence

(a) The Licensor hereby grants to the Licensee the exclusive right to use at all times the Land shown on drawing at Annexure A for the period and subject to payment of the Licence fee set out in the schedule hereto.

(b) This licence is personal to the Licensee and cannot be sub licensed, assigned, charged or the subject of any other like transaction.

(c) The Licensor grants the Licensee the right to make connections to existing services available including water/sewer/electricity. Costs for usage of services by the Licensee will be paid in addition to the Licence fee.

(d) The Licensee will be entitled to utilize the Land for locating site compound including sheds, storage containers, and storage of construction plant and materials.

(e) The Licensee shall at all times keep the Land in a clean and tidy condition.

(f) The Licensee shall at its own expense make good any damage to the Land and its immediate surrounds created through an act of, neglect, default or misconduct including but not limited to wear and tear causing damage by the Licensee or its employees, agents, or associates.

(g) The Licensee hereby indemnifies and holds harmless the Licensor from and against all suits, actions, claims, demands, losses, damages, costs and expenses arising from the use of the Land by the Licensee, its servants, agents or invitees. The Licensor does not hold any insurance which provides cover pertaining to this agreement and the Licensee including but not limited to individuals, equipment or property. The Licensee warrants they hold sufficient insurance to cover all damage to the licensed area as well as equipment, individuals, servants, agents or invitees and declares that the Licensor is set aside from any claims or objections.

(h) Any equipment or items within the Land shall be stored at the sole risk of the Licensee

(i) The Licensee will at all times obey and comply with any rules, regulations and by laws applicable to the Land.

(j) This agreement may be terminated by the Licensor upon default in payment of the licence fee or default in the performance or observance of any other covenant herein contained after failing to remedy such default within five business days following service of a notice specifying such default.

(k) The Licensee or Licensor may reduce the period of this agreement by written notification to the other party. Any such notification must be given by the Licensee or Licensor no less than 4 weeks prior to any revised Termination date.

(l) The rights hereby conferred are contractual only and do not create any estate or interest in or over the area subject of this License or any part thereof, and the rights of the Licensee shall be those of a Licensee only.

(l) All payments to be made by the Licensee under any relevant agreement, including, but not limited to, licence fees, are calculated without regard to GST. If GST becomes payable the Licensee will pay to the Licensor concurrently with that payment an additional amount equal to the GST subject to the Licensor providing a valid tax invoice in accordance with the legislation.

3. Notices

A notice or other communication to a party must be in writing and delivered to that party or that party's practitioner in one of the following ways:

(a) Delivered personally; or

(b) Posted to their address when it will be treated as having been received on the second business day after posting; or

(c) Sent by email to their email address when it will be treated as received when it enters the recipient's information system.

4. Counterparts

This agreement may be executed in any number of counterparts each of which will be an original but such counterparts together will constitute one and the same instrument and the date of the agreement will be the date on which it is executed by the last party.

5. Costs

Each party will pay their own costs in relation to this agreement.

SCHEDULE

Period	Commencement date – 8th December 2021 Termination date – 1st April 2022
Licence fee	$1.00
Utilities	Water / sewer / power: Haslin Constructions will be responsible for making, removing, and making good temporary connections with existing services. Costs for the use of utilities will be calculated as follows: • Licensor to provide quarterly invoices for 12 month period prior to the Commencement date. • Licensor to pay actual costs for site Utilities occurring on and from the Commencement date, and finishing on the Termination Date. • The Licensor must provide the Licensee invoices evidencing Utilities costs on and from the Commencement date. The Licensee must pay the Licensor the amount due for Utilities services within 15 Business Days of provision of an invoice. • All invoices to the Licensee must be sent electronically cc: accounts@haslin.com.au • Licensee to notify in writing when it has made any adjustments to services (e.g. connection / disconnection). • On or prior to the Termination date the Licensee must reinstate utility services to their condition as of the Commencement Date, if required by Licensor.

Execution page

SIGNED **AS AN** AGREEMENT

EXECUTED ON BEHALF OF [LICENSOR]))	
Representative Position: Project Manager	**Witness.**
NAME: Zhen Zhong	Name Yaxing Yu.

EXECUTED BY HASLIN CONSTRUCTIONS PTY LTD ACN 051 102 124))	
	Witness.
Director	Name:
Name:	

Annexure A

6 Broughton Street, Canterbury 2193– Site layout sketch

Appendix C – Erosion and Sediment Control Plan (ESCP)

To be provided following approval of this Planning Approval Consistency Assessment

Appendix D – Construction Noise and Vibration Impact Statements

08 December 2021

2021-12-08_TM150 6 Broughton St - Crane Establishment - ID 3581.docx

HSE JV
Amy Taylor
amy@smartinfrastructureconsulting.com.au

From: Renzo Tonin and Associates via Gatewave
Calculation scenario: **6 Broughton St - Crane Establishment** (Gatewave ID 3581)

Southwest Metro - Marrickville, Canterbury and Lakemba Station Upgrades - Noise and Vibration Assessment Report

1 Introduction

The Renzo Tonin and Associates web-based construction assessment tool (Gatewave) has been used to prepare this noise and vibration assessment report for the Sydney Metro Southwest project.

This CNVIA has been prepared in accordance with the Noise and Vibration Management Plans for:

- Southwest Metro – Marrickville, Canterbury and Lakemba Station Upgrades, Noise and Vibration Management plan [Rev03, 25 January 2021] and
- Southwest Metro – Marrickville, Canterbury and Lakemba Station Upgrades, Construction Noise and Vibration Impact Statement [Rev01, 17 February 2021].

This CNVIA applies to construction works to be undertaken as part of the crane pad establishment works for Sydney Metro City-Southwest at 6 Broughton Street, Canterbury.

2 Assessment methodology

2.1 Construction noise

Results for the assessment of airborne noise were determined using a CadnaA computer noise model developed for the project. The CadnaA noise model incorporates ground elevation contours, building heights, the built environment and atmospheric conditions to predict construction noise in accordance with the International Standard ISO 9613-2:1996 implementing quality standard ISO 17534-1:2015.

Results from the CadnaA noise model are exported and stored into the Gatewave database which allows for the prediction of the total cumulative noise from all construction activities.

A summary of the noise model input parameters is detailed in Table 1.

Table 1: Summary of noise modelling parameters

Parameters	Inputs
Calculation method	ISO 9613-2:1996 implementing quality standard ISO 17534-1:2015
Location of noise sources above the local ground	1.5m
Height of receivers	1.5m above ground level to represent 1.5m above ground floor level Additional 3m height for every additional floor assessed (i.e. 4.5m above ground for first floor, 7.5m for second floor etc.)
Ground topography	1m digital ground contours
Sound Power Levels (L_w) of plant and equipment	All Lw data obtained from Renzo Tonin and Associates database Detailed in Section 3
Construction activities	Detailed in Section 3
Ground absorption	Varying from 1 for absorptive surfaces (e.g. park land), 0.5 (e.g. residential areas) to 0 for reflective surfaces (e.g. water, concrete, paving);
Noise barriers and screening	As detailed in project CNVIS

2.2 Construction vibration

If there are any vibration intensive plant and equipment, the recommended minimum working distances (MWD) are presented in Table 10 and the buildings/structures potentially within these MWDs are identified in APPENDIX C.

3 Construction activities, work areas and NCAs

3.1 Summary of works addressed in this CNVIA

3.1.1 Construction activities

Key details regarding the construction work locations, the likely plant and equipment, and hours of operation are presented in Table 2.

Table 2: Proposed construction activities and associated sound power levels

Crew ID[1]	Activity	Plant and equipment	No. of Items	Sound power level per item, dB(A)		High impact item	Noise reduction from mitigation measures, dB(A)
			Day (standard hours)	Leq	Lmax		
1	6 Broughton St - Crane Establishment	Smooth drum roller (13t) - low vibration mode	1	109	113	-	0
		Mobile crane (20t-250t)	1	104	108	-	0
		Truck and Dog	1	106	111	-	0
		Haulage trucks	1	106	111	-	0
		Telehander / Franna crane (20t)	1	99	103	-	0

Notes:

1) Construction activities with the same crew ID do not occur concurrently (i.e. are not cumulative)

The locations of the construction activities are presented in Figure 1 .

Figure 1 – Construction work areas

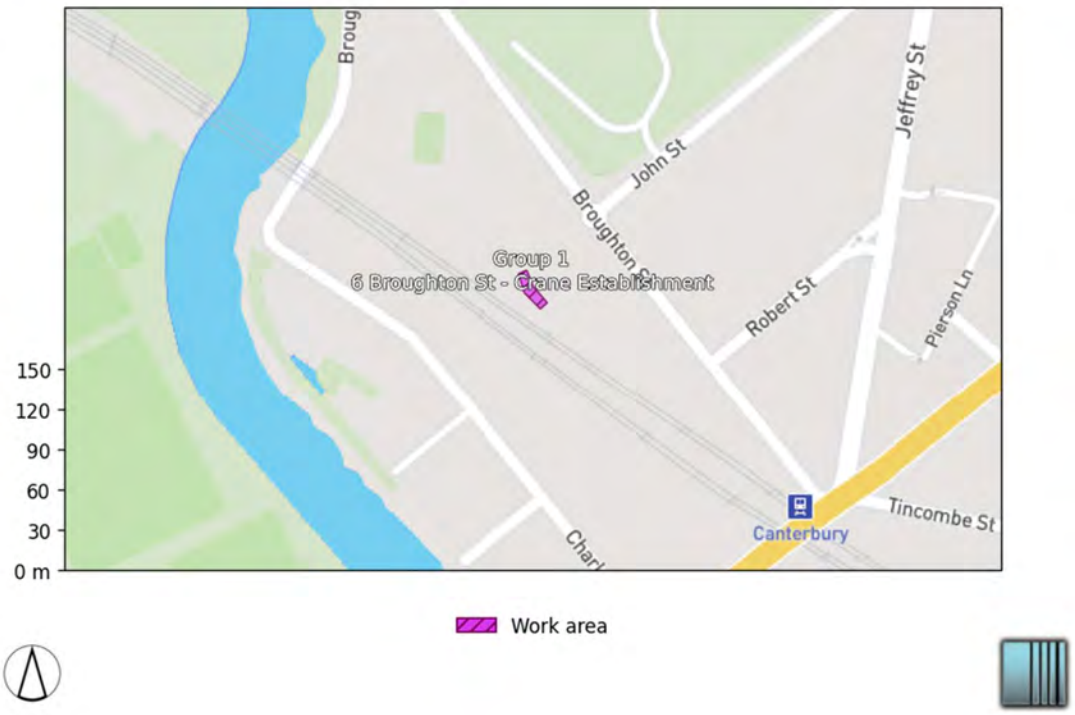
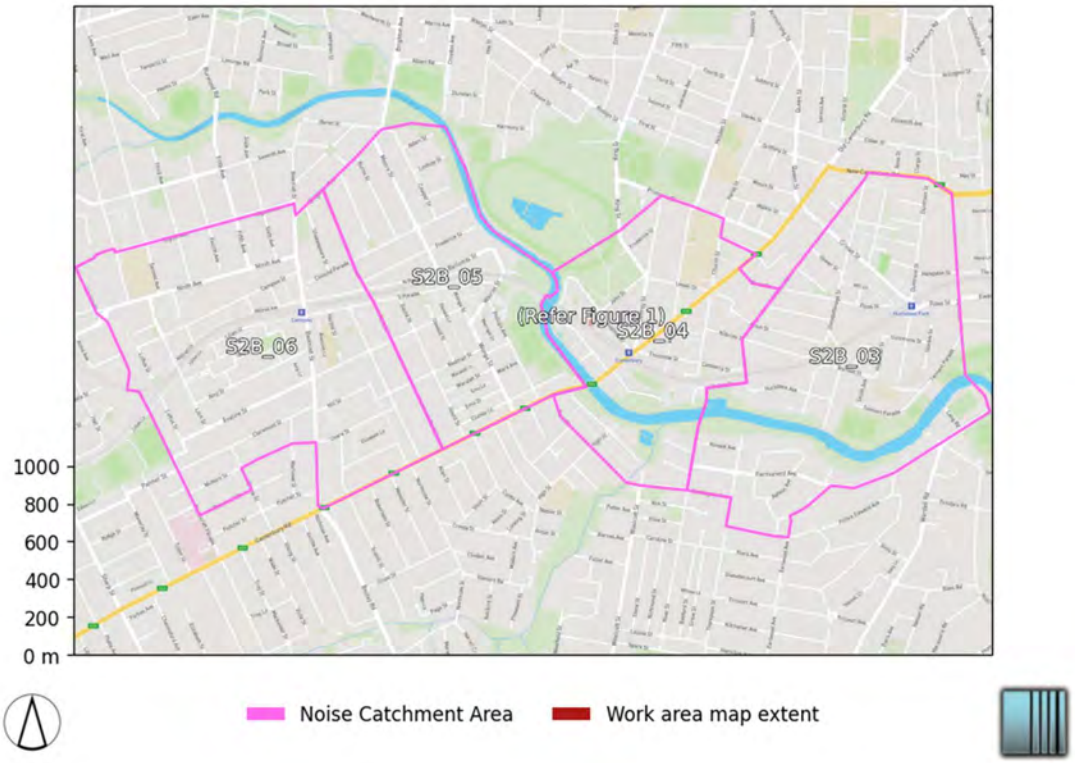


Figure 2 – Nearby Noise Catchment Areas (NCAs)



3.1.2 Construction traffic

The proposed works will generate additional traffic movements in the form of:

- Light vehicle movements generated by construction personnel travelling to and from work
- Heavy vehicle movements generated by delivery vehicles bringing in elements of crane, and plant and materials associated with the crane pad establishment works.

Construction traffic on-site (i.e. within the Project footprint) is included as part of the construction noise assessment of the works activities identified in Section 3.1.1 When construction related traffic moves onto the public road network, a different noise assessment methodology is appropriate as vehicle movements would be regarded as 'additional road traffic' rather than as part of the construction site's activities. Construction traffic noise is addressed in Section 9.

3.1.3 Cumulative construction impacts

CSSI-8256 Condition of Approval E26 requires work undertaken for the delivery of the CSSI, including those undertaken by third parties (such as utility relocations) to be coordinated to ensure respite periods are provided. Potentially concurrent construction activities within the vicinity of the worksites, including concurrent Sydney Metro works have been considered in Section 10 of this CNVIA.

3.2 Construction hours

The construction hours for the Project are defined in the CSSI-8256 Conditions E19 to E24.

3.2.1 Standard construction hours

The standard construction hours of work are defined by the CSSI-8256 Condition E19. The standard construction hours for the Project are summarised in Table 3.

In addition to this, highly noise intensive work that results in an exceedance of the applicable Noise Management Level at the same receiver is limited by CSSI-8256 Condition E24 as noted in Table 3.

Table 3: Standard construction hours

Construction Activity	Monday to Friday	Saturday	Sunday/ Public holiday
Standard construction hours	7:00 am to 6:00 pm	8:00 am to 6:00 pm	No work
Highly noise intensive Work	8:00 am to 6:00 pm[1]	8:00 am to 1:00 pm[1]	No work

Notes: 1. Works may only be undertaken in continuous blocks not exceeding three (3) hours each with a minimum respite from those activities and Works of not less than one (1) hour between each block. 'Continuous' includes any period during which there is less than a one (1) hour respite between ceasing and recommencing any of the highly noise intensive work.

3.2.2 Out of hours work periods

CSSI-8256 Condition E20 and E23 allow standard construction hours to be varied under specific conditions (where justified), including work permitted under an Out of Hours Work Protocol as required by CSSI-8256 Condition E25. This includes work under a Rail Possession or Road Occupancy License.

The impact of OOH works may be reduced by scheduling work and activities with greater impact during the preferred periods when receivers are likely to be less sensitive to noise and vibration, such as in the day out of hours (OOHD) and evening out of hours (OOHE) periods.

3.2.3 Justification for OOHW

Establishment of the crane pad within 6 Broughton Street, Canterbury, will be undertaken during standard construction hours. No OOHW is proposed for these works.

Any work outside standard construction hours must be undertaken in accordance with the Out of Hours Works Protocol and the NVMPs.

4 Nearest sensitive receivers

4.1 Residential receivers

To assess and manage construction noise and vibration impacts, the residential areas surrounding the Canterbury Station worksites have been divided into Noise Catchment Areas (NCAs) based on each area's similar acoustic environment prior to the start of construction work. The NCAs are based on those established in the EIS for the Project and presented in the NVMPs.

All relevant residential sensitive receivers near the worksite are identified on an aerial photograph as part of the Land Use Survey presented in Gatewave.

4.2 Other sensitive receivers

Additional to residential receivers above, 'other' noise and vibration sensitive receivers such as passive recreation areas and places of worship surrounding the construction area have been identified and are summarised and identified on an aerial photograph as part of the Land Use Survey presented in Gatewave.

CSSI-8256 Condition E28 states:

> *Noise generating Work in the vicinity of potentially-affected, religious, or educational institutions resulting noise levels above the noise management levels must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution or as otherwise approved by the Planning Secretary.*

HSE JV have undertaken consultation with identified sensitive receivers to determine sensitive periods. This has been taken into consideration in finalising respite strategies for high noise impacts. Sydney Metro and HSE JV are working with sensitive receivers to further assess and determine other reasonable arrangements to be implemented.

4.3 Commercial and industrial premises

All commercial and industrial premises near the worksite are identified on an aerial photograph as part of the Land Use Survey presented in Gatewave and have been considered in this assessment.

4.4 Heritage receivers

Heritage receivers have been identified in the Land Use Survey in the NVMPs.

5 Construction Noise and Vibration objectives

5.1 Noise goals

5.1.1 Noise management levels (NMLs)

Construction noise management levels (NMLs) have been determined using the Construction Environmental Management Framework (CEMF), CSSI-8256 Conditions, in accordance with the Sydney Metro City & Southwest Construction Noise and Vibration Strategy (SMCSNVS) and as set out in the NVMPs.

Airborne NMLs are determined using the ICNG. For residential receivers these are based on the background noise levels derived from long-term noise monitoring conducted by SLR for the Environmental Impact Statement (EIS). The NMLs for 'other' sensitive receivers are from the ICNG, as reported in Table 10 of the NVMP. These are applicable when the other sensitive receiver is in use.

Receivers are considered 'noise affected' where construction noise levels are greater than the NMLs. The noise affected level represents the level above which there may be some community reaction to noise. All feasible and reasonable work practices will be applied to meet the NMLs.

Where construction activities are tonal or impulsive in nature and are described in the ICNG as being particularly annoying, 5 dB(A) must be added to the activity noise. Activities that are defined in the Interim Construction Noise Guideline (ICNG) as particularly annoying include but are not limited to the use of 'beeper' style reversing or movement alarms; power saws; vibratory rolling; jack hammering, rock hammering or rock breaking; impact piling.

During standard construction hours, a highly affected noise objective of $L_{Aeq(15min)}$ 75 dB(A) applies in relation to airborne noise at all residential receivers.

5.1.2 Sleep disturbance

Consistent with Section 5.5 of the NVMPs, at residential receivers, the ICNG and the RNP require an assessment of sleep disturbance for noise occurring at night (10pm to 7am). Sydney Metro's CNVS adopts the following approach for assessing sleep disturbance:

- External sleep disturbance screening level of L_{Amax} > RBL + 15 dB
- External sleep awakening level of 65 dB L_{Amax} (assuming open windows).

If the Sleep Disturbance screening level is not exceeded, then no further review of sleep disturbance is required. If the screening level is exceeded, then the L_{Amax} level is to be compared with the external equivalent Sleep Awakening Level (L_{Amax} 65 dB(A)).

The Sydney Metro Out-of-hours Works Strategy/Protocol and Out-of-Hours Works Application form consider night-time noise levels in terms of $L_{Aeq(15min)}$ predictions. Additional sleep disturbance

assessments will be made on a case-by-case basis where night-time noise construction levels ($L_{Aeq(15min)}$) exceed:

- RBL + 10dB, as this is roughly equivalent to L_{Amax} > RBL + 15 for many types of plant / activity; and
- 60 dB(A), as this is roughly equivalent to L_{Amax} > 65 dB(A) for many types of plant / activity.

If the Sleep Awakening Level is exceeded, then sleep disturbance is to be reviewed in more detail. This may include consideration of whether windows are open or can be kept closed. If windows can be kept closed, then the External sleep awakening criterion is L_{Amax} 75 dB(A).

The aim of sleep disturbance assessments is to determine appropriate mitigation measures. Additional feasible and reasonable mitigation measures may need to be considered to reduce potential impacts.

5.1.3 Construction related road traffic noise objectives

On the roads immediately adjacent to construction sites, the community may associate heavy vehicle movements with the Traction Substation works. Construction traffic movements on public roads will aim to limit any increase in existing road traffic noise levels to no more than 2 dB(A). All feasible and reasonable noise mitigation and management measures will be implemented.

5.2 Construction vibration goals

5.2.1 Disturbance to building occupants (human annoyance)

For disturbance to human occupants of buildings, we refer to '*Assessing Vibration; a technical guideline*' This document provides criteria which are based on the British Standard BS 6472-1992, *'Evaluation of human exposure to vibration in buildings (1-80Hz)'* .

Intermittent vibration is assessed using vibration dose values (VDVs). For the assessment of potential vibration at the nearest vibration sensitive receivers preferred and maximum VDV goals for the day period (7:00am to 10:00pm) are presented in Table 4.

The levels highlighted in **bold** in Table 4 are used in Sydney Metro projects as the Vibration Management Level.

Table 4: Construction vibration disturbance goals

Location	Assessment period[1]	Vibration Dose Value (VDV), $m/s^{1.75}$		
		Low Probability of Adverse Comment	Adverse Comment Possible	Adverse Comment Probable
Residences	Day (16 hour)	0.2 to **0.4**	0.4 to 0.8	0.8 to 1.6
	Night (8 hour)	0.1 to **0.2**	0.2 to 0.4	0.4 to 0.8

Notes: 1. Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am

5.2.2 Damage to buildings or structures

A conservative vibration damage screening level per receiver type, assuming vibration predominantly has a frequency of 20 Hz, is given below:

- Reinforced or framed structures (Group 1): 25.0 mm/s
- Unreinforced or light framed structures (Group 2): 7.5 mm/s
- Heritage structures (screening level): 2.5 mm/s
- Heritage structures (structurally unsound): DIN 4150 Group 3
- Heritage structures (structurally sound): 7.5 mm/s

At locations where the predicted and/or measured vibration levels are greater than shown above (peak component particle velocity), a more detailed analysis of the building structure, vibration source, dominant frequencies and dynamic characteristics of the structure would be required to determine the applicable safe vibration level.

5.2.3 Heritage

If a heritage building or structure is found to be structurally unsound (following inspection) a more conservative cosmetic damage criteria (from DIN 4150 Group 3) would be considered. At construction stage, prior to carrying out works, a structural or condition survey of heritage buildings within recommended minimum working distances identified in Section 7(refer Section 8.4 of the NVMPs).

5.2.4 Sensitive scientific and medical equipment

No sensitive scientific or medical equipment are known to be located near the assessed works. If they are identified, relevant vibration criteria should be established for each item in line with Section 5.9 of the NVMPs, and any corresponding management or mitigation measures determined.

5.2.5 Buried utilities and services

Where utilities or other vibration sensitive structures are identified, relevant vibration criteria will be established for each item per Section 5.10 of the NVMPs, and any corresponding management or mitigation measures determined.

6 Construction noise and vibration impacts

6.1 Predicted noise levels

6.1.1 Construction $L_{Aeq,15min}$ assessment

Noise levels were determined by modelling the noise sources, receiver locations, and operating activities, based on the information presented in Table 2.

The noise predictions presented in this report represent a realistic worst-case scenario when construction occurs at the closest location within a specific work area. At each receiver, noise levels will vary during the construction period based on the position of equipment within the work area, the distance to the receiver, the construction activities being undertaken and the noise levels of particular plant items and equipment. Actual noise levels will often be less than the predicted levels presented.

A summary of the results is presented in Table 5. NMLs and predictions for the three worst-affected receivers for each works area are provided in Table 9. Results are presented visually in noise maps in APPENDIX B.

Table 5: Summary of receivers above relevant NMLs

NCA	Nearest station	Day (standard hours)	
		dB(A) above NML	No. of properties
OSR	-	0 to 10	0
		> 10	0
S2B_03	Canterbury	0 to 10	0
		> 10	0
		Over 75 dB(A)	0
S2B_04	Canterbury	0 to 10	14
		> 10	13
		Over 75 dB(A)	1
S2B_05	Canterbury	0 to 10	1
		> 10	0
		Over 75 dB(A)	0
S2B_06	Canterbury	0 to 10	0
		> 10	0
		Over 75 dB(A)	0

Notes:

OSR – other sensitive receivers; non-residential, noise sensitive receivers including childcare centres, education, places of worship, recreation areas, medical/hospitals, commercial, cinemas/theatres/auditoria, and industrial.

6.1.2 Sleep disturbance

The ICNG recommends that where construction works are planned to extend over more than two consecutive nights, maximum noise levels and the extent and frequency of maximum noise level events above the RBL should be considered. Table 6 summarises the number of receivers potentially above the screening and the 'awakening reaction' levels for sleep disturbance.

Table 6: Sleep disturbance summary

NCA	No of impacted buildings	
	Above screening level (i.e. RBL + 15) Below 'awakening reaction' of 65 dB(A) L_{Amax} (external)	Above 'awakening reaction' of 65 dB(A) L_{Amax} (external)
S2B_03	-	-
S2B_04	-	-
S2B_05	-	-
S2B_06	-	-

Notes:
External awakening reaction level of 65 dB(A) L_{Amax} is equivalent to an internal level of 55 dB(A) L_{Amax} assuming an open window

6.2 Mitigation measures

6.2.1 Specific reasonable and feasible mitigation measures

Airborne Noise:

- Pre commencement induction and environmental awareness will be undertaken by site personnel as part of the induction process to identify the Construction Noise and Vibration Strategy and relevant project specific and standard noise and vibration mitigation measures.
- A toolbox on relevant environmental aspects, including but not limited to noise and vibration impacts, for the possession will be delivered by an Environmental Advisor where feasible as part of shift pre-starts. If the Environmental Advisor cannot attend relevant information will be delivered by the Supervisor for that shift.
- High noise and vibration generating activities will only be carried out in continuous blocks, not exceeding 3 hours each, with a minimum respite period of one hour between each block and these works. Records of evidence of respite periods must be documented within supervisor site diaries.
- Machinery orientation will consider closest residential receivers to have main noise source shielded and directed away from residents where possible.
- Noise curtains are to be used for localised equipment and high noise generating equipment such as generators, where practical.

- The engine of any vehicle is to be turned off when not in use.
- Workers are not to shout, slam doors, drop objects or make any other unnecessary noise. Handheld and vehicle mounted radios used for the possession will be at a suitable level to maintain safety but minimise audible impacts to surrounding areas.
- Workers are to be mindful of local residents when leaving and entering the site.
- Plant and machinery will be fitted with compliant, non-tonal movement alarms.
- Simultaneous use of plant will be avoided where feasible. For example, several items of plant will only be used intermittently and will not be used for the full duration of the OOH period.
- Over-loading of plant will be avoided to minimise strain and overworking of engines.
- Where feasible, site vehicle trays will be lined with rubber mats.

Ground Borne Noise (GBN):

- GBN is considered negligible due to distance from the sensitive receivers. This will be re-evaluated should complaints arise.

Sleep Disturbance:

- Works associated with the crane pad establishment will be undertaken during standard construction hours. As such, sleep disturbance is not anticipated.

6.2.2 Consultation with affected receivers

CSSI-8256 Condition E28 requires consultation with affected community, religious or educational institutions where construction noise is found to exceed the NMLs to assist in managing works outside sensitive periods. HSE JV will continue consultation with potentially affected landholders (taking into consideration consultation outcomes undertaken by Sydney Metro to date) regarding specific mitigation measures applicable to the works at the Station Upgrade worksites. Consultation may include:

- Notification (including targeted letterbox drops, doorknocks and email) of any planned works that may disturb local residents and businesses (such as noisy activities, access changes and night work)
- Community signage to advise of work that may affect transport (such as road closures, changes to pedestrian routes and changes to bus stops)
- Community contact facilities including via the Sydney Metro website (sydneymetro.info), community email address and 24-hour toll-free community information line

- Regular updates to the Sydney Metro website (sydneymetro.info) including uploading notifications and providing community contact details; and
- Individual briefings as outlined in Section 7.11 of the NVMPs as part of implementation of Additional Mitigation Measures by Place Managers (refer Section 6.2.4).

6.2.3 Site noise control measures

The following standard noise control measures are recommended to reduce potential noise impacts:

Table 7: Site noise control measures

Control type	Control measure	Typical use
At-Source Control Measures	Limit equipment in use	Only the equipment necessary during each stage of the OOHW will be used.
	Timing of equipment in use	Where practicable, activities and plant will be limited
	Limit activity duration	Any equipment not in use for extended periods shall be switched off. For example, heavy vehicles should switch engines off when not in use.
	Use and siting of plant	Avoid/ limit simultaneous operation of noisy plant and equipment within discernible range of a sensitive receiver. Direct noise-emitting plant away from sensitive receivers where practicable. Locate fixed location plant items as far from sensitive receivers as practicable.
	Equipment selection	Use quieter and less noise/ vibration emitting construction methods where feasible and reasonable.
	Temporary noise screens	Where practicable, out of hours works should utilise temporary noise screens (e.g. Echo-barrier, or similar) to provide noise screening during noisier works, such as concrete pours etc that are required to be completed during more sensitive time periods. Temporary noise screens can provide up to 10 dB noise reduction, where they can break line of site.
	Truck movements	Avoid the use of park air brakes on site at night. Set up relevant traffic management measures to minimise the use of air brakes when leaving the site. Minimise unnecessary acceleration on site.
	Non-tonal reversing alarms	Alternative reverse alarms, such as 'quackers' will be installed on all plant and equipment, where practicable.
Noise Management Measures	Site inductions & Toolbox Talks	All employees, contractors and subcontractors will receive a Project induction. The environmental component may be covered in toolboxes and should include: • location of nearest sensitive receivers • relevant project specific and standard noise and vibration mitigation measures; • permitted hours of work; • OOHW Procedure and Form • construction employee parking areas.
	Community consultation	Inform community of construction activity and potential impacts
	Respite periods	High noise impact activities are carried out in continuous blocks of up to 3 hours. Respite from high noise impact activities will be provided between each block for at least 1 hour. No high noise impact activities will be carried out during this 1 hour respite period, unless otherwise agreed to with noise affected sensitive receivers. High noise impact activities will be limited to before 10:00 pm and after 8:00 am (where practicable).

Control type	Control measure	Typical use
	Work scheduling around sensitive areas	Where feasible and reasonable, construction would be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels would be scheduled during less sensitive time periods. When working adjacent to schools, medical facilities and childcare centres, scheduling noisy activities around HSC exam times, childcare sleep times and other identified sensitive times should be considered, where feasible and reasonable. When working adjacent to churches and places of worship noisy activities should be scheduled outside services, where feasible and reasonable.
	Behavioural practices	No swearing or unnecessary shouting or loud stereos/radios on site. No dropping of materials from height, throwing of metal items and slamming of doors.
	Noise monitoring	Noise monitoring is to be carried out as detailed in this report.

6.2.4 Additional Noise Mitigation Measures

After applying all feasible and reasonable mitigation measures identified in Table 7, if predicted noise levels are still above relevant NMLs, the appropriate additional noise mitigations measures should be considered (Table 8).

Table 8: Additional Airborne Noise Mitigation Measures

Time period		Mitigation Measures Predicted $L_{Aeq(15minute)}$ noise level above background (RBL) for residential receivers, or above NML for non- residential receivers / internal residential receiver locations			
		>0 to 10 dB	>10 to 20 dB	>20 to 30 dB	>30 dB
From Table 14 of the Sydney Metro City & Southwest Construction Noise and Vibration Strategy (report no 610.14213R3, version 0.4, dated 08/08/2016)			**Above NML at residential receivers**		
			>0 to 10 dB	**>10 to 20 dB**	**>20 dB**
Standard hours	Monday to Friday (7.00 am - 6.00 pm) Saturday (8.00 am - 6.00 pm CoA E19) Sunday/ Public Holiday (Nil)	-	-	LB, M	LB, M
From Sydney Metro Out of Hour Work Application form (SM-17-00000115)			**Above NML at residential receivers**		
			>5 to 15 dB	**>15 to 25 dB**	**>25 dB**
Daytime OOH Period	1pm to 6pm Saturdays and 8am to 6pm Sundays and Public Holidays.	–	LB	M, LB	M, IB, LB, PC, RO, SN
Evening and Night Time OOH Periods	6pm to 10pm every day 10pm to 7am weekday mornings and 10pm to 8am weekend and Public Holiday mornings	–	M, LB	M, IB, LB, PC, SN, RO	M, IB, LB, PC, SN, RO, AA*

Notes: LB = Letterbox Drop; M = Monitoring; PC = Phone Call; IB = Individual briefing; RO = Respite offer; SN = Specific notification; AA - Alternativeaccommodation (only applicable to Night Time OOH periods)

APPENDIX B presents a summary of the additional noise mitigation measures applicable for construction activities where, after application of all reasonable and feasible mitigation options, predicted construction noise levels still exceed the NMLs.

Prior to the commencement of the site establishment works, residential receivers around the Station Upgrade worksites, in particular those identified in APPENDIX B will be notified to advise that noise from the works may at times be audible. All potentially impacted receivers will be kept informed of the nature of works to be carried out, the expected noise levels and duration, as well as be given the project enquiries and complaints 1800 numbers (see Section 6.2.6).

6.2.5 Noise monitoring plan

Attended noise monitoring is to be undertaken to verify that noise levels resulting from works are in accordance with the levels predicted in this noise and vibration assessment report, subject to obtaining the property owner/occupier's consent to access the property (where required). Noise monitoring should be carried out on or near the property boundary at a location representative of the worst affected location (i.e. in publicly accessible areas on or near the nominated receivers, typically at ground level).

Table 9 identifies potential monitoring locations in each NCA, which are the three worst noise-affected receivers for each NCA from the works.

Note: Gatewave tries to find the most affected receivers in each NCA (up to 3 locations) purely based on the numerical results. These locations will be reviewed for suitability based on safety, accessibility, will provide valid data, etc. If not suitable, alternative suitable locations will be selected for verification monitoring.

In addition, noise monitoring is to be undertaken in the event of a complaint. The monitoring in response to a complaint will be taken as a representative to the nature of the complaint best encompassing the works and receiver location.

If verification monitoring shows that the external noise levels are consistently above the predicted levels, investigation will be undertaken to understand the cause of the exceedance.

All noise monitoring will follow the procedures outlined in Section 8 of the NVMP.

Table 9: Nominated verification monitoring locations

Receiver		Noise management levels (NMLs), dB(A)	Predicted noise levels, dB(A) Leq,15min
NCA	Address	NML Day dB(A) Leq 15min	Day (standard hours)
S2B_04	8 BROUGHTON STREET, CANTERBURY, NSW	50	81
S2B_04	4 BROUGHTON STREET, CANTERBURY, NSW	50	74
S2B_04	4 BROUGHTON STREET, CANTERBURY, NSW	50	71
S2B_05	5 EAST PARADE, CAMPSIE, NSW	46	47

6.2.6 Complaints Handling

Complaints received and responded to will be managed in accordance with the NVMPs. Sydney Metro operates a 24-hour construction complaints line (1800 171 386). Enquiries/ complaints may also be received through the Sydney Metro project email (sydneymetro@transport.nsw.gov.au).

7 Construction vibration impacts

7.1 Predicted vibration levels

The recommended MWDs for cosmetic damage and human annoyance are presented in Table 10.

Table 10: Generic minimum working distances for cosmetic damage and human annoyance

Plant item	Reference	Minimum working distance, metres			
		Cosmetic damage (screening criteria)		Human comfort (screening limit)	
		Heritage buildings	Non-heritage	Residential[1]	Non-residential[2]
Smooth drum roller (13t) - low vibration mode	RTA ROLLER_009	10	5	55	20

Notes:

1. Screening limit for residences, night time
2. Screening limit for offices, schools, educational institutions and places of worship (day or night)

The building/structures potentially within MWDs during the proposed works are identified in APPENDIX C.

7.1.1 Vibration control and management measures

In addition to the vibration control measures presented in the CNVMP, the following vibration management measures are provided to minimise vibration impact from construction activities to the nearest affected receivers and to meet the relevant human comfort vibration and structural damage limits identified in Section 5.2.

Table 11: Site vibration control measures

Control type	Control measure	Typical use
Construction Planning	Building condition surveys	Building condition surveys have been undertaken on buildings or structures within the minimum working distances prior to the commencement of construction work. The building/structure condition reports shall confirm the appropriate vibration criteria (i.e. reinforced or unreinforced structures, structurally sound or unsound heritage buildings).
	Measure distances on site between vibration intensive plant and sensitive buildings/ structures	Actual physical distances between the location where vibration intensive activities would be occurring should be confirmed on site. If the actual distances are greater than the recommended minimum working distances, further analysis is not required.

Control type	Control measure	Typical use
	Site specific minimum working distances	Specific minimum working distances for vibration intensive plant items must be measured on site where plant and equipment are likely to operate close to or within the recommended minimum working distances for cosmetic damage.
	Equipment selection/ construction method	Should vibration intensive plant be required to operate within site specific minimum working distances, alternative, lower vibration generating construction methodology should be considered, where feasible and reasonable. For example vibratory rollers can, where practicable, be operated with the vibratory mode switched off to reduce vibration impact.
	Vibration monitoring	Should vibration intensive plant be required to operate within site specific minimum working distances and alternative, lower vibration generating construction methodology is not possible, vibration monitoring must be undertaken during the construction activity to measure vibration generated by the works
	Community consultation	Implement community consultation measures as outlined in Section **Error! Reference source not found.** and the OOHW application to inform community: - Of construction activity and likely vibration impacts - That the level at which people perceive vibration or at which loose objects may rattle is far lower than the level at which cosmetic damage is may occur

7.1.2 Vibration monitoring

Vibration monitoring is to be undertaken:

- In response to a complaint in relation to vibration
- If requested by Sydney Metro, the ER, DPIE or EPA
- If works are likely to fall within the recommended minimum working distance for screening vibration impact, to determine site specific minimum working distances for cosmetic damage and human annoyance
- Whenever vibration significant plant items are operating close to or within the site specific minimum working distances
- If predicted vibration levels exceed the trigger levels requiring "M" (Monitoring) in accordance with the AMM matrices provided in Section **Error! Reference source not found.**.

7.1.3 Management of complaints

Vibration complaints received and responded to will be managed in accordance with the NVMPs. Sydney Metro operates a 24-hour construction complaints line (1800 171 386). Enquiries/ complaints may also be received through the Sydney Metro project email (sydneymetro@transport.nsw.gov.au).

8 Ground-borne noise assessment

Due to the nature of the proposed works, which are surface works, airborne noise is expected to be much higher than ground-borne noise levels at the nearest sensitive receivers. Additionally, there is negligible vibration impact with regard to human disturbance. On this basis, the potential impact of ground-borne noise from construction activities is negligible.

9 Traffic noise assessment

Low levels of heavy vehicle movements are likely to be associated with the proposed works, and the majority of the these will be at the start and end of the works period. As such, the increase in road traffic noise levels is likely be less than 2 dB(A) and so construction traffic will have minimal impact on the main roads used to access the site.

Notwithstanding this, all drivers will be informed of several measures to minimise potential for noise impact, including limiting of compression braking, minimisation of vehicle idling, which will ensure that noise impacts of heavy vehicle traffic on surrounding streets are minimised.

10 Cumulative impacts

All concurrent Sydney Metro construction works have been considered and addressed in this CNVIA, including works within the South West Corridor. HSE JV are aware of ongoing, potentially concurrent construction activities within the vicinity of the Station Upgrade worksites at Dulwich Hill, Hurlstone Park, Campsie, Belmore, Wiley Park and Punchbowl Stations. The works, summarised in Table 12, may have the potential to generate cumulative noise impacts on receivers.

Table 12: Other construction works close to Station Upgrade worksites

Construction company	Project	Timing of activities	Hours of works	Works location	Activity types
Sydney Trains	Sydney Train maintenance works	Based on Sydney Trains trackwork schedule	Based on Sydney Trains trackwork schedule	Any point along the rail corridor	No works have been communicated
John Holland Laing O'Rourke	Sydney Metro Southwest P3	Mid-week	OOH	Rail corridor – Dulwich Hill to Punchbowl	No works have been communicated
Downer	Sydney Metro Southwest	Mid-week	OOH	Dulwich Hill, Hurlstone Park, Campsie, Belmore, Wiley Park and Punchbowl Stations	No works have been communicated
Abergeldie	Canterbury Council	Mid-week	OOH	Aligning the intersections of Close St and Charles St at Canterbury Rd.	Road and footpath works.
Line-wide	Sydney Metro Southwest	Mid-week	Day-time	Canterbury Traction Substation with access from Sugar House Rd	Bulk excavation works

These works have been considered but it has been determined that, due to the nature of the other unrelated construction works, no additional physical mitigation measures are deemed reasonable. Nevertheless, in accordance with the NVMPs, HSE JV will endeavour to take all reasonable steps to collaborate with other Projects to minimise cumulative noise and vibration impact and coordinate respite for affected sensitive receivers, whenever practicable.

Gatewave, a 3D construction noise and vibration management tool (www.gatewave.com.au) will be used to assess and manage cumulative noise impact from other aspects of the Project or, where relevant noise from other construction projects.

Important disclaimer

* This document has been partly automatically generated by Gatewave ™, software for prediction, assessment and management of noise and vibration, developed by Renzo Tonin and Associates.

* This document is uncontrolled. Please contact Renzo Tonin and Associates if you suspect there are any errors in this report.

* Results in this report are based on the assumptions described in Section 2 and inputs presented in Section 3. Noise and vibration monitoring data will be collected to ensure Gatewave is verified and adjusted, if required.

* Renzo Tonin and Associates cannot be held liable for the misuse of the software Gatewave ™, including any errors that may be contained within the software.

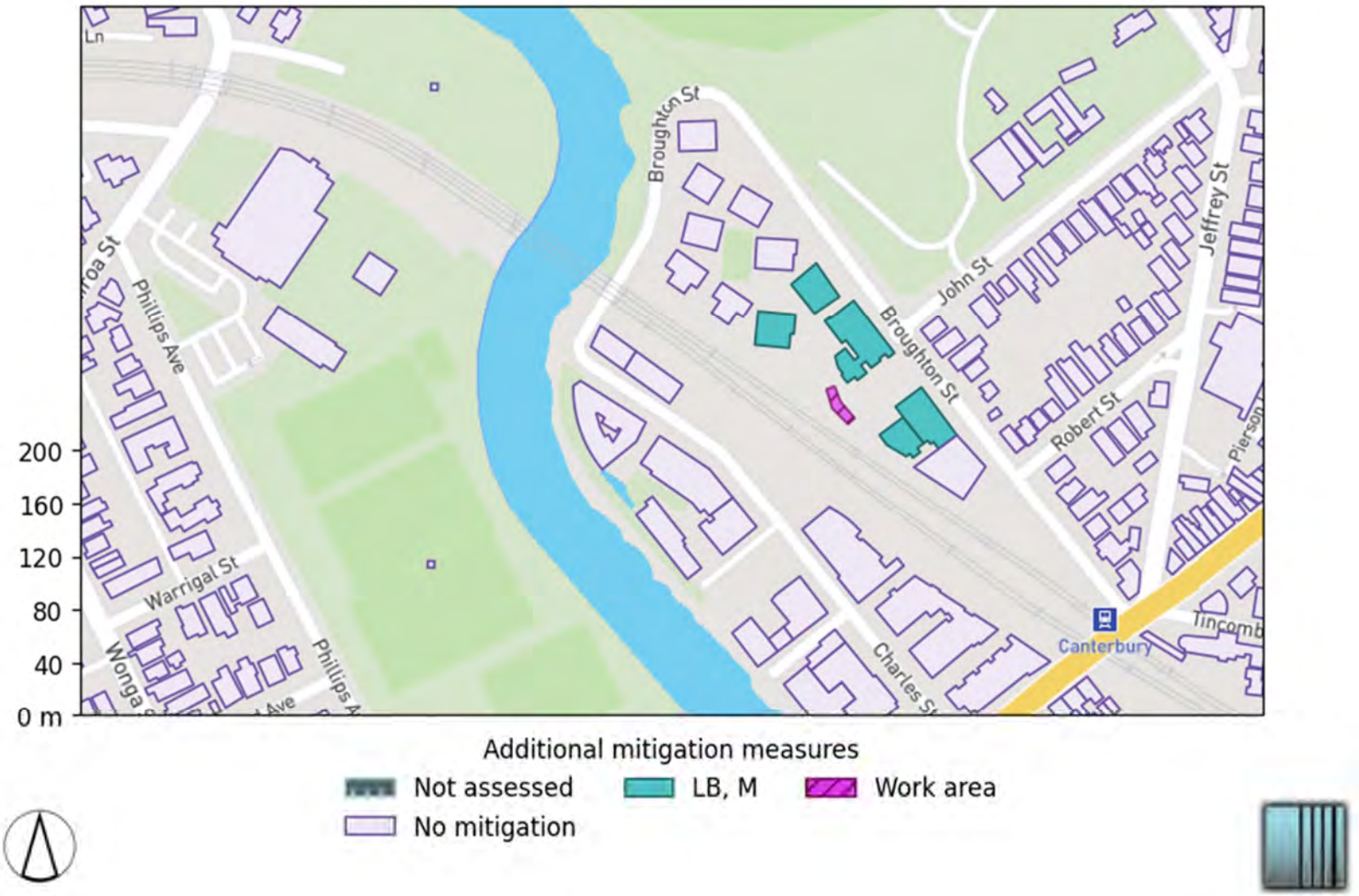
APPENDIX A Detailed construction noise results

Detailed noise results are provided in a spreadsheet table in order to more adequately mitigate and manage potential noise impacts.

Receiver		Noise management levels (NMLs), dB(A)			Predicted noise levels,	dB above NML, dB(A)			Additional mitigation
NCA	Address	NML Day, dB(A) Leq 15min	Lmax (screening), dB(A) Lmax	Lmax (limit), dB(A) Lmax	Day (standard hours)	NML Day	Lmax (screening)	Lmax (limit)	Day (standard hours)
S2B_04	8 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	81	31	-49	-64	LB, M
S2B_04	4 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	74	24	-49	-64	LB, M
S2B_04	4 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	71	21	-49	-64	LB, M
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	68	18	-49	-64	LB, M
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	67	17	-49	-64	LB, M
S2B_04	23 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	65	15	-49	-64	-
S2B_04	10 CHARLES STREET, CANTERBURY, NSW	50	50	65	64	14	-49	-64	-
S2B_04	2 Broughton St, Canterbury NSW 2193, Australia	50	50	65	64	14	-49	-64	-
S2B_04	15 CHARLES STREET, CANTERBURY, NSW	50	50	65	63	13	-49	-64	-
S2B_04	15 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	63	13	-49	-64	-
S2B_04	17 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	63	13	-49	-64	-
S2B_04	19 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	63	13	-49	-64	-
S2B_04	15 CHARLES STREET, CANTERBURY, NSW	50	50	65	61	11	-49	-64	-
S2B_04	4 CHARLES STREET, CANTERBURY, NSW	50	50	65	61	11	-49	-64	-
S2B_04	2 CHARLES STREET, CANTERBURY, NSW	50	50	65	60	10	-49	-64	-
S2B_04	15 CHARLES STREET, CANTERBURY, NSW	50	50	65	60	10	-49	-64	-
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	60	10	-49	-64	-
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	59	9	-49	-64	-
S2B_04	13 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	59	9	-49	-64	-
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	57	7	-49	-64	-
S2B_04	2 CHARLES STREET, CANTERBURY, NSW	50	50	65	55	5	-49	-64	-
S2B_04	4 CHARLES STREET, CANTERBURY, NSW	50	50	65	55	5	-49	-64	-
S2B_04	15 ROBERT STREET, CANTERBURY, NSW	50	50	65	55	5	-49	-64	-
S2B_04	24 JOHN STREET, CANTERBURY, NSW	50	50	65	54	4	-49	-64	-
S2B_04	22 JOHN STREET, CANTERBURY, NSW	50	50	65	54	4	-49	-64	-
S2B_04	10-12 BROUGHTON STREET, CANTERBURY, NSW	50	50	65	54	4	-49	-64	-
S2B_04	15 CHARLES STREET, CANTERBURY, NSW	50	50	65	51	1	-49	-64	-
S2B_04	4 CHARLES STREET, CANTERBURY, NSW	50	50	65	51	1	-49	-64	-
S2B_05	5 EAST PARADE, CAMPSIE, NSW	46	47	65	47	1	-46	-64	-
S2B_04	16 JOHN STREET, CANTERBURY, NSW	50	50	65	50	0	-49	-64	-
S2B_04	11 ROBERT STREET, CANTERBURY, NSW	50	50	65	50	0	-49	-64	-
S2B_04	1-3 CHARLES STREET, CANTERBURY, NSW	50	50	65	49	0	-49	-64	-
S2B_04	9 ROBERT STREET, CANTERBURY, NSW	50	50	65	50	0	-49	-64	-
S2B_05	2 BELLOMBI STREET, CAMPSIE, NSW	46	47	65	45	0	-46	-64	-
S2B_05	227 CANTERBURY ROAD, CANTERBURY, NSW	46	47	65	46	0	-46	-64	-
S2B_05	5 EAST PARADE, CAMPSIE, NSW	46	47	65	45	0	-46	-64	-
S2B_05	3 NOWRA STREET, CAMPSIE, NSW	46	47	65	46	0	-46	-64	-
S2B_05	243-249 CANTERBURY ROAD, CANTERBURY, NSW	46	47	65	45	0	-46	-64	-

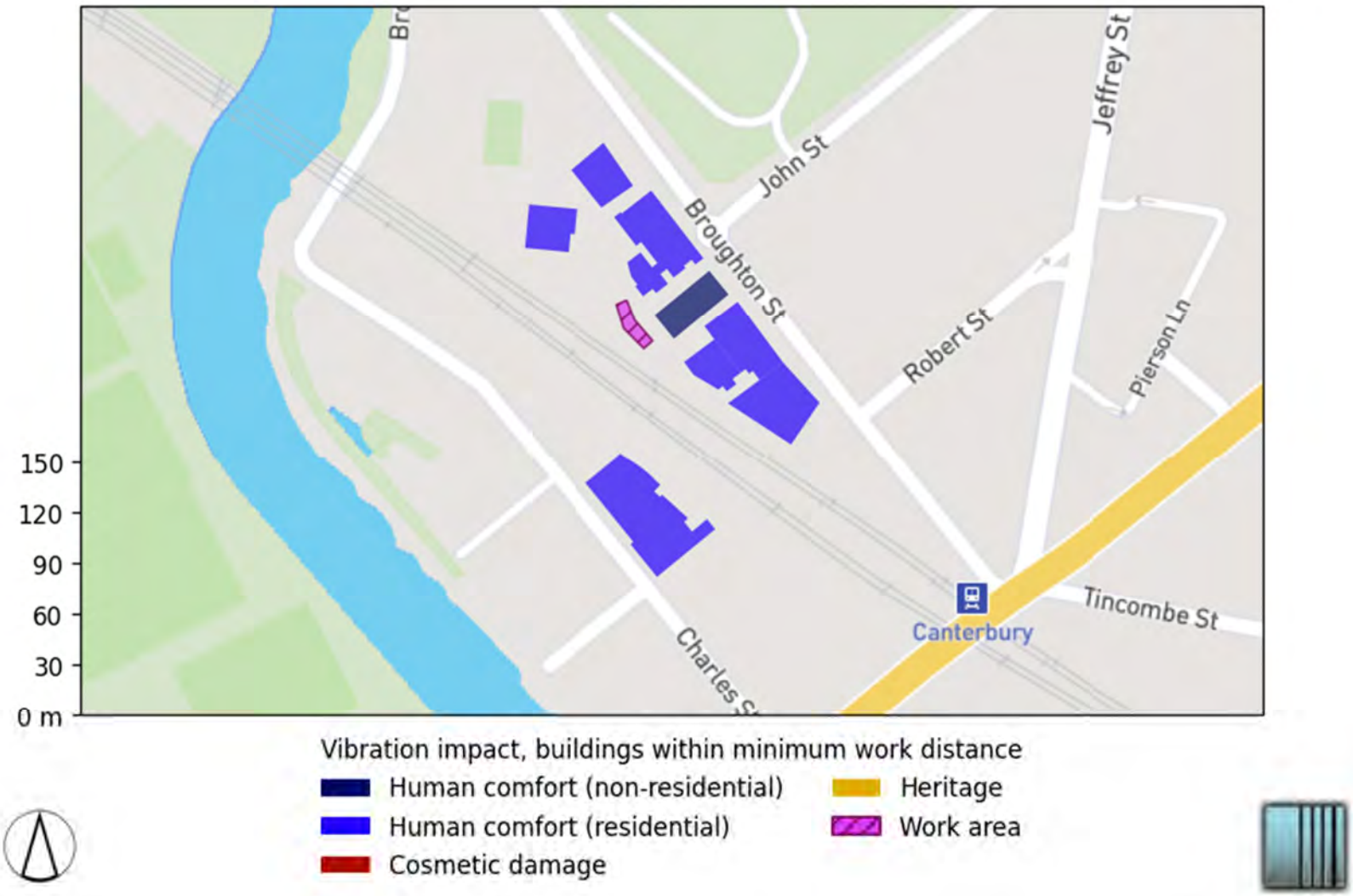
APPENDIX B Additional noise mitigation measures

Predicted exceedance of noise criteria, Day (standard hours) (area 1 of 1)

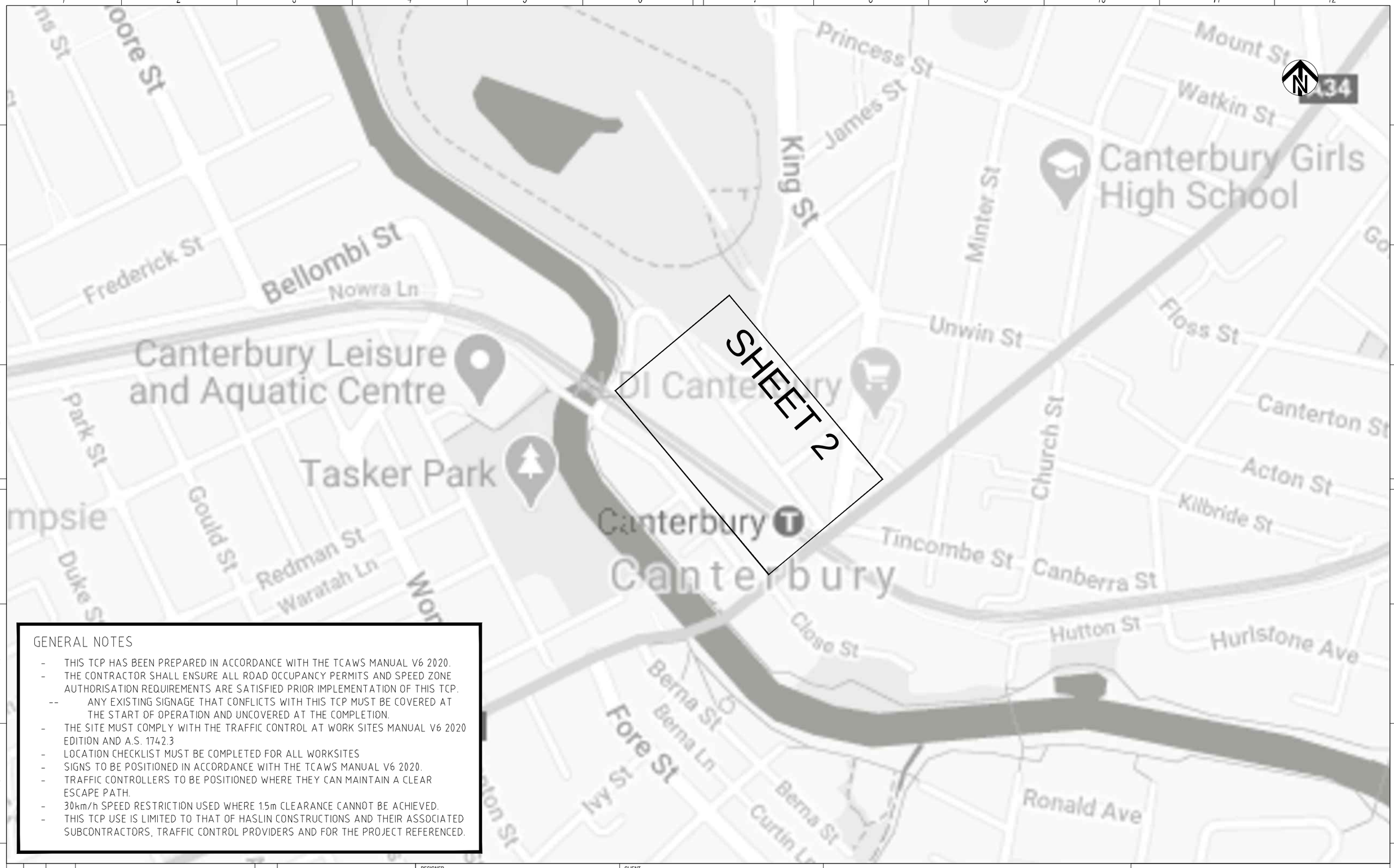


APPENDIX C Vibration impact maps

Predicted vibration impact (area 1 of 1)



Appendix E – Traffic Control Plan (TCP)



GENERAL NOTES

- THIS TCP HAS BEEN PREPARED IN ACCORDANCE WITH THE TCAWS MANUAL V6 2020.
- THE CONTRACTOR SHALL ENSURE ALL ROAD OCCUPANCY PERMITS AND SPEED ZONE AUTHORISATION REQUIREMENTS ARE SATISFIED PRIOR IMPLEMENTATION OF THIS TCP.
  - ANY EXISTING SIGNAGE THAT CONFLICTS WITH THIS TCP MUST BE COVERED AT THE START OF OPERATION AND UNCOVERED AT THE COMPLETION.
- THE SITE MUST COMPLY WITH THE TRAFFIC CONTROL AT WORK SITES MANUAL V6 2020 EDITION AND A.S. 1742.3
- LOCATION CHECKLIST MUST BE COMPLETED FOR ALL WORKSITES
- SIGNS TO BE POSITIONED IN ACCORDANCE WITH THE TCAWS MANUAL V6 2020.
- TRAFFIC CONTROLLERS TO BE POSITIONED WHERE THEY CAN MAINTAIN A CLEAR ESCAPE PATH.
- 30km/h SPEED RESTRICTION USED WHERE 1.5m CLEARANCE CANNOT BE ACHIEVED.
- THIS TCP USE IS LIMITED TO THAT OF HASLIN CONSTRUCTIONS AND THEIR ASSOCIATED SUBCONTRACTORS, TRAFFIC CONTROL PROVIDERS AND FOR THE PROJECT REFERENCED.

REV	BY	DATE	DESCRIPTION	APPD.
P1	LP	17.02.20	ORIGINAL ISSUE	LP

COORDINATE SYSTEM: | HEIGHT DATUM: | SCALE:

DRAWN BY:	AG
DRW CHECK:	AG
APPROVED:	AG
IND REVIEW:	N/A

DESIGNER: CIVLINK CONSULTING

CLIENT: HASLIN

HASLIN CONSTRUCTIONS - CANTERBURY STATION UPGRADE

CANTERBURY STATION SITE ACCESS AND EGRESS
BROUGHTON STREET STOP/SLOW - NORTH GATE
LOCALITY PLAN

DRAWING No: HAS-CAN-30008-P1

SHEET 1 OF 2

REVISION P1

Plot Date: 18 February 2021 - 10:27 PM

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LEGEND	
WORK AREA	
PEDESTRIAN DETOUR ROUTE	
CLOSED PEDESTRIAN PATH	
PEDESTRIAN BARRICADE / PHYSICAL BARRIER	
TRAFFIC CONTROLLER	
TRAFFIC CONE / BOLLARD	
TEMPORARY SIGN POSITION	
SITE ACCESS / EGRESS	

ROBERTS ST

JEFFREY ST

BROUGHTON ST

CANTERBURY TRAIN STATION

40m

APPROVED BY
NAME: L. PEAU
PWTMP CARD: 005192385
SIGN:
DATE: 1.26.2021

REV	BY	DATE	DESCRIPTION	APPD.
P1	LP	17.02.20	ORIGINAL ISSUE	LP

COORDINATE SYSTEM: | HEIGHT DATUM: | SCALE:

DRAWN BY:	AG
DRW CHECK:	AG
APPROVED:	AG
IND REVIEW:	N/A

DESIGNER: CIVLINK CONSULTING

CLIENT: HASLIN

HASLIN CONSTRUCTIONS - CANTERBURY STATION UPGRADE

CANTERBURY STATION SITE ACCESS AND EGRESS
BROUGHTON STREET STOP/SLOW - NORTH GATE
TRAFFIC GUIDANCE SCHEME

DRAWING No:	HAS-CAN-30008-P1
SHEET	2 OF 2
REVISION	P1

Plot Date: 18 February 2021 - 10:27 PM

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