

## Memo

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**To**

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**From**

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**Priority**

URGENT

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**Date**

26/03/2024

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**Subject**

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Addendum assessment and decision No.07 for proposed modifications to M1 Western Distributor Smart Motorway Project

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### Proposed modification

Modification to the M1 Western Distributor Smart Motorway Review of Environment Factors (REF).

### Background

In 2021, Transport for NSW proposed to introduce intelligent technology, known as a smart motorway system, to the M1 corridor between Milsons Point and Allen Street in Pyrmont. This proposal is located in the North Sydney and City of Sydney local government areas (LGAs).

A review of environmental factors (REF) was prepared for the Western Distributor Smart Motorway (WDSM, or The Project) proposal (referred to as the approved project REF) which was determined in May 2021.

A further six (6) addendum REFs and two (2) consistency reports have been prepared and determined. Refer to **Appendix A - Determined minor works REFs, determined addenda, and consistency reports.**

### Purpose

The purpose of this memo is to:

- Describe the proposed modification.
- Document and assess the likely impacts of the proposed modification on the environment.
- Detail protective measures to be implemented.
- Document the recommendation of the Transport Senior Manager Environment and Sustainability and the decision by the Transport delegated manager as to whether to, or not to determine the modification to the project.

This memo is an addendum to, and is to be read in conjunction with, the previous project REF, addendum REFs and consistency reviews determined for the project.

## Description of proposed modification

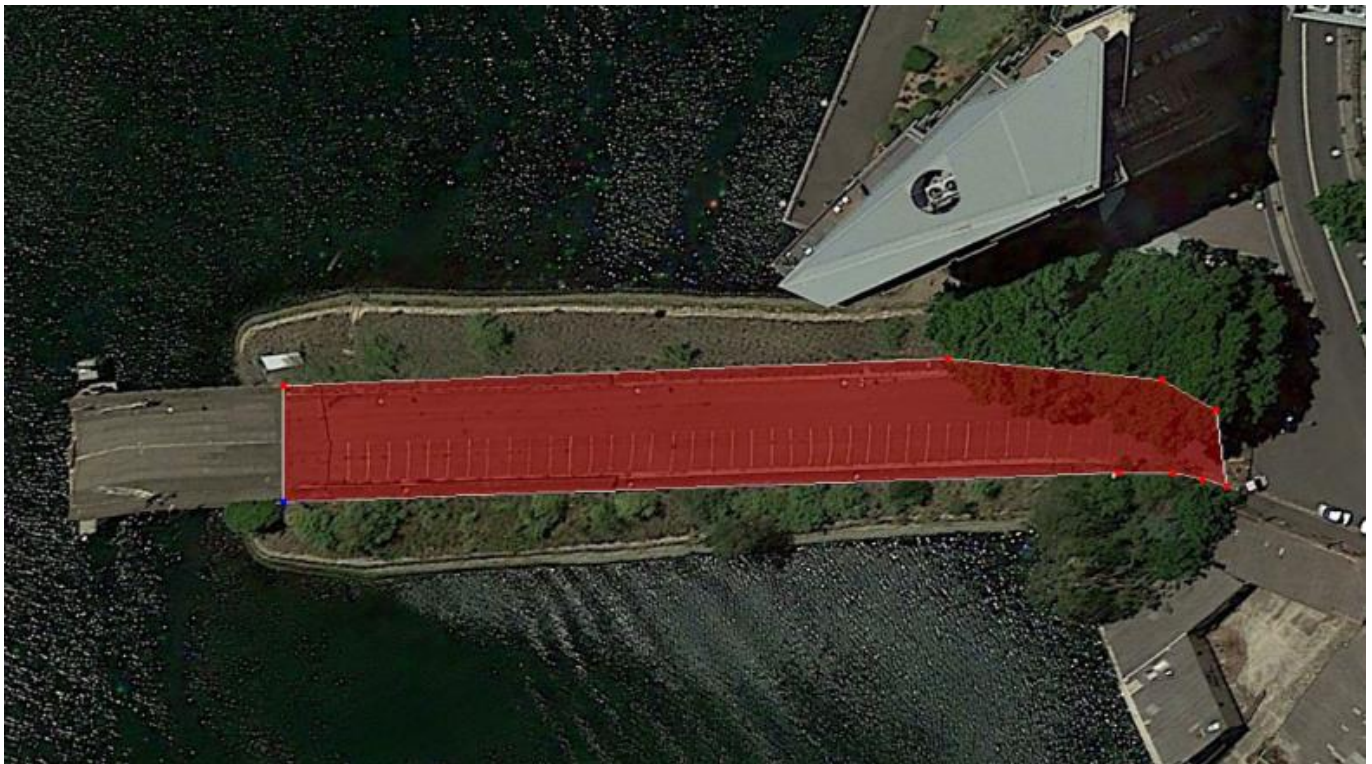
Transport for NSW proposes to modify the M1 Western Distributor Smart Motorway project to remove the current restrictions on the operational hours of the compound site on the eastern approaches to Glebe Island Bridge (Glebe Island Bridge east compound), Pyrmont.

The Glebe Island Bridge east compound would continue to be used for workforce parking but with operation permitted up to 24 hours per day, 7 days per week (unrestricted). The site would be limited to light vehicles used by staff accessing the nearby leased office space and construction workers accessing the nearby site compound across Anzac Bridge at White Bay.

The site is illustrated in **Figure 1** and **Figure 2**.

The compound is currently used by:

- 1) Western Distributor Smart Motorway for car parking during Standard Working Hours as approved under REF Addendum No.4. Standard Working Hours are:
  - a) Monday to Friday: 7:00am to 6:00pm
  - b) Saturday: 8:00am to 1:00pm
  - c) Sunday and public holidays: No work
- 2) Connect Sydney, TfNSW's maintenance partner for the Harbour Zone, without restriction.
- 3) Glebe Island Bridge refurbishment project team.



**Figure 1 –Location of site**

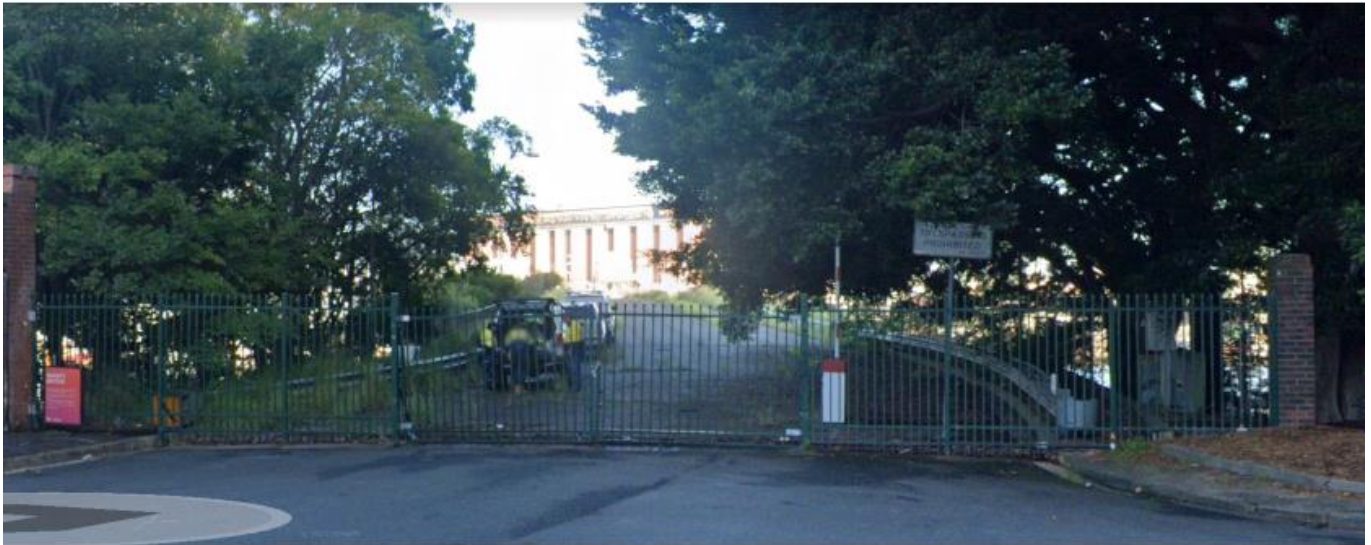


Figure 2 – Existing compound entrance gates viewed looking west from Bank Street

## Need for the proposed modification

All site workers and staff are required (mandatory) to be at the main site compound in Sommerville Road at 8pm daily for prestart meetings and toolbox talks prior to commencing works on The Project.

The number of site workers is approaching its peak of about 150 per night. The capacity of previously approved compound facilities at White Bay (GIB - west) is insufficient to cater for the demand for parking of plant, work vehicles, and worker parking.

Depending which location is being worked at, and respective road occupancy licence provisions are in place, workers may not leave the main site compound until after 10pm. Then depending on the time of completion they typically return to leave at any time up until 5am.

Therefore, existing parking arrangements are inadequate to project needs.

Chapter 2 of the approved project REF addresses the strategic need for the project, the project objectives and the options that were considered. The proposed modifications described and assessed in this addendum REF are consistent with the strategic need for the project.

The proposed modifications support provision of a Smart Motorway solution on the missing section of motorway corridor between Rozelle and North Sydney.

The proposed modifications, remain consistent with the policies and planning documents outlined in Chapter 2 of the determined project REF and its addenda as listed below:

- Future Transport Strategy
- Movement and Place Framework
- Future Transport Technology Roadmap
- Greater Sydney Regional Plan
- Eastern City District Plan
- Road Safety Plan 2021
- Connected and Automated Vehicles Plan
- State Infrastructure Strategy 2018-2038
- Sydney City Centre Access Strategy
- Sydney's Bus Future
- NSW Freight and Ports Strategy
- NSW Freight and Ports Plan

## Options considered

During construction of The Project Transport has sought to identify suitable lands for the project needs described previously and how to manage the space it has secured to date more effectively.

Government owned land is particularly scarce and is subject to competing needs from other projects including: Sydney Metro West; Western Distributor Network Improvements; and Western Harbour Tunnel projects, all within close proximity of each other.

The previously approved sites in White Bay are already being organised to obtain the maximum yield safely possible.

The following options were assessed against the proposal objectives and development criteria outlined in Chapter 2 of the determined REF.

Options considered include:

- 1) Do nothing: This was discounted as the potential impacts of the proposed modification are less than those of the approved project.
- 2) Public Transport: This was discounted as it is not considered a safe, or an efficient option for night shift workers.
- 3) Private bussing from a centralised location: This was discounted as it has considerable logistical constraints and would only transfer the parking issue to another location.
- 4) Increased use of Glebe Island Bridge eastern approach: This is the Preferred Option due to it being on TfNSW owned land that is readily available and already established by The Project.
- 5) Land at the TfNSW Pyrmont Project Office: This was discounted as, despite being TfNSW land, it has been denied approval by the Pyrmont Project Office manager.
- 6) Service NSW secure parking at 33 James Craig Road: an enquiries has been submitted, awaiting response. The premise is secure, behind gates requiring security clearance, furthermore the premises is extensively used during daylight hours, limiting its practical availability



- 7) NSW Ports' land at White Bay: an enquiry has been submitted, awaiting response.
- 8) City of Sydney vacant land in Fig Street: City of Sydney has rejected this citing long standing contamination of the site.

The proposed modification which comprises 'Option 4' would result in additional short term intermittent noise from vehicles. This has the potential to impact the local community, notably 2 Bowman Street, Pyrmont, a residential apartment building. This impact is predominantly from night-time end of shift worker 'bump out' operations in the early morning hours.

There would be no enduring impacts.

As such, 'Option 4' is the preferred option, whilst 'Option 7' continues to be investigated.

## Consultation

The modification does not require formal widespread community consultation due to its limited nature. Transport has consulted City of Sydney, Maritime, Other TfNSW projects (Glebe Island Bridge Upgrade Project, Western Distributor Network Improvement Project), and Ports NSW regarding the various options.

Upon determination the project team would notify and engage with residents affected by the revised operating hours at which this modification impacts:

- The building Manager, 2 Bowman Street, Pyrmont
- Senior Environment and Sustainability Officer of Transport for New South Wales

## Impact assessment

### Soil

No additional soil or water quality impacts are anticipated. No *additional* safeguards are required.

### Waterways and water quality

No additional impacts to waterways and water quality are anticipated. No *additional* safeguards are required.

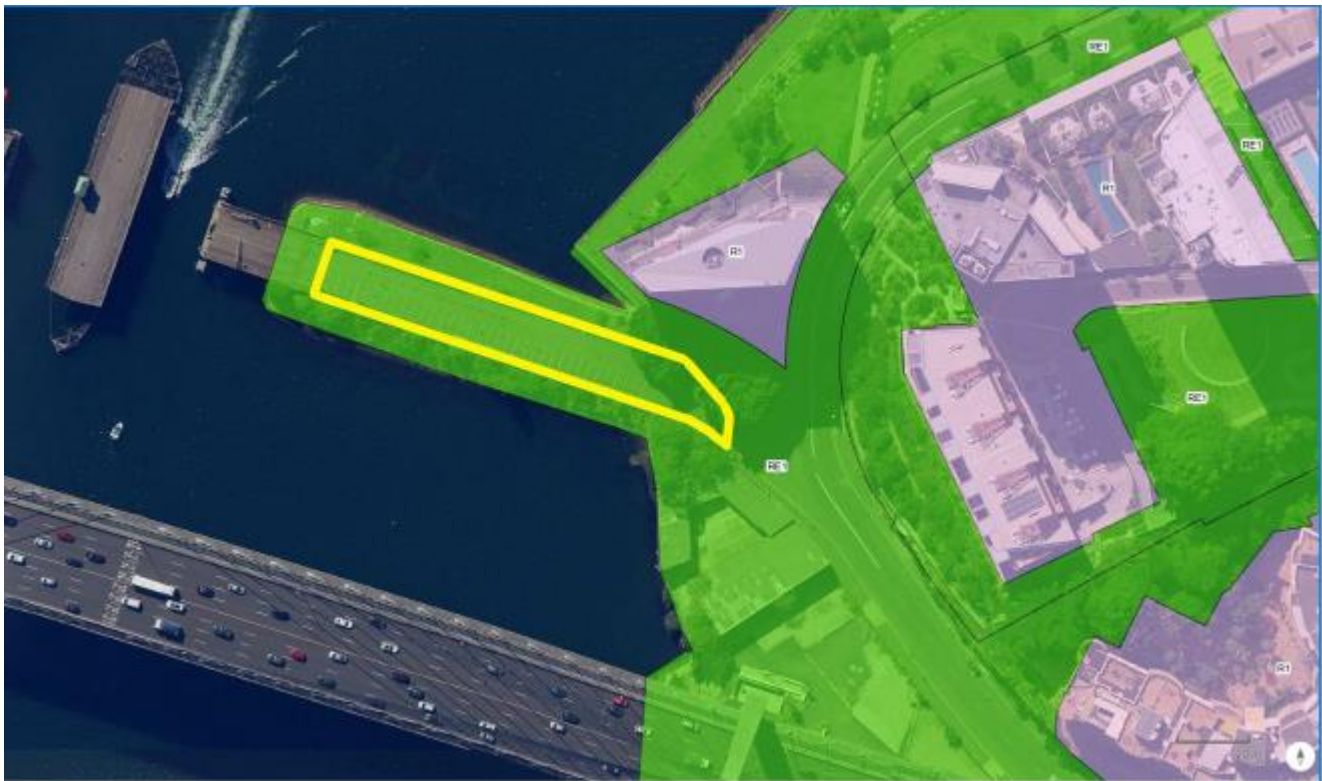
### Noise and vibration

The existing Glebe Island Bridge east compound is adjacent to existing residential apartment buildings, and industrial land uses (as additional permitted use in areas recently rezoned RE1) and the M1 Western Distributor, which had over 80,000 AADT in 2023.

The nearest receivers to the compound are shown in **Figure 3**. The nearest residential receivers are within the apartment block at 2 Bowman Street, Pyrmont, <20 metres to the north of the compound site at its nearest point.

The project REF indicates that the existing background noise levels near the proposed modification are dominated by road traffic noise from the adjacent M1 Motorway. In addition, the background noise is also expected to be influenced by:

- cumulative construction noise from other major projects including WestConnex and White Bay redevelopment.
- noise generated from activities at the Port Facility such as shipping vehicle noise.
- commercial and industrial activities.
- other intermittent noise sources including aviation traffic noise.



**Figure 3 – Land use surrounding the Glebe Island Bridge east compound (Purple areas are residential while green areas comprise industrial and recreational receivers)**

The Glebe Island Bridge east compound is in a highly urban environment on the edge of Sydney CBD therefore the NET assessment applied noise environment ‘R4’ to represent background noise levels in the receiving noise environment. This produced the following background noise levels (also referred to as Rating Background Level or RBL) for the assessment.

The compound operation would generate up to 40 additional light vehicles in either Bank Street, or Bowman Street and Harris Street during its unrestricted use as a worker car park.

The TfNSW Construction Noise Tool Estimator has been utilised to assess the noise impacts during operation of the proposed Glebe Island Bridge east compound. Based on the selected noise catchment area TfNSW Construction Noise Tool Estimator produced representative background noise levels (L90) and noise management levels (NML). The distance-based assessment (scenario) was selected for assessment as it considers a number of plant items operating simultaneously during an operational scenario. Potential noise emissions are considered moderately intrusive or clearly audible to nearby residents during standard and non-standard working hours.

See Appendix C: for the associated estimated noise impacts.

No work, generally considered to be ‘noisy works’, would be performed at Glebe Island Bridge east compound.

However, in recognition of the potential impacts of multiple vehicles being ‘started’ in the early morning hours, the residents of 2 Bowman Street, Pyrmont adjacent, would be provided detail about the duration of the parking and how night noise will be managed, that is; the compound would only be used for light vehicles, all workers

would be made aware of nearby neighbours, workers must avoid having vehicles idling, excessive revving of engines, loitering, and loud voices.

Construction noise impacts would be relatively consistent with the construction noise footprint assessed in the determined REF and subsequent addenda.

The previously determined safeguards are considered adequate to manage these potential noise impacts.

### **Air quality**

The work involves no net increase on that previously assessed. No additional air quality impacts are anticipated. No additional safeguards are required.

### **Aboriginal heritage**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others. No Aboriginal sites or places were recorded in or near the location of the WDSM project boundary.

### **Non-Aboriginal heritage**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others. TfNSW. Potential direct and indirect impacts described in the REF Addendum No.4 are applicable. That assessment found the significance of potential impacts on Glebe Island Bridge to be *temporary, minor, and adverse* and all others to be *neutral*.

No Heritage Act permit approvals were identified by the assessment and no additional safeguards are required.

### **Biodiversity**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others.

The modification is not likely to significantly impact threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act or FM Act and therefore a Species Impact Statement is not required.

No tree removal or trimming is required. The Glebe Island Bridge east compound has already been established and is in operation on a restricted time basis. There would be no direct impact to vegetation, the marine environment or aquatic vegetation. Potential indirect impact such as spills would be satisfactorily managed by the existing project REF and subsequent addenda safeguards, and this Addendum REF.

The modification is not likely to significantly impact threatened species, populations, ecological communities, or migratory species, within the meaning of the EPBC Act.

No additional safeguards are required.

### **Traffic and transport**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others. Traffic and transport impacts would be minor, consisting of up to 40 additional light vehicle movements in and out. This would predominantly be along Bank Street with a much smaller proportion using Bowman and Harris streets.

Overall, the construction traffic produced by unrestricted operation of the Glebe Island Bridge east compound is expected to have a minor impact on local traffic.

Use of the Glebe Island Bridge east compound site is expected to minimise the parking of staff vehicles on the local roads in Pyrmont, mitigating the potential impacts to local parking availability.

No additional safeguards are required.

### **Socio-economic issues**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others. No additional socio-economic impacts are anticipated. No additional safeguards are required.

### **Landscape character and visual impacts**

The modification involves the same usage of the same area previously assessed and is consistent with the current use by TfNSW, and others. No additional landscape character and visual impacts are anticipated. No additional safeguards are required.

### **Waste**

The proposed modification would not generate any additional green waste which is a waste type considered part of the determined project. Any waste would be managed and disposed of in accordance with existing pathways.

No additional safeguards are required.

### **Cumulative impacts**

The proposed modification would result in minor and short-term cumulative impacts in terms of traffic, and minor noise.

No additional safeguards are required.

**Appendix B** addresses the environmental factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021.



## Summary of additional or revised safeguards

A summary of additional or revised safeguards to be included as part of this modification are listed in the table below. A complete list of project safeguards as amended is provided in **Table 1**.

**Table 1 - Summary of additional or revised safeguards**

Safeguards	
Soil	No additional safeguards are required.
Waterways and water quality	No additional safeguards are required.
Noise and vibration	<p>Residents of 2 Bowman Street, Pyrmont adjacent, would be provided detail about the duration of the parking and how night noise will be managed, that is;</p> <ul style="list-style-type: none"> <li>• The compound would only be used for light vehicles</li> <li>• All workers would be made aware of nearby neighbours, workers must avoid;               <ul style="list-style-type: none"> <li>○ Having or leaving vehicles idling</li> <li>○ Excessive revving of engines</li> <li>○ Loitering; and</li> <li>○ Using loud voices.</li> </ul> </li> </ul>
Air quality	No additional safeguards are required.
Non-Aboriginal heritage	No additional safeguards are required.
Aboriginal heritage	No additional safeguards are required.
Biodiversity	No additional safeguards are required.
Trees	No additional safeguards are required.
Traffic and transport	No additional safeguards are required.
Socio-economic	No additional safeguards are required.
Landscape character and visual amenity	No additional safeguards are required.
Waste	No additional safeguards are required.
Cumulative impacts	No additional safeguards are required.

## Licences, permits or approvals

All relevant licenses, permits, notifications and approvals needed for the Western Distributor Smart Motorway (WDSM) and when they need to be obtained are listed in the determined Western Distributor Review of Environmental Factors (REF) May 2021 and the four addenda (as determined). These have been included in the approved project Construction Environmental Management Plan (CEMP).

There are no changes to the licencing, permits or existing approvals required as part of this proposed modification.

## Conclusion

All relevant safeguards identified in the Western Distributor Smart Motorway (WDSM) Review of Environmental Factors (REF) and its six addenda, all as determined would be applied to this modification and included work. There are no additional proposed work activities or impacts requiring major revisions to existing approved project safeguards. Notwithstanding the proposal to notify neighbours of the carparking facility.

Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies to the proposed modification. The proposed modification has been reviewed in the context of the Western Distributor Smart Motorways Review of Environmental Factors and six addenda as determined which have been considered against the requirements of sections 5.5 and 5.7 of the EP&A Act.

In considering the proposed modification this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in this memo, and associated information. This assessment is considered to be in accordance with the factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021.

The M1 Western Distributor Smart Motorway Project including the proposed modification described in this memo has manageable environmental impacts which would be satisfactorily mitigated against. Having regard to the safeguards and management measures proposed, it is considered that the expected environmental impacts are unlikely to be significant and a further or revised environmental impact statement is not required under Division 5.2 of the EP&A Act.

The assessment has considered the potential impacts of the activity on the biodiversity values listed under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*. The M1 Western Distributor Smart Motorway Project including the proposed modification described in this memo would not significantly affect biodiversity values listed under the *Biodiversity Conservation Act 2016*. Therefore, the concurrence of the Coordinator General of the Environment and Heritage Group of Department of Planning and Environment and a species impact statement or a Biodiversity Development Assessment Report (BDAR) is not required.

In addition to the above, the assessment considered the effect of the activity on:

- Conservation agreements under the *National Parks and Wildlife Act 1974*.
- Plans of management under the *National Parks and Wildlife Act 1974*.
- Biodiversity stewardship sites under the *Biodiversity Conservation Act 2016*.
- Wilderness areas under the *Wilderness Act 1987*.

The assessment has also addressed the potential impacts of the activity on matters of national environmental significance and any impacts on the environment of Commonwealth land and concluded that there would be no significant impacts. Therefore, there is no need for a referral to be made to the Australian Government Department of Agriculture, Water, and the Environment for a decision by the Australian Minister for the Environment on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or for application of the EPBC Act strategic assessment for Transport activities assessed under Part 5 of the EPBC Act.

This memo is of adequate quality and meets all relevant requirements.

The proposed modification has been characterised in the context of the M1 Western Distributor Smart Motorway Project and is consistent with that project's objectives and key features. While the proposed modification would slightly increase the overall environmental impacts of the determined project, it is substantially the same as the activity described and assessed in the determined REF and does not constitute an entirely new activity.

## Appendix A: Determined minor works refs, determined addenda, and consistency reports

A review of environmental factors (REF) was prepared for the Western Distributor Smart Motorway proposal (referred to as the approved project REF) which was determined in May 2021.

A further six (6) addendum REFs and two (2) consistency reports have been prepared and determined as described below:

- Addendum assessment and decision No. 1 for proposed modification for the use of auxiliary compound sites at White Bay for the M1 Western Distributor Smart Motorway, December 2022.
- Addendum assessment and decision No. 2 for changes to project boundaries to include five new gantries, minor landscaping, removal of existing traffic signage and additional ITS works for the M1 Western Distributor Smart Motorway, January 2022.
- Addendum assessment and decision No. 3 for the use of an additional construction compound site at Colebee for the M1 Western Distributor Smart Motorway, February 2023.
- Addendum assessment and decision No. 4 for use of an auxiliary compound site at the Glebe Island Bridge eastern approach for the M1 Western Distributor Smart Motorway, April 2023.
- Addendum assessment and decision No. 5 for additional vegetation clearing, modification of the project boundary, works associated with RSC#30 on the western abutment of Anzac Bridge for the M1 Western Distributor Smart Motorway, October 2023.
- Addendum assessment and decision No. 6 for revised position of RSC#16 and RSC#17 for the M1 Western Distributor Smart Motorway, December 2023
- M1 Western Distributor Smart Motorway – Review of Environmental Factors consistency review No.01, September 2023 – modifications to project boundaries, variation to works including new gantry structures and ITS connections.
- M1 Western Distributor Smart Motorway – Review of Environmental Factors consistency review No.02, February 2024 - revised position of RSC#25 and modification of the project boundary to accommodate the point of electricity supply for RSC#25.

## Appendix B: Environmental Planning and Assessment Regulation 2021 checklist

The following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

Environmental factor		Impact
(a)	<b>Any environmental impact on a community?</b>  Minor and short-term additional impact. The community would be notified at least 5 business days in advance of the works.	Short term only
(b)	<b>Any transformation of a locality?</b>  The proposed work would not transform the locality, as works would generally be contained within the existing public roadway.	Nil
(c)	<b>Any environmental impact on the ecosystems of a locality?</b>  No potential impact of the local ecosystems would arise from the works. All potential impacts would be managed using the existing project safeguards.	Nil
(d)	<b>Any reduction of the aesthetic, recreational, scientific, or other environmental quality or value of a locality?</b>  The proposal would not reduce the aesthetic, recreational, scientific, or other environmental quality or value of the locality, as works are within the existing project boundary or within the minor extension contained within the existing road formation.	Nil
(e)	<b>Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific, or social significance or other special value for present or future generations?</b>  The proposal would not impact on a locality, place or building having any listed value above or other special value for present or future generations. All potential impacts would be mitigated against using existing project safeguards.	Nil
(f)	<b>Any impact on habitat of any protected animals (within the meaning of the Biodiversity Conservation Act 2016)?</b>  The proposal would not have any impact on the habitat of protected animals with appropriate safeguards being implemented to mitigate potential risks	Nil
(g)	<b>Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</b>  The proposal would not endanger any species of animal, plant, or other form of life, whether living on land, in water or in the air and appropriate safeguards would be implemented prior to mitigate risks	Nil
(h)	<b>Any long-term effects on the environment?</b>  The proposal would have positive long-term effects on the environment due to improved customer journey experience including road safety. There are no anticipated negative long-term effects on the environment from any maintenance arising.	Nil
(i)	<b>Any degradation of the quality of the environment?</b>	



	The proposal would have minimal adverse impact on the quality of the environment. Potential impacts would be mitigated against through implementation of the safeguards.	Nil
(j)	<b>Any risk to the safety of the environment?</b> No unacceptable risks posed to the safety of the environment potentially arising from the works. The potential impacts would be mitigated against through the implementation of the safeguards.	Nil
(k)	<b>Any reduction in the range of beneficial uses of the environment?</b> During construction the use of the road and permitted work areas would be limited because of temporary construction activities. The proposed modification would have no long-term impact on any beneficial uses of the environment.	Nil
(l)	<b>Any pollution of the environment?</b> The proposed works would not result in pollution of the environment. Potential risks would be mitigated via the implementation of the safeguards.	Nil
(m)	<b>Any environmental problems associated with the disposal of waste?</b> The proposed works would not generate extensive wastes different to those already managed on the project. Any waste generated during the works would be managed and disposed of to approved and licenced recycling or landfill facilities. Potential risks would be managed via the implementation of the safeguards.	Nil
(n)	<b>Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply?</b> The modification is a minor extension of works similar in nature to the approved project works and no further impact would arise. Potential risks would be managed via the implementation of the safeguards.	Nil
(o)	<b>Any cumulative environmental effect with other existing or likely future activities?</b> The proposed modification is minor in nature and would not pose risk to cumulative project or environmental impacts. The potential impacts on the environment would be minimised by risk mitigation through implementation of the safeguards.	Nil
(p)	<b>Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</b> Nil additional impacts on coastal processes and coastal hazards, including those under projected climate change conditions.	Nil
(q)	<b>Any impact on applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1?</b> The proposed works are similar in nature to those previously determined as part of the project approval. No new works are being introduced. There is no impact to applicable planning legislation or regional plans. For further information on the applicable plans refer to <a href="https://www.nsw.gov.au/regional-and-district-plans">Regional and district plans (nsw.gov.au)</a> website.	Nil
(r)	<b>Any impact on other relevant environmental factors?</b>	Nil

Nil additional impact to other environmental factors has been identified through the preparation of this modification and during development of the proposed activities.	
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## Appendix C: TfNSW Construction Noise Tool Estimator

## Transport for NSW



## Distanced Based Assessment (Noisiest Plant)

Please pick from drop-down list in orange cells

Noise area category		R5
RBL or LA90 Background level (dB(A))	Day	60
	Evening	55
	Night	50
LAeq(15minute) Noise Management Level (dB(A))	Day	70
	Day (OOHW)	65
	Evening	60
	Night	55
Noisiest plant		Power generator
Is there line of sight to receiver?		Yes

### Steps for Assessment:

- Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
- Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
- Select the noisiest plant. If not found in drop-down list, refer to 'Source List' and select a representative plant with equivalent sound power level.
- Is there line of sight to receiver? Select the appropriate scenario from the drop down list.  
Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barriers can be in the form of road cutting, timber lapped and capped fence, shipping container, site office, etc. Substantial solid barriers are barriers greater than 5 metres in height or multiple rows of houses or a sound barrier specifically designed to mitigate construction noise. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.
- Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background LA90 noise measurements to check assumption in Step #2 if:  
(a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or  
(b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.  
Note that consideration need to be given to the construction staging plan when determining impact duration.
- Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver.
- Where night works are involved, identify sleep disturbance affected distance.
- Document the outcomes of these steps.  
(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please contact a Roads and Maritime noise specialist for more information)

Abbreviation	Measure
N	Notification
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

Residential receiver		LAeq(15minute) noise level above background (LA90)												LAeq(15minute) 75 dB(A) or greater (Highly affected)			Sleep disturban LAmax 65 dB(A)	
		5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 dB(A)							
		Noticeable			Clearly audible			Moderately intrusive			Highly intrusive							
		Affected distance (m)		Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)		
Undeveloped green fields, rural areas with isolated dwellings	Day	15						N, PC, RO	10	75	N, PC, RO	10	75	N, PC, RO	10	75	50	
	Day (OOHW)	25				N, R1, DR	15	70	N, R1, DR, PC, SN	5	80	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Evening	30				N, R1, DR	25	65	N, R1, DR	10	75	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Night	50	N	50	55	N, R2, DR	30	60	N, PC, SN, R2, DR	15	70	AA, N, PC, SN, R2, DR	5	80	N, PC, RO	10		75
	Highly Affected	10												N, PC, RO	10	75		
Developed settlements (urban and suburban)	Day	15						N, PC, RO	10	75	N, PC, RO	10	75	N, PC, RO	10	75	55	
	Day (OOHW)	25				N, R1, DR	15	70	N, R1, DR, PC, SN	5	80	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Evening	35				N, R1, DR	25	65	N, R1, DR	10	75	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Night	55	N	55	55	N, R2, DR	35	60	N, PC, SN, R2, DR	15	70	AA, N, PC, SN, R2, DR	5	80	N, PC, RO	10		75
	Highly Affected	10												N, PC, RO	10	75		
Propagation across a valley / over water	Day	15						N, PC, RO	10	75	N, PC, RO	10	75	N, PC, RO	10	75	65	
	Day (OOHW)	25				N, R1, DR	15	70	N, R1, DR, PC, SN	5	80	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Evening	40				N, R1, DR	25	65	N, R1, DR	10	75	N, R1, DR, PC, SN	5	85	N, PC, RO	10		75
	Night	65	N	65	55	N, R2, DR	40	60	N, PC, SN, R2, DR	15	70	AA, N, PC, SN, R2, DR	5	80	N, PC, RO	10		75
	Highly Affected	10												N, PC, RO	10	75		

Note:

A Power Generator (noisiest plant) was used for this noise assessment as the Sound Power Level (SPL) is comparable to the movements of up to 16 x light vehicles within a 15 minute time period.