M4 Motorway, Homebush West
Static Signage Safety Assessment

Prepared for:

JCDecaux

29 May 2024

The Transport Planning Partnership

M4 Motorway, Homebush West
Static Signage Safety Assessment

Client: JCDecaux

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V01	22/11/2023	James Goodman	Jessica Ng	Wayne Johnson	Wayne Johnson
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1 Introduction

1.1 Overview

JCDecaux is seeking to renew the permit for an existing large format static advertising sign on a roadway bridge above the M4 Western Motorway (M4 Motorway) in Homebush West. The sign is mounted on the Homebush Bay Drive roadway bridge facing westbound travel lanes on the M4 Motorway.

The sign was approved on 1 December 2008 by the Department of Planning (DA-62-7-2008), and a modification to the sign (Mod 1) was approved on 11 November 2009. The sign was installed in September 2010.

The Transport Planning Partnership (TTPP) has been commissioned by JCDecaux to undertake a signage safety assessment. This assessment has been carried out in accordance with Department of Planning's Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 (Guidelines) and Chapter 3 of State Environmental Planning Policy (Industry and Employment) 2021 (Industry and Employment SEPP).

The Guidelines outline best practice for the planning and design of outdoor advertisements in transport corridors. The Industry and Employment SEPP sets out rules regarding outdoor advertising signage for permissible locations and exempt developments.

1.2 Purpose of this Report

The aim of this assessment is to determine the suitability of renewing the permit for the existing static advertising sign and provide recommendations on mitigation measures to alleviate impacts on the surrounding road network, if required. This report sets out the findings of TTPP's signage safety assessment for the proposed static advertising sign above the M4 Motorway in Homebush West.

The following items have been considered in this report:

- Potential for the sign to obstruct or distract a driver's view of the road, traffic control devices, and merge/diverge points at entry and exit ramps.
- Distance from upstream or downstream decision points such as merge and diverge points.
- Potential for the sign to distract at a critical or for an extended period of time.
- Location relative to the carriageway and its potential to be a physical obstruction for vehicles or other road users.

- Location in relation to other signage.
- Location in relation to other signage.

1.3 References

In preparing this report, reference has been made to the following:

- A site inspection of the sign location from a driving viewpoint along the M4 Motorway and on all approaches to the M4 Motorway in close proximity to the sign was undertaken on Thursday 2 November 2023.
- Austroads Guide to Road Design Part 3, Geometric Design, 2016.
- Austroads Guide to Road Design Part 4A, Unsignalised and Signalised Intersections, 2017.
- Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 by Department of Planning and Environment.
- State Environment Planning Policy (Industry and Employment) 2021.
- Development Application stamped plans for the static sign dated 07 November 2023.

2 Proposal Description

2.1 Location Details

The permit for the existing static advertising sign mounted on the Homebush Bay Drive roadway bridge facing westbound travel lanes on the M4 Motorway is proposed to be renewed.

The sign is located within a variable speed zone on the M4 Motorway with a default speed limit of 90km/h. In the vicinity of the sign, the M4 Motorway has three travel lanes in the westbound direction.

The nearest entry ramp to the M4 Motorway in the westbound direction is 180m to the east (from Parramatta Road), and the next closest is 600m to the west (from Centenary Drive and Homebush Bay Drive). The nearest exit ramp in the westbound direction is located 700m east of the sign (to Centenary Drive and Homebush Bay Drive), the next exit is located 2.5km west of the sign (to Silverwater Road).

An aerial image of the sign location and surrounding environs is shown in Figure 2.1.

Figure 2.1: Sign Location

Basemap source: NearMap, aerial imagery dated 20 June 2023

2.2 Description of Signage

As per the Industry and Employment SEPP, the advertising display area is defined as follows:

> *"advertising display area means, subject to subsection (2), the area of an advertisement or advertising structure used for signage, and includes any borders of, or surrounds to, the advertisement or advertising structure, but does not include safety devices, platforms or lighting devices associated with advertisements or advertising structures"*

On the above basis, the advertising display area is to remain as per the existing dimensions, with an area of 42.41m^2 (12.66m width by 3.35m height).

The sign will be used by JCDecaux to continue promoting its sponsors and third-party advertising. The proposed static advertising sign will contain text and images. The development application plans for the proposed static advertising sign are contained in Appendix A.

2.3 Signage Exposure

The existing static advertising sign is visible to motorists travelling westbound on the M4 Motorway, and on the entrance ramp to the M4 Motorway from Homebush Bay Drive as shown in Figure 2.2.

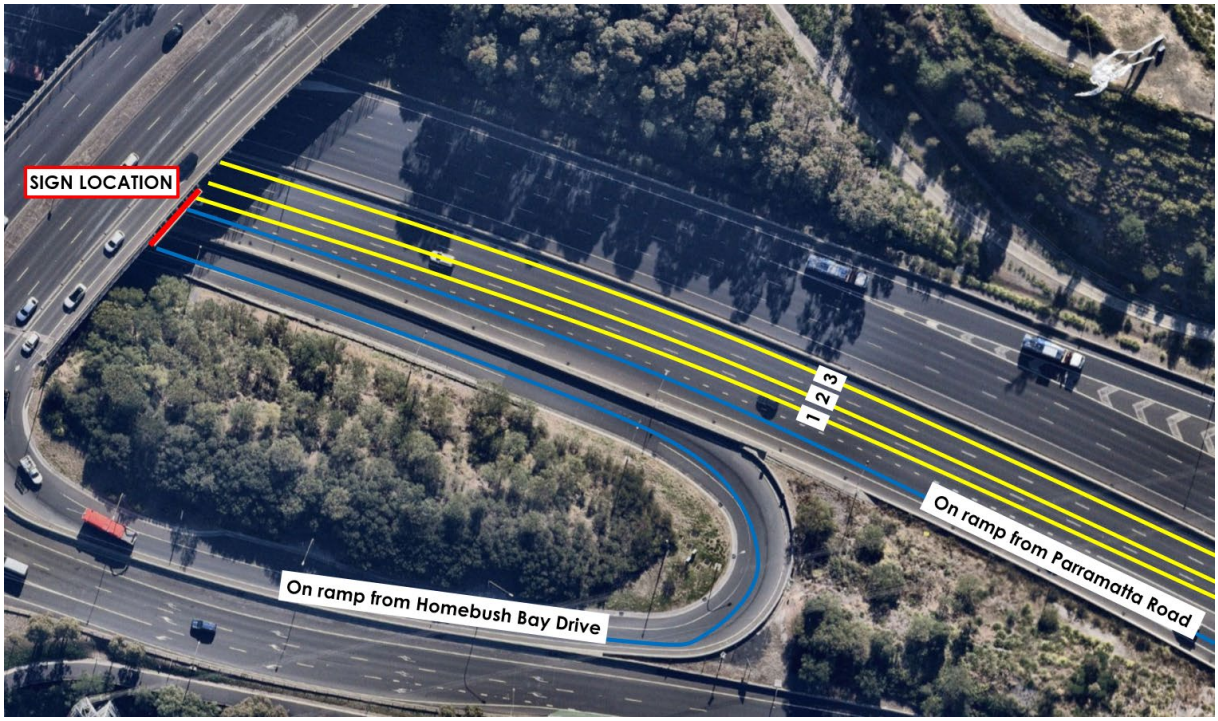
Figure 2.2: M4 Motorway Westbound Approach

Basemap source: NearMap, aerial imagery dated 20 June 2023

A site visit was undertaken on Thursday 2 November 2023 to inspect driver sight distances to the existing static advertising sign and observe any potential crash hazards that could be caused by the sign. A description of the site investigation findings is provided herein.

The lane configuration on the M4 Motorway westbound carriageway in the vicinity of the existing static advertising sign is shown in Figure 2.3. Travel lanes are numbered 1 to 3 from left to right and are shown in yellow, whereas the two on-ramps are shown in blue.

Figure 2.3: M4 Motorway Westbound Approach Lane Configuration



Basemap source: NearMap, aerial imagery dated 20 June 2023

- The sign is visible to motorists on the M4 Motorway travelling westbound.
- There is no other static or digital advertising signage within 150m of the existing sign location.
- There is an overhead gantry structure with variable speed signs located approximately 250m prior to the static advertising sign in the westbound direction. Based on the site inspection, the overhead gantry and the existing static advertising sign do not overlap for motorists travelling westbound on the M4 Motorway, hence the sign does not obscure visibility of the gantry signs.
- The on-ramp from Homebush Bay Drive has a posted speed limit of 80km/h, all other approaches have a variable speed limit with the default speed set at 90km/h.
- Treating the observed conditions during the site inspection as the typical conditions in the area, the sign is completely visible from each traffic lane as follows:
    - In Lane 1 (through lane), 170m from the sign.
    - In Lane 2 (through lane), 195m from the sign.
    - In Lane 3 (through lane), 220m from the sign.

  - In the on-ramp lane from Parramatta Road (merging lane), 110m from the sign.
  - In the on-ramp lane from Homebush Bay Drive (through lane), 100m from the sign.
- The distance at which the sign is readable from travel lanes 1, 2 and 3 is approximately 110m from the sign on approach.
- The sign is readable from the same distance as the completely visible distance for the westbound on-ramp approaches to the sign (i.e. at 100 to 110m from the sign).
- No significant road safety issues associated with the existing static advertising sign were observed.
- The sign is out of driving view approximately 10m east of the sign.
- The sign is not visible from the off-ramp from the M4 Western Motorway onto Homebush Bay Drive/Centenary Drive as the sign is obscured by vegetation.

The likely visible distance and readable distance in each lane on approach to the sign is shown in Figure 2.4 to Figure 2.8.

Figure 2.4: Westbound Approach Sign Exposure – Lane 1

Source: Photograph taken by TTPP dated 2 November 2023

Figure 2.5: Westbound Approach Sign Exposure – Lane 2

Source: Photograph taken by TTPP dated 2 November 2023

Figure 2.6: Westbound Approach Sign Exposure – Lane 3

Source: Photograph taken by TTPP dated 2 November 2023

Figure 2.7: Westbound Approach Sign Exposure – On-Ramp from Parramatta Road

Source: Photograph taken by TTPP dated 2 November 2023

Figure 2.8: Westbound Approach Sign Exposure – On-Ramp from Homebush Bay Drive

Source: Photograph taken by TTPP dated 2 November 2023

2.4 M4 Western Motorway – WestConnex Upgrades

Since the approval of the existing static advertising sign in 2008, the M4 Western Motorway has been upgraded within the vicinity of the existing static advertising sign.

In mid-2017 as part of the WestConnex upgrade, an on-ramp onto the M4 Motorway westbound was opened for traffic heading southbound on Homebush Bay Drive. This on-ramp travels directly under the static advertising sign and motorists are able to observe the sign after turning around the bend as shown in Figure 2.8.

In 2018, the M4 Motorway commenced from the east in Strathfield at an intersection with Parramatta Road. As part of the WestConnex upgrade, the M4 Motorway entrance from Parramatta Road was realigned to become an on-ramp for the M4 Motorway.

The WestConnex M4 East tunnel was subsequently opened to traffic in early July 2019, which became the through lanes on approach to the sign. Additionally, the M4 Motorway carriageway was widened from two lanes to three lanes on approach to the sign as part of these works.

In 2023, the M4 Motoway tunnel was also connected with the M8 Motorway, with connections to the Anzac and Iron Cove bridges via the Rozelle Interchange. This is expected to open in late 2023.

Figure 2.9 shows the original layout of the M4 Motorway on approach to the existing static advertising sign at the time the sign was installed, and Figure 2.10 shows the layout at the time of this assessment after the WestConnex upgrades (i.e. current conditions).

Figure 2.9: M4 Motorway Layout on Approach to Sign – At Time of Sign Installation

Basemap source: NearMap, aerial imagery dated 23 October 2011

Figure 2.10: M4 Motorway Layout on Approach to Sign – Existing (Current) Conditions

Basemap source: NearMap, aerial imagery dated 20 June 2023

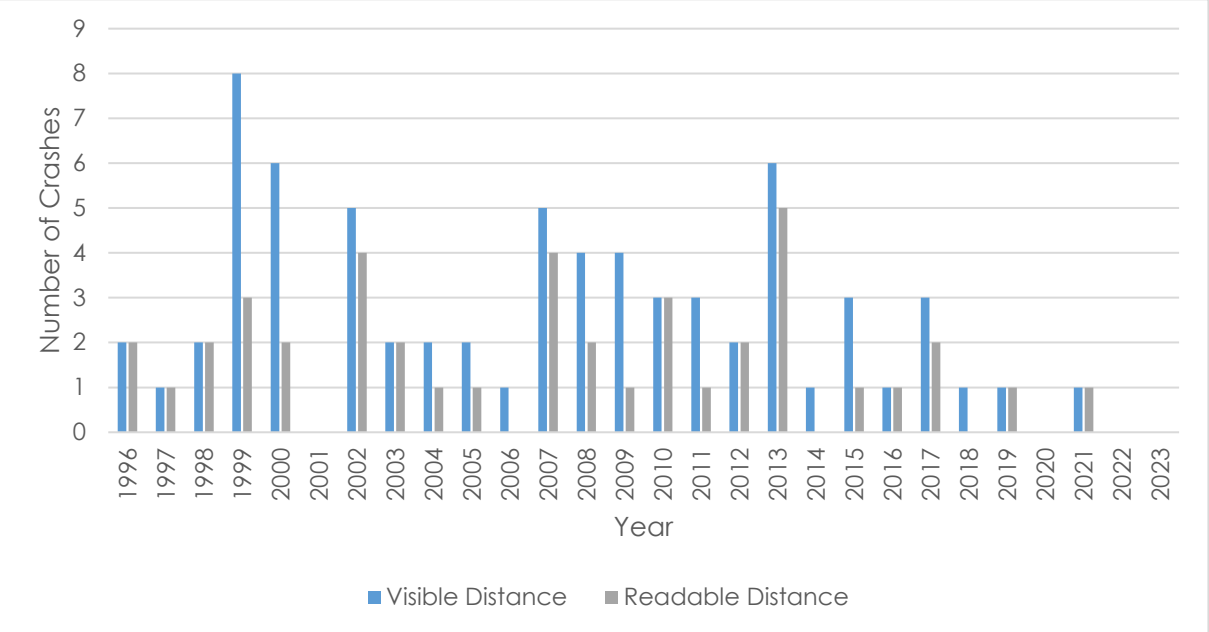
2.5 Crash History

Historic crash data has been obtained from Transport for NSW (TfNSW) and assessed for incidents on the M4 Motorway within the viewable distance of the existing static advertising sign.

Crash history data has been assessed on the westbound approach to the sign from the oldest data available (January 1996) to the most recent data available (30 June 2023). Crash data records prior to 2005 do not show the degree of injury, so for the purposes of this assessment crashes were classified as either "non-casualty (tow-away)" or "injury" to ensure the data remains consistent across all periods.

A breakdown of the volume of crashes by year within the visible (220m) and readable distance (110m) of the existing static advertising sign is presented below in Figure 2.9. Of note, the existing static advertising sign was installed in September 2010.

Figure 2.11: Crash History by Year



In addition to this, the crash history data has been assessed during the following periods:

- **Pre-installation period:** January 1996 to September 2010
- **Post installation period (prior WestConnex M4 East tunnel):** September 2010 to July 2019
- **Post installation period (post WestConnex M4 East tunnel):** July 2019 to June 2023.

A comparison of crashes pre-installation and during operation of the existing static sign is presented in Table 2.1. This data has also been reviewed against the readable distance of the sign location (i.e. 110m away from the sign) and within the visible distance (i.e. 220m away from the sign). The table also provides the average crash rate per year for each period.

Table 2.1: Crash History Summary of M4 Motorway, Homebush West

Time Period	Crash Severity (No. of Crashes)					
	Injury	Injury per year	Non-casualty (tow-away)	Non-casualty (tow-away) per year	Total	Total per year
Within visible distance = 220 m						
Pre-installation (January 1996 – September 2010)	20	1.34	26	1.74	46	3.08
Post-installation, prior WestConnex M4 East Tunnel (September 2010 – July 2019)	9	1.02	13	1.47	22	2.49
Post-installation, post WestConnex M4 East Tunnel (July 2019 – June 2023)	0	0	1	0.26	1	0.26
Total	**29**	**1.05**	**40**	**1.44**	**69**	**2.49**
Within readable distance = 110 m						
Pre-installation (January 1996 – September 2010)	14	0.94	12	0.80	26	1.81
Post-installation, prior WestConnex M4 East Tunnel (September 2010 – July 2019)	6	0.68	8	0.91	14	1.58
Post-installation, post WestConnex M4 East Tunnel (July 2019 – June 2023)	0	0	1	0.26	1	0.26
Total	**20**	**0.72**	**16**	**0.76**	**41**	**1.48**

Figure 2.11 and Table 2.1 indicate that the overall number of crashes on the M4 Motorway in the westbound direction on approach to the sign has not increased following the installation of the sign. In fact, crash data has on average decreased since the installation of the sign, decreasing from 3.08 crashes per year within the visible distance to 2.49 crashes per year until the WestConnex upgrade, where there has only been a single incident since then (i.e., July 2019 to June 2023).

On this basis, the crash data does not indicate that the existing sign has had a negative impact on road safety, nor resulted in any decrease in road safety in the immediate vicinity of the site.

3 Statutory Requirements

This section of the report assesses the compliance with the safety assessment criteria established in the NSW Guidelines and State Environmental Planning Policy (Industry and Employment) 2021. It requires analysis as to whether the proposal would reduce the safety of:

- Any public roads
- Pedestrians and cyclists.
- Pedestrians by obscuring sight lines from public areas.

The existing design will remain consistent in the future has been assessed against the relevant statutory requirements and guidelines. In order to assess any road facing sign against the key safety assessment criteria, a series of detailed criteria are set out in Section 3.2 *Advertisements and Road Safety* of the NSW Guidelines.

3.1 Industry and Employment SEPP Schedule 5

Clauses 1 to 7 of the Industry and Employment SEPP – Schedule 5 refer to aspects that are unrelated to road safety, as outlined in Appendix B. However, Clause 8 is related to road safety, and thus, is covered under this signage safety assessment as follows:

a) ***Would the proposal reduce the safety for any public road?***
b) ***Would the proposal reduce the safety for the pedestrians or bicyclists?***
c) ***Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?***

There is no cyclist (nor pedestrian) access along this segment of the M4 Motorway. Provision of the existing static advertising sign on the eastern side of the Homebush Bay Drive road bridge across the M4 Motorway is unlikely to reduce the safety of motorists. There will be no changes to the location or size of the existing static advertising sign in the future.

Assessment of the proposal in accordance with the Department of *Planning's Transport Corridor Outdoor Advertising and Signage Guidelines* has been undertaken in Section 3.2.

3.2 Transport Corridor Outdoor Advertising and Signage Guidelines – Digital Signs Criteria (Section 2 of Guidelines)

The Transport Corridor Outdoor Advertising and Signage Guidelines specify criteria which are directly applicable to the assessment of signs mounted on bridges. The criteria have been assessed in Table 3.1.

Table 3.1: Bridge Signage Criteria (Section 2 of Guidelines)

	Criteria	Comments
A	The architecture of the bridge must not be diminished.	The existing sign is considered to be compatible with the form and scale of the overpass structure. The existing sign does not detract the structural qualities of the bridge.
B	The advertisement must not extend laterally outside the structural boundaries of the bridge.	The existing advertisement sign does not extend laterally outside the structural boundaries of the bridge.
C	The advertisement must not extend below the soffit of the superstructure of the bridge to which it is attached, unless the vertical clearance to the base of the advertisement from the roadway is at least 5.8m.	The advertisement sign extends below the soffit of the Homebush Bay Drive overpass, however, the vertical clearance to the base of the advertisement sign from the roadway exceeds 5.8m.
D	On a road or pedestrian bridge, the advertisement must: *i.* not protrude above the top of the structural boundaries of the bridge *ii.* not block significant views for pedestrians or other bridge users (e.g. cyclists) *iii.* not create a tunnel effect, impede passive surveillance, or in any other way reduce safety for drivers, pedestrians or other bridge users.	The positioning of the sign on the Homebush Bay Drive overpass: • does not protrude above the top of the existing structural boundaries of the bridge/advertising structure • does not block significant views for pedestrians or other bridge users including cyclists • does not create a tunnel effect, impede passive surveillance, or in any other way reduce safety for drivers, pedestrians or other bridge users.
E	Paragraphs (a) to (d) above do not apply to the continuation of the display of any existing advertising on bridges approved prior to the gazettal of State Environmental Planning Policy No 64 (Advertising and Signage) (Amendment No 2) in 2007 for only one additional period under SEPP 64 Clause 14 if there is no increase in the advertising display area of the signage	N/A
F	A DCP to display an advertisement on a bridge must be accompanied by a statement demonstrating how the advertisement will contribute to a public benefit. Section 4 outlines the public benefit test requirements.	This application does not require the preparation of a site-specific DCP.
G	Any advertising sign proposed for development on a bridge over a classified road requires that construction drawings be submitted for review and approval by RMS bridge engineers prior to construction to ensure all road safety requirements are met.	Construction drawings were prepared and submitted as part of the original application.
H	Any advertising sign proposed for development on a bridge over a road requires provision of a fall arrest system (sign and sign support structure to bridge) to	A fall arrest system has been implemented as part of the design to ensure the sign does not detach in the

Criteria		Comments
	ensure the sign will not detach in case of impact by an over high vehicle.	event of impact by an over height vehicle.

3.3 Transport Corridor Outdoor Advertising and Signage Guidelines (Section 3 of Guidelines)

3.3.1 Sign Location Criteria

3.3.1.1 Road Clearance

(a) The advertisement must not create a physical obstruction or hazard. For example:

- ***i. Does the sign obstruct the movement of pedestrians or bicycle riders? (e.g. telephone kiosks and other street furniture along roads and footpath areas).***
- ***ii. Does the sign protrude below a bridge or other structure so it could be hit by trucks or other tall vehicles? Will the clearance between the road surface and the bottom of the sign meet appropriate road standards for that particular road?***
- ***iii. Does the sign protrude laterally into the transport corridor so it could be hit by trucks or wide vehicles?***

The existing sign does not physically obstruct any vehicle, pedestrian and cyclist movements as it is placed on the eastern side of the Homebush Bay Drive overhead bridge above the M4 Motorway. The advertisement sign extends below the soffit of the Homebush Bay Drive overpass, however, the vertical clearance to the base of the advertisement sign from the roadway exceeds 5.8m which meets the minimum requirement for bridge signage criteria as addressed in Table 3.1

(b) Where the sign supports are not frangible (breakable), the sign must be placed outside the clear zone in an acceptable location in accordance with Austroads Guide to Road Design (and RMS supplement) or behind an RMS-approved crash barrier.

The sign is installed on the eastern side of the Homebush Bay Drive overhead bridge, facing westbound traffic, which is positioned above the carriageway and outside of the clear zone. Hence, it does not require an RMS-approved crash barrier.

(c) Where a sign is proposed within the clear zone but behind an existing RMS-approved crash barrier, all its structures up to 5.8m in height (relative to the road level) are to comply with any applicable lateral clearances specified by Austroads Guide to Road Design (and RMS supplements) with respect to dynamic deflection and working width.

The sign is not located within the clear zone.

The available vertical clearance between the road surface and the underside of the Homebush Bay Drive overhead bridge is maintained.

(d) All signs that are permitted to hang over roads or footpaths should meet wind loading requirements as specified in AS1170.1 and AS1170.2. All vertical clearances as specified above are regarded as being the height of the sign when under maximum vertical deflection.

The existing sign has been approved and designed in accordance with Australian Standards AS1170.1 and AS1170.2 to meet the requirements for wind loading, whilst having consideration for the height of the sign board when under maximum vertical deflection. An assessment of the existing sign against the current codes is included in Appendix C which demonstrates the signage structure is in accordance with current codes.

3.3.1.2 Line of Sight

(a) An advertisement must not obstruct the drivers view of the road particularly of other vehicles, bicycle riders or pedestrians at crossings.

Cyclist and pedestrian access on the M4 Motorway are prohibited within the vicinity of the proposed static advertising sign.

The sign is positioned above the carriageway, therefore it does not obstruct a drivers view of the road.

(b) An advertisement must not obstruct a pedestrian or cyclist's view of the road.

Cyclist and pedestrian access on the M4 Motorway are prohibited within the vicinity of the proposed static advertising sign. Therefore, the proposed static advertising sign would not obstruct a pedestrian or cyclist's view of the road.

(c) The advertisement should not be located in a position that has the potential to give incorrect information on the alignment of the road. In this context, the location and arrangement of signs' structures should not give visual clues to the driver suggesting that the road alignment is different to the actual alignment. An accurate photo-montage should be used to assess this issue.

A photomontage on approach to the existing static advertising sign from each lane is presented in Figure 2.4 to Figure 2.8. As shown, the existing static advertising sign is positioned on the overhead bridge which does not impede a driver's visibility on the alignment of the road. The sign does not indicate misleading information or information contrary to the existing roadway.

(d) The advertisement should not distract a driver's attention away from the road environment for an extended length of time. For example:

i. The sign should not be located in such a way that the driver's head is required to turn away from the road and the components of the traffic stream in order to view its

display and/or message. All drivers should still be able to see the road when viewing the sign, as well as the main components of the traffic stream in peripheral view.

ii. ***The sign should be oriented in a manner that does not create headlight reflection in the driver's line of sight. As a guideline, angling a sign five degrees away from right angles to the driver's line of sight can minimise headline reflections. On a curved road alignment, this should be checked for the distance measured back from the sign that a car would travel in 2.5 seconds at the design speed.***

The sign is located within a driver's peripheral vision whilst travelling westbound on the M4 Motorway. Motorists are not required to turn their heads when observing the sign, and all motorists are able to observe the road simultaneously when viewing the sign.

The positioning and angle of the sign does not result in headlight reflection or glare.

3.3.1.3 Proximity to Decision Making Points and Conflict Points

(a) A sign should not be located:

i. ***Less than the safe sight distance from an intersection, merge points, exit ramp, traffic control signal or sharp curves.***

As per Austroads Guide to Road Design Part 4A, the minimum safe stopping distance (SSD) is based on the travel speed and gradient of the road. At this location, there is a variable speed limit with a default speed limit set of 90km/hr.

For the purpose of this assessment, an operating speed of 90km/hr has been used to calculate the safe stopping sight distance which is the default speed limit of the M4 Motorway on approach to the sign. Also, it is the speed at which motorists were observed to be driving during the site inspection. According to the Austroads guide, the minimum safe stopping sight distance for a 90km/h speed zone is 173m.

The Austroads guide states that the SSD is measured along the roadway and it must be available along all traffic lanes at all times. In addition, the signage guidelines state that criteria 3.2.3 a) applies "*to minimise distraction near decision making points and conflict points, and ensure there is sufficient distance for a driver to recognise, react and, if required, stop safely* ***before*** *reaching one of these points*".

Therefore, to comply with this requirement, the sign must not be located within the stopping sight distance to the decision-making point or conflict point as measured on approach to this point.

As detailed in Section 2.4, the road layout in the vicinity of the sign has changed since the sign's Development Application approval in 2008 and subsequent modification application in 2009. Of note, the on-ramp from Parramatta Road now has a merge point located in the vicinity of the static sign. However, the static advertising sign is located at the end of the merging lane and is therefore not located within the length of the merge lane or the SSD of the merge point for westbound traffic.

Figure 3.1: Minimum Safe Sight Distance

Basemap source: NearMap, aerial imagery dated 20 June 2023

The length of the merge lane has been determined as the length between the start of the merge, and when the merge lane becomes less than 2m wide (the typical width of a passenger vehicle). Beyond this point, motorists would have begun to merge with the through lane and will no longer be deciding on a point to merge with the adjacent traffic (a decision making point).

It is noted that there are several examples of static and digital signs located within close proximity of merge points on motorways in Sydney. These examples are summarised below.

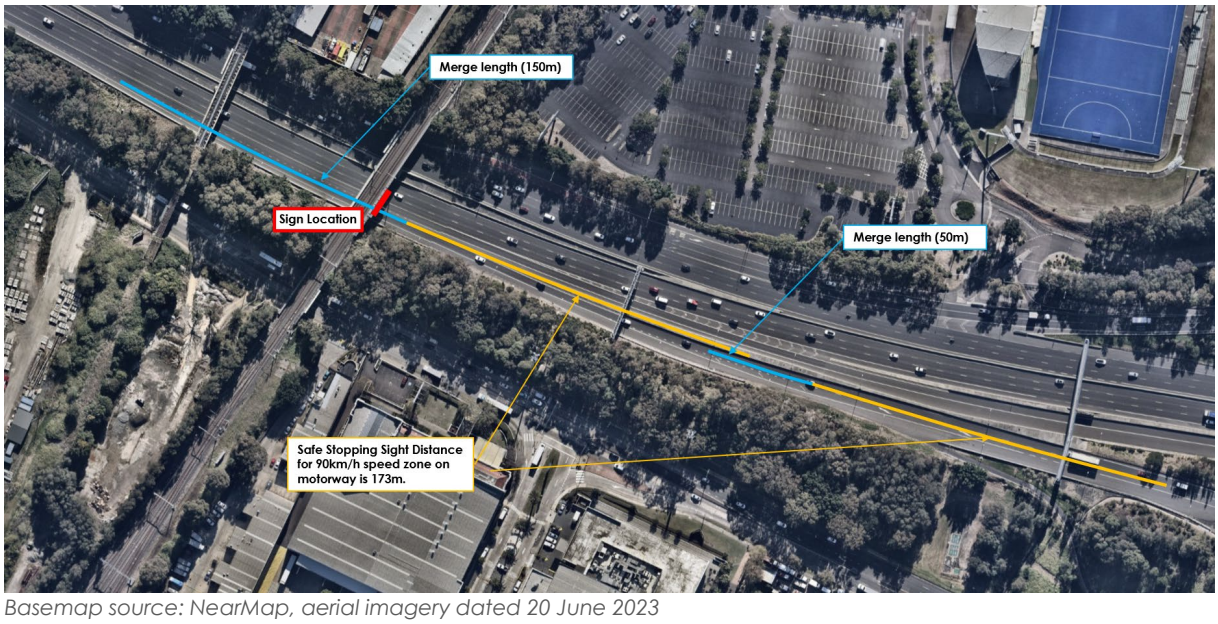
A digital sign is mounted on the rail bridge facing westbound traffic on the M4 Motorway. The sign is located downstream from two merge points of the Homebush Bay Drive and Centenary Drive on ramps with the M4 Motorway. The sign is located approximately 600m west along the M4 from the subject sign. The driving approach to the sign from the on-ramp is shown in Figure 3.2, which shows that the sign is visible on approach to both merge points.

Figure 3.2: Approach to Sign – M4 Westbound Digital Sign on Overhead Bridge

Source: Google Street View dated October 2018

At this location, there is a variable speed limit with the default speed limit set at 90km/h. The operating speed has been assumed to be 90km/h, resulting in a minimum safe stopping sight distance of 173m. The sign is located within the length of the second merge lane as shown in Figure 3.3.

Figure 3.3: Minimum Safe Sight Distance – M4 Westbound Digital Sign on Overhead Bridge



Basemap source: NearMap, aerial imagery dated 20 June 2023

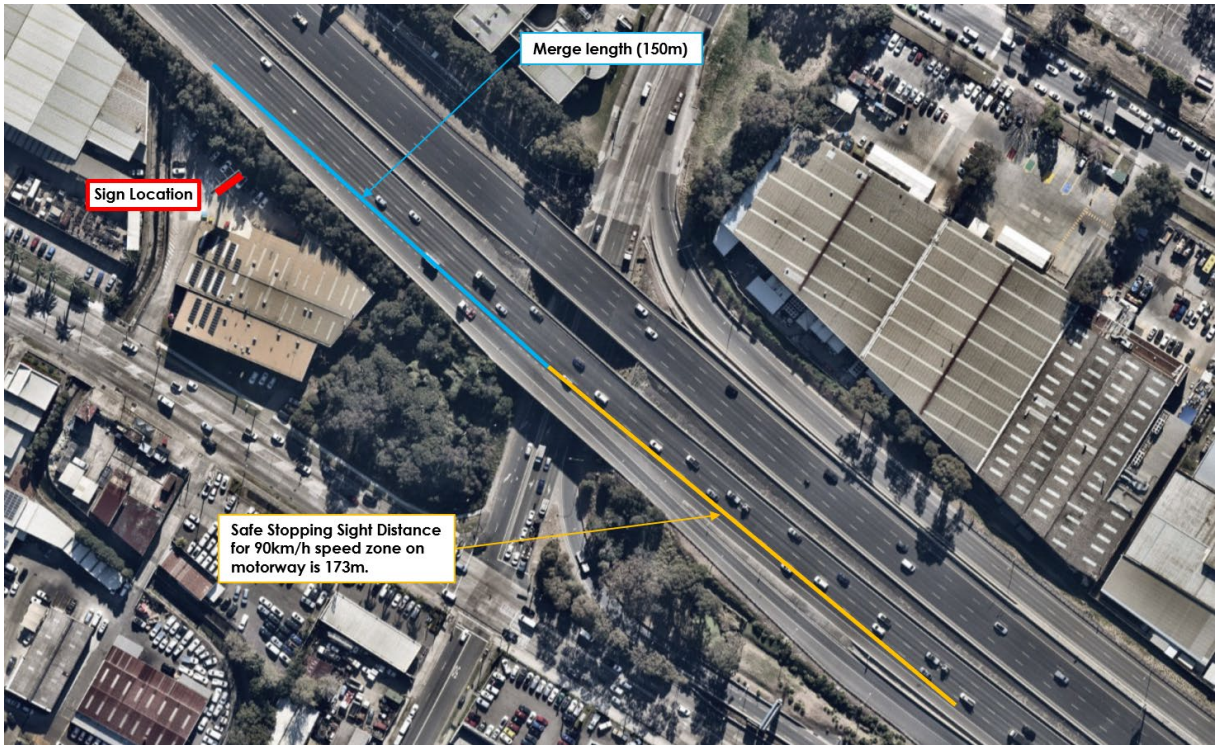
A digital sign is mounted on a monopole on the south-west side of the M4 Motorway facing westbound traffic. The sign is located downstream from the merge point of the Hill Road on-ramp with the M4 Motorway. This sign is located approximately 1.9km west along the M4 from the subject sign. The driving approach to the sign from the on-ramp is shown in Figure 3.4 below, which shows that the sign is visible on approach to the merge point.

Figure 3.4: Approach to Sign – M4 Westbound Digital Sign on Monopole

Source: Google Street View dated October 2020

At this location, there is a variable speed limit with the default speed limit set at 90km/h. The operating speed has been assumed to be 90km/h, resulting in a minimum safe stopping sight distance of 173m. The sign is located within the length of the merge lane as shown in Figure 3.5.

Figure 3.5: Minimum Safe Sight Distance – M4 Westbound Digital Sign on Monopole



Basemap source: NearMap, aerial imagery dated 20 June 2023

A digital sign is mounted on the rail bridge facing westbound traffic on the Gore Hill Freeway. The sign is located downstream from a merge point with Lane 2 of the Longueville Road/Pacific Highway on-ramp and upstream from the merge point with Lane 1 of the Longueville Road/Pacific Highway on-ramp, which is a 24-hour T2 lane. The driving approach to the sign is shown Figure 3.6, which shows that the sign is visible on approach to the merge point.

Figure 3.6: Approach to Sign – Gore Hill Freeway Digital Sign

Source: Google Street View dated June 2023

At this location, there is a variable speed limit with a default speed limit set of 80km/h. The operating speed has been assumed to be 80km/h, resulting in a minimum safe stopping sight distance of 141m. The sign is located slightly beyond the length of the merge lane, similar to the subject site as shown in Figure 3.7.

Figure 3.7: Minimum Safe Sight Distance – Gore Hill Freeway Digital Sign

Basemap source: NearMap, aerial imagery dated 20 June 2023

A static sign is mounted on the Watkins Road road bridge above the M2 Motorway, facing westbound traffic. The sign is located beyond a merge point with the Windsor Road on-ramp. The driving approach to the sign from the on-ramp is shown in Figure 3.8, which shows that the sign is visible on approach to the merge point.

Figure 3.8: Approach to Sign – M2 Westbound Static Sign

Source: Google Street View dated February 2022

At this location, there is a posted speed limit of 100km/h. The operating speed has been assumed to be 100km/h, resulting in a minimum safe stopping sight distance of 207m. The sign is located within the length of the merge lane as shown in Figure 3.3.

Figure 3.9: Minimum Safe Sight Distance – M2 Westbound Static Sign

Basemap source: NearMap, aerial imagery dated 20 June 2023

Based on the above, there are several instances on Sydney motorways where there are existing digital and static signage located within the length of a merge lane or in close vicinity to a merge point.

In addition, the supplementary crash analysis in Section 2.5 indicates that the distraction potential due to the presence of a static sign is minimal and evidently has not contributed to creating a road environment that is any less safe for road users. In addition, there has only been one incident in the last four-year period on approach to the sign since the WestConnex upgrade, indicating that there is no pre-existing safety issues on approach to this sign.

ii. Less than the safe stopping sight distance from a marked foot crossing, pedestrian crossing, pedestrian refuge, cycle crossing, cycleway facility or hazard within the road environment.

The sign is not located within the safe stopping sight distance of pedestrian and cyclist crossing facilities.

iii. So that it is visible from the stem of a T-intersection.

The sign is not visible from the stem of a T-intersection.

(b) The placement of a sign should not distract a driver at a critical time. In particular, signs should not obstruct a driver's view:

- ***i. Of a road hazard,***
- ***ii. To an intersection,***
- ***iii. To a prescribed traffic control device (such as traffic signals, stop or give way signs or warning signs)***
- ***iv. To an emergency vehicle access point or Type 2 driveways (wider than 6-9 metres) or higher.***

The sign is located on the M4 Motorway where there are no traffic signals, stop or give way signs. In addition, the sign location is not in the vicinity of any intersections or emergency vehicle access points.

3.3.1.4 Sign Spacing

(a) Sign spacing should limit drivers view to a single view to a single sign at any given time with a distance of no less than 150m between signs in any one corridor. Exemptions for low speed, high pedestrian zones or CBD zones will be assessed by RMS as part of their concurrence role.

There are no other large format static or digital signs located within 150 m of the proposed static advertising sign facing traffic in the westbound direction.

3.3.2 Sign Design and Operation Criteria

3.3.2.1 Advertising Signage and Traffic Control Devices

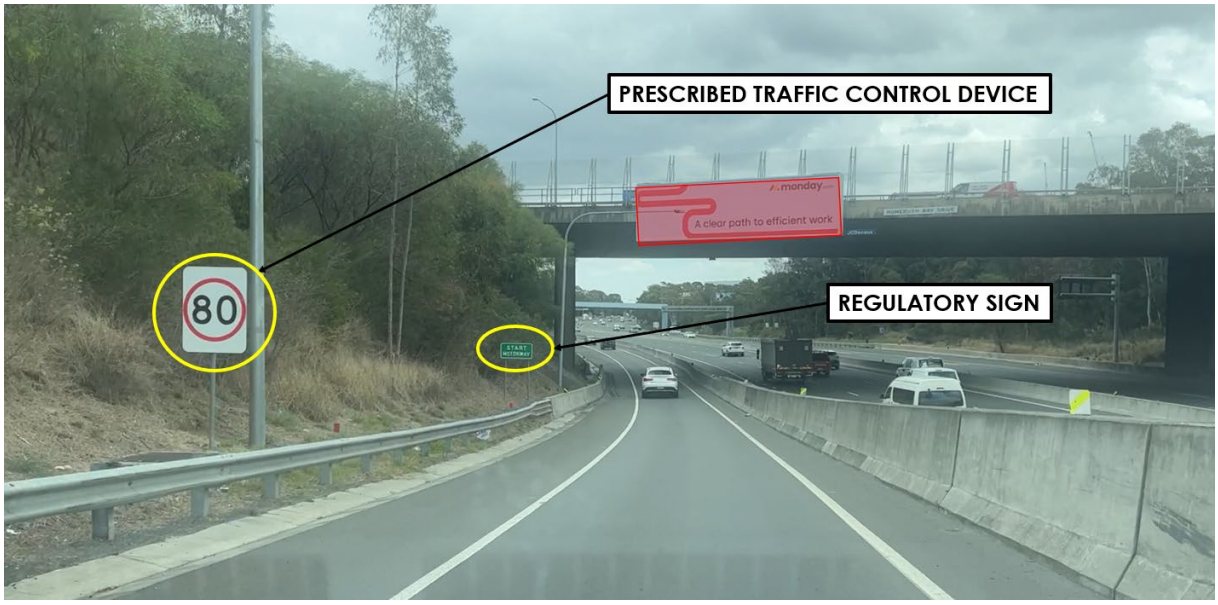
(a) The advertisement must not distract a driver from, obstruct or reduce the visibility and effectiveness of directional signs, traffic signals, prescribed traffic control devices, regulatory signs or advisory signs or obscure information about the road alignment.

There are no directional signs, traffic signals, prescribed traffic control devices, regulatory signs or advisory signs within the visible distance on approach to the sign on the M4 Motorway through lanes or the merge lane from Parramatta Road.

However, from the Homebush Bay Drive on-ramp there is a prescribed traffic control device and regulatory sign situated on the motorist's left-hand side on approach to the sign, shown below in Figure 3.10. The signs are clearly defined on the side of the road, compared to the existing static adverting sign which is situated above the roadway.

As a result, the proposed static sign does obstruct or reduce the visibility and effectiveness of directional signs, traffic signals, prescribed traffic control devices, regulatory signs or advisory signs or obscure information about the road alignment.

Figure 3.10: Signage on Homebush Bay Drive On-Ramp Approach



Source: Photographs taken by TTPP dated 2 November 2023

(b) The advertisement must not interfere with stopping sight distance for the road's design speed or the effectiveness of a traffic control device. For example:

- ***i. Could the advertisement be construed as giving instructions to traffic such as 'Stop', 'Halt' or 'Give Way'?***
- ***ii. Does the advertisement imitate a prescribed traffic control device?***
- ***iii. If the sign is in the vicinity of traffic lights, does the advertisement use red, amber or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a traffic signal?***

Details of the advertisement/s would remain consistent with the existing advertising. It is noted that the sign would not display colours and shapes which could be mistaken for traffic signals.

Notwithstanding this, it is recommended that the content of the sign be reviewed against Table 5 of the Guidelines to avoid any content that may be construed as imitating a traffic control device.

3.3.2.2 Dwell Time and Transition Time

(a) Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (b) below

(b) Dwell times for the image display must not be less than:

- ***i. 10 seconds for areas where the speed limit is below 80km/hr.***
- ***ii. 25 seconds for areas where the speed limit is 80km/h and over.***

(c) Any digital sign that is within 250 metres of a classified road and is visible from a school zone must be switched to a fixed display during school zone hours.

(d) Digital signs must not contain animated or video/movie style advertising or messages of image failure, the default image must be a black screen.

(e) The transition time between messages must be no longer than 0.1 seconds, as in the event of image failure, the default image must be a black screen.

The existing sign is not a digital sign and will remain a static advertising sign in the future.

3.3.2.3 Illumination and Reflectance

(a) Luminance levels comply with the requirements in Table 6 in Transport Corridor Outdoor Advertising and Signage Guidelines
(b) The image displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.

Section 3.3.3 of the Guideline details assessment criteria to ensure that illumination and reflectance qualities of the sign do not cause a road safety hazard. It is understood that these criteria would be addressed in a separate specialist report prepared by a qualified consultant.

3.3.2.4 Interaction and Sequencing

(a) The advertisement must not incorporate technology which interacts with in-vehicle electronic devices or mobile devices. This includes interactive technology or technology that enables opt-in direction communication with road users.
(b) Message sequencing designed to make a driver anticipated the next message is prohibited across images presented on a single sign and across a series of signs.

The sign is a static advertising sign and would not contain interactive technology or technology that enables opt-in direction communication with motorists.

4 Conclusion

JCDecaux is seeking to renew the permit of an existing large format static advertising sign on a roadway bridge above the M4 Western Motorway in Homebush West.

The proposal has been assessed against the statutory requirements for static advertising signage outlined in the following:

- Section 3, Advertisements and Road Safety of the NSW Guidelines
- State Environmental Planning Policy (Industry and Employment) 2021.

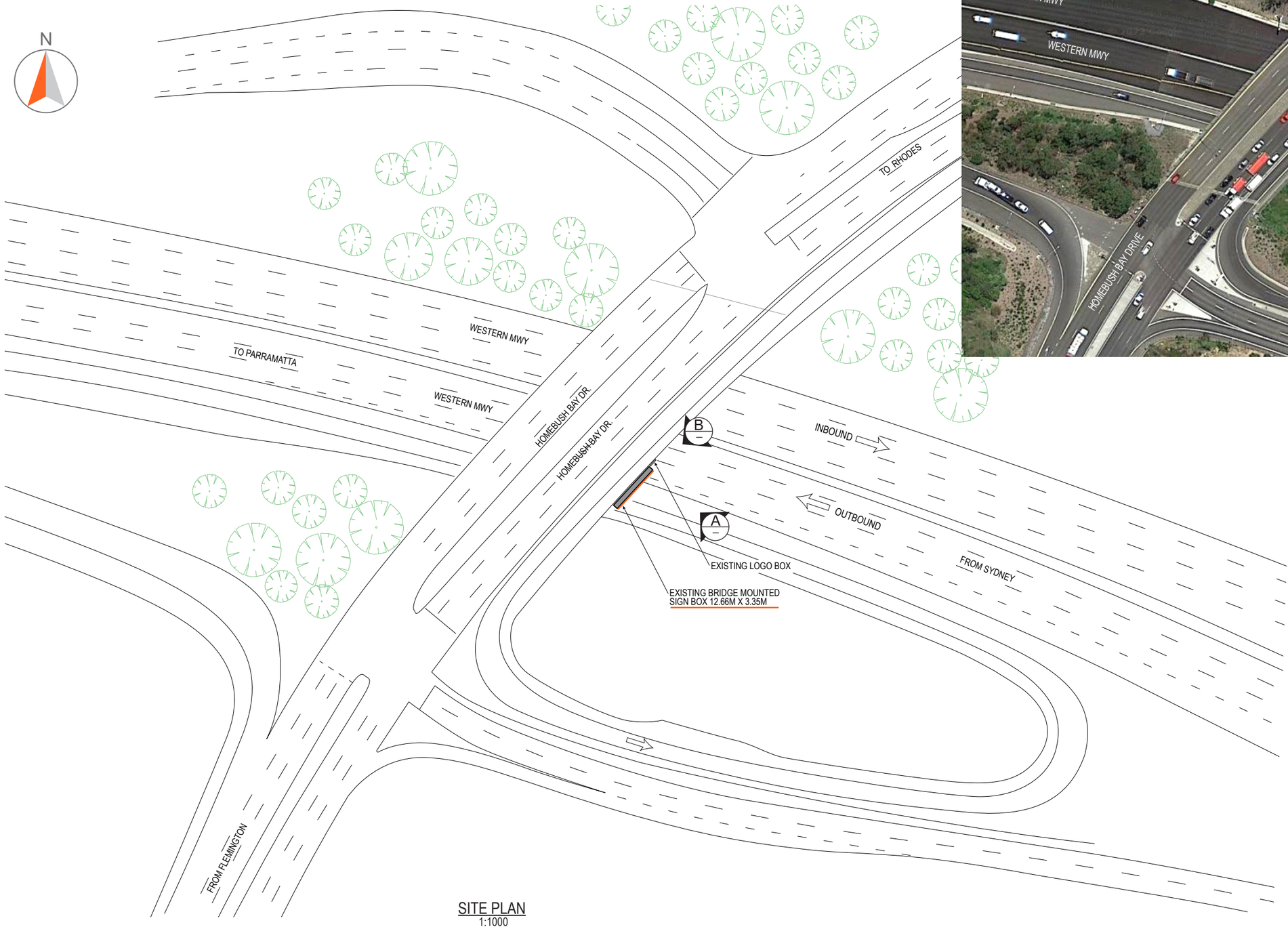
The following findings and conclusions are made from the signage safety assessment:

- Since the implementation of the sign, the overall number of crashes on the M4 Motorway in the westbound direction on approach to the sign has not increased following the installation of the sign.
- On this basis, the crash history does not indicate that the existing sign has had a negative impact on road safety, nor resulted in any decrease in road safety in the immediate vicinity of the site.
- The sign does not obstruct and/or reduce visibility of any traffic control devices, signage, pedestrians or cyclists.
- The sign does not give incorrect information on the alignment of the road.
- The sign is located within the driver's peripheral vision and does not require motorists to turn their head away from the roadway ahead.
- The sign is not located within the safe stopping distance to any key decision points or conflict points.
- The sign does not compromise safety for road users in the vicinity.

Having consideration for the signage safety assessment and discussions presented within this report, the analysis shows that the existing static advertising sign, and therefore the proposed static advertising sign, facing westbound traffic on the M4 Motorway is acceptable from a road safety perspective.

Appendix A

Concept Design Plans



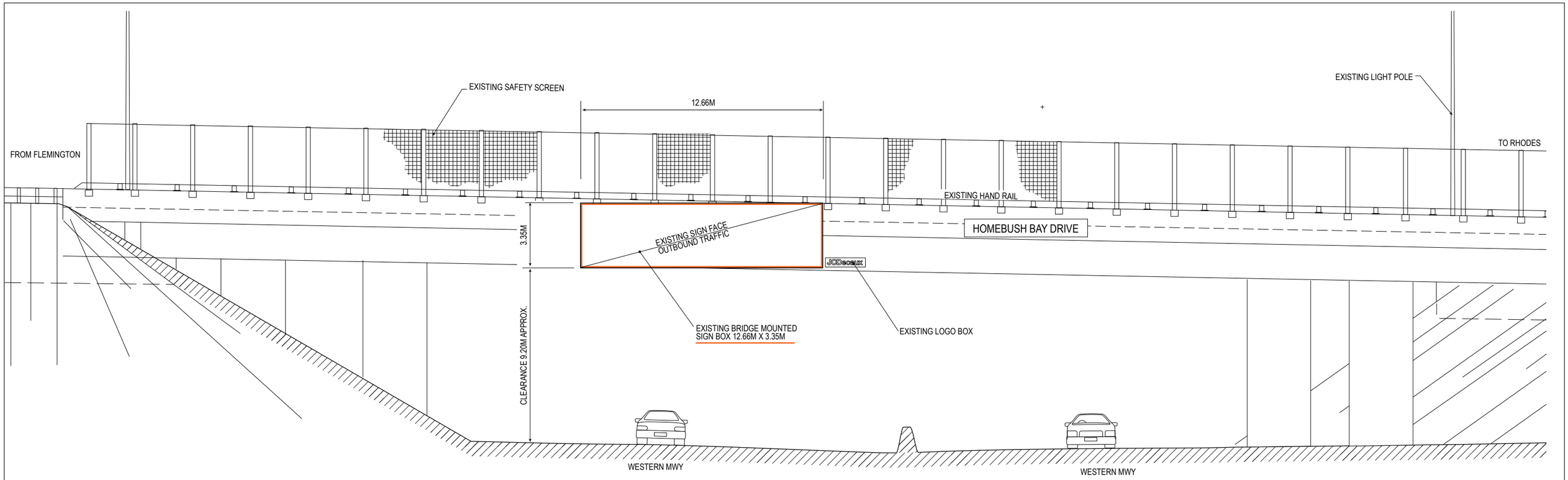
SITE PLAN
1:1000

NOTE: NOT FOR CONSTRUCTION
SIGN SIZE AND STRUCTURE AS SHOWN IS INDICATIVE AND SUBJECT TO FINAL DETAIL SITE SURVEY.

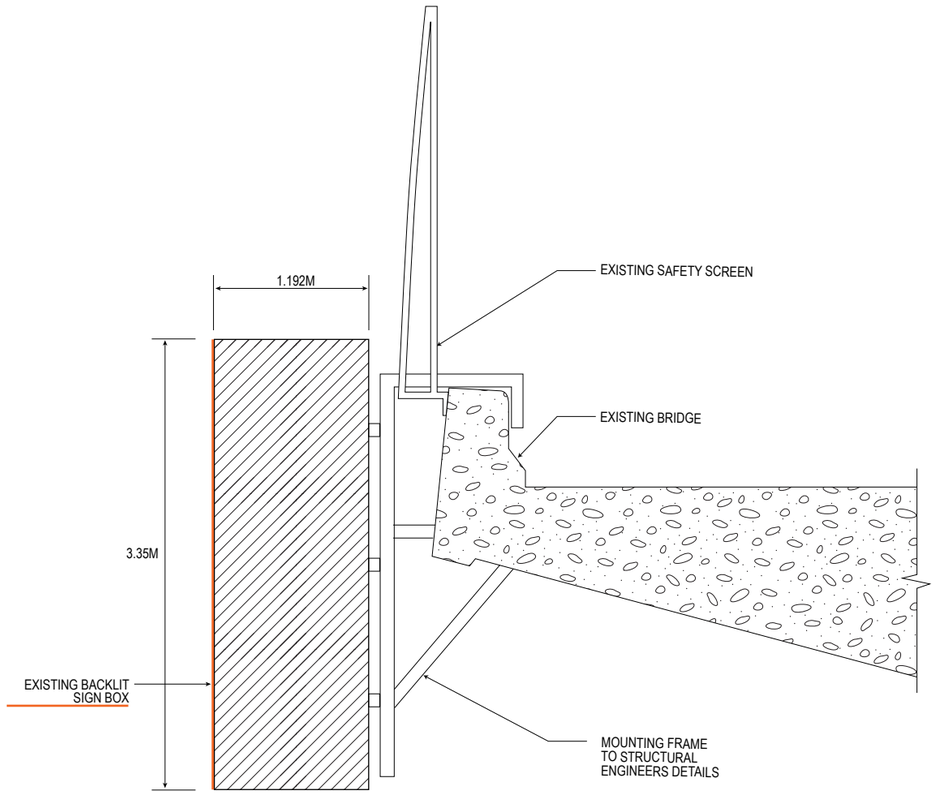
JCDecaux

EXISTING SIGNAGE DISPLAY STRUCTURE
SIZE 12.66M X 3.35M ON HOMEBUSH BAY DR OVERPASS, HOMEBUSH NSW 2140
-33.857124, 151.0706823
SITE PLAN

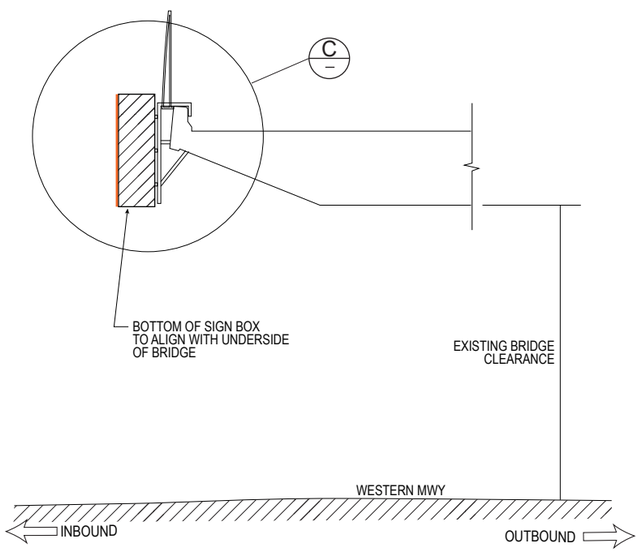
Date	November, 2023	PLAN & ELEVATION	
Draw by	LF	Drawing No. Date	Rev Rev
Scale	1:1000 (Print as A3)	071123-1/2 07/11/23	
Drawing No.	071123-1/2	Drawn: LF	
Job No.	HOM-OVE-1123		



EAST ELEVATION A
1:200



NORTH EAST ELEVATION C
1:50



NORTH EAST ELEVATION B
1:200

NOTE: NOT FOR CONSTRUCTION
SIGN SIZE AND STRUCTURE AS SHOWN IS INDICATIVE AND SUBJECT TO FINAL DETAIL SITE SURVEY.

JCDecaux

EXISTING SIGNAGE DISPLAY STRUCTURE
SIZE 12.66M X 3.35M ON HOMEBUSH BAY DR OVERPASS, HOMEBUSH NSW 2140
-33.857124, 151.0706823
ELEVATIONS

		PLAN & ELEVATION		
Date	November, 2023	Drawing No. Date	Rev	Rev
Draw by	LF	071123-2/2 07/11/23		
Scale	1:200 (Print as A3)	Drawn: LF		
Drawing No.	071123-2/2			
Job No.	HOM-OVE-1123			

Appendix B

State Environmental Planning Policy (Industry and Employment) – Schedule 5

State Environmental Planning Policy (Industry and Employment) 2021

Current version for 16 December 2022 to date (accessed 4 July 2023 at 10:29)

Schedule 5

Schedule 5 Assessment criteria

sections 3.6, 3.11 and 3.15

1 Character of the area

- Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?
- Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?

2 Special areas

- Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?

3 Views and vistas

- Does the proposal obscure or compromise important views?
- Does the proposal dominate the skyline and reduce the quality of vistas?
- Does the proposal respect the viewing rights of other advertisers?

4 Streetscape, setting or landscape

- Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?
- Does the proposal contribute to the visual interest of the streetscape, setting or landscape?
- Does the proposal reduce clutter by rationalising and simplifying existing advertising?
- Does the proposal screen unsightliness?
- Does the proposal protrude above buildings, structures or tree canopies in the area or locality?
- Does the proposal require ongoing vegetation management?

5 Site and building

- Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?
- Does the proposal respect important features of the site or building, or both?

- Does the proposal show innovation and imagination in its relationship to the site or building, or both?

6 Associated devices and logos with advertisements and advertising structures

- Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?

7 Illumination

- Would illumination result in unacceptable glare?
- Would illumination affect safety for pedestrians, vehicles or aircraft?
- Would illumination detract from the amenity of any residence or other form of accommodation?
- Can the intensity of the illumination be adjusted, if necessary?
- Is the illumination subject to a curfew?

8 Safety

- Would the proposal reduce the safety for any public road?
- Would the proposal reduce the safety for pedestrians or bicyclists?
- Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?

Appendix C

Assessment Against Current Structural Codes

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Consulting Engineers Pty Ltd

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Frenchs Forest NSW 2086

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PH: (02) 9451 3455
FX: (02) 9451 3466
Email:info@dbce.com.au

Ref: 22233

22nd May 2024

Jocelyn Moorfoot
JCDecaux Australia & New Zealand
83 Main St, Kangaroo Point QLD 4169

RE: Existing Supersite Signage M4 Mwy - Homebush Bay Dr Overpass, Homebush NSW 2140
Comparison Of Design Codes With Current Codes.

1.0 Introduction

This assessment has been conducted by Dennis Bunt Consulting Engineers Pty Ltd (DBCE) at the request of JCDecaux. .

The purpose of this assessment was to review the design codes for the supersite signage at M4 Mwy - Homebush Bay Dr Overpass, Homebush, which was designed in 2008, with today's current codes.

The two structural codes used for the design of the signage structure were the Steel Structures code AS4100:1998 and Structural Design Actions Part 2: Wind Actions AS1170.2 2002. The current codes are Steel Structures code AS4100 2020 and Structural Design Actions Part 2: Wind Actions AS1170.2 2021.

Reference is also made to the following documents:

- Industry Insights Steel Australia Spring 2000 pgs 16 and 17
- Wind Loading – History of Changes Aspec Engineering Pty Ltd, Brisbane, Australia
- Key-Changes-to-AS-NZS-1170.2-2021 by Chris Hackney. (Chris is a committee member of AS1170.2)

2.0 Discussion

AS4100 Steel structures code.

Referring to the document "Industry Insights Steel Australia Spring 2020 pg 16 and 17"

1. The primary reason for revising AS 4100:1998 was to reference AS/NZS 5131 Structural steelwork – Fabrication and erection.
2. There were changes to the definition and description of Definition and description of 'architecturally exposed structural steel' (AESS)
3. The new code addressed the likelihood of lamellar tearing in particular welded connections.

Item 1 refers to the recent development of a fabrication and erection code (AS5131) for structural steel. It brings Australia into line with other developed countries. It does not affect the structural design and hence the member, plate, and bolts sizes but the quality control of the fabrication process.
Item 2 refers to architectural items ie not structural.
Item 3 refers to lamellar tearing. This is applicable to welding relatively thick plates together and is not relevant to the signage structure which consists of SHS members and SHS members welded to plates.

Structural Design Actions Part 2: Wind Actions AS1170.2

Referring to the document Wind Loading – History of Changes Aspec Engineering Pty Ltd, Brisbane, Australia

> The table near the base of the document shows that the calculation for the wind load on a structure for the 2002 code was the same as for the 2011 code. It was done for a particular region and design factors but as a comparison tool it shows both codes producing the same wind load.

Referring to the additional document "Key-Changes-to-AS-NZS-1170.2-2021"

> The document compares the 2021 wind code to the previous 2011 code and illustrates no changes relevant to the signage structure.

I have reviewed the relevant sections of the 2002 code and the 2021 code :

> Section 2: Calculation Of Wind Actions
> Section 3: Regional Wind speeds
> Section 4: Site Exposure Multipliers
> Appendix D: Free Standing Walls, Hoardings and canopies

for calculating wind on the signage structure and the equations and factors are the same.

3.0 Summary/Conclusion

For the supersite signage at M4 Mwy -Homebush Bay Dr Overpass, Homebush, which was designed in 2008 :

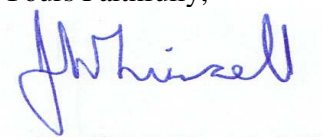
1. The changes to AS1170.2 between 2002 and 2021 do not affect the determination of the wind load calculation on the signage structure.

2. The changes to AS4100 between 1998 and 2020 do not affect the structural sizing of the members or the connections design.

3. Structurally the signage structure is in accordance with current codes and the structural sections of the NCC.

If you have any questions, please do not hesitate to ring the undersigned on 0400 023 714.

Yours Faithfully,



John Linsell BE(Hons), MIEAust, CPEng, NER(Struct)
for Dennis Bunt Consulting Engineers Pty Ltd

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