



Princes Highway, Bombo Digital Signage Safety Assessment

Prepared for:
JCDecaux

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The Transport Planning Partnership

Princes Highway, Bombo

Digital Signage Safety Assessment

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1 Introduction

1.1 Overview

JCDecaux is seeking approval for the installation of two LED digital illuminated signs on a new monopole located on the east side of Princes Highway in Bombo. The monopole and signs would be located south of Bombo train station and within the rail corridor. The signs would be located back-to-back on the monopole, facing northbound and southbound travel lanes on Princes Highway.

Transport for NSW (TfNSW), formerly Roads and Maritime Services require a signage safety assessment to be completed for the proposed digital signage.

The Transport Planning Partnership (TPPP) 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 the digital signs and provide recommendations on mitigation measures to alleviate impacts on the surrounding road network. This report sets out the findings of TPPP's signage safety assessment for the proposed digital signage along Princes Highway in Bombo.

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 signalised mid-block pedestrian crossing.
- Distance from upstream or downstream intersections or other decision points, such as merge points and diverge points.
- Potential for the sign to distract at a critical time 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.
- Appropriate dwell time based on the speed environment.
- Location in relation to other signage.

1.3 References

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

- An inspection of the sign location from a driving viewpoint along Princes Highway was carried out on Friday 3 December 2021.
- Austroads Guide to Road Design Part 3, Geometric Design, 2016.
- Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 by Department of Planning and Environment.
- State Environmental Planning Policy (Industry and Employment) 2021.
- Design plans of the proposed digital sign dated 17 January 2021.

1.4 Consultation with Authorities

Following feedback from TfNSW prior to lodgement, it has been identified that motorists exiting the Bombo Railway Station parking area onto Princes Highway southbound may be at risk of distraction due to the sign changing adverts.

To mitigate this risk, the Applicant proposes to install a directional sensor on the proposed sign that would freeze the advertising display on the digital sign facing Princes Highway north approach when a vehicle is detected waiting to exit the parking area. It is proposed to install the sensor as a temporary solution on a time-trial basis, review it at the time of the road safety audit that would be conducted post the 12-18 month operational period, and propose to remove it then subject to findings of the road safety audit.

2 Proposal Description

2.1 Location Details

New digital signage is proposed to be installed on both sides of a new monopole. The monopole and the signs will be the same location as the existing static signs. The existing signs are erected on two vertical I-beam supports and are visible to drivers travelling along Princes Highway in the northbound and southbound directions. The signs are located near Bombo train station, approximately 105 m south of the station platform.

Princes Highway has three travel lanes in both the northbound and southbound direction, and has a posted speed limit of 100 km/h. The proposed signage will be located on the east side of Princes Highway. Kiama Cemetery is located on the west side of Princes Highway.

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

Figure 2.1: Signage Location



Basemap source: Nearmap, aerial imagery dated 31 December 2021

2.2 Description of Proposed 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 and visual display area (the screen alone) for the proposed digital signs facing both directions would be as follows:

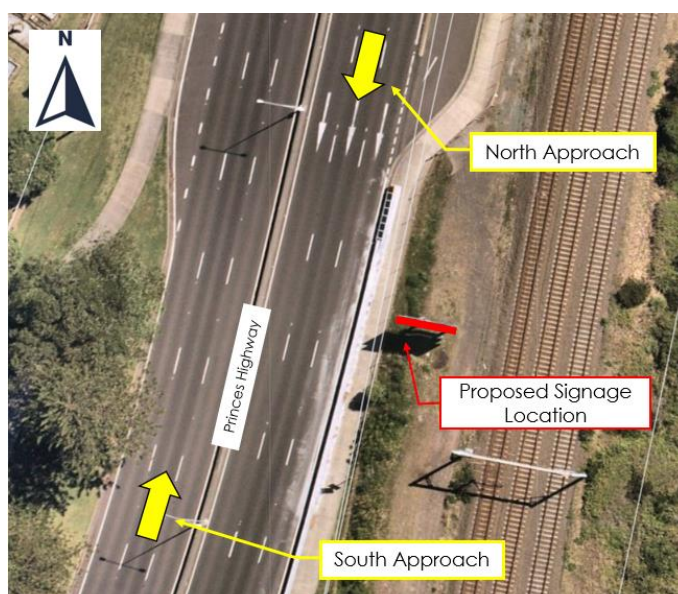
- Advertising display area: 20.75 m² (7.986 m width by 2.198 m height plus bottom border containing “JCDecaux” logo 7.986 m width by 0.4 m height).
- Visual display area: 16.25 m² (7.936 m width by 2.048 m height).

The proposed digital signage will be used by JCDecaux to promote its sponsors and third-party advertising. The digital signage will contain text and images. Concept drawings of the digital signs are contained in Appendix A.

2.3 Signage Exposure

The proposed digital signage would be visible to traffic travelling southbound and northbound on Princes Highway, as shown in Figure 2.2. A site visit was undertaken on 3 December 2021 to inspect driver sight distances on both approaches to the proposed signage location and observe any potential crash hazards likely to result from the proposed digital signage. A description of the site investigation findings is provided herein.

Figure 2.2: Princes Highway Approaches



2.3.1 Princes Highway North Approach

On the main carriageway, there are three travel lanes on the Princes Highway north approach towards the proposed sign location as shown in Figure 2.3. There is a service road to access the train station car parking, which is separated from the main carriageway by a raised median.

Figure 2.3: Princes Highway North Approach Lane Configuration



Source: Photomontage by JCDecaux

- The north facing digital sign would be visible to motorists on Princes Highway travelling southbound.
- Treating the observed conditions during the site inspection as typical conditions in the area, the digital sign would likely be visible in traffic lanes as follows:
 - In Lane 1 (through lane), 215 m from the sign on the north approach.
 - In Lane 2 (through lane), 240 m from the sign on the north approach.
 - In Lane 3 (through lane), 285 m from the sign on the north approach.
- The likely readable distance would be 110 m across all three lanes, where there are no vehicles travelling in adjacent lanes which could impede driver visibility to the sign.
- There is an existing advertising signage at this location, and therefore, the likely readable distance is based on the text font and sizing which is displayed in the designer's impression as shown in Figure 2.4.
- In all lanes, the digital sign would become out of driving view approximately 10 m north of the proposed sign.

Figure 2.4 shows the perspective of the designer's impression of the concept design at the proposed sign location.

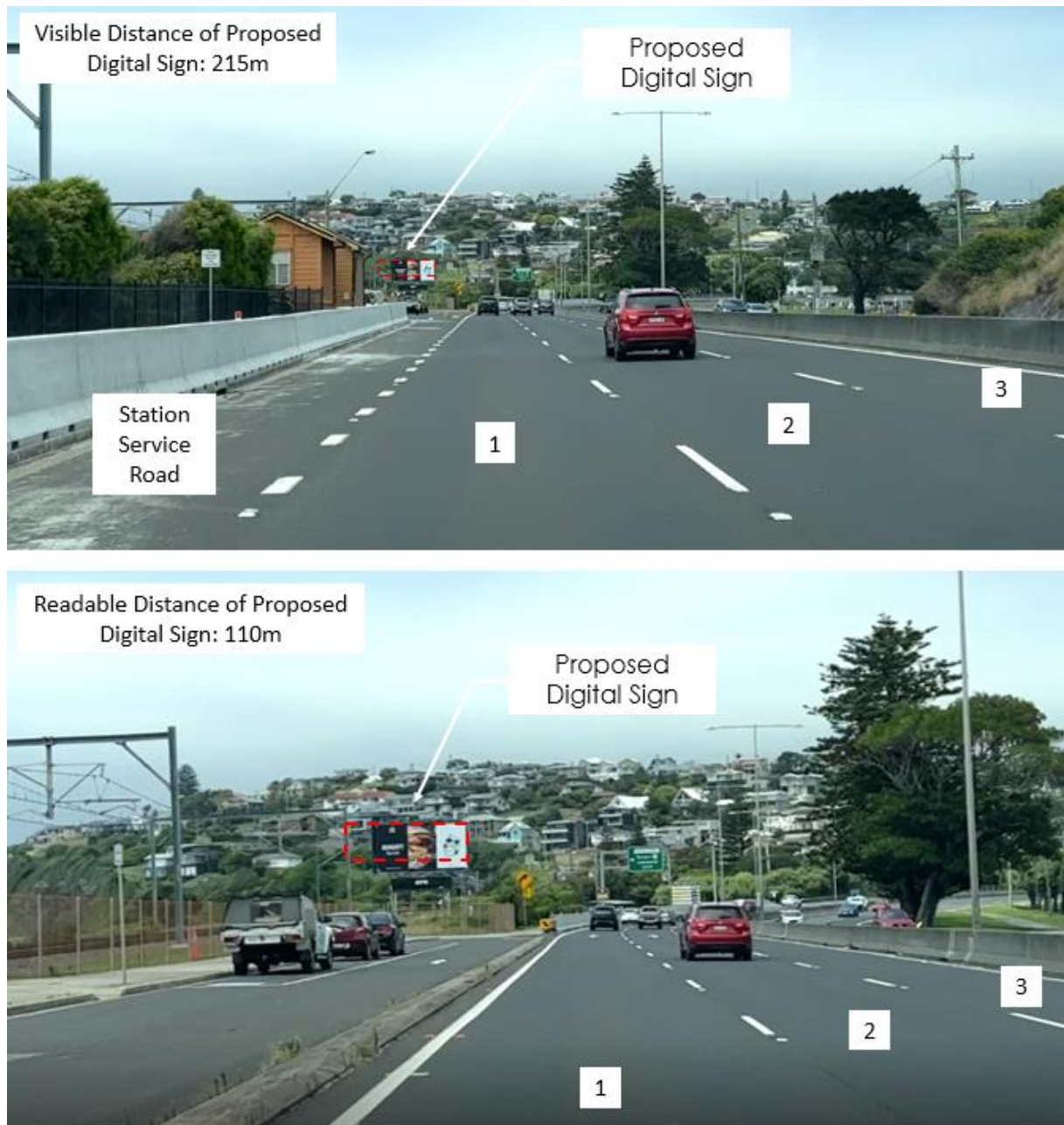
Likely visible and readable distances on the Princes Highway north approach are shown in Figure 2.5 to Figure 2.7.

Figure 2.4: Designer's Impression on North Approach



Source: JCDecaux

Figure 2.5: North Approach Sign Exposure – Lane 1



Source: Photograph taken by TTPP dated 03/12/2021

Figure 2.6: North Approach Sign Exposure – Lane 2



Source: Photograph taken by TPP dated 03/12/2021

Figure 2.7: North Approach Sign Exposure – Lane 3

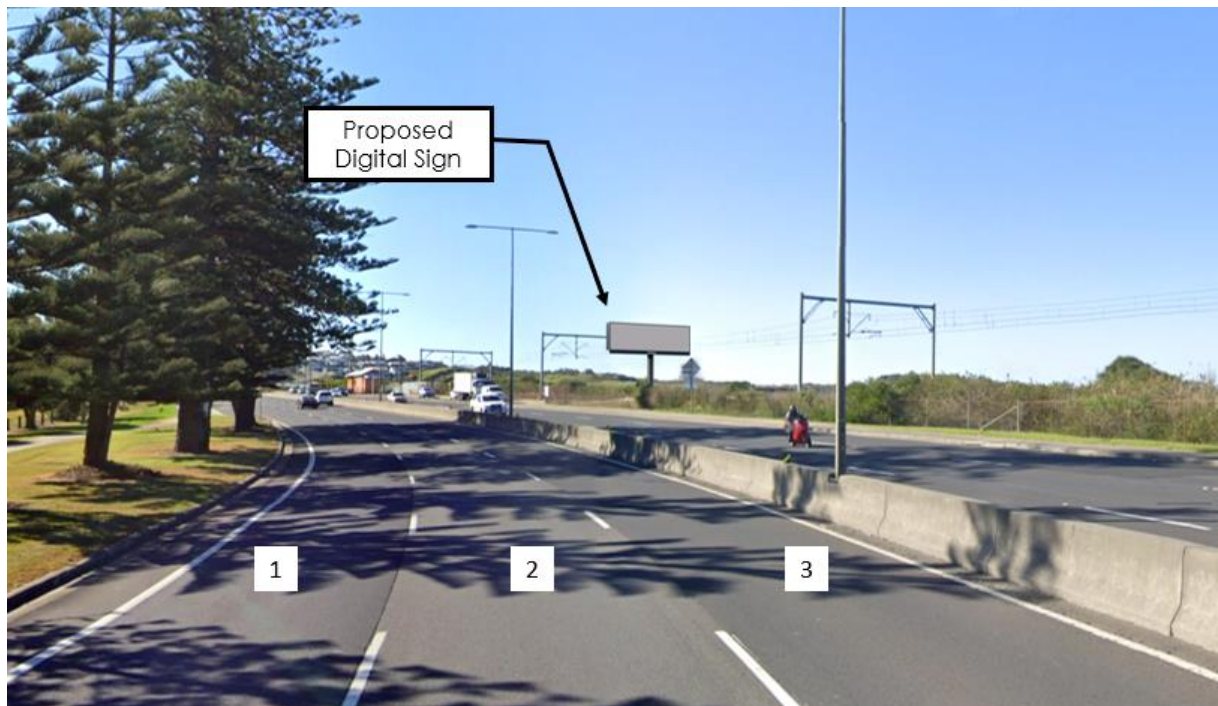


Source: Photograph taken by TPP dated 03/12/2021

2.3.2 Princes Highway South Approach

The lane configuration on the Princes Highway south approach in the vicinity of the proposed sign is shown in Figure 2.8. There are three travel lanes on approach to the proposed sign location. There is a deceleration lane to access the Kiama Cemetery which is located on the western side of Princes Highway. The start of the deceleration lane is in-line with the location of the proposed monopole on the eastern side of the highway, as can be seen in Figure 2.2.

Figure 2.8: Princes Highway South Approach Lane Configuration



Source: Photomontage provided by JCDecaux

Princes Highway has a large radius curve (radius around 320m) in horizontal geometry, south of the sign with advisory speed limit of 85 km/h. However, this does not impede the view of the sign.

For south approach;

- The south facing digital sign would be visible to motorists on Princes Highway travelling northbound.
- Treating the observed conditions during the site inspection as typical conditions in the area, the digital signage would likely be visible in traffic lanes as follows:
 - In Lane 1 (through lane), 175 m from the sign on the south approach.
 - In Lane 2 (through lane), 190 m from the sign on the south approach.
 - In Lane 3 (through lane), 210 m from the sign on the south approach.
- The likely readable distance would be 100 m, where there are no vehicles travelling in adjacent lanes or opposing lanes which could impede driver visibility to the signage.

- There is an existing signage at this location, therefore, the likely readable distance is based on the text font and sizing which is displayed in the designer's impression as shown in Figure 2.9.
- In all lanes, the digital sign would become out of driving view approximately 35 m west of the proposed sign.

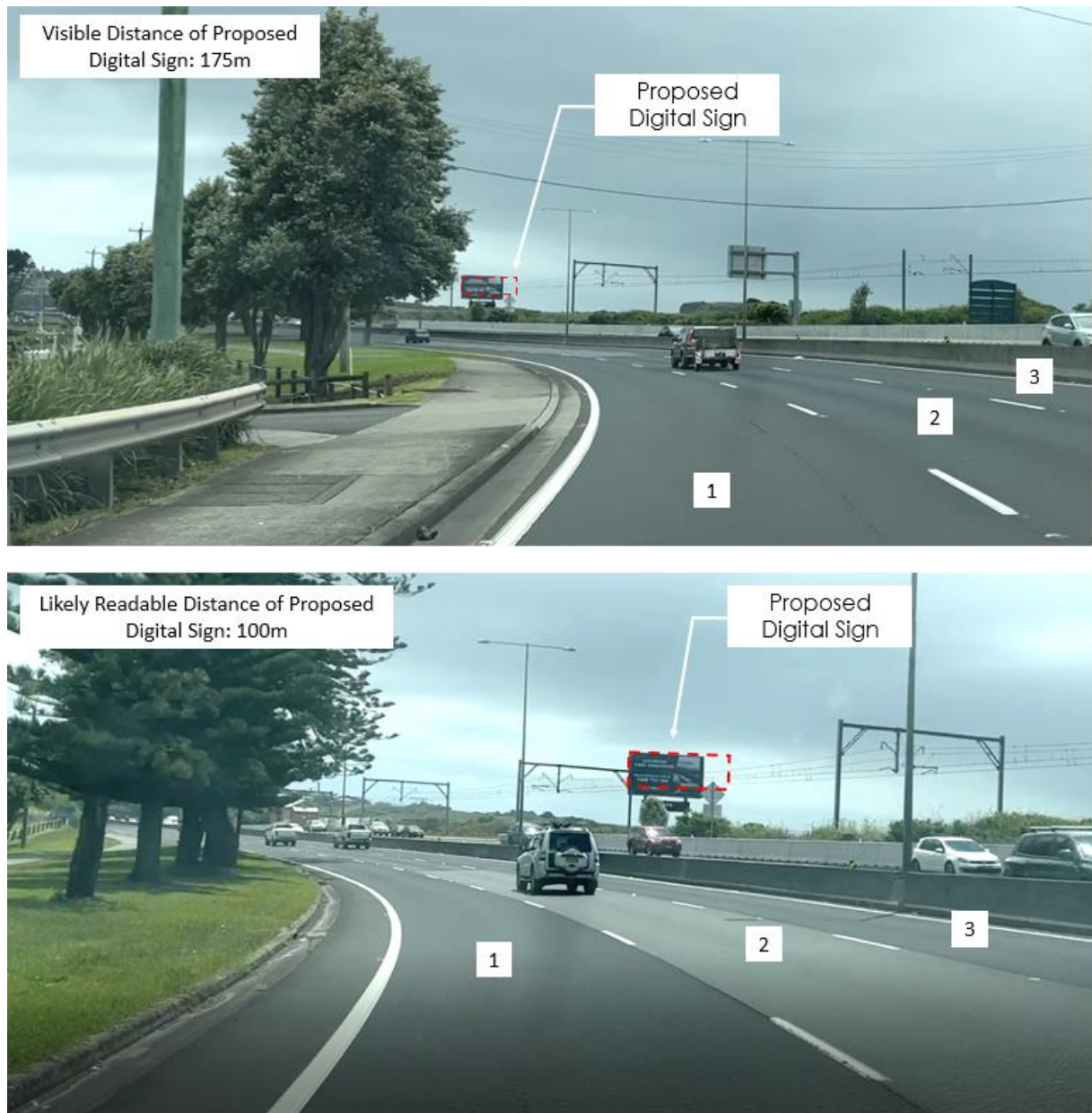
Figure 2.9 shows the perspective of the designer's impression of the concept design at the proposed sign location. Likely visible and readable distances on the Princes Highway south approach are shown in Figure 2.10 to Figure 2.12.

Figure 2.9: Designer's Impression on South Approach



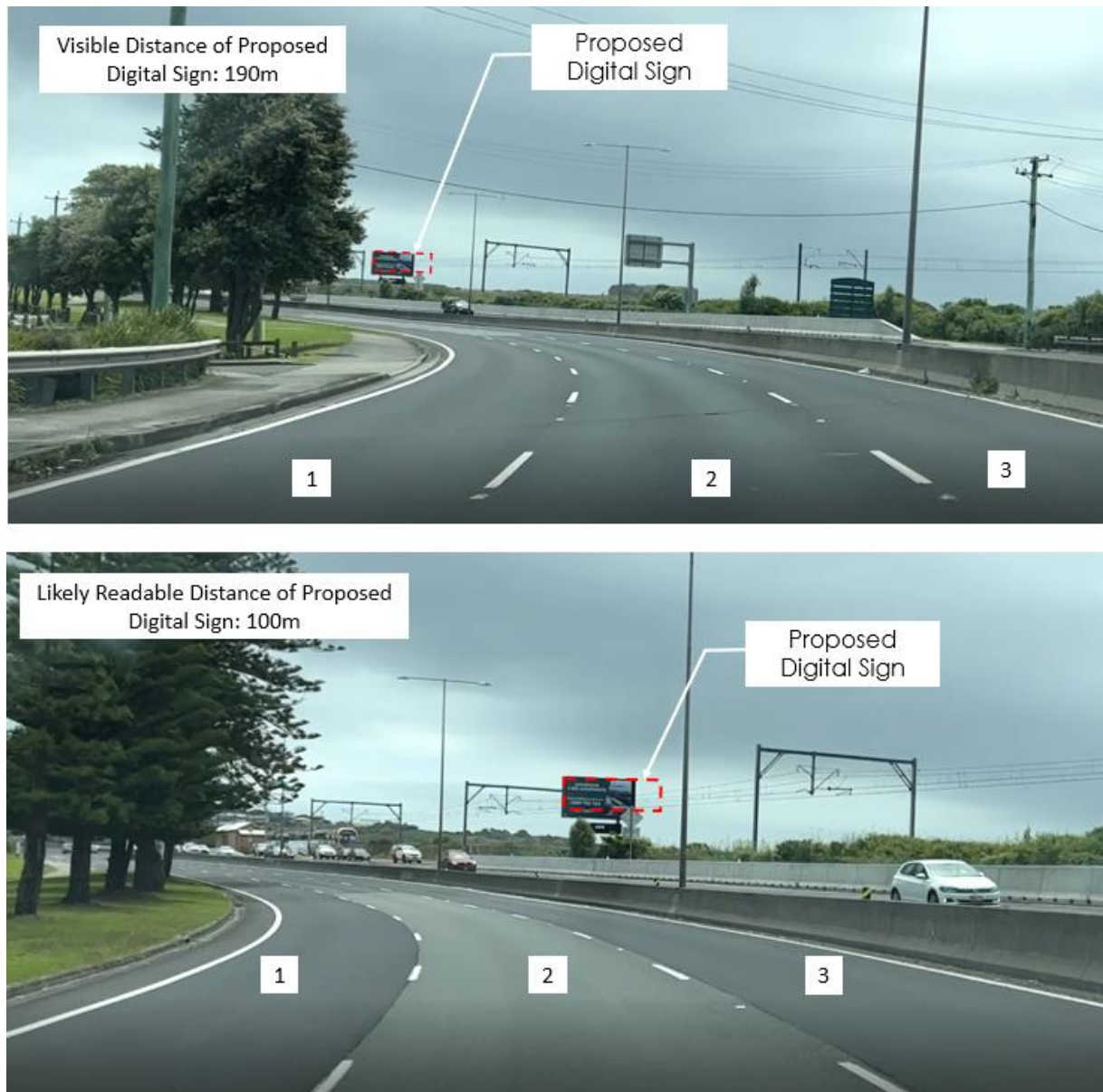
Source: JCDecaux

Figure 2.10: South Approach Sign Exposure – Lane 1



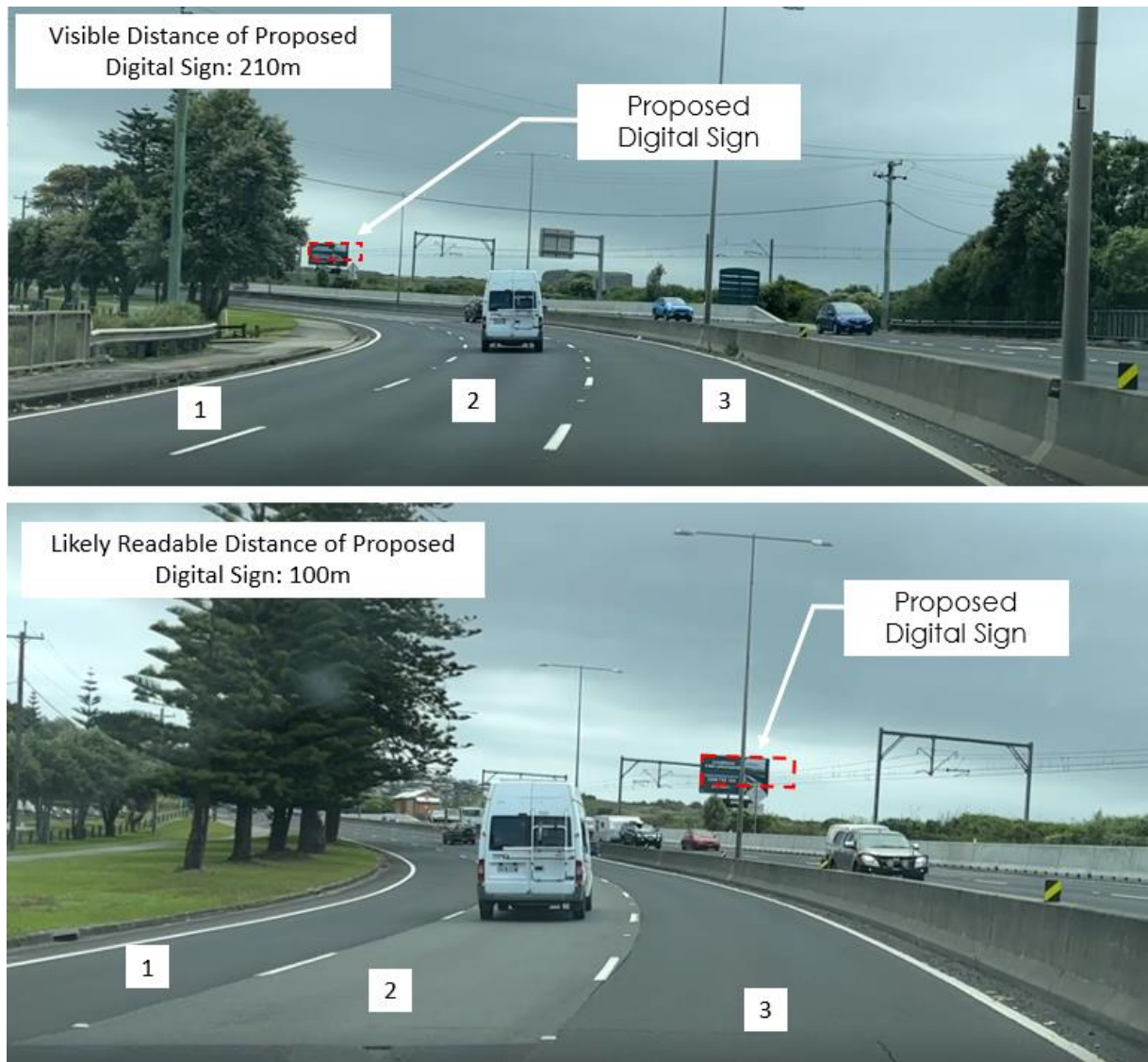
Source: Photograph taken by TPP dated 03/12/2021

Figure 2.11: South Approach Sign Exposure – Lane 2



Source: Photograph taken by TTPP dated 03/12/2021

Figure 2.12: South Approach Sign Exposure – Lane 3



Source: Photograph taken by TPP dated 03/12/2021

2.4 Crash History

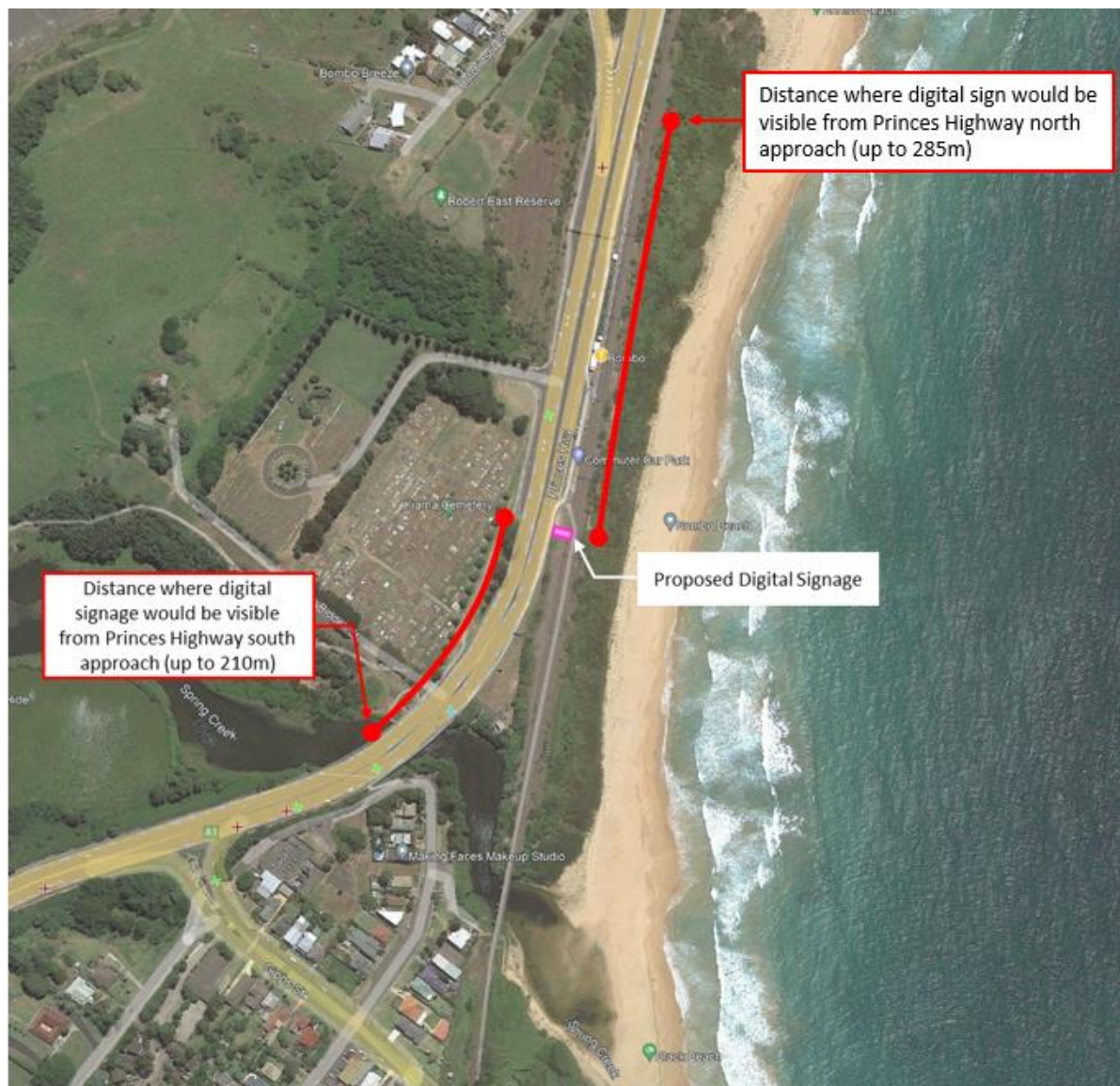
Historic crash data has been obtained from Transport for NSW (TfNSW) and assessed for incidents on Princes Highway within the visible distance of the proposed digital signs (up to 285 m on the north approach and 210 m on the south approach).

Crash history data has been assessed for the proposed digital signage for the most recent five-year period for data collated and published by TfNSW. This period is between 1 January 2016 and 31 December 2020.

There were no crashes recorded within the visible approach distances to each sign in both directions.

The visible distance of the sign on both approaches is illustrated in Figure 2.13.

Figure 2.13: Crash Locations in Recent 5-Year Period



Source: Transport for NSW

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 proposed design has been assessed against the relevant statutory requirements and guidelines. In order to assess any new installation against the key safety assessment criteria, a series of detailed criteria are set out in Section 3, *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 pedestrians or bicyclists?**
- (c) Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?**

Provision of digital advertising signs mounted on both sides of a monopole alongside Princes Highway is unlikely to reduce safety for motorists, pedestrians or cyclists.

It is important to note that there are currently static advertising signs in this location which has not been the cause of any crashes in the vicinity as per the historic crash data.

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

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

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

It is noted that most of the criteria are related to signage content and would need to be addressed by the operator. In addition, this criterion should be included as part of the consent conditions for the proposal to ensure future compliance.

Table 3.1: Digital Sign Criteria (Section 2 of Guidelines)

Criteria, for Signs greater than or equal to 20m ² Display Area		Comments
A	<i>Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (d) below.</i>	Relates to sign content only.
B	<i>Message sequencing designed to make a driver anticipate the next message is prohibited across images presented on a sign and across a series of signs.</i>	Relates to sign content only.
C	<i>The image must not be capable of being mistaken:</i> i. <i>for a prescribed traffic control device because it has, for example, red, amber, or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a prescribed traffic control device, or</i> ii. <i>as text providing driving instructions to drivers.</i>	Relates to sign content only.
D	<i>Dwell times for image display are:</i> i. <i>10 seconds for areas where the speed limit is below 80 km/h.</i> ii. <i>25 seconds for areas where the speed limit is 80 km/h and over.</i>	As detailed in Section 3.3.1.3, a dwell time of 25 seconds would be suitable for the proposed digital signage on the north and south approaches.
E	<i>The transition time between messages must be no longer than 0.1 seconds, and in the event of image failure, the default image must be a black screen.</i>	An almost instantaneous transition is likely to reduce the additional distraction potential for digital signs. It is assumed that this operational requirement would be met.
F	<i>Luminance levels must comply with the requirements in Section 3 (Transport Corridor Advertising Signage Guidelines).</i>	This signage would be classified as Zone 4. Zone 4 covers areas with generally low levels of off-street ambient lighting e.g. areas that have residential properties nearby.
G	<i>The images displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.</i>	It is assumed that this operational requirement would be met.
H	<i>The amount of text and information supplied on a sign should be kept to a minimum (e.g. no more than a driver can read at a short glance).</i>	Relates to sign content only.

Criteria, for Signs greater than or equal to 20m ² Display Area		Comments
I	Any signs 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.	The signage is not located within a school zone.
J	Each sign proposal must be assessed on a case-by-case basis including replacement of an existing fixed, scrolling or tri-vision sign with a digital sign and in the instance of a sign being visible from each direction, both directions for each location must be assessed on their own merits.	Noted.
K	At any time, including where the speed limit in the area of the sign is changed, if detrimental effect is identified on road safety post installation of a digital sign, RMS reserves the right to re-assess the site using an independent RMS-accredited road safety auditor. Any safety issues identified by the auditor and options for rectifying the issues are to be discussed between RMS and the sign owner and operator.	Noted.
L	Sign spacing should limit drivers' 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 advertising signs within visible distance of the proposed digital signs.
M	Signs greater than or equal to 20sqm must obtain RMS concurrence and must ensure the following minimum vertical clearances: i. 2.5m from lowest point of the sign above the road surface if located outside the clear zone ii. 5.5m from lowest point of the sign above the road surface if located within the clear zone (including shoulders and traffic lanes) or the deflection zone of a safety barrier if a safety barrier is installed. If attached to road infrastructure (such as an overpass), the sign must be located so that no portion of the advertising sign is lower than the minimum vertical clearance under the overpass or supporting structure at the corresponding location.	The proposed sign maintains a clearance of 5.025 m from the road surface. The monopole and footing is to be installed within the rail corridor located behind an existing Type-F concrete crash barrier.
N	An electronic log of a sign's operational activity must be maintained by the operator for the duration of the development consent and be available to the consent authority and/or RMS to allow a review of the sign's activity in case of a complaint.	Noted.
O	A road safety check which focuses on the effects of the placement and operation of all signs over 20sqm must be carried out in accordance with Part 3 of the RMS Guidelines for Road Safety Audit Practices after a 12-month period of operation but within 18 months of the sign's installation. The road safety check must be carried out by an independent RMS-accredited road safety auditor who did not contribute to the original application documentation. A copy of the report is to be provided to RMS and any safety concerns identified by the auditor relating to the operation or installation of the sign must be rectified by the applicant. In cases where the applicant is the RMS, the report is to be provided to the Department of Planning and Environment as well.	Noted.

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 digital signage will not physically obstruct any vehicle, pedestrian, and cyclist movements as it will be placed within the rail corridor which is outside of any pedestrian, cyclist or vehicle carriageway.

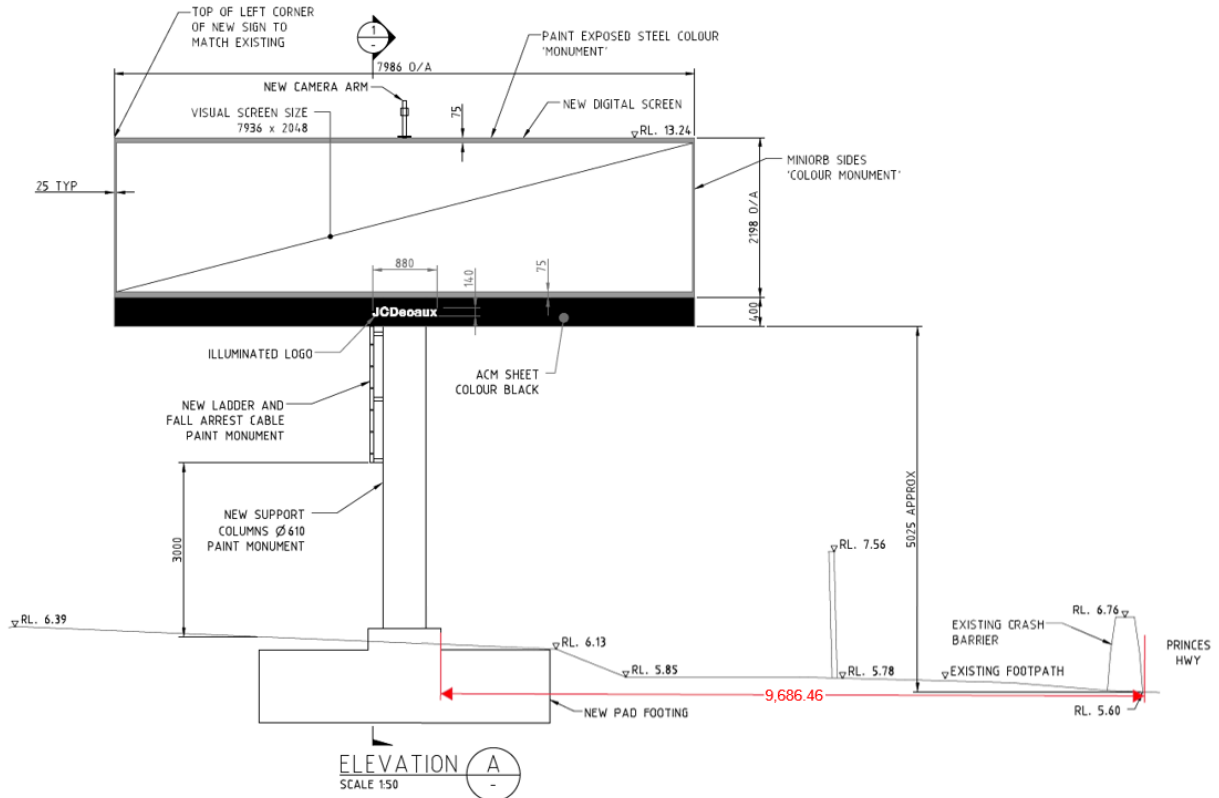
The digital signs will not protrude into the road reserve or the footpath. The outermost edge of the signs will be approximately 6m from the edge of the carriageway, and completely within the rail corridor.

The concept design for the proposed signage and its positioning are shown in Appendix A.

(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 supplements) or behind an RMS-approved crash barrier.

The digital signs will be supported by a monopole and pad footing, where the majority of the pad footing will be located below ground. A small section of the pad footing will be exposed on its western side (closest to the southbound travel lanes); however, it would be located approximately 9.6 m away from the edge of the roadway as shown in Figure 3.1. According to Austroads Guide to Road Design Part 6 (2009), the clear zone requirement at this location is 9.0 m. Therefore, the sign supports would be placed outside of the clear zone. Nevertheless, the sign supports will be located behind the existing Type-F concrete crash barrier that is located between the footpath and the southbound carriageway.

Figure 3.1: Monopole Pad Footing



(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.

Whilst the future signage supports will be located outside of the clear zone, the signs themselves would be located within the clear zone with the base of the signs positioned 5.025 m above the road level. The distance between the edge of the signage and the existing Type-F concrete crash barrier will be approximately 5.6 m, which is a sufficient deflection and working width at this location.

- (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.**

It is noted that the proposed signage will not overhang roads or footpaths.

Notwithstanding, as part of the detailed design phase, the proposed sign will be designed in accordance with Australian Standards AS1170.2 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.

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.**

The digital signage will be positioned at the same location of the existing signage, which is significantly offset from the carriageway and would not obstruct the drivers view of the road or pedestrians and cyclists.

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

The proposed signage will not obstruct pedestrian and cyclist's view of Princes Highway.

- (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 photomontage should be used to assess this issue.**

Similar to the existing signage, the proposed signage will be offset from the carriageway in a manner that would not have the potential to give incorrect information about the road alignment. This is supported by the designer's impression of the proposed signage as depicted in Figure 2.4 and Figure 2.9.

(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 proposed digital signage will be positioned within a driver's line of sight on both approaches on Princes Highway, similar to the existing static signs. For drivers travelling in the northbound direction, the sign will be located on the other side of the carriageway (east side of Princes Highway). However, with a curved road alignment on approach, the sign would be located in the drivers' line of sight for those travelling in the northbound direction. Hence, drivers would not be required to turn their head to view sign in either direction.

The height and distance of the sign away from the carriageway would be unlikely to cause 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.**
- (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.**

As referenced in the Guide to Road Design, Part 3, sight distance refers to the distance required to enable a driver to react and stop before reaching a hazard. This distance is dependent on the operating (85th percentile) speed of the road, road gradient and other road characteristics.

The design speed of 110 km/h has been used to calculate the minimum SSD. A 110 km/h speed has been adopted based on the sign posted speed limit of 100km/h on Princes Highway. According to Austroads, the minimum safe stopping sight distance for a 110 km/h speed zone is 193 m.

On the north approach, the proposed sign would not be located within the safe stopping distance of a decision making or conflict point. The location of nearby decision points are shown in Figure 3.2, which include:

- The station service road entry is located approximately 220 m north of the signage location. At this location, the sign would not be readable, and thus, would have minimal potential to cause distraction. It is also noted that there is an existing static sign, which has evidently not resulted in any distraction to motorists which has led to a crash.
- The station service road exit is located prior to the sign. However, a driver waiting at the give-way line waiting to exit the service road would be facing north towards the oncoming traffic which is in the opposite direction to the proposed sign. Therefore, a driver leaving the service road would be focusing their attention in the opposite direction to the sign, and would not be distracted by the sign.

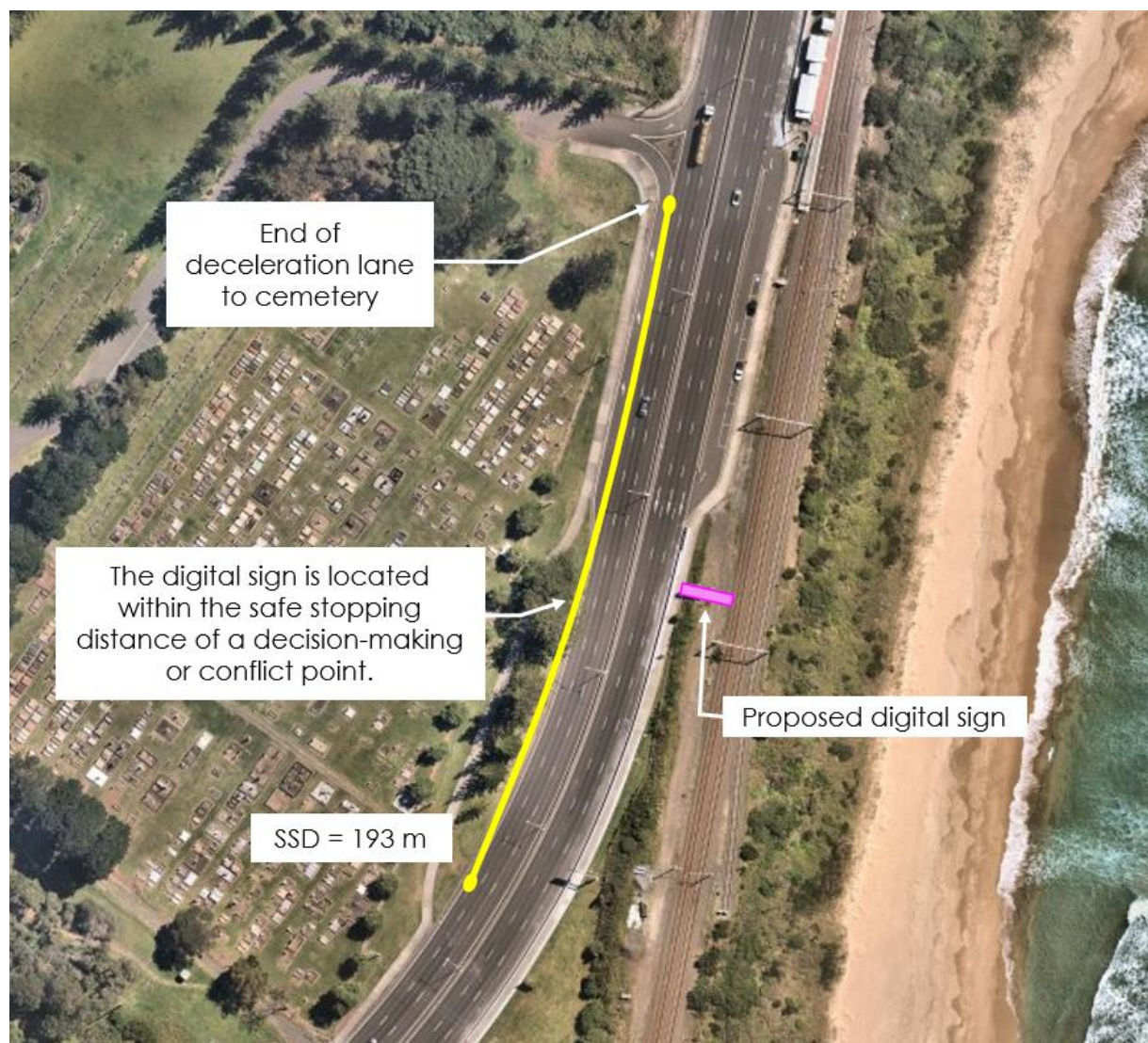
Figure 3.2: Safe Stopping Sight Distance – North Approach



On the south approach, the proposed sign would be located within the SSD to the decision making point at the end of the deceleration lane for the cemetery. The stopping distance is illustrated in Figure 3.3. Notwithstanding this, there is currently a static advertising sign in this location which has not been the cause of any significant crashes in the vicinity as per the historic crash data. In addition, there is a low volume of vehicles accessing the cemetery and therefore the probability of any potential conflict between a vehicle in the deceleration lane and through lane would be minor.

Therefore, a digital sign within the SSD to the decision making point at the end of the declaration lane for the cemetery would not be expected to cause any safety concerns.

Figure 3.3: Safe Stopping Sight Distance – South Approach



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

Motorists waiting to turn left on to Princes Highway from Kiama Cemetery Access Road would be facing in the direction of the proposed digital sign (north side of the sign). However, at a distance of 125 m, the sign would not be readable and therefore unlikely to distract the driver from observing the oncoming traffic. As mentioned previously, there is an existing advertising sign at this location, which has evidently not resulted in any distraction which has caused any crashes.

The driver's view of the digital sign is shown in Figure 3.4.

Figure 3.4: Motorist's View from Kiama Cemetery Exit



Source: Photograph taken by TPP dated 03/12/2021

(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.**

A "critical time" is understood to refer to a point in time when a driver's decision is required implying that a road safety implication could occur if a driver was distracted at this time. The proposed digital sign would be positioned to the side of the carriageway without obstructing a driver's view of any potential hazards on the roadway.

3.3.1.4 Sign Spacing

- (a) Sign spacing should limit drivers 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 advertising signs located within 150 m of the proposed digital signs.

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.**
- (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 are not yet known since the project is still within the concept design stage. However, based on the example advertisements as depicted in the designer's impression (Figure 2.4 and Figure 2.9), the signage would not display colours and shapes which could be mistaken for a traffic signal.

Notwithstanding this, it is recommended that the content of the proposed signage be reviewed against Table 5 of the NSW 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 image display must not be less than:**
 - (i) 10 seconds for areas where the speed limit is below 80km/h**
 - (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.**

Based on the NSW Guidelines, the minimum dwell time for content displayed on the digital sign would be 25 seconds. The digital sign is proposed to contain text and images, which would be in a static manner without any motion for this dwell time. The transition between content would be almost instantaneous.

The proposed digital sign is located on a classified road but is not within a school zone.

3.3.2.3 Illumination and Reflectance

- (a) Luminance levels must 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 NSW Guidelines details assessment criteria to ensure that illumination and reflectance qualities of signage 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 proposed sign would not contain interactive technology or technology that enables opt-in direction communication with motorists. The digital sign would not be designed to make motorists anticipate information.

4 Conclusion

JCDecaux is seeking approval for the installation of two LED digital illuminated signs on a new monopole located on the east side of Princes Highway in Bombo. The monopole and signs would be located south of Bombo train station and within the rail corridor. The signs would be located back-to-back on the monopole, facing northbound and southbound travel lanes on Princes Highway.

The proposal has been assessed against the following statutory requirements for digital advertising signs:

- Transport Corridor Outdoor Advertising and Signage Guidelines,
- State Environmental Planning Policy (Industry and Employment) 2021.

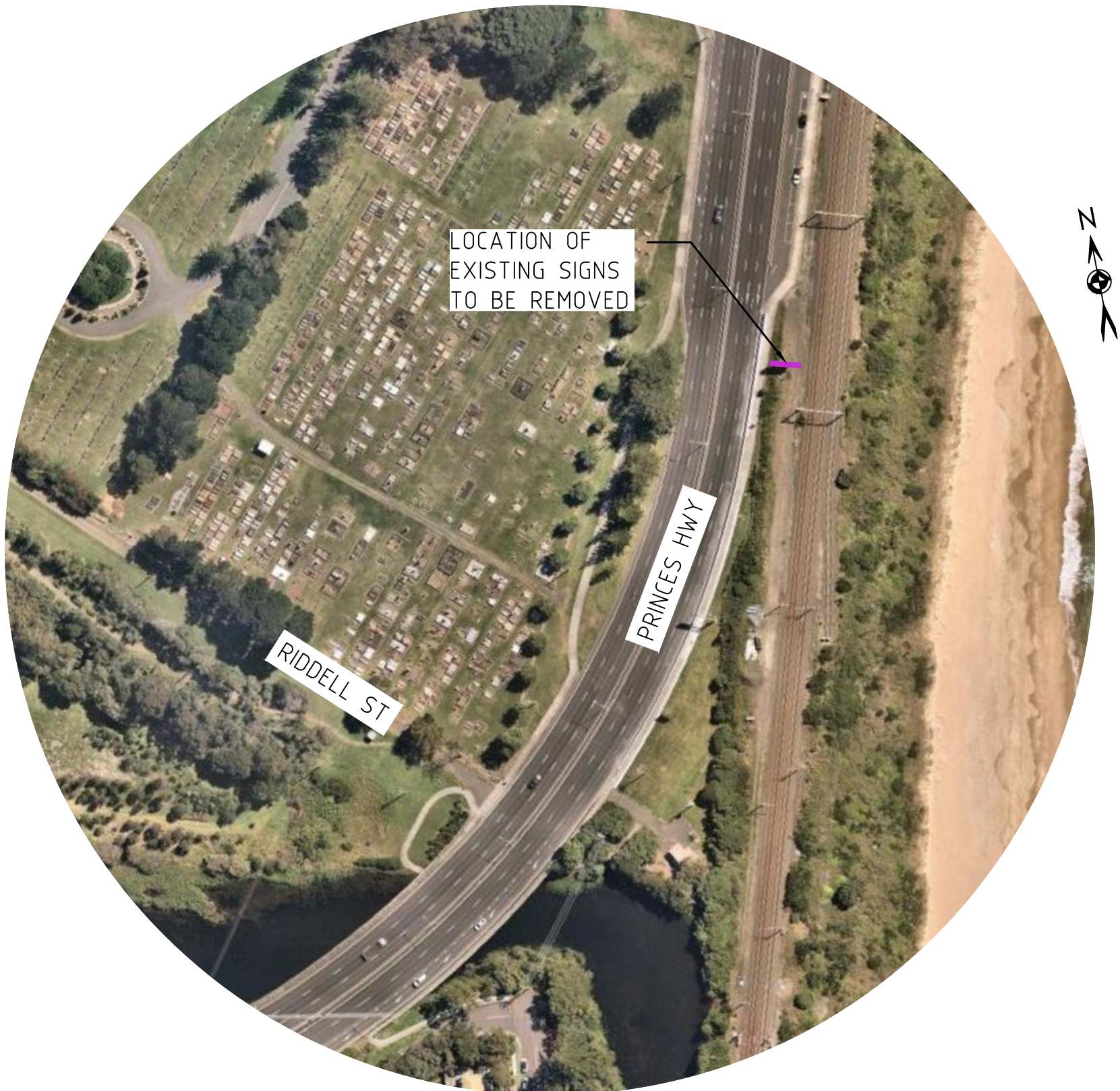
The following findings and conclusions are made from our road safety assessment:

- There are existing static signs in the location of the proposed digital signage location.
- There have been no crashes recorded within the visible distance on approach to each sign in the most recent five year period.
- The proposed signage would not obstruct/ reduce visibility of any traffic control devices, signage, pedestrians or cyclists.
- The proposed signage would not give incorrect information on the alignment of the road.
- The signage is located within the driver's peripheral vision.
- The proposed sign on the north approach would not be located within the safe stopping distance to traffic signals, crossings or directional/ information signage or any other decision/ conflict point.
- The proposed sign on the south approach would be located within the safe stopping distance to the Kiama Cemetery Access Road, however, would not cause any safety concerns as assessed in Section 3.3.1.3.
- Princes Highway has a posted speed limit of 100 km/h. As such, a dwell time of 25 seconds for the digital sign is required in accordance with the Guidelines.
- The proposed signage would not compromise safety for road users in the vicinity.

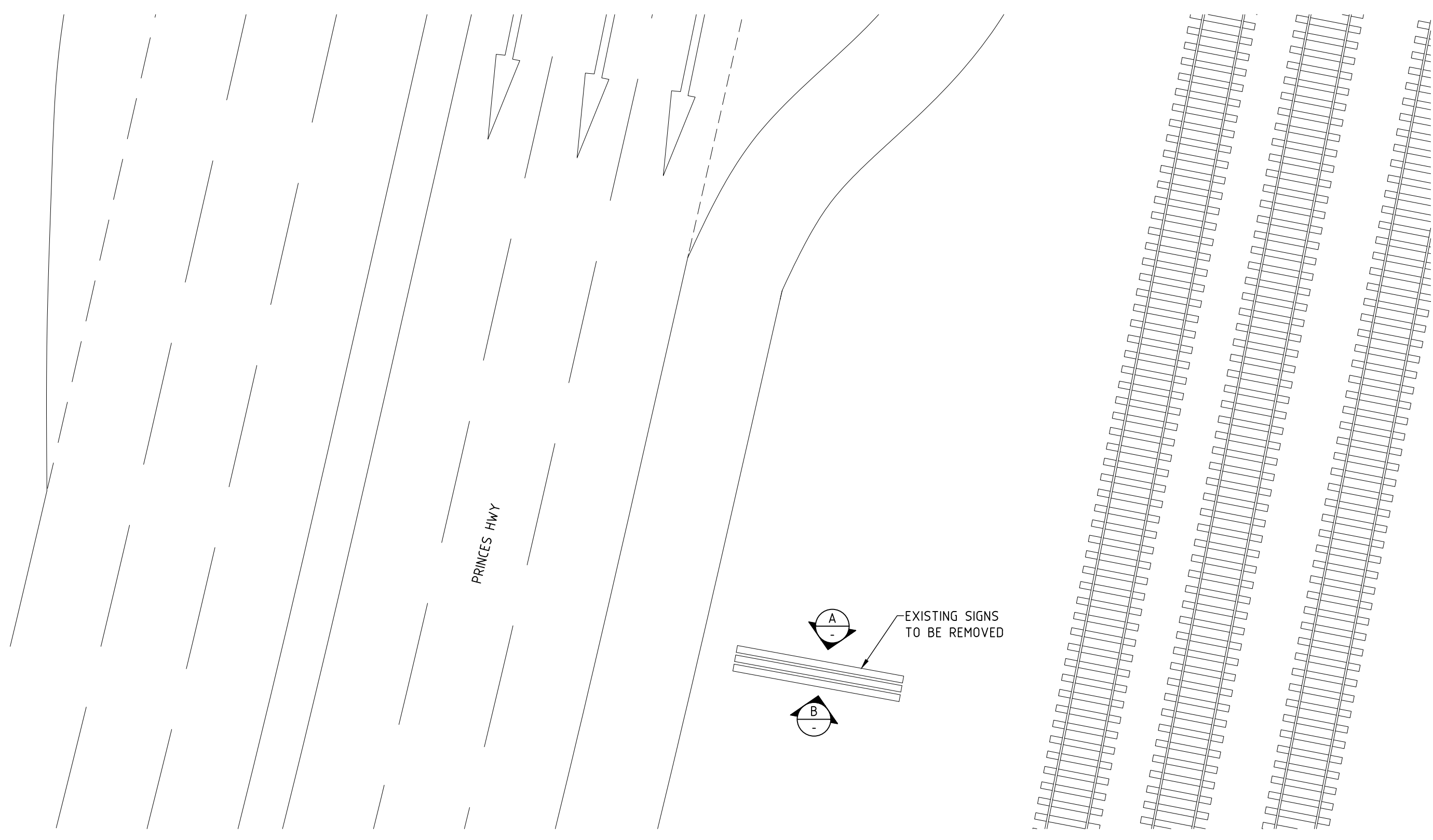
Having consideration for the signage safety assessment and discussions presented within this report, the analysis shows that the installation of digital signage on the eastern side of Princes Highway would be acceptable from a road safety perspective.

Appendix A

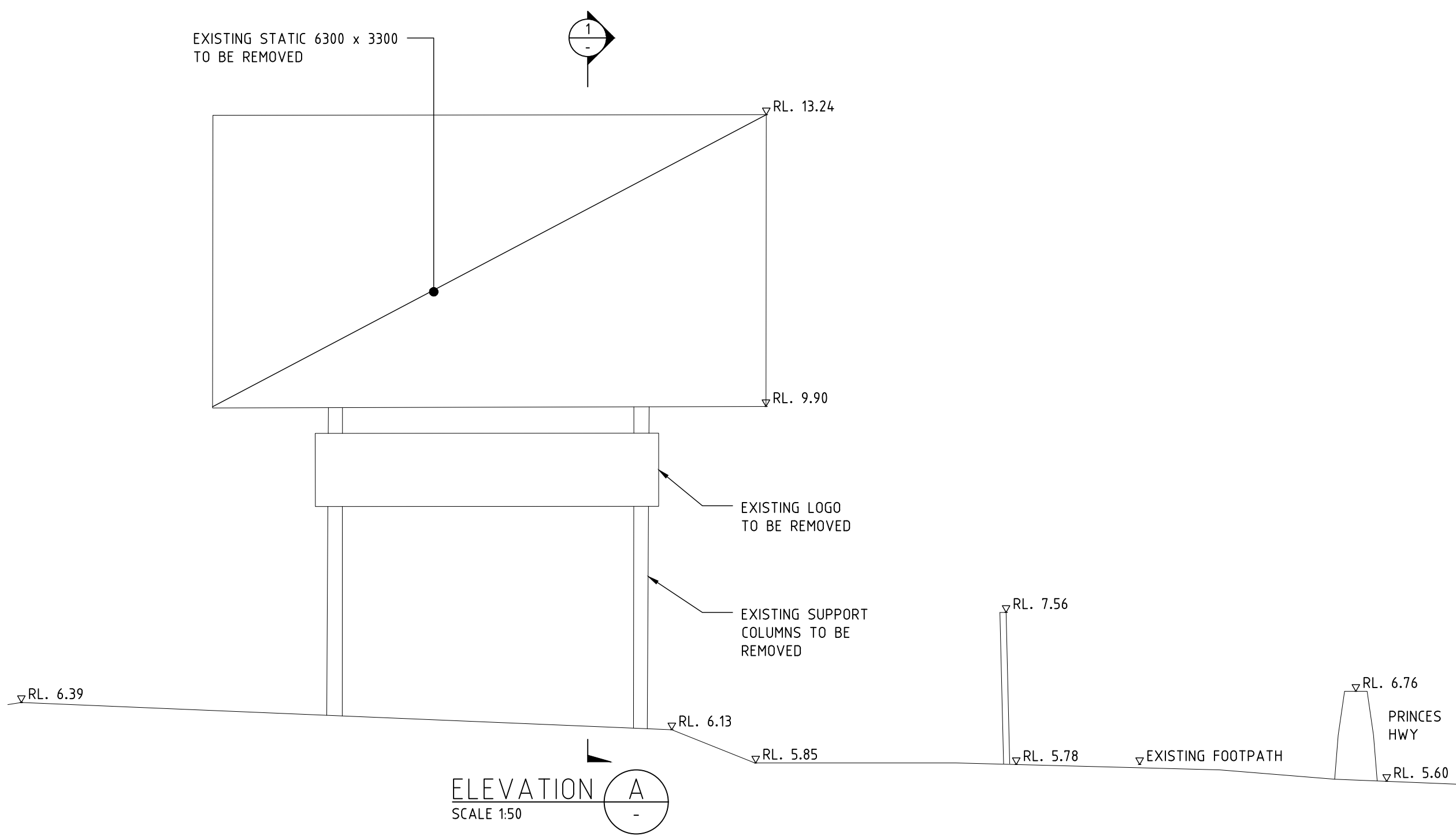
Concept Design Plans



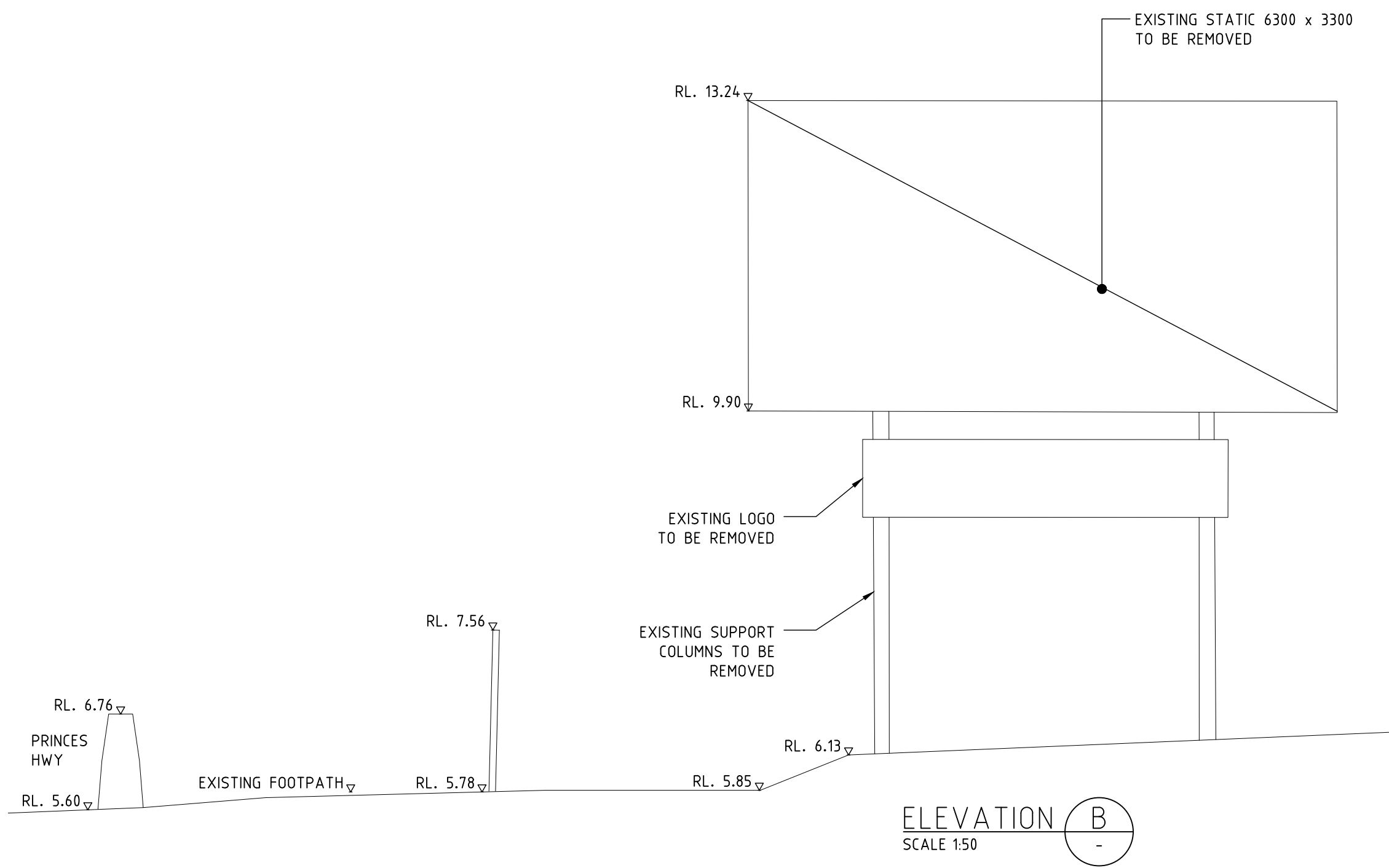
AERIAL PHOTO
NTS



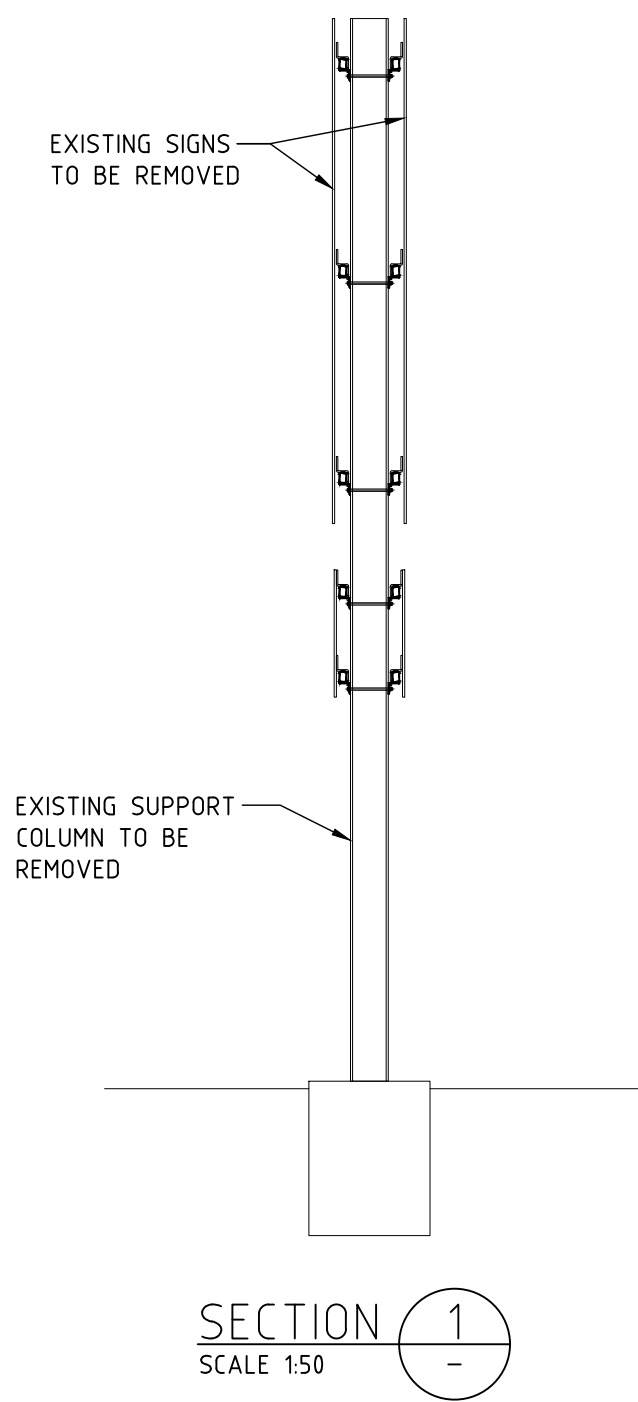
SITE PLAN
SCALE 1:150



ELEVATION A
SCALE 1:50



ELEVATION B
SCALE 1:50



SECTION 1
SCALE 1:50

NOT FOR CONSTRUCTION

ISS	DATE	COMMENT
A	09/12/21	ISSUED FOR APPROVAL



Suite 1, Building 8, 49 Frenchs Forest Road East,
Frenchs Forest, NSW 2086
P.O. Box 652, Forestville, NSW 2087
Ph: 02 9451 3455 Fax: 02 9451 3466
Email: info@dbce.com.au
ABN 23 039 013 724

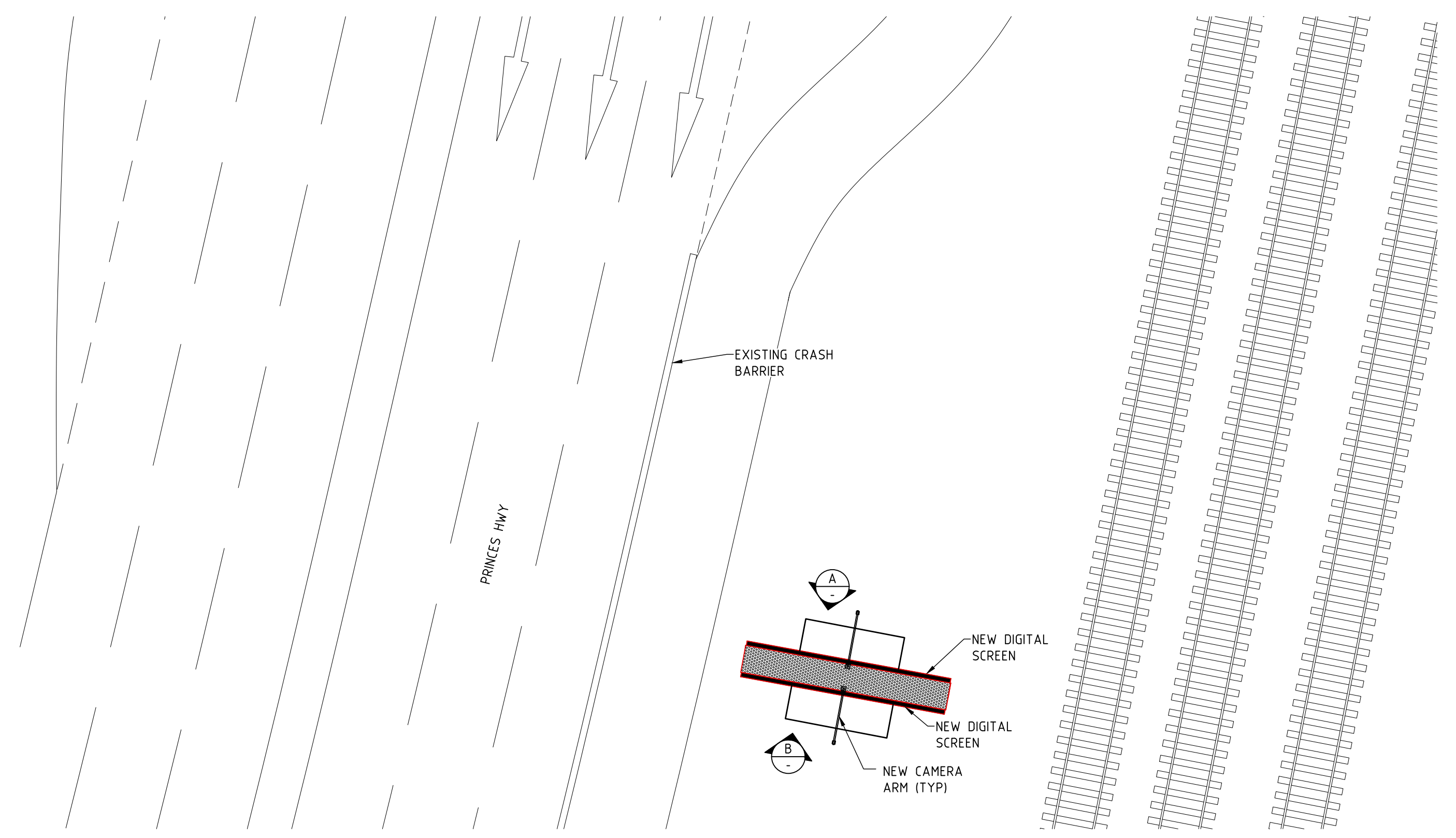
CLIENT:
JCDecaux
PROJECT:
PRINCES HWY, BOMBO, NSW
SUPER 8, NORTHBOUND

TITLE:
PROPOSED DIGITAL SIGN
GENERAL ARRANGEMENT &
SITE PLAN

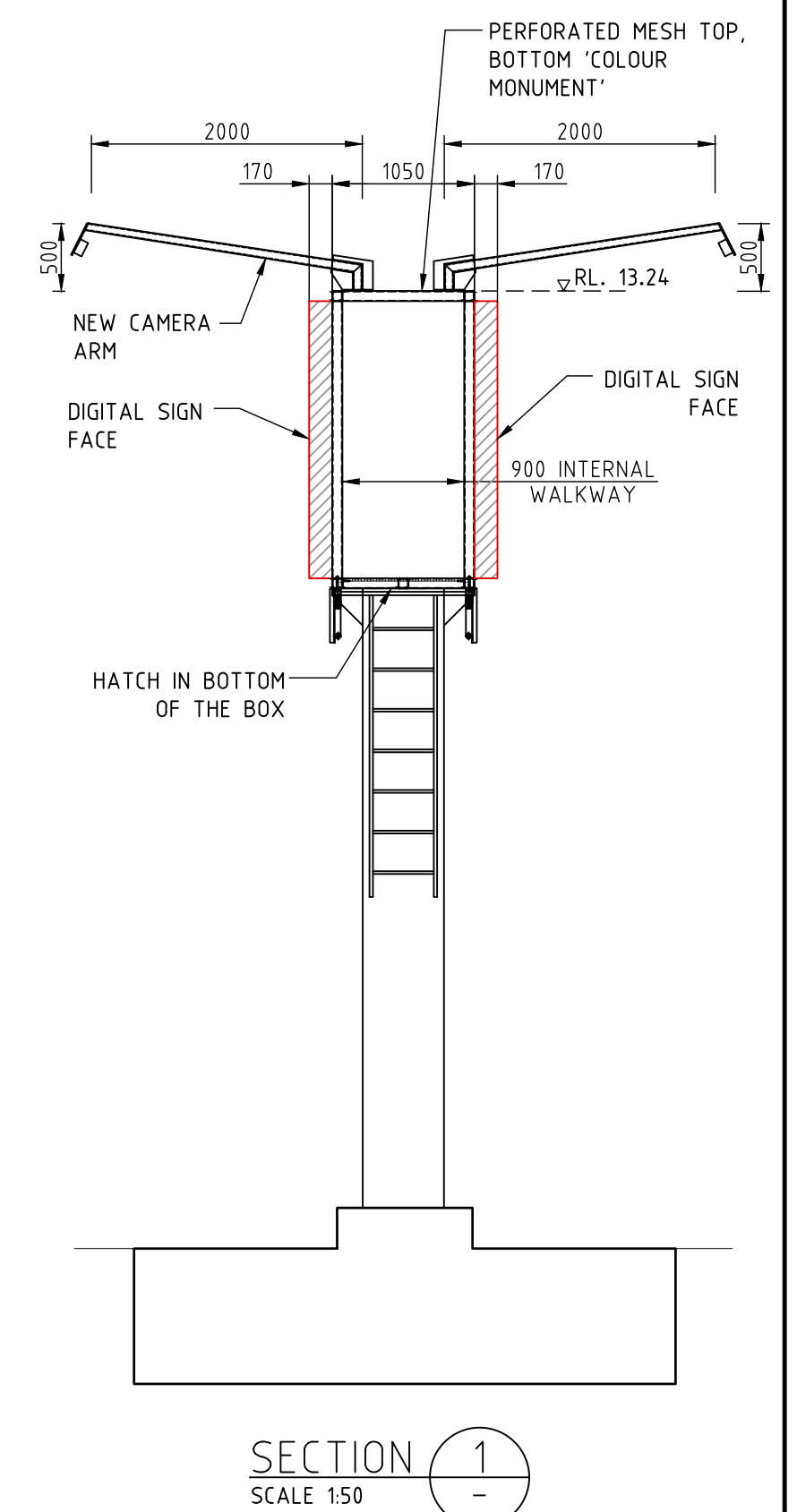
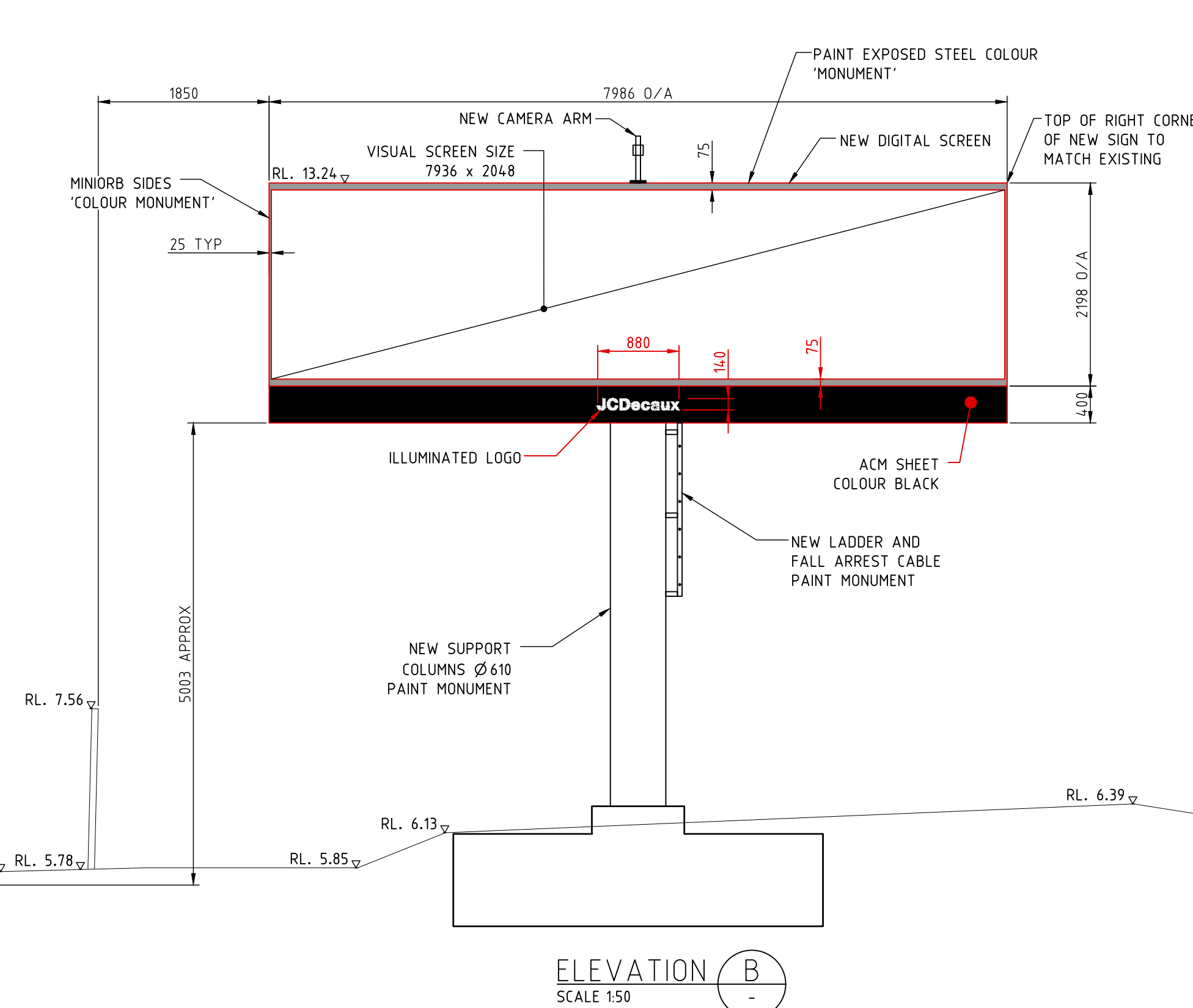
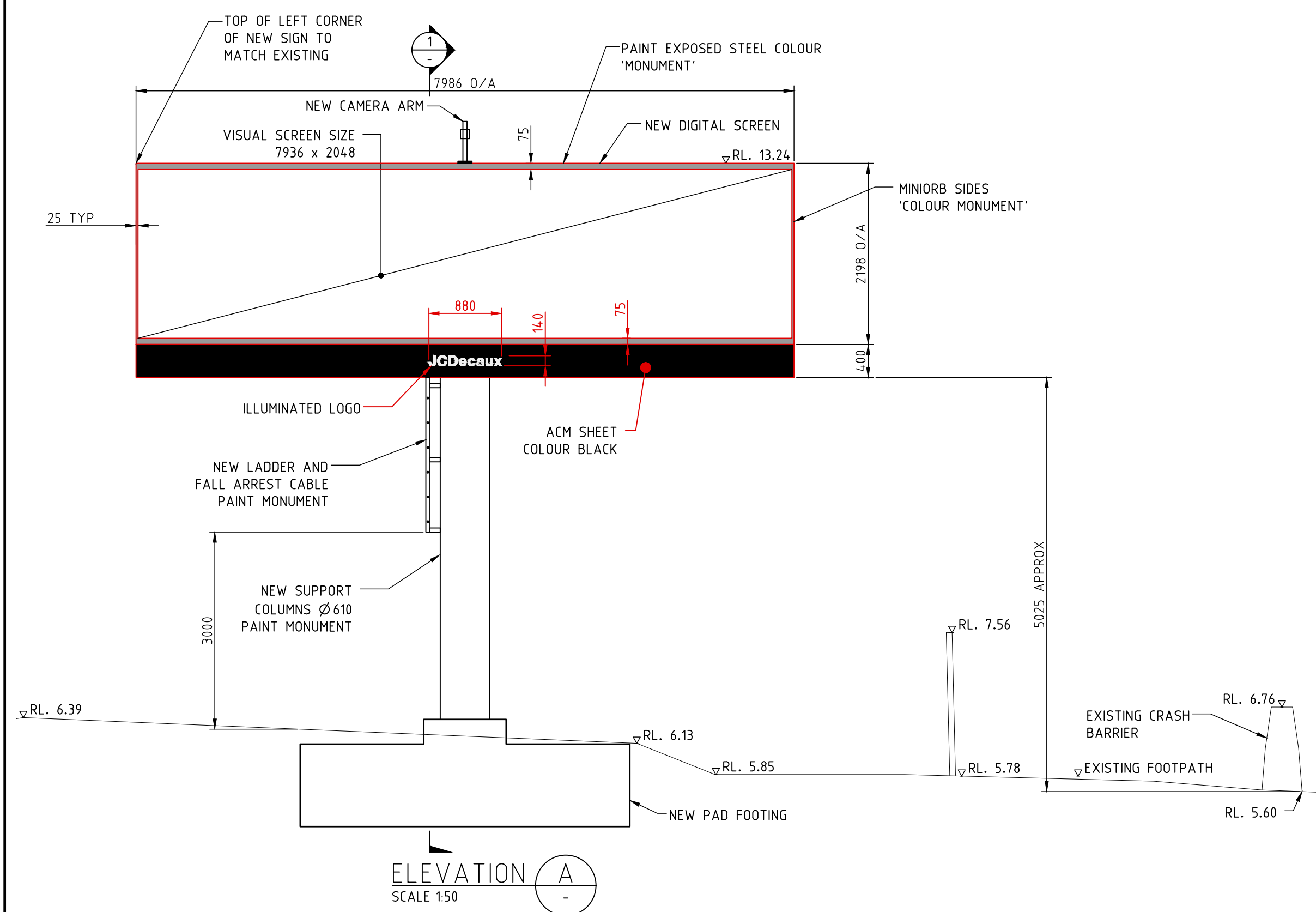
DRAWN A.T.	DESIGN J.L.	DATE: NOV 21
JOB NO: 21275	DWG NO: DA01	
SCALE @ A1: AS SHOWN	REV: A	



AERIAL PHOTO
NTS



SITE PLAN
SCALE 1:150



NOT FOR CONSTRUCTION

ISS	DATE	COMMENT
A	09/12/21	ISSUED FOR APPROVAL
B	11/01/22	ISSUED FOR APPROVAL
C	17/01/22	ISSUED FOR APPROVAL



Suite 1, Building 8, 49 Frenchs Forest Road East,
Frenchs Forest, NSW 2086
P.O. Box 652, Forestville, NSW 2087
Ph: 02 9451 3455 Fax: 02 9451 3466
Email: info@dbce.com.au
ABN 23 039 013 724

CLIENT:
JCDecaux

PROJECT:
**PRINCES HWY, BOMBO, NSW
SUPER 8, NORTHBOUND**

TITLE:
**PROPOSED DIGITAL SIGN
GENERAL ARRANGEMENT &
SITE PLAN**

DRAWN A.T.	DESIGN J.L.	DATE: DEC 21
JOB NO: 21275	DWG NO: DA02	
SCALE @ A1: AS SHOWN	REV: C	

Appendix B

State Environmental Planning Policy (Industry and
Employment) 2021 – Schedule 5

State Environmental Planning Policy (Industry and Employment) 2021

Current version for 1 March 2022 to date (accessed 22 March 2022 at 15:07)

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?

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