AGENDA

LOCAL TRAFFIC COMMITTEE MEETING

MONDAY 9 DECEMBER 2024

11:00 AM

Location Ashfield Service Centre, 260 Liverpool Road, Ashfield

Function of the Local Traffic Committee

Background

Roads and Maritime Services (RMS) is legislated as the Authority responsible for the control of traffic on all NSW Roads. The RMS has delegated certain aspects of the control of traffic on local roads to councils. To exercise this delegation, councils must establish a local traffic committee and obtain the advice of the RMS and Police. The Inner West Council Local Traffic Committee has been constituted by Council as a result of the delegation granted by the RMS pursuant to Section 50 of the Transport Administration Act 1988.

Role of the Committee

The Local Traffic Committee is primarily a technical review and advisory committee which considers the technical merits of proposals and ensures that current technical guidelines are considered. It provides recommendations to Council on traffic and parking control matters and on the provision of traffic control facilities and prescribed traffic control devices for which Council has delegated authority. These matters are dealt with under **Part A** of the agenda and require Council to consider exercising its delegation.

In addition to its formal role as the Local Traffic Committee, the Committee may also be requested to provide informal traffic engineering advice on traffic matters not requiring Council to exercise its delegated function at that point in time, for example, advice to Council's Development Assessment Section on traffic generating developments. These matters are dealt with under **Part C** of the agenda and are for information or advice only and do not require Council to exercise its delegation.

Committee Delegations

The Local Traffic Committee has no decision-making powers. The Council must refer all traffic related matters to the Local Traffic Committee prior to exercising its delegated functions. Matters related to State Roads or functions that have not been delegated to Council must be referred directly to the RMS or relevant organisation.

The Committee provides recommendations to Council. Should Council wish to act contrary to the advice of the Committee or if that advice is not supported unanimously by the Committee members, then the Police or RMS have an opportunity to appeal to the Regional Traffic Committee.

Committee Membership & Voting

Formal voting membership comprises the following:

- one representative of Council as nominated by Council;
- one representative of the NSW Police from each Local Area Command (LAC) within the LGA, being Newtown, Marrickville, Leichhardt and Ashfield LAC's.
- one representative from the RMS; and
- State Members of Parliament (MP) for the electorates of Summer Hill, Newtown, Heffron, Canterbury, Strathfield and Balmain or their nominees.

Where the Council area is represented by more than one MP or covered by more than one Police LAC, representatives are only permitted to vote on matters which effect their electorate or LAC.

Informal (non-voting) advisors from within Council or external authorities may also attend Committee meetings to provide expert advice.

Committee Chair

Council's representative will chair the meetings.

Public Participation

Members of the public or other stakeholders may address the Committee on agenda items to be considered by the Committee. The format and number of presentations is at the discretion of the Chairperson and is generally limited to 3 minutes per speaker. Committee debate on agenda items is not open to the public.

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Nil at time of printing.

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Nil at the time of printing.

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Minutes of Local Traffic Committee Meeting held on 18 November 2024

Meeting commenced at 11:07AM

ACKNOWLEDGEMENT OF COUNTRY BY CHAIRPERSON

I acknowledge the Gadigal and Wangal people of the Eora nation on whose country we are meeting today, and their elders past and present.

COMMITTEE REPRESENTATIVES PRESENT

Victor Macri	Councillor –Midjuburi - Marrickville Ward (Chair)
Graeme McKay	Representative for Jo Haylen MP, Member for Summer Hill
Eleanor Nurse	Representative for Jenny Leong MP, Member for Newtown
Nina Fard	Transport for NSW (TfNSW)

NON VOTING MEMBERS IN ATTENDANCE

Col Jones	Representative for the Inner West Bicycle Coalition (IWBC)
Michael Takla	Representative for Transit Systems
Manod Wickramasinghe	IWC's Traffic and Transport Planning Manager
Felicia Lau	IWC's Traffic Engineer
George Tsaprounis	IWC's Coordinator Traffic Engineering Services (South)
Jason Scoufis	IWC's Coordinator Traffic Investigations & Road Safety
Predrag Gudelj	IWC's Coordinator Roads and Stormwater Projects
Nick Poulos	IWC's Project Manager/Project Engineer
Amir Falamarzi	IWC's Traffic Engineer
James Nguyen	IWC's Traffic Engineer
Christy Li	IWC's Business Administration Officer

VISITORS

Liam Fitzgerald	Public Speaker (Item 6)
Neil Tonkin	Public Speaker (Item 6)
Brendan Farquhar	Public Speaker (Item 8)
Van Dimitri	Public Speaker (Item 9)
Christian Wahl	Public Speaker (Item 16)
Shirley Gwynn	Public Speaker (Item 18)

APOLOGIES:

Liz Atkins	Councillor – Damun - Stanmore Ward
Sgt Charles Buttrose	NSW Police – Leichhardt Police Area Command
Ben Walters	NSW Police – Inner West Police Area Command

DISCLOSURES OF INTERESTS:

Nil.

CONFIRMATION OF MINUTES

That the Minutes of the Local Traffic Committee held on Monday, 21 October 2024 be confirmed.

MATTERS ARISING FROM COUNCIL'S RESOLUTION OF MINUTES

The Minutes of the Local Traffic Committee meeting held on 16 September 2024 were adopted at Council's meeting held on 12 November subject to the following:

1. Item 1 - The Boulevarde, Lilyfield – Proposed Streetscape Improvements and Civil Works be deferred pending further community consultation and
2. Item 4 - Newtown South LATM Final report, paragraph (i) to read as follows: "That subject to TfNSW approval, a 10km/h Shared Zone be installed in Alice Lane between Walenore Avenue and Holmwood Street and Alice Lane be converted to one way eastbound between Pearl Lane and Walenore Avenue. The One Way restrictions in Alice Lane between Walenore Avenue and Pearl Lane include "Cyclist Excepted" signposting, subject to a convex safety mirror being installed at the Pearl lane/Alice Lane 90 degree road bend."

The Minutes of the Local Traffic Committee meeting held on 21 October 2024 were adopted at Council's meeting held on 12 November subject to the following:

1. That Council report back by February 2025 about the feasibility, costs, and timeline of potential works to upgrade power at Tempe Reserve to facilitate the installation of electric vehicle chargers at this location.

LTC1124(1) Item 1 Illawarra Road, Wharf Street and Thornley Street, Marrickville – Traffic safety review of streets around Steel Park (Midjuburi-Marrickville Ward /Summer Hill Electorate /Inner West LAC)

SUMMARY

At the Council Meeting held 25 June 2024 a Notice of Motion (NoM) for Steel Park Dog Off-Leash Area and Amenities (Item C0624(2) Item 22) was resolved. Part 2 was for consideration of determining whether any additional traffic calming measures are required in the busy area bounded by Thornley and Wharf Streets. This report provides an assessment of the locality and also lists recent and future works completed or planned.

Officers Recommendation:

1. That this report be received and noted.

2. That the following works to be completed in 2024/25 be noted:
   a) Upgrade of pedestrian crossing on Illawarra Road, immediately west of Thornley Street to a raised crossing facility; and
   b) Reduction to a 40 km/h speed limit for Thornley Street and other local streets in the Marrickville area as part of the InnerWest@40 project rollout (Area 6 Enmore & Marrickville East; Area 7 Marrickville & Tempe).

3. That Police be requested to undertake regular Police patrols/enforcement of Illawarra Road in the vicinity of Steel Park.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

1. That this report be received and noted.

2. That the following works to be completed in 2024/25 be noted:
   a) Upgrade of pedestrian crossing on Illawarra Road, immediately west of

Thornley Street to a raised crossing facility; and

b) Reduction to a 40 km/h speed limit for Thornley Street and other local streets in the Marrickville area as part of the InnerWest@40 project rollout (Area 6 Enmore & Marrickville East; Area 7 Marrickville & Tempe).

3. That Police be requested to undertake regular Police patrols/enforcement of Illawarra Road in the vicinity of Steel Park.

For Motion: Unanimous

LTC1124(1) Item 2 Station Street, Marrickville - Proposed bicycle Excepted signage (Midjuburi-Marrickville Ward / Summer Hill Electorate / Inner West PAC)

SUMMARY

As part of the TfNSW Southwest Metro project, the T3 Bankstown Line from Sydenham to Bankstown is being converted to Metro standards to improve the reliability of Sydney's transportation network. To aid affected commuters along the T3 Line, TfNSW has implemented temporary bike riding routes as part of its Temporary Transport Plan (TTP) to encourage people to travel by bike during the conversion of the T3 Bankstown Line.

To assist with active transport users, the TTP provides a cycleway route between Hurlstone Park to Sydenham via Dulwich Hill and Marrickville, see Attachment 1.

Council has received concerns from active transport users and residents about the route through Station Street, Marrickville.

Officers Recommendation:

That the installation of 'Bicycle Excepted' signage at the entry of Station Street and Leofrene Avenue from Schwebel Street, Marrickville as well as Leofrene Avenue at Station Street (below the existing 'One Way' and 'No Entry' signage) be approved.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the installation of 'Bicycle Excepted' signage at the entry of Station Street and Leofrene Avenue from Schwebel Street, Marrickville as well as Leofrene Avenue at Station Street (below the existing 'One Way' and 'No Entry' signage) be approved.

For Motion: Unanimous

LTC1124(1) Item 3 Le Clos Lane, Marrickville - Proposed 30 Tonne weight limit on the Le Clos Lane Bridge (Midjuburi-Marrickville Ward / Summer Hill Electorate / Inner West PAC)

SUMMARY

This report outlines the current structural engineering concerns associated with the Le Clos

Lane bridge in Marrickville and proposes the appropriate traffic treatments to maintain the structural integrity of the bridge following the completion of maintenance works.

Officers Recommendation:

That a 'Bridge Load Limit 30T Gross' weight limit at the entry to Le Clos Lane and at the Le Clos Lane bridge in Marrickville be approved.

DISCUSSION:

The Representative for Transport for NSW requested that recommendation be amended to include subject to the Transport Management Plan (TMP) being approved by Transport for NSW (TfNSW).

The Committee members agreed with the amended recommendation.

COMMITTEE RECOMMENDATION:

That a 'Bridge Load Limit 30T Gross' weight limit at the entry to Le Clos Lane and at the Le Clos Lane bridge in Marrickville be approved, subject to the Transport Management Plan (TMP) being approved by Transport for NSW (TfNSW).

For Motion: Unanimous

LTC1124(1) Item 4 Illawarra Road at Thornley Street, Marrickville – Proposed raised pedestrian crossing - Design Plan 10304 (Midjuburi-Marrickville Ward / Summer Hill Electorate / Inner West PAC)

SUMMARY

Council has prepared a design plan to construct a raised concrete pedestrian crossing at the intersection of Illawarra Road and Thornley Street, Marrickville. The proposal aims to improve safety for pedestrian and motorist and will help address concerns with pedestrian and motorist behaviour at this location, particularly during busy times.

Officers Recommendation:

That the detailed design plan for the proposed new raised pedestrian crossing on Illawarra Road at Thornley Street, Marrickville and associated signs and line markings (as per Design Plan No.10304) be approved.

DISCUSSION:

The Chair noted that there is a tree near the proposed new raised pedestrian crossing that often makes it hard for motorists to spot pedestrians wanting to cross the road and questioned if Council could investigate potential treatments for the tree such as pruning to improve the sightlines of motorists.

Council Officers advised that previously the plantings in the kerb blisters were overgrown and that Council has cut down the vegetation to improve visibility for motorists and pedestrians and noted that Council Officer have noted the Chairs concerns and can also investigate pruning back the tree to improve visibility.

The proposed pedestrian crossing is to be constructed 1.3m south of the existing pedestrian crossing which will also improve visibility of approaching pedestrians.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the detailed design plan for the proposed new raised pedestrian crossing on Illawarra Road at Thornley Street, Marrickville and associated signs and line markings (as per Design Plan No.10304) be approved.

For Motion: Unanimous

LTC1124(1) Item 5 Illawarra Road at Warburton Street, Marrickville - Proposed 'Zig Zag' line marking for the pedestrian crossing (Midjuburi-Marrickville Ward / Summer Hill Electorate / Inner West PAC)

SUMMARY

This report outlines current sight distance issues at the Illawarra Road pedestrian crossing at its intersection with Warburton Street, Marrickville and proposes the appropriate traffic treatments to improve the safety of the community.

Officers Recommendation:

That the installation of 'Zig Zag' line markings on both approaches to the pedestrian crossing of Illawarra Road near the intersection with Warburton Street, Marrickville be approved.

DISCUSSION:

The Representative for Transit Systems requested that Transit Systems be notified with lead notice on any work on Illawarra Road.

Council Officers noted the request.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the installation of 'Zig Zag' line markings on both approaches to the pedestrian crossing of Illawarra Road near the intersection with Warburton Street, Marrickville be approved.

For Motion: Unanimous

LTC1124(1) Item 6 St Peters Interchange Active Transport Works - Part 1 (Midjuburi-Marrickville Ward/Heffron Electorate/Inner West PAC)

SUMMARY

This report outlines the design development of the St Peters Interchange Active Transport Works – Part 1 and notes key changes from the concept design. It also provides a summary of the community consultation that was completed. Accordingly, the design is to progress to construction.

Officers Recommendation:

That the detailed design (WCX M5 – St Peters Interchange: Active Transport Works Community Consultation Plan, Sheets 1-8) prepared by COMPLETE URBAN for the St Peters Interchange Active Transport Works be approved.

DISCUSSION:

Public Speaker Liam Fitzgerald entered the meeting at 11.11am.

Mr Fitzgerald supported the St Peters Interchange Active Transport Works however raised concerns regarding the plans at Sydenham Station. Mr Fitzgerald noted that no other residents he had spoken to previously had seen the original consultation sent out in 2020 including himself. Mr Fitzgerald noted that the plan for Burrows Road in front of Sydenham Station has not taken into consideration how people get to and from George Street through to the station. He noted that people will head for the bicycle parking in front of the station and advised that this does not connect well with the proposed cycle path. Mr Fitzgerald disagreed with the comments made by Transport for NSW in the report to have the cycleway placed on the opposite side of the station to minimise impact to existing parking restrictions and arrangements noting that the impacts would be minimal due to low traffic and that the proposed cycleway on the opposite of the station may cause conflict with pedestrians accessing the pub and café. Mr Fitzgerald also raised concerns that the proposed cycleway on the opposite side of the station will also result in loss of parking for motorists in the area.

Public Speaker Liam Fitzgerald left the meeting at 11.15am.

Public Speaker Neil Tonkin entered the meeting at 11.16am.

Mr Tonkin spoke on behalf of the Inner West Bicycle Coalition and supported the St Peters Interchange Active Transport Works however raised concerns that Council has not given north-south priority on the intersections of Henry Street and Bakers Lane. Mr Tonkin noted that the area is bounded by Princes Highway, Campbell Street, Unwins Bridge Road, and Railway Road which are major collector roads, and noted residents should not be burdened by rat-running through this residential precinct and that the north-south cycle route should not be compromised by continual stopping. Mr Tonkins noted that the Inner West Council and Transport for NSW both subscribe to the new road use hierarchy which prioritises walking and cycling over private car use and suggested that the ‘Stop’ priority be reversed. Mr Tonkins suggested that the cycle lane placement at the proposed George Street crossing of Unwins Bridge Road be amended to ensure the safety and convenience of people cycling through this intersection as per his previous submission to Council.

Public Speaker Neil Tonkin left the meeting at 11.20am.

The Representative for the Inner West Bicycle Coalition suggested that the item be deferred for further review noting concerns about the crossing of Unwins Bridge Road and the conflict between vehicles turning left and cyclists heading straight on. The Representative for the Inner West Bicycle Coalition noted that the issue Mr Tonkins raised regarding Henry Street, and the reasoning behind the inability to change the signage was due to traffic volume. The Representative for the Inner West Bicycle Coalition noted that the side streets that lead to Princes Highway all had signage preventing people from using the side streets from entering Princes Highway during certain times and wondered if those streets were being used as rat runs to illegally access Princes Highway. The Representative for the Inner West Bicycle Coalition questioned if there are enforcement measures put in place to prevent people from illegally entering Princes Highway. The Representative for the Inner West Bicycle Coalition noted that data was not provided to indicate whether traffic on the side streets was during the blackout period or if it was continuous throughout the day.

Council Officers advised that consultation for this project was first conducted in 2019. The feedback and comments gathered from that consultation were then included in an updated set of plans being sent out for consultation in 2020. It was noted that those plans were recommended for approval and adopted for tendering and construction at the Traffic Committee and Council meeting shortly after. Council Officers advised that what was adopted in the Traffic Committee previously is in essence what is presented in the current Local Traffic Committee report. It was advised at that time traffic signals had not been approved by TfNSW, so approval had to be obtained from TfNSW for 3 signalised intersections. Council Officers advised there were minor changes implemented to the original plans regarding movements of the lane and footpath widths. Council Officers advised that they have decided to go out for consultation for this project again due to the time that has lapsed between the last approval and the changes made around Sydenham Station since the construction of Metro. Council Officers advised that there is no loss of parking as a result of these works noting that although there will be loss of parking on the opposite side of the station, there will be an additional 3 spots further down where the new proposed pedestrian crossing is and an additional 4 spots on the station side. It was noted that what was currently proposed for George Street between Burrows Avenue and Unwins Bridge Road was found to be the most suitable for this situation due to the different phases of implementation for pedestrians, cyclists, and traffic and that pedestrians and cyclists will be implemented during the same phase. It was also noted that TfNSW have considered this to be the safest option for this particular intersection.

Council Officers advised that in terms of the priorities of the intersections between Henry Street and adjacent side streets have been investigated and found that 2 of the 3 intersections do not meet the requirement for the change of priority and that they are currently investigating the 3rd intersection. Council Officers advised sight line concerns plus traffic volume investigations into changing priorities will need to be carefully reviewed otherwise it may create a safety issue for all types of traffic utilising these intersections.

Council Officers also advised that Council has received funding for this project from Transport for NSW and that the funding was received 5 years ago. Council Officers noted that if there were further delays on this project, there may be a chance we may lose the funding for this project which may result in the project not being delivered as Council does not have additional funding for this project.

The Chair advised that it is important to move ahead with this project before we do not have the capability to do so. The Chair also advised that issues with the intersections can be reviewed once the project has been completed and can be brought back to the Committee if required.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the detailed design (WCX M5 – St Peters Interchange: Active Transport Works Community Consultation Plan, Sheets 1-8) prepared by COMPLETE URBAN for the St Peters Interchange Active Transport Works be approved.

For Motion: Unanimous

LTC1124(1) Item 7 Abergeldie Street at Arlington Street, Dulwich Hill – Proposed installation of statutory 'No Stopping' continuous yellow line marking restrictions at the intersection (Djarrawunang - Ashfield Ward/ Summer Hill Electorate/ Inner West PAC)

SUMMARY

Council has received concerns regarding vehicles obstructing sightlines and traffic movement by parking within the statutory 'No Stopping' zones at the intersection of Abergeldie Street and Arlington Street, Dulwich Hill.

In order to alleviate this issue, it is proposed to install 10-metre statutory "No Stopping' yellow line zones on all legs of the intersection at Abergeldie Street and Arlington Street, Dulwich Hill.

Officers Recommendation:

1. That unbroken yellow lines (statutory 10 metre 'No Stopping' lines) be approved for installation on both sides of all approaches to the intersection of Abergeldie Street at Arlington Street, Dulwich Hill as follows in order to deter illegal parking, increase safety and improve motorist visibility and access for turning motorists:

   a) Install solid yellow line marking on Abergeldie Street (northern side) for a distance of 10 metres west of Arlington Street,
   b) Install solid yellow line marking on Abergeldie Street (northern side) for a distance of 10 metres east of Arlington Street,
   c) Install solid yellow line marking on Abergeldie Street (southern side) for a distance of 10 metres west of Arlington Street,
   d) Install solid yellow line marking on Abergeldie Street (southern side) for a distance of 10 metres east of Arlington Street,
   e) Install solid yellow line marking on Arlington Street (western side) for a distance of 10 metres north of Abergeldie Street,
   f) Install solid yellow line marking on Arlington Street (eastern side) for a distance of 10 metres north of Abergeldie Street,
   g) Install solid yellow line marking on Arlington Street (western side) for a distance of 10 metres south of Abergeldie Street,
   h) Install solid yellow line marking on Arlington Street (eastern side) for a distance of 10 metres south of Abergeldie Street.

2. That Council Rangers be advised in terms of this report.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

1. That unbroken yellow lines (statutory 10 metre 'No Stopping' lines) be approved for installation on both sides of all approaches to the intersection of Abergeldie Street at Arlington Street, Dulwich Hill as follows in order to deter illegal parking, increase safety and improve motorist visibility and access for turning motorists:
   a) Install solid yellow line marking on Abergeldie Street (northern side) for a distance of 10 metres west of Arlington Street,
   b) Install solid yellow line marking on Abergeldie Street (northern side) for a distance of 10 metres east of Arlington Street,
   c) Install solid yellow line marking on Abergeldie Street (southern side) for a distance of 10 metres west of Arlington Street,

d) Install solid yellow line marking on Abergeldie Street (southern side) for a distance of 10 metres east of Arlington Street,
e) Install solid yellow line marking on Arlington Street (western side) for a distance of 10 metres north of Abergeldie Street,
f) Install solid yellow line marking on Arlington Street (eastern side) for a distance of 10 metres north of Abergeldie Street,
g) Install solid yellow line marking on Arlington Street (western side) for a distance of 10 metres south of Abergeldie Street,
h) Install solid yellow line marking on Arlington Street (eastern side) for a distance of 10 metres south of Abergeldie Street.

2. That Council Rangers be advised in terms of this report.

For Motion: Unanimous

LTC1124(1) Item 8 Carrington Street, Lilyfield - Construction Traffic Management Plan (Baludarri-Balmain Ward/Balmain Electorate/Leichhardt PAC)

SUMMARY

Inner West City Council has received a Temporary Road Closure (TMP) application from Modscape (Attachment 1) seeking an in-principal approval for delivering a modular building at No.12 Carrington Street, Lilyfield in the week commencing 24 March 2025. As part of this road closure, there will be full road closure on Carrington Street (between Joseph Street and Balmain Road), The Boulevarde (between Joseph Street and Balmain Road) and partial temporary on-street parking removal along Balmain Road (between Helena Street and Grove Street).

Officers Recommendation:

That the temporary full road closure of Carrington Street (between Joseph Street and Balmain Road), The Boulevarde (between Joseph Street and Balmain Road) and partial temporary on-street parking removal along Balmain Road (between Helena Street and Grove Street) be approved for the purpose of the installation of a modular building at No.12 Carrington Street, Lilyfield for a 2 day period in the week commencing 24 March 2025, with a four week contingency, subject to the following conditions and all standard Council conditions for temporary full road closures:

a) A Road Occupancy License application be obtained from the Transport Management Centre for road closure on Balmain Road.

b) Road, footpath and car park occupancy permit to be obtained from the Council for road closure on The Boulevarde.

c) Temporary parking arrangements must be provided for the existing disabled parking bays on Balmain Road, Carrington Street and The Boulevarde which will be affected during the work and should be located as close as possible to their original locations.

d) NHVR permit to be obtained prior to the work.

e) Notice of the proposed event be forwarded to the NSW Police Local Area Commander, Transit Systems, the NSW Fire Brigades and the NSW Ambulance Services.
f) All residents and businesses in and around the affected area are to be notified of the temporary road closure in writing by the applicant in advance (at least 7 days prior to

the event) with the applicant making reasonable provision for stakeholders.

g) On-street parking to be maintained for local residents along the east side of The Boulevarde (between Joseph Street and the laneway south of Balmain Road).

h) Vehicular access to the laneway south of Balmain Road to be maintained within the road closure zone.

i) Authorised pilot vehicles to accompany and manage the trucks at major intersections including City West Link Road at Balmain Road, Balmain Road at Perry Street, Balmain Road at The Boulevarde and Balmain Road at Carrington Road.

DISCUSSION:

Public Speaker Brendan Farquhar entered the meeting at 11.33am.

Mr Farquhar advised he represented Modscape and was here to answer questions from the Committee members regarding the application to close Carrington Street for the purpose of installing a modular building at 12 Carrington Street, Lilyfield.

The Representative for Transport for NSW questioned what stage the Road Occupancy Licence (ROL) at with the Transport Management Centre (TMC).

Mr Farquhar advised that as the works are scheduled to be undertaken in March 2025, the Transport Management Centre has not provided any feedback as of yet due to the project being scheduled a while from now. It was advised that the Transport Management Centre will look into their Road Occupancy Licence application closer to the date and that the company's Traffic Management consultant has advised them that this was standard procedure for the Transport Management Centre.

The Representative for Transport for NSW advised that Network and Safety have concerns regarding the movement of vehicles on the City West Link into Balmain Road however that was something for the Transport Management Centre to review and place conditions on.

The Representative for Transport for NSW requested that Mr Farquhar reach out to the Transport Management Centre to get in-principle support for the Road Occupancy Licence.

Mr Farquhar advised that the Transport Management Centre review the National Heavy Vehicle Regulator (NHVR) licenses which have been approved and included in the paperwork provided. Mr Farquhar also noted that as part of the NHVR permits for oversized vehicles and loads, they assess the trucks based on standard conditions and that they are within the standard process of operations.

Council Officers noted that there are plans to take parking from The Boulevard for resident use and questioned if those spaces would be available for use for residents of Carrington Street and The Boulevarde.

Mr Farquhar advised that the spaces would be available for residents of Carrington Street and The Boulevarde and noted that there are plans to setup 45-degree angled parking with traffic control to maintain the maximum number of parking spaces possible to prevent them from having to park too far away from their residences.

Public Speaker Brendan Farquhar left the meeting at 11.45am.

The Representative for Transport for NSW requested that the recommendation be amended so that Council and Transport for NSW- Network and Safety are provided with a copy of the ROL before proceeding with works.

It was noted that this construction methodology is quite new for the Inner West and that the learnings and outcome from this application will assist Council with future applications and approvals.

The Committee members agreed with the amended recommendation.

COMMITTEE RECOMMENDATION:

That the temporary full road closure of Carrington Street (between Joseph Street and Balmain Road), The Boulevarde (between Joseph Street and Balmain Road) and partial temporary on-street parking removal along Balmain Road (between Helena Street and Grove Street) be approved for the purpose of the installation of a modular building at No.12 Carrington Street, Lilyfield for a 2 day period in the week commencing 24 March 2025, with a four week contingency, subject to the following conditions and all standard Council conditions for temporary full road closures:

a) **A Road Occupancy License application be obtained from the Transport Management Centre for road closure on Balmain Road and a copy be provided to Council, Transport for NSW – Network and Safety and NSW Police prior to works commencing.**

b) **Road, footpath and car park occupancy permit to be obtained from the Council for road closure on The Boulevarde.**

c) **Temporary parking arrangements must be provided for the existing disabled parking bays on Balmain Road, Carrington Street and The Boulevarde which will be affected during the work and should be located as close as possible to their original locations.**

d) **NHVR permit to be obtained prior to the work.**

e) **Notice of the proposed event be forwarded to the NSW Police Local Area Commander, Transit Systems, the NSW Fire Brigades and the NSW Ambulance Services.**

f) **All residents and businesses in and around the affected area are to be notified of the temporary road closure in writing by the applicant in advance (at least 7 days prior to the event) with the applicant making reasonable provision for stakeholders.**

g) **On-street parking to be maintained for local residents along the east side of The Boulevarde (between Joseph Street and the laneway south of Balmain Road).**

h) **Vehicular access to the laneway south of Balmain Road to be maintained within the road closure zone.**

i) **Authorised pilot vehicles to accompany and manage the trucks at major intersections including City West Link Road at Balmain Road, Balmain Road at Perry Street, Balmain Road at The Boulevarde and Balmain Road at Carrington Road.**

For Motion: Unanimous

LTC1124(1) Item 9 Balmain Road, Lilyfield - Orange Grove Raised Pedestrian Crossing (Baludarri-Balmain Ward/Balmain Electorate/Leichhardt PAC)

SUMMARY

This report outlines the proposed public domain works to support the upgrade of Orange Grove Public School by NSW Department of Education – School Infrastructure. With the school upgrade, the Department has requested a pedestrian crossing at Balmain Road between Point Street and Edward Street, to cover walking catchment areas predominantly to the east of the school and to improve road safety for school children and pedestrians. The proposal also includes closure of the slip lane in front of Orange Grove Hotel, public domain improvements, and new angle parking arrangement.

Officers Recommendation:

1. That the proposed Raised Pedestrian Crossing at Balmain Road between Point Street and Edward Street, Lilyfield including the closure of the slip lane at the intersection of Point Street and Balmain Road from Point Street to the crossing, and introduction of angle parking on the east side of Balmain Road be supported in principle and included for consideration in Council's Capital Works Program and that Grant funding opportunities be sought for delivery of the crossing.

2. That the detailed design for the proposed works be brought back to the Traffic Committee for consideration.

DISCUSSION:

Public Speaker Van Dimitri entered the meeting at 11.28am.

Mr Dimitri opposed the recommendation noting that the proposed location of the raised pedestrian crossing is within an area of 300m from the signalised crossings on Balmain Road at Perry Street and Lilyfield Road and advised that signalised crossings were a safer alternative to raised pedestrian crossings. Mr Dimitri noted that over the past 25 years he has been in the area there has been no incidents that have caused concern, and that the addition of the proposed crossing may create safety issues. Mr Dimitri noted that the proposed recommendation to include the closure of the slip lane, further 'No Parking' areas, and further 'Restricted Parking' and installation of angled parking does not seem to take into consideration the needs of the community. Mr Dimitri noted that the report estimates the installation of the raised pedestrian crossing to cost approximately $400,000 and questioned whether there was a real need for the crossing at the proposed location due to there being a signalised crossing 100m from the proposed crossing. Mr Dimitri believes that the proposed angled parking will generate traffic issues which will worsen during peak hour traffic. Mr Dimitri noted that the angled parking will also affect the entrance to the Orange Grove Hotel which also includes a loading zone. This loading zone is used by trucks to load and unload items for the hotel and Mr Dimitri is concerned that cars trying to overtake the truck when it reverses out causing further safety issues.

Public Speaker Van Dimitri left the meeting at 11.32am.

Council Officers advised that Council has been sitting with a working group including representatives of Orange Grove Public School, Department of Education, Council and Transport for NSW and noted that Orange Grove Public School plans to expand the capacity of their school. It was noted that a large part of the school catchment is to the east of the school and that there is a gate to the south of the school which means residents wishing to access the school will need to head north and then come back around in a 'U' shape or alternatively they may choose to jaywalk across Balmain Road. It was advised that through this working group, it was proposed that an additional crossing point be implemented on

Balmain Road south of the school to allow for better pedestrian network connectivity for pedestrians wishing to access the school or the childcare centre next to the school.

Council Officers advised that it was only the concept design that has been put to the committee today and that the detailed design will need to be completed subject to funding being provided through grant funding applications. Council Officers advised that obtaining approval from the committee for the concept design will assist with expediting the grant funding application process. Council Officers noted that there will be a loss of 4 parking spaces and that the proposed angled parking was to minimise as much loss of parking as possible.

The Representative for Transport for NSW noted that the concept plan may appear to be unsafe to a person who may not be too familiar with design plans and noted that the detailed design will usually address the issues raised by residents. The Representative for Transport for NSW also advised that this was the best location for the proposed crossing as it did not interfere with the traffic signals and fit between existing driveways.

The Representative for the Member of Summer Hill agreed with the speaker's concerns regarding rear to kerb angled parking and the proximity of the proposed pedestrian crossing to the rear access of the hotel. The Representative for the Member of Summer Hill raised concerns regarding trucks reversing into the driveway and the possibility of vehicles wanting to overtake the trucks compromising pedestrian safety at the proposed crossing.

The Representative for Transport for NSW noted that overtaking may not be physically possible once the proposed kerb extensions are installed.

Council Officers advised that concerns regarding the delivery access for Orange Grove Hotel will be addressed in the detailed design and the proposal for angled parking will be revisited noting that the design can be implemented with parallel parking however may result in greater loss of parking.

Council Officers advised they will take the comments provided into the detailed design.

The Committee members agreed with the Officer’s recommendation.

COMMITTEE RECOMMENDATION:

1. **That the proposed Raised Pedestrian Crossing at Balmain Road between Point Street and Edward Street, Lilyfield including the closure of the slip lane at the intersection of Point Street and Balmain Road from Point Street to the crossing, and introduction of angle parking on the east side of Balmain Road be supported in principle and included for consideration in Council’s Capital Works Program and that Grant funding opportunities be sought for delivery of the crossing.**

2. **That the detailed design for the proposed works be brought back to the Traffic Committee for consideration.**

For Motion: Unanimous

LTC1124(1) Item 10 Curtis Road, Balmain - Proposed Pedestrian Improvement Works Curtis Road, Balmain - Proposed Pedestrian Improvement Works (Baludarri-Balmain Ward/Balmain Electorate/Leichhardt PAC)

SUMMARY

Council has received requests for consideration of pedestrian crossing points at Curtis Road, Balmain between Thames Street and Darling Street, to give pedestrians priority when crossing the road. To improve pedestrian safety and deter speeding in this area, it is proposed to install the following treatments:

1. Raised pedestrian crossing on Curtis Road, north of Darling Street as shown in Attachment 1

2. Raised pedestrian crossing on Curtis Road between McDonald Street and Thames Street, as per Attachment 2

3. Continuous footpath treatment on Thames Street at Curtis Road, as per Attachment 2.

Furthermore, it is proposed that McDonald Street from Curtis Road to Hoffmans Lane, be converted to one-way northbound as shown in Attachment 2 which is required to accommodate the pedestrian crossing. A tree will need to be removed in front of No. 31 Curtis Road as detailed on the plan to accommodate the crossing.

Officers Recommendation:

That the following treatments be approved in principle for inclusion in Council's Traffic Facility Capital Works Program and that a detailed design including consultation be brought back to the Committee for consideration:

a) Raised pedestrian crossing on Curtis Road, north of Darling Street as shown in Attachment 1.
b) Raised pedestrian crossing on Curtis Road between McDonald Street and Thames Street, continuous footpath treatment on Thames Street at Curtis Road, and conversion of McDonald Street from Curtis Road to Hoffmans Lane to one-way northbound (subject to approval of a TMP by TfNSW) as shown in Attachment 2.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the following treatments be approved in principle for inclusion in Council's Traffic Facility Capital Works Program and that a detailed design including consultation be brought back to the Committee for consideration:

a) Raised pedestrian crossing on Curtis Road, north of Darling Street as shown in *Attachment 1*.
b) Raised pedestrian crossing on Curtis Road between McDonald Street and Thames Street, continuous footpath treatment on Thames Street at Curtis Road, and conversion of McDonald Street from Curtis Road to Hoffmans Lane to one-way northbound (subject to approval of a TMP by TfNSW) as shown in Attachment 2.

For Motion: Unanimous

LTC1124(1) Item 11 Emmerick Street, Lilyfield - Proposed New Kerb Blister (Baludarri-Balmain Ward/Balmain Electorate/Leichhardt PAC)

SUMMARY

Council is planning to improve pedestrian accessibility and safety in Emmerick Street, Lilyfield at Perry Street by constructing kerb blister islands with integrated kerb ramps at this location. The works aim to improve road safety by better defining the pedestrian crossing points, reducing vehicle speeds and reducing the overall crossing distance for pedestrians crossing Emmerick Street.

Officers Recommendation:

That the attached detailed design plan (Design Plan No. 10306) for the proposed kerb blisters in Emmerick Street at the intersection with Perry Street, Lilyfield be approved.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the attached detailed design plan (Design Plan No. 10306) for the proposed kerb blisters in Emmerick Street at the intersection with Perry Street, Lilyfield be approved.

For Motion: Unanimous

LTC1124(1) Item 12 Darling Street Between Mort Street and Booth Street, Balmain - Road Occupancy - Anzac Day Dawn Service (Baludarri - Balmain Ward/ Balmain Electorate/ Leichhardt PAC)

SUMMARY

In preparation to mark the ANZAC Day Dawn Service 2025 on Friday, 25 April 2025, Inner West Council is organising the ANZAC Day dawn Service at the Loyalty Square War Memorial, Balmain. To facilitate the event, it is proposed to close Darling Street between Mort Street and Booth Street between 2:30am and 9:30am.

Officers Recommendation:

That the temporary road closure of Darling Street (Mort Street to Booth Street), Balmain on Friday, 25 April 2025 between 2.30am – 9.30am be approved, subject to the following conditions be approved:

a) all affected residents and businesses, including the NSW Police Local Area Commander, Fire & Rescue NSW and NSW Ambulance Services be notified in writing, by the applicant, of the proposed temporary road closure at least 14 days in advance of the closure with the applicant making reasonable provision for stakeholders;

b) that an unencumbered passage minimum 3.0m wide be available for emergency vehicles through the closed section of Darling Street, Balmain; and

c) the occupation of the road carriageway must not occur until the road has been physically closed.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the temporary road closure of Darling Street (Mort Street to Booth Street), Balmain on Friday, 25 April 2025 between 2.30am – 9.30am be approved, subject to the following conditions be approved:

a) all affected residents and businesses, including the NSW Police Local Area Commander, Fire & Rescue NSW and NSW Ambulance Services be notified in writing, by the applicant, of the proposed temporary road closure at least 14 days in advance of the closure with the applicant making reasonable provision for stakeholders;

b) that an unencumbered passage minimum 3.0m wide be available for emergency vehicles through the closed section of Darling Street, Balmain; and

c) the occupation of the road carriageway must not occur until the road has been physically closed.

For Motion: Unanimous

LTC1124(1) Item 13 Audley Street, Audley Lane, Sadlier Crescent, Fisher Street, and eastbound parking lanes on New Canterbury Road Petersham – Temporary Full Road Closures For Special Event On Saturday 22 March 2025 – Petersham Festival Bairro Portuguese (Damun - Stanmore Ward / Newtown Electorate / Inner West PAC)

SUMMARY

Inner West Council will be presenting Petersham Festival - Bairro Portuguese on Saturday 22 March 2025 from 3:00pm until 9:00pm on Audley Street and Fisher Street, Petersham. This event celebrates the very best of Portuguese culture with entertainment, music, dance, cultural activities, and traditional and contemporary foods. To facilitate the event, areas of Petersham will be closed and there will be road closures necessitating some road detours and bus diversions in surrounding streets.

Roads affected include Audley Street (between New Canterbury Road and Trafalgar Street), Sadlier Crescent (between Audley Street and Abel's Lane) and Fisher Street (between Audley Street and Regent Street), Audley Lane north of New Canterbury Road (resident access excepted) as well as the eastbound parking lane on New Canterbury Road (between Audley Street and Audley Lane), Petersham from 6.00am Saturday 22 March 2025 until 2.00am Sunday 23 March 2025. It is recommended that Council agree to the temporary full road closures subject to all standard Council conditions for a temporary full road closure (ENRC/2024/0064). This report outlines the traffic management plan for the 2025 event.

Officers Recommendation:

That the proposed temporary road closure of Audley Street (between New Canterbury Road and Trafalgar Street), Sadlier Crescent (between Audley Street and Abel's Lane) and Fisher Street (between Audley Street and Regent Street), Audley Lane north of New Canterbury

Road (resident access excepted) as well as the eastbound parking lane on New Canterbury Road (between Audley Street and Audley Lane), Petersham on Saturday 22 March 2025, from 6:00am until 2.00am (Sunday), for the holding of '2025 Bairro Portuguese Petersham Festival', be approved subject to the applicant complying with but not limited to the following conditions:

1. A Traffic Management Plan (TMP) is submitted to and approved by Transport for NSW; and an application for a Road Occupancy Licence and a temporary Speed Zone Authorisation is forwarded to and approved by the Transport Management Centre.

2. Notice of the proposed event is forwarded to all affected residents and businesses, including the N.S.W. Police / Inner West Local Area Commander, Fire and Rescue NSW, NSW Ambulance and Transit Systems.

3. Transit Systems – Inner West Bus Services be requested to implement a revised routing for scheduled bus services in Audley Street on the day of the event and install temporary bus stops as required.

4. A minimum four (4) metre unencumbered passage be available for emergency vehicles through the closed section.

5. The occupation of the road carriageways must not occur until the roads have been physically closed.

DISCUSSION:

The Representative for Transit Systems questioned if bus services are able to make the right-hand turn from Gordon St into New Canterbury Rd during the proposed temporary road closure as the 'Buses Excepted' signposting has been removed.

The Representative for Transport for NSW advised she will investigate the removal of signage and will advise and confirm the outcome with the Representative for Transit Systems.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the proposed temporary road closure of Audley Street (between New Canterbury Road and Trafalgar Street), Sadlier Crescent (between Audley Street and Abel's Lane) and Fisher Street (between Audley Street and Regent Street), Audley Lane north of New Canterbury Road (resident access excepted) as well as the eastbound parking lane on New Canterbury Road (between Audley Street and Audley Lane), Petersham on Saturday 22 March 2025, from 6:00am until 2.00am (Sunday), for the holding of '2025 Bairro Portuguese Petersham Festival', be approved subject to the applicant complying with but not limited to the following conditions:

1. **A Traffic Management Plan (TMP) is submitted to and approved by Transport for NSW; and an application for a Road Occupancy Licence and a temporary Speed Zone Authorisation is forwarded to and approved by the Transport Management Centre.**

2. **Notice of the proposed event is forwarded to all affected residents and businesses, including the N.S.W. Police / Inner West Local Area Commander, Fire and Rescue NSW, NSW Ambulance and Transit Systems.**

3. **Transit Systems – Inner West Bus Services be requested to implement a**

revised routing for scheduled bus services in Audley Street on the day of the event and install temporary bus stops as required.

4. **A minimum four (4) metre unencumbered passage be available for emergency vehicles through the closed section.**

5. **The occupation of the road carriageways must not occur until the roads have been physically closed.**

For Motion: Unanimous

LTC1124(1) Item 14 Bruce Street, Ashfield - Proposed 'shared path' (Djarrawunang-Ashfield Ward/Summer Hill Electorate/Burwood PAC)

SUMMARY

This report identifies bicycle improvements at an existing missing link on Bruce Street adjacent to the on-road bicycle path along Grosvenor Crescent and Elizabeth Street, Ashfield. The proposed 'shared path' will improve bicycle connectivity to the existing on-road bicycle path.

Officers Recommendation:

That the concept plan for the 'shared path' along the existing footpath between Bruce Street and Hume Highway, Ashfield (as detailed in Attachment 1) be approved.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the concept plan for the 'shared path' along the existing footpath between Bruce Street and Hume Highway, Ashfield (as detailed in *Attachment 1) be approved.*

For Motion: Unanimous

LTC1124(1) Item 15 Lackey Street & Smith Street (between Moonbie Street and Nowranie Street), Summer Hill-ENRC/2024/0062 Temporary Full Road Closure- 'Summer Hill Social' event on Sunday 9 March 2025 (Djarrawunang-Ashfield Ward/Summer Hill Electorate/Burwood PAC)

SUMMARY

Inner West Council is presenting a 'Summer Hill Social' on Sunday 9 March 2025 from 11am until 5pm on Lackey and Smith Street, Summer Hill.

This is a free, family friendly long-lunch style event with an array of food and drinks on offer from local cafes and restaurants, captivating performances by local artists, exciting stalls from the Summer Hill businesses and a fun kids' activity area.

The setting up of the site will start from 4am and will be removed 10pm, after the event.

To facilitate the event, areas of Summer Hill, i.e. Lackey Street and Smith Street (between Moonbie Street and Nowranie Street) will be closed between 4am and 11pm Sunday 9 March 2025. Hardie Avenue will only be open for carpark access off Smith Street.

Officers Recommendation:

THAT the proposed temporary full road closure of Lackey Street & Smith Street (between Moonbie Street and Nowranie Street) Summer Hill, be approved for the purpose of holding a 'Summer Hill Social' event on Sunday 9 March 2025 between 4.00am to 11.00 pm as per the submitted TMP and TGS, and subject to the following conditions and all standard Council conditions for a temporary full road closure:

a) That a Road Occupancy License application be obtained from the Transport Management Centre.

b) That notice of the proposed event be forwarded to the NSW Police Local Area Commander, Transit Systems, the NSW Fire Brigade and the NSW Ambulance Services.

c) That all residents and businesses in and around the affected area are to be notified of the temporary road closure in writing by the applicant in advance (at least 7 days prior to the event) with the applicant making reasonable provision for stakeholders.

d) That a minimum four (4) metre unencumbered passage be available for emergency vehicles through the closed sections.

e) That the occupation of the road carriageway must not occur until the road has been physically closed.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

THAT the proposed temporary full road closure of Lackey Street & Smith Street (between Moonbie Street and Nowranie Street) Summer Hill, be approved for the purpose of holding a 'Summer Hill Social' event on Sunday 9 March 2025 between 4.00am to 11.00 pm as per the submitted TMP and TGS, and subject to the following conditions and all standard Council conditions for a temporary full road closure:

a) That a Road Occupancy License application be obtained from the Transport Management Centre.

b) That notice of the proposed event be forwarded to the NSW Police Local Area Commander, Transit Systems, the NSW Fire Brigade and the NSW Ambulance Services.

c) That all residents and businesses in and around the affected area are to be notified of the temporary road closure in writing by the applicant in advance (at least 7 days prior to the event) with the applicant making reasonable provision for stakeholders.

d) That a minimum four (4) metre unencumbered passage be available for emergency vehicles through the closed sections.

e) That the occupation of the road carriageway must not occur until the road has been physically closed.

For Motion: Unanimous

LTC1124(1) Item 16 Mackey Park and Carrington Road Survey Area, Marrickville - Request for extension of M2 Residential Parking Scheme - Resident Parking Questionnaire Survey Results (Midjuburi-Marrickville Ward/Summer Hill Electorate/Inner West PAC)

SUMMARY

Following a Notice of Motion being raised, Council resolved to undertake a community consultation for a proposed three-month trial to extend the Resident Permit Parking Scheme Area M2 to the industrial precinct around Carrington Road, Cary and Renwick Streets. This report presents results of the parking surveys and community consultation completed in the following streets:

- Thornley Street, south of Premier Street
- Richardson Crescent, east of Carrington Road
- Carrington Road between Premier and Richardson Crescent
- Cary Street between Carrington Road and Johnston Lane
- Renwick Street between Carrington Road and Johnston Lane
- Warren Road between Carrington Road and Johnston Street
- Ruby Street between Carrington Road and High Street
- Junction Street between Ruby Street and Schwebel Street

The parking surveys completed indicate high utilisation surrounding Mackey Park and the nearby streets perpendicular to Carrington Road, and households with no or limited off-street parking may be affected by current parking conditions, and any future potential parking restrictions on Mackey Park.

The results from the community consultation indicate a low response rate from residents for a three-month trial of the extension of the M2 permit parking area despite those responding generally in support of the scheme. Given the low response rate, Resident Parking Scheme restrictions are not recommended at this time.

It is recommended to proceed to install timed parking restrictions on the western side of Richardson Crescent, south of Carrington Road to prevent long-term parking adjacent to the park and improve parking opportunities for park users during the weekday evening and weekend daytime periods.

Officers Recommendation:

1. That the proposed three-month trial of timed permit parking restrictions on Thornley, Cary, Renwick, Ruby and Junction Streets, and Warren Road not proceed due to the lack of community response and support.

2. That the proposed ‘2P 3pm-9pm Mon-Fri; 4P 8am-6pm Sat-Sun’ restrictions on the western side of Richardson Crescent south of Carrington Road be installed as shown in *Attachment 2*.

3. That the current on-going enforcement of unattended and unauthorised vehicles under the Public Spaces (Unattended Property) Act 2021 by Council’s Parking Officers to improve parking conditions for households that are affected by current parking behaviours on the local streets be noted.

DISCUSSION:

Public Speaker Christian Wahl entered the meeting at 11.21am.

Mr Wahl opposed the recommendation made to the Traffic Committee and suggested that Council proceed with the proposed three-month trial of timed permit parking restrictions on Thornley, Cary, Renwick, Ruby and Junction Streets, and Warren Road. Mr Wahl noted that the figures shown on the report stated that the survey was sent to 347 households however only 110 households were impacted by the proposal. Mr Wahl noted that in order for Council to meet the 30% response rate, almost all households impacted would have to provide a response which would be unfair. Mr Wahl noted that the report shows that the households impacted by the proposed trial are meeting the 30% response rate. Mr Wahl noted that his household as well as some of his neighbours had issues accessing the survey link to provide their responses. Mr Wahl also noted that he has also seen an increase in boats and trailers and taxis being parked on residential streets, increases in vehicles per household and an increase of motorists using the streets for long-term parking causing parking issues in the area. Mr Wahl suggested that Council proceed with the initial proposal for timed permit parking trials and from that trial gather data and information from the community regarding the outcome.

Public Speaker Christian Wahl left the meeting at 11.21am.

Council Officers advised that as part of surveys, Council always consult the beyond the area of the affected residences, however when writing the reports and gathering statistics, Council focuses on the responses of the affected residences. Council Officers also noted that that is reflected in the report with results broken down into each individual street.

Council Officers tabled in a submission sent in by a resident opposing the recommendation for parking restrictions to be implemented advising that parking issues are not around Mackey Park but rather in the streets surrounding Mackey Park. The Resident raised concerns that restricted parking around Mackey Park will have a knock-on effect on the existing parking issues in the nearby streets.

Council Officers advised that the objective of the proposal of timed parking around Mackey Park is to improve parking opportunities for people wanting to use the park noting spaces are sometimes parked out by nearby businesses parking and other long-term users. Council Officers have advised that Council's enforcement team has been responding to requests to assist with managing unattended vehicles and redistributing parking to residents. Council Officers noted the speaker's comments regarding affected residents meeting the response 30% response rate and advised that Council would have liked to see the affected resident response rate a little higher noting that if 50% of eligible properties did respond, that would then push the overall response rate up to 30% showing that 1 in 2 households without off-street parking are being affected.

The Chair noted that there is an existing issue of people parking in the area for extended periods while they go overseas and the dumping on boats and trailers and questioned if the implementation of 9P or 10P parking zones in certain streets will help promote the movement of vehicles in streets and deter non-residents from long-term parking and people from dumping vehicles on the streets.

The Representative for the Member of Summer Hill advised that although residents are split half for and against the recommendation however noted that the parking of trailers and boats is also a common complaint from residents who do not support the recommendation.

Council Officers noted that enforcement is being undertaken under the Public Spaces (Unattended Property) Act that assists Council with moving unattended vehicles, however it was noted that this process can take some time.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

1. **That the proposed three-month trial of timed permit parking restrictions on Thornley, Cary, Renwick, Ruby and Junction Streets, and Warren Road not proceed due to the lack of community response and support.**

2. **That the proposed '2P 3pm-9pm Mon-Fri; 4P 8am-6pm Sat-Sun' restrictions on the western side of Richardson Crescent south of Carrington Road be installed as shown in *Attachment 2*.**

3. **That the current on-going enforcement of unattended and unauthorised vehicles under the Public Spaces (Unattended Property) Act 2021 by Council's Parking Officers to improve parking conditions for households that are affected by current parking behaviours on the local streets be noted.**

For Motion: Unanimous

LTC1124(1) Item 17 Tempe Reserve - Parking Study (Midjuburi-Marrickville Ward/Heffron Electorate/Inner West PAC)

SUMMARY

This report outlines the parking investigation completed to assess parking conditions at Tempe Reserve and the surrounding adjacent streets. It presents the parking survey results completed on the weekday evening and weekend peak periods. The results indicate there is adequate parking supply in the streets adjacent to Tempe Reserve, and that parking demand generated from park-users at Tempe Reserve during the evening weekday and weekend peak period has minimal impact to parking to the adjacent residential streets. Accordingly, a resident parking scheme in these streets is not recommended.

Officers Recommendation:

That the request for consideration of timed permit parking restrictions on streets surrounding Tempe Reserve not be implemented due to adequate parking capacity within the Tempe Reserve car parks.

DISCUSSION:

Council Officers tabled a submission sent in by a resident opposing the recommendation noting that the report references Smith Street throughout the report and advised that it was Station Street they wanted to have assessed. The resident also advised that 1 peak night and 1 peak weekend were not sufficient for a parking study and noted that sports and training days/events were not the only cause for parking concerns as people often use the unrestricted parking around the oval to park and go to work at the nearby airport, as well as use the available parking for their boats and trailers leaving insufficient parking for residents to park nearby. The resident also questioned whether any stakeholders such as sporting clubs in the areas, airport operators, and residents were consulted during the parking study.

Council Officers advised that the parking study assessed parking utilisation on all residential streets south of Princes Highway that are adjacent to Tempe Reserve which included Station Street and the surrounding streets from Holbeach Avenue to Smith and Wood Streets. It was advised that parking surveys during the peak season were completed on training and game

days and that Council Officers obtained booking dates scheduled for training and game day and Tempe Reserve and received advice from Council's Parks Planning team during the peak season to ensure parking surveys were completed on days which would provide reliable data for assessment. Council Officers advised that the parking surveys completed during the peak period shows the worst-case scenario with the car parks closest to Holbeach Avenue close to capacity. It was noted that parking although parking spillover may occur from these car parks, there was still parking capacity in the adjacent residential streets for residents to utilise and that spillover from these carparks is likely to be minimal as data collected during the evening peak period indicates there is adequate parking capacity at Tempe Reserve with no spill over in adjacent streets. Council Officers advised that community consultation with sporting clubs, airport operators, or residents would have commenced should the parking surveys completed reveal high levels of utilisation in the car parks adjacent to Tempe Reserve however due to there being adequate parking capacity, further community consultation was not undertaken. Council Officers noted that the unrestricted parking spaces are prone to unattended vehicles, boats and trailers and advised that the enforcement of unattended vehicles is recommended to be managed via the Unattended Property Act 2024 and enforced by Council's Parking Services team.

Council Officers noted that the carpark closest to Holbeach Avenue has a capacity of 70 spaces, the carpark nearest to the park has a capacity of 13 spaces and there is a carpark further down the reserve with 200 spaces. It was noted that the carpark with 70 and 13 spaces is more commonly occupied compared to the carpark with 200 available spaces. Council Officers advised that the data provided from the study shows that even when the busier carparks are used there is still minimal spillover to the residential streets nearby.

Council Officers noted that there is not much wayfinding signage to the larger carpark and suggested that Council investigate implementing wayfinding signage as it may assist with providing more options for users parking in the area and alleviate parking issues due to the other carparks being at capacity and the potential spillover it may have on surrounding residential streets.

The Chair noted that the issues seem to arise due to a lack of off-street parking for properties in that area due to small property frontages, narrow streets and households owning more than one vehicle, and noted that the parking unavailability on Smith Street is having a knock-on effect on nearby residential streets. Council Officers noted that due to the current construction of the Bunnings, parking has been compromised in Smith Street and noted that once construction is completed, that should relieve some of the parking issues on the street.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the request for consideration of timed permit parking restrictions on streets surrounding Tempe Reserve not be implemented due to adequate parking capacity within the Tempe Reserve car parks and that Council Officers develop a way finding scheme to better indicate parking areas around the reserve

For Motion: Unanimous

LTC1124(1) Item 18 Leichhardt West - Proposed Residential Parking Scheme Expansion (Baludarri-Balmain Ward/Balmain Electorate/Leichhardt PAC)

SUMMARY

This report outlines the outcome from the Community Consultation and the recommended treatment for the expansion of the existing Leichhardt West Resident Parking Scheme (RPS) on section of Burfitt Street, Flood Street, Edith Street and Elswick Street, Leichhardt.

It is recommended that the RPS '2P 8AM-6PM, Mon-Fri, Permit Holders Excepted, Area L1' be expanded into the rest of Burfitt Street, eastern side of Edith Street and Elswick Street from the existing RPS boundary to Marion Street.

Officers Recommendation:

That the installation of Resident Parking Scheme '2P 8am-6pm Mon-Fri, Permit Holders Excepted, Area L1' zone be approved as shown in *Attachment 1*:

a) Western and Eastern side of Burfitt Street, Leichhardt – Between No.2 to No.48 and No.1 to No.45 Burfitt Street
b) Eastern side Edith Street, Leichhardt – Between No.37 to No.65A Edith Street
c) Western and Eastern side of Elswick Street, Leichhardt – Between No.118 to No.162 and No.105 to No.141 Elswick Street

DISCUSSION:

Public Speaker Shirley Gwynn entered the meeting at 11.24am.

Ms Gwynn supported the recommendation advising that due to the current unrestricted parking on sections of Burfitt Street, Flood Street, Edith Street, and Elswick Street, Leichhardt, vehicles are parking for long periods to access the local shops and cafes or to head into the CBD via bus causing residents to experience difficulty finding parking near their residences. Ms Gwynn advised that due to difficulty finding parking near her area, she often parks in the 2P and 4P areas but noted this was quite hard to do as she has to care for her young children and leaving them to move her vehicle periodically is difficult. Ms Gwynn noted that the implementation of 2P parking in the area will be beneficial to Council's enforcement team as that will allow them to book overstaying vehicles as well as assist with overstaying vehicles in the area adding to existing parking issues in the area.

Public Speaker Shirley Gwynn left the meeting at 11.27am.

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the installation of Resident Parking Scheme '2P 8am-6pm Mon-Fri, Permit Holders Excepted, Area L1' zone be approved as shown in *Attachment 1*:

a) Western and Eastern side of Burfitt Street, Leichhardt – Between No.2 to No.48 and No.1 to No.45 Burfitt Street
b) Eastern side Edith Street, Leichhardt – Between No.37 to No.65A Edith Street
c) Western and Eastern side of Elswick Street, Leichhardt – Between No.118 to No.162 and No.105 to No.141 Elswick Street

For Motion: Unanimous

LTC1124(1) Item 19 Traffic Committee Schedule 2025

SUMMARY

To assist Committee members with forward planning, the schedule of meetings of the Local Traffic Committee for 2025 is detailed below.

Officers Recommendation:

That the proposed schedule of meetings of the Local Traffic Committee for the 2025 calendar year be received and noted.

DISCUSSION:

The Committee members agreed with the Officer's recommendation.

COMMITTEE RECOMMENDATION:

That the proposed schedule of meetings of the Local Traffic Committee for the 2025 calendar year be received and noted.

For Motion: Unanimous

General Business

Item 20 – Request for mobility parking to be implemented on the frontage of St Brigid's Catholic Church

Clr Marci advised he received a request from Father Giltus Mathias from St Brigid's Catholic Church requesting the implementation of mobility parking on Livingston Road as their carpark is a long way away from the entrance to their Church and makes it hard for Churchgoers with mobility issues to access the vicinity. Council Officers requested that the correspondence be forwarded to Council for review and investigation.

Meeting closed at 12.57pm.

CHAIRPERSON

Clr Victor Macri

Item 1

Item No: **LTC1224(1) Item 1**

Subject: **ROBERT STREET AT HOLDEN STREET, ASHFIELD - NEW AT-GRADE PEDESTRIAN (ZEBRA) CROSSING (DJARRAWUNANG-ASHFIELD WARD/SUMMER HILL ELECTORATE/BURWOD PAC)**

Prepared By: Daniel Li - Student/Graduate Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the detailed design plan (10302) for a proposed new at-grade pedestrian (zebra) crossing in Robert Street at its intersection with Holden Street, Ashfield, with associated signs and line marking (as shown in Attachment 1) be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council at its meeting on the 18 March 2024 (through its Traffic Committee 11 December 2023) approved in principle a series of proposed pedestrian (zebra) crossings and kerb extension treatments (under concept) with other auxiliary works (relocation of bus stops, inclusion of raised platform thresholds) for improved pedestrian and road safety around and near to the Cardinal Freeman (Retirement) Village, Ashfield.

This report describes and shows the detailed design plan of one of the proposed treatments involving the placing of a pedestrian (zebra) crossing in Robert Street, at the intersection of Holden Street, Ashfield. This work is programmed and envisaged to be constructed in the 2025/2026 financial year, subject to funding.

BACKGROUND

The Cardinal Freeman Village (currently known as Levande Cardinal Freeman) is bounded by Clissold Street to the north, Victoria Street to the east, Seaview Street to the south and Queen Street to the west.

The village caters to an independent living lifestyle however as the average age is over 82 years there are a significant number of residents with mobility issues that hinder their ability to move around freely.

Many of the elderly residents are capable, and desire to walk to and from various destinations outside of the village, and/or take other forms of public transportation (e.g., bus and train) to travel to other parts of Sydney.

This has prompted a general request from the residents to improve pedestrian safety around and near the village to enable them to walk to various desired destinations and take public transport within the area.

Other Aged care facilities such as the Ashfield Baptist Homes, Bethel Nursing Homes, Ashfield Terrace Care Community, and other community facilities are also located adjacent or near to the Cardinal Freeman Village.

The proposed detailed plan in this report was part of an initial concept to provide a pedestrian crossing at the intersection of Holden Street and Robert Street under the overall scheme to enhance pedestrian safety around and near the Cardinal Freeman Village.

DISCUSSION

The following information is provided in discussion.

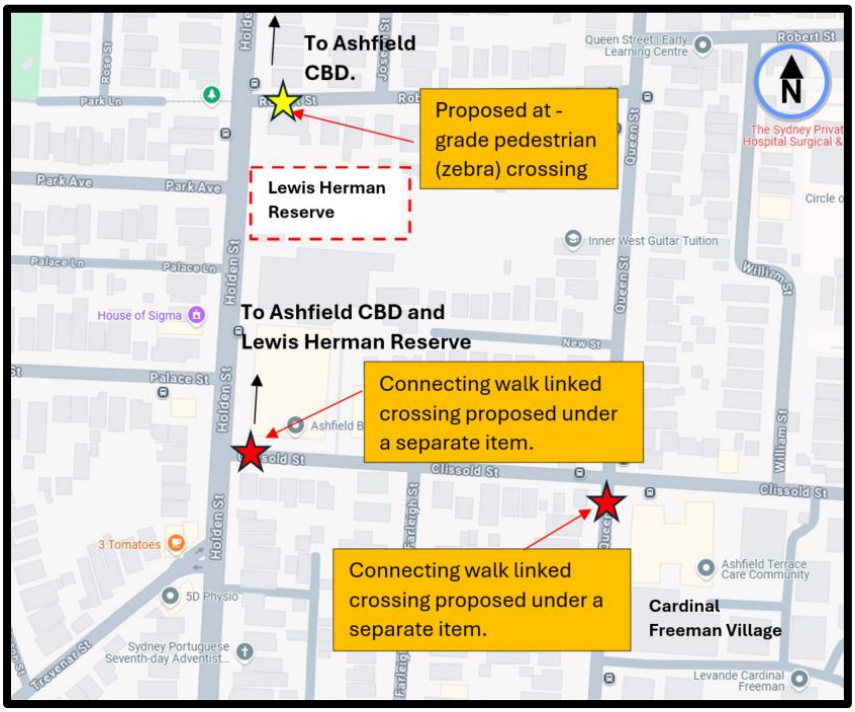


Figure 1. Locality Plan

Street Name	Robert Street at Holden Steet
Carriageway width (m) kerb to kerb	Approx. 6.4m.
Carriageway type	Two-way, one travel lane each direction.
Classification	Local
Speed Limit km/h	50
85th percentile speed km/h	30
Vehicles per day (vpd)	2500
Last available 5 years of TfNSW recorded crash history	NIL in last 5 years in Robert Street at the intersection with Holden Street.
Parking arrangements	Parking is available in the northern side however there are 'No Stopping' restrictions on the southern side.
Side street(nearest or along)	Holden Street.

Table 1. Road Network detail.

The Plan

The following works are proposed and are illustrated on the attached plan:

Robert Street, Ashfield (Plan No. 10302):

- Resurface the road pavement with new asphalt and provide new pedestrian crossing markings and associated signage to formalise a new pedestrian crossing;
- Remove old kerb ramps and construct new concrete kerb ramps on either side of the new pedestrian crossing in Robert Street at its intersection with Holden Street;
- Reconstruct some kerb and gutter with new concrete kerb & gutter (generally where shown on the plans);
- Remove existing pits and pipes and provide new concrete dish drain across the intersection;
- Remove some damaged concrete footpaths and construct new concrete footpaths;
- Undertake some minor returfing works in the grass verge area to match new works
- Install new signage associated with the works.

Parking Changes

The works are fully contained within the existing 'No Stopping' zones of Robert Street Therefore, the proposal will not result any loss of parking.

Streetlighting

The new pedestrian crossing will require new lighting for it to meet the minimum lighting safety and compliance standards. This may involve either 1 or 2 new flood lights provided on either side each of the new raised pedestrian crossings (on either existing or new power poles). *The attached plans indicatively show the locations of the proposed new flood lights and power poles, with the final location to be confirmed during the lighting design development phase of the project by qualified Electrical Consultant.*

Other Information

The proposed crossing under detailed design is moved closer to the intersection to cater for all pedestrian desire path movement north, south and east of the intersection, and avoid obstruction with driveways located further in from Holden Street.

Council would normally raise pedestrian (zebra) crossings for ease of pedestrian access; however, in this case, the existing underground drainage and utilities in the vicinity of the proposed crossing raises the concern of additional excavation works which are deemed to be complex. As such Council has resorted to surface drainage works which features readjustments to the kerb and gutter as well as the installation of a dish drain.

The proposed crossing links up with other proposed crossings (which are reported separately in this Traffic Committee) to connect walking path movements to various desired destinations (e.g. Herman Lewis Reserve and Ashfield CBD.)-see Figure 1.

FINANCIAL IMPLICATIONS

The project is listed in Council's Traffic Facilities Capital Works program to be carried out in 2025/2026, subject to grant funding approval. The work is estimated to be around $92,000.

CONSULTATION

A letter outlining the proposal was mailed out to (21) properties (48 letters) in Robert Street, between Holden Street and Queen Street, Ashfield, requesting residents' views regarding the proposal. (see also map of consultation area Figure 2).



Figure 2. Map on Consultation Area.

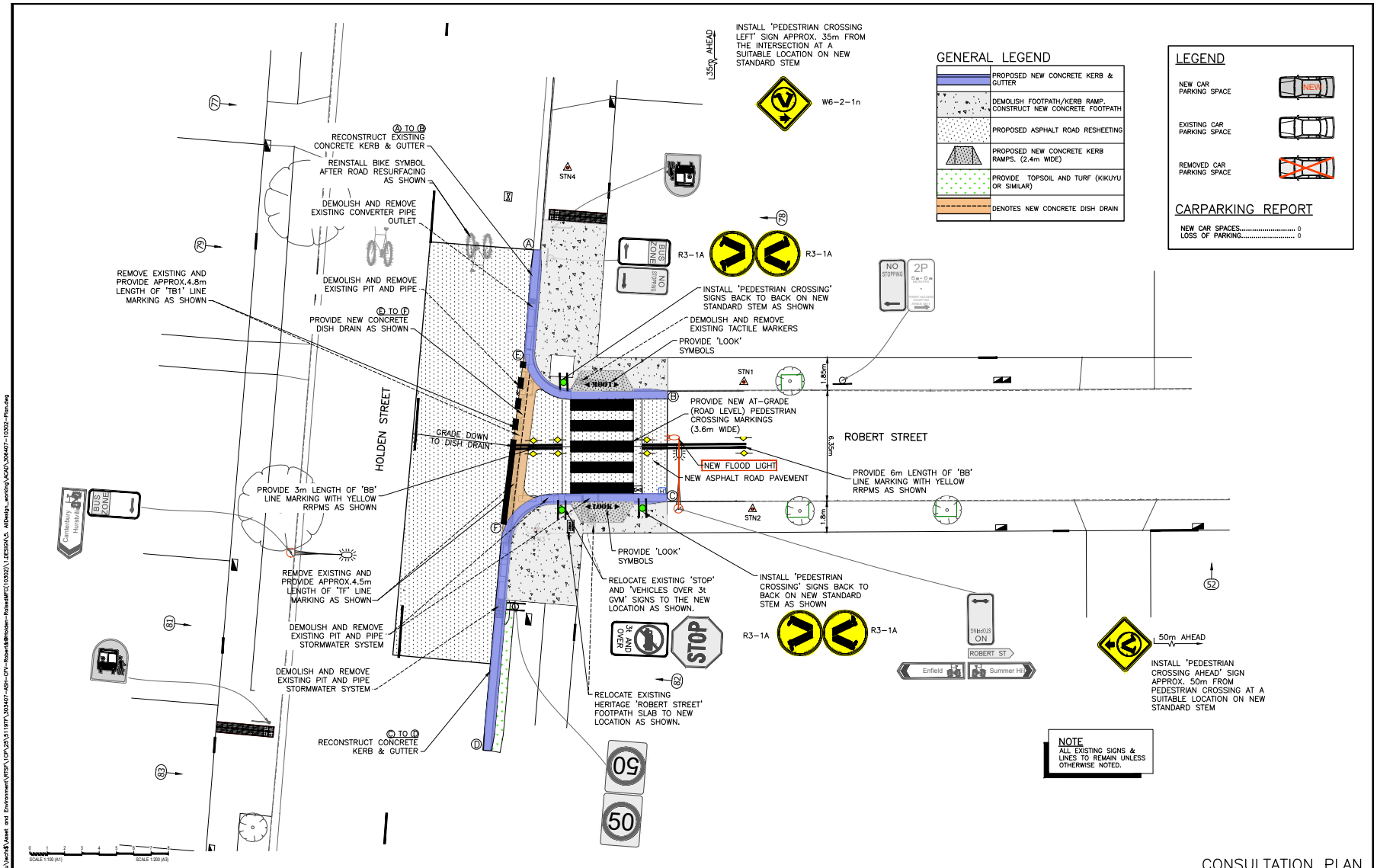
One resident response was received concerning the level of safety for the proposed zebra crossing location.

The concerns raised by the resident are outlined below in the table.

Residents Comments	Officers Response
There are high traffic volumes at Holden Street and Robert Street during school and work peak hours. The installation of the zebra crossing would result in vehicles being in the path of the oncoming traffic in Holden Street. The right of way should remain with the turning vehicles and not the pedestrians.	Left turning and right turning vehicles from Holden Street have adequate sight lines before turning into Robert Street and so motorists have opportunity to give way to crossing pedestrians. The pedestrian desire line across Robert Street is at the intersection with Holden Street and relocating the crossing to a midblock location on Robert Street would not be effective.

ATTACHMENTS

1.⇩ Robert Street, Ashfield - Community Consultation Plan


INSTALL 'PEDESTRIAN CROSSING LEFT' SIGN APPROX. 35m FROM THE INTERSECTION AT A SUITABLE LOCATION ON NEW STANDARD STEM
W6-2-1n
GENERAL LEGEND
PROPOSED NEW CONCRETE KERB & GUTTER
DEMOLISH FOOTPATH/KERB RAMP. CONSTRUCT NEW CONCRETE FOOTPATH
PROPOSED ASPHALT ROAD RESHEETING
PROPOSED NEW CONCRETE KERB RAMPS. (2.4m WIDE)
PROVIDE TOPSOIL AND TURF (KIKUYU OR SIMILAR)
DENOTES NEW CONCRETE DISH DRAIN
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 0
Ⓐ TO Ⓑ RECONSTRUCT EXISTING CONCRETE KERB & GUTTER
REINSTALL BIKE SYMBOL AFTER ROAD RESURFACING AS SHOWN
DEMOLISH AND REMOVE EXISTING CONVERTER PIPE OUTLET
REMOVE EXISTING AND PROVIDE APPROX.4.8m LENGTH OF 'TB1' LINE MARKING AS SHOWN
DEMOLISH AND REMOVE EXISTING PIT AND PIPE
Ⓔ TO Ⓕ PROVIDE NEW CONCRETE DISH DRAIN AS SHOWN
HOLDEN STREET
GRADE DOWN TO DISH DRAIN
PROVIDE 3m LENGTH OF 'BB' LINE MARKING WITH YELLOW RRPMS AS SHOWN
REMOVE EXISTING AND PROVIDE APPROX.4.5m LENGTH OF 'TF' LINE MARKING AS SHOWN
DEMOLISH AND REMOVE EXISTING PIT AND PIPE STORMWATER SYSTEM
DEMOLISH AND REMOVE EXISTING PIT AND PIPE STORMWATER SYSTEM
Ⓒ TO Ⓓ RECONSTRUCT CONCRETE KERB & GUTTER
STN4
STN1
STN2
R3-1A
R3-1A
INSTALL 'PEDESTRIAN CROSSING' SIGNS BACK TO BACK ON NEW STANDARD STEM AS SHOWN
DEMOLISH AND REMOVE EXISTING TACTILE MARKERS
PROVIDE 'LOOK' SYMBOLS
PROVIDE NEW AT-GRADE (ROAD LEVEL) PEDESTRIAN CROSSING MARKINGS (3.6m WIDE)
NEW FLOOD LIGHT
NEW ASPHALT ROAD PAVEMENT
ROBERT STREET
PROVIDE 6m LENGTH OF 'BB' LINE MARKING WITH YELLOW RRPMS AS SHOWN
1.85m
6.35m
1.8m
PROVIDE 'LOOK' SYMBOLS
RELOCATE EXISTING 'STOP' AND 'VEHICLES OVER 3t GVM' SIGNS TO THE NEW LOCATION AS SHOWN.
INSTALL 'PEDESTRIAN CROSSING' SIGNS BACK TO BACK ON NEW STANDARD STEM AS SHOWN
R3-1A
R3-1A
RELOCATE EXISTING HERITAGE 'ROBERT STREET' FOOTPATH SLAB TO NEW LOCATION AS SHOWN.
50m AHEAD
INSTALL 'PEDESTRIAN CROSSING AHEAD' SIGN APPROX. 50m FROM PEDESTRIAN CROSSING AT A SUITABLE LOCATION ON NEW STANDARD STEM
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
50
50
CONSULTATION PLAN
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 21-06-24
DESIGNED BY RANJI 4-11-24
DRAWN BY RANJI 4-11-24
INNER WEST
2-14 FISHER STREET, PETERSHAM NSW 2049
Ph. (02) 9392 5000
Post: PO Box 14 PETERSHAM
e) council@innerwest.nsw.gov.au
Web: https://www.innerwest.nsw.gov.au
SURV. GEN.
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV. DATE DESCRIPTION APPROV.
ROBERT STREET, ASHFIELD
AT HOLDEN STREET INTERSECTION
PROPOSED AT-GRADE PEDESTRIAN CROSSING
COMMUNITY CONSULTATION
PROJECT NO. 303407
SHEET NO. 1 of 1
PLAN NO. 10302
SHEET REV #

Item 2

Item No: **LTC1224(1) Item 2**

Subject: **EDGEWARE ROAD AND CAMDEN STREET, ENMORE - PROPOSED KERB EXTENSIONS (DAMUN-ENMORE WARD/NEWTOWN ELECTORATE/INNER WEST PAC)**

Prepared By: James Nguyen - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the design plan for the kerb extensions and adjustment of the 'GIVE WAY' line marking at the intersection of Edgeware Road and Camden Street, Enmore be approved in principle and a detailed design be bought back to the Committee for consideration.**

2. **That the design for the interim line marking treatment at the intersection of Edgeware Road and Camden Street, Enmore be approved (as detailed in *Attachment 2).***

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report discusses an assessment completed for the intersection at Edgeware Road and Camden Street, Enmore in response to concerns raised and recent accidents. Kerb extensions and adjustments to the 'GIVE WAY' lines are proposed to improve safety at this intersection.

BACKGROUND

Council has received concerns about reoccurring motorist accidents at the intersection of Camden Street and Edgeware Road, Enmore.

Edgeware Road is a two-way regional road with a single travel lane (2.8 metres wide) and parallel parking in both directions. The most recent traffic counts completed record a daily traffic volume of approximately 17,000 vehicles per day, and an 85th percentile speed of approximately 50 km/h. The current speed limit on Edgeware Road is 50 km/h. Camden Street is a local road, and has a daily traffic volume of approximately 1000 vehicles per day, and an 85th percentile speed of approximately 37 km/h. The existing speed limit on Camden Street is 50 km/h.

There are three (3) recorded injury crashes at this intersection with two (2) occurring in 2023 and one (1) in 2024. All three (3) crashes involved a motorcycle, with the crash diagrams provided in Figure 1 below. Council has also received community feedback that there are a number of crashes involving motorists turning right out of Camden Street which have not been accounted for in Transport for NSW's crash records.

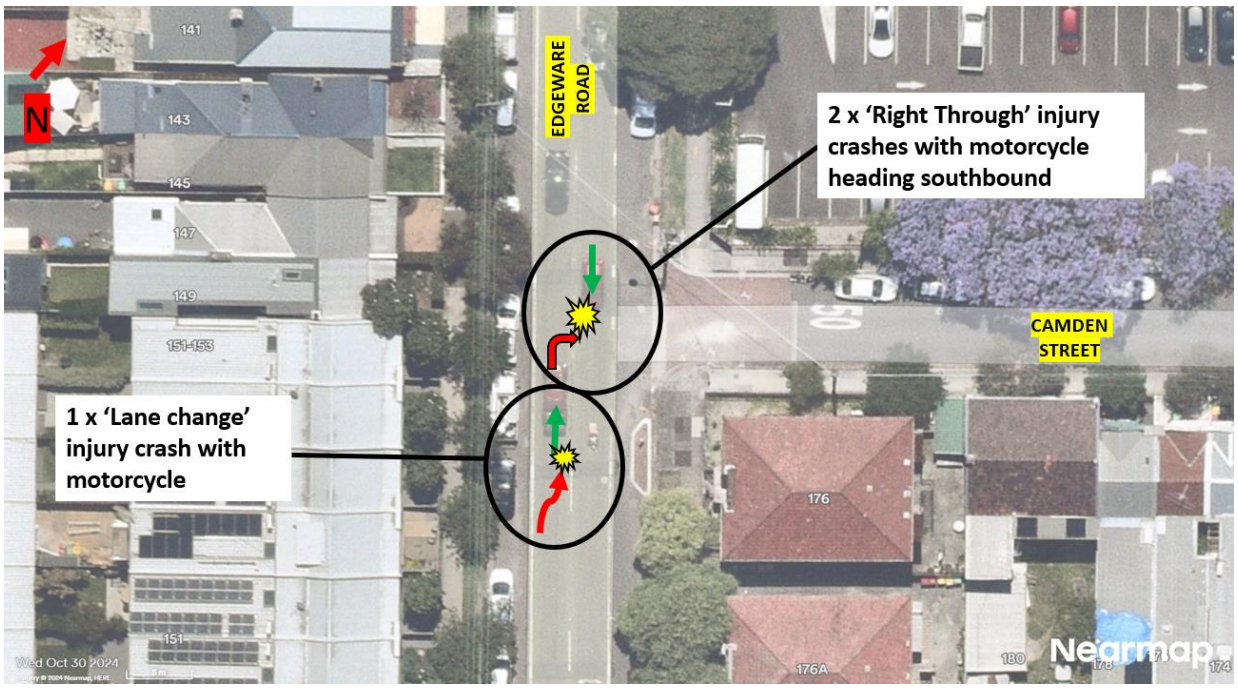


Figure 1 - Crash diagram - Edgeware Road and Camden Street, Enmore

DISCUSSION

The recent injury crashes indicate a pattern involving motorcycle road users and as such further traffic calming is necessary. A concept design has been prepared with proposals to improve safety at this intersection. The proposal consists of the following:

- Install a new 2.0-metre-wide kerb extension on the eastern side of Edgeware Road, north of Camden Street.
- Widen the existing kerb extension on the eastern side of Edgeware Road, south of Camden Street.
- Relocate the existing 'GIVE WAY' line marking on Camden Street closer to the intersection of Edgeware Road, and
- An interim temporary treatment involving chevron line marking where the kerb extensions are proposed.

This proposal seeks to create further traffic calming by narrowing the southbound lane on Edgeware Road further. Given the traffic volumes on Edgeware Road, speed humps to create vertical deflection is not recommended, and speed reductions obtained through narrowed lanes is recommended.

The permanent and interim treatments are shown in *Attachment 1* and *2.*

In addition, speed limit reductions on Edgeware Road, between Enmore Road and Darley Street from 60 km/h to 50 km/h are recommended given the current recorded 85th percentile speed is 50 km/h. This matter will require TfNSW consideration noting speed limits are under their jurisdiction.

PUBLIC CONSULTATION

Consultation was conducted between 21 October and 4 November 2024. A letter along with a copy of the design plan was sent to residents / businesses in the immediate locality. A total of 24 letters were distributed. There was one (1) response received supporting the proposal which also made additional suggestions.

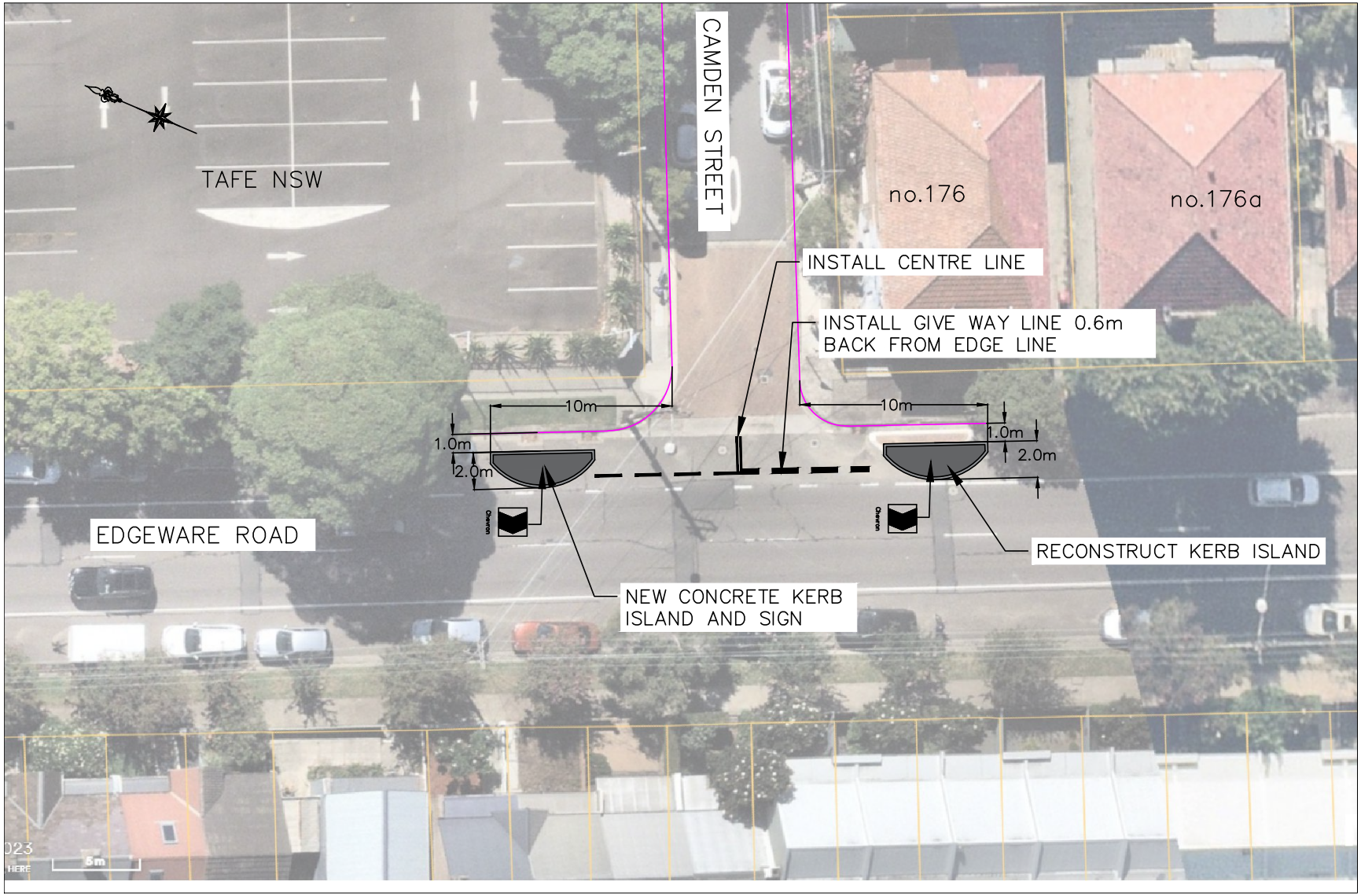
Community response	Officer response
Provide a line marked area on Edgeware Road which states 'Do Not Queue Across the Intersection' as most accidents occur due to cars turning right out of Camden Street	'Do Not Queue Across Intersection' or 'Keep Clear' signs and line marking are not used to address turning crashes. These treatments are used to improve traffic flow whereby a vehicle storing across an intersection may obstruct a turning vehicle and subsequently affect signal operation. The proposed kerb extensions and adjustment of the 'Give Way' line marking will improve sight lines, provide traffic calming and improve safety
Install a 'No Right Turn' ban from Camden Street onto Edgeware Road	A 'No Right Turn' ban will have impacts on traffic movements as there are currently limited alternatives for vehicles to turn right onto Edgeware Road with Alice Street being the only option. This suggestion is not recommended. The current proposal to install a kerb extension will improve safety for right turning vehicles at this intersection.
Camden Street should be made a one-way street.	Making Camden Street one-way would increase traffic volumes on Clara Street, which is an existing shared zone, and subsequently Alice Street. It is not recommended to investigate this suggestion at this stage, given there is a viable alternative to improve safety at this intersection.
Install CCTV cameras at the intersection of Edgeware Road and Camden Street as cars parked in Camden Street are regularly hit	Council does not generally install CCTV cameras to monitor traffic.
Edgeware Road should have a 50 km/h speed limit given it is the main road near local schools	Edgeware Road is a regional road. The reduction of speed limits from 60 km/h to 50 km/h is subject to further investigation.

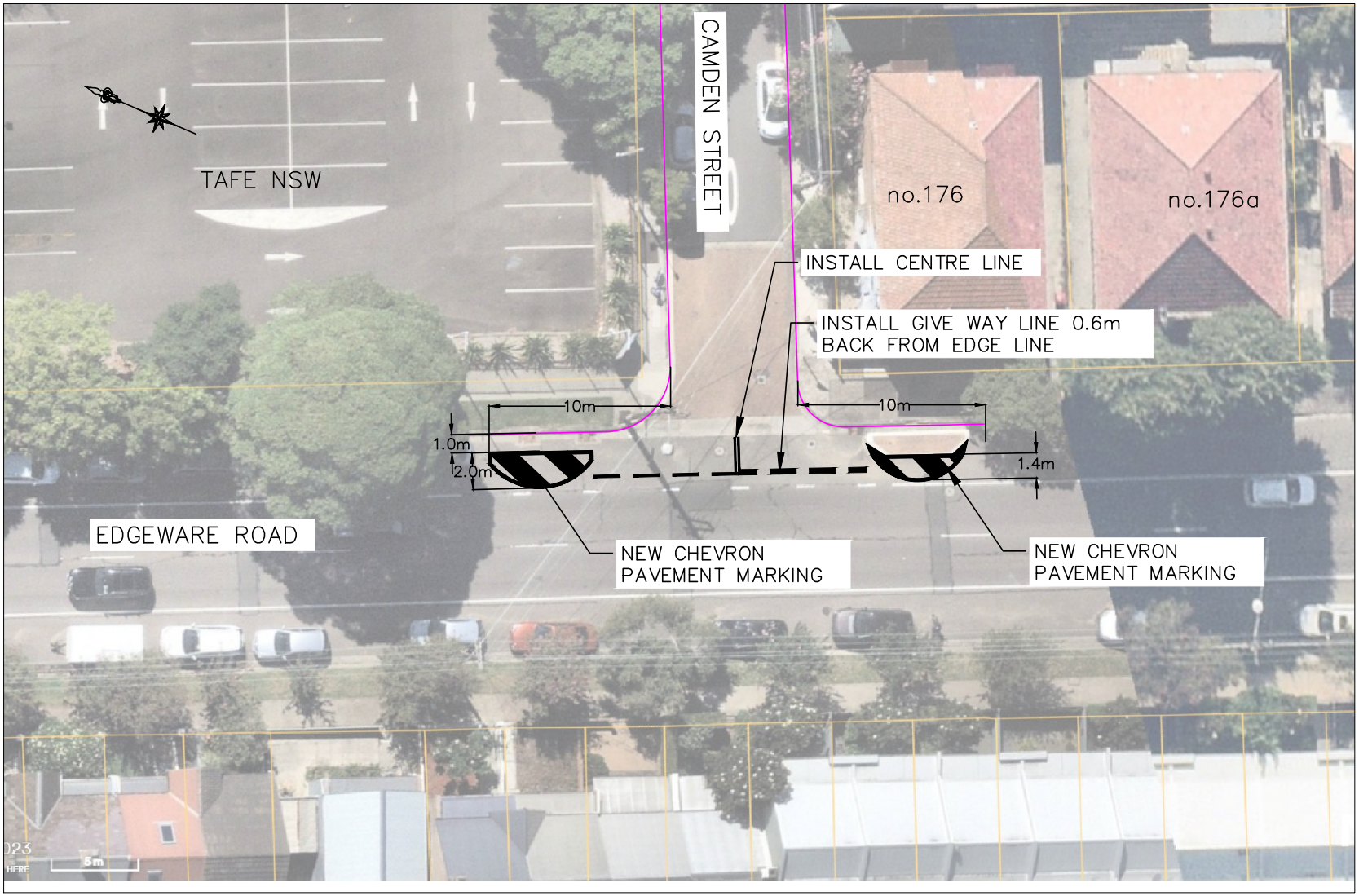
FINANCIAL IMPLICATIONS

This project will be included in Council's Traffic Facilities Capital Works list for future funding.

ATTACHMENTS

1.⇩ Concept plan - kerb extensions
2.⇩ Concept plan - painted islands


TAFE NSW
CAMDEN STREET
no.176
no.176a
INSTALL CENTRE LINE
INSTALL GIVE WAY LINE 0.6m
BACK FROM EDGE LINE
10m
1.0m
2.0m
10m
1.0m
2.0m
EDGEWARE ROAD
RECONSTRUCT KERB ISLAND
NEW CONCRETE KERB
ISLAND AND SIGN


TAFE NSW
CAMDEN STREET
no.176
no.176a
INSTALL CENTRE LINE
INSTALL GIVE WAY LINE 0.6m
BACK FROM EDGE LINE
10m
10m
1.0m
2.0m
1.4m
EDGEWARE ROAD
NEW CHEVRON
PAVEMENT MARKING
NEW CHEVRON
PAVEMENT MARKING

Item No: **LTC1224(1) Item 3**

Subject: **LGA-WIDE HIGH PEDESTRIAN ACTIVITY AREA (HPAA) INVESTIGATIONS - FINAL REPORT (ALL WARDS / ALL ELECTORATES / ALL PACS)**

Prepared By: Zara Helal - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That:

a) **The proposed 40 km/h High Pedestrian Activity Areas and subsequent treatments listed in the 40 km/h High Pedestrian Activity Area Investigations report be supported in principle as per the attached report in Attachment 1 and Attachment 2, subject to approval from TfNSW.**

b) **That the proposed 40 km/h High Pedestrian Activity Areas and subsequent treatments listed in the 40 km/h High Pedestrian Activity Area Investigations report on State roads be forwarded to TfNSW for their consideration.**

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

The Pedestrian Access and Mobility Plan (PAMP) prepared in 2021 recommended the implementation of High Pedestrian Activity Areas (HPAAs) in 10 areas throughout the LGA. Stantec was subsequently engaged by Council to develop proposals to implement HPAA schemes in these 10 areas.

This report seeks to improve pedestrian safety in town centres through the provision of traffic management treatments and by lowering speed limits for vehicles it will further improve bicycle safety within the overall proposed safety improvements.

This proposal seeks to lower the speed limit to 40km/h at all times within the proposed HPAA areas. Changes to the local road environment have been designed and proposed to alert drivers to the lower speed limit and make them aware of the presence of pedestrians.

BACKGROUND

The PAMP prepared in 2021 recommended the implementation of HPAAs in 10 areas throughout the LGA. Stantec was subsequently engaged by Council to develop proposals to implement HPAA schemes in these 10 areas with the report provided in *Attachment 1*.

The table outlines the 10 proposed HPAA areas:

Location	Description	Road Classification	Existing Speed Limit (km/h)
Booth Street, Annandale	From Alfred Street to Alexandra Drive	Regional	50 excluding existing HPAA
Brown Street, Ashfield	Full length	Local	50
Elizabeth Street, Ashfield	From No.46 Elizabeth Street to No.84 Elizabeth Street	Regional	50
New Canterbury Road, Dulwich Hill	From No.575 New Canterbury Road to No.393 New Canterbury Road	State	60
Illawarra Road, Marrickville	From Broadleys Lane to south of Harnett Avenue	Regional	50 excluding existing HPAA
Audley Street, Petersham	From New Canterbury Road to Trafalgar Street	Local	50
Darling Street, Rozelle and Balmain Road, Rozelle	From Victoria Road to Park Drive	State / Regional (north of Victoria Road)	40
Percival Road, Stanmore	From Douglas Street to north of Myrtle Street	Local	50
Hardie Avenue, Summer Hill	Lackey Street, Hardie Avenue, Smith Street between Summer Hill Community Garden and south of Nowranie Street, Morris Street south of Smith Street and Moonbie Street south of Smith Street.	Local	50
Railway Road / Gleeson Avenue, Sydenham	Marrickville Road from Buckley Street to Railway Parade, Railway Parade, Burrows Avenue, Railway Road from Burrows Avenue to Gleeson Avenue, Wright Street, Gleeson Avenue, Railway Road from Gleeson Avenue to south of Rowe Lane, and Unwins Bridge Road from west of Park Road to Memory Reserve.	State	50

The traffic management treatments to reduce the speed environment include the provision of gateway treatments, traffic calming devices, pedestrian crossing facilities and associated signage and pavement markings.

Traffic tube counts and intersection counts were collected at various sites, and crash history was reviewed to assist the study.

Concept designs have been produced by Stantec for the proposed treatments as detailed in *Attachment 2*. Detailed design is to be undertaken by Council after in-principal support is gained.

DISCUSSION

Booth Street, Annandale

A HPAA scheme currently exists on Booth Street between Collins Lane and No. 27 Booth Street. It is proposed that the scheme be extended from Alfred Street to Alexandra Drive to encompass the entire commercial precinct where pedestrian movements are high.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb extensions on both sides at Booth Street / Young Street intersection (northern leg).
- Raised zebra crossing to replace existing pedestrian refuge at Booth Street / Young Street intersection (eastern leg).
- Modified refuge islands with compliant dimensions at Booth Street / Annandale Street intersection (northern and southern legs).
- Continuous footpath treatment across side street at Booth Street / View Street / Johnston Lane intersection (southern leg).
- Modified refuge islands with compliant dimensions at Booth Street / Trafalgar Street intersection (northern and southern legs).
- Continuous footpath treatment across side street at Booth Street / Wells Street intersection (southern leg).
- Widening of existing refuge island at Booth Street / Nelson Street intersection (northern leg).
- Kerb blisters on both sides at Booth Street / Nelson Street intersection (southern leg).
- Kerb extensions on both sides at Booth Street / Taylor Street intersection (northern leg).
- Raised zebra crossing to replace existing pedestrian refuge at Booth Street / Wigram Road intersection (southern leg).
- Speed cushion on approach to the refuge island crossing, on the southbound lane approach to the intersection at Booth Street / Wigram Road intersection (north-eastern leg).

Brown Street, Ashfield

The proposed HPAA zone spans along Brown Street between Bland Street and Liverpool Road, and in Fox Lane between Brown Street and The Esplanade.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Continuous footpath treatment at Brown Street / Orchard Crescent intersection
- Continuous footpath treatment at Brown Street / Fox Lane intersection.

Elizabeth Street, Ashfield

The proposed HPAA zone spans along Elizabeth Street between No.46 Elizabeth Street and No.84 Elizabeth Street. It also extends into Nixon Avenue, Bland Street from its intersection with Brown Street to No.12 Bland Street, Charlotte Street from Elizabeth Street to No.21 Charlotte Street, and Grainger Avenue.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Continuous footpath treatment at Elizabeth Street / Nixon Avenue intersection (southern leg).
- 'Give Way to Pedestrians' hatched pavement marking between Bland Street and Charlotte Street.
- Extension of 10 km/h shared zone at Charlotte Street south of Elizabeth Street, and Station Street and Wood Street. Includes flush threshold treatment at Station Street, Charlotte Street and Wood Street, south of Elizabeth Street.
- Kerb extension on the eastern side at Elizabeth Street / Wood Street intersection (western leg).

New Canterbury Road, Dulwich Hill (State Road)

The proposed HPAA zone spans along New Canterbury Road between No.575 New Canterbury Road and No.393 New Canterbury Road.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb extension on the northern side at New Canterbury Road / Herbert Street intersection (eastern leg).
- Modified refuge island at Pigott Street / New Canterbury Road intersection (northern leg).
- Continuous footpath treatment at Lewisham Street / New Canterbury Road intersection (northern leg).
- Kerb extensions on both sides at Kintore Street / New Canterbury Road intersection (southern leg).
- 'Give Way to Pedestrians' linemarking on footpath at New Canterbury Road between Kintore Street and Dulwich Grove Light Rail Station.
- Kerb extension on eastern side at Denison Road / New Canterbury Road intersection (northern leg).
- Associated signage and linemarking installed on New Canterbury Road at entry points to the HPAA zone.

Illawarra Road, Marrickville

A HPAA zone currently exists on Illawarra Road between Broadleys Lane and east of Petersham Road. This is proposed to be extended from east of Petersham Road to south of Harnett Avenue.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Convert existing crossing to raised zebra crossing at Calvert Street / Illawarra Road intersection (eastern leg).

- Continuous footpath across side street at Tuohy Lane / Illawarra Road intersection (western leg).
- Raised zebra crossing at Tuohy Lane / Illawarra Road intersection (southern leg).
- Continuous footpath treatment at Arthur Street / Illawarra Road intersection (eastern leg).
- Continuous footpath treatment at Blamire Lane / Illawarra Road intersection (eastern leg).
- Kerb extensions on both sides to replace existing pedestrian refuge at Greenbank Street / Illawarra Road intersection (western leg).
- Convert existing crossing to raised zebra crossing at Illawarra Road between Greenbank Street and Grove Street.
- Kerb extensions on both sides to replace existing pedestrian refuge at Grove Street / Illawarra Road intersection (southern leg).
- Kerb extensions on both sides to replace existing pedestrian refuge at Church Street / Illawarra Road intersection (northern leg).
- Raised zebra crossing to replace existing pedestrian refuge at Harnett Avenue / Renwick Street / Illawarra Road intersection (northern leg).
- Modified refuge island at Harnett Avenue / Renwick Street / Illawarra Road intersection (western leg).
- Kerb extension on the northern side at Harnett Avenue / Renwick Street / Illawarra Road intersection (eastern leg).

Audley Street, Petersham

The proposed HPAA zone spans along Audley Street from New Canterbury Road to Trafalgar Street.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb extensions on both sides at Fisher Street / Audley Street intersection (eastern leg).
- Raised zebra crossing at Fisher Street / Audley Street intersection (northern leg).
- Continuous footpath across side street at Audley Street / Sadlier Crescent intersection (western leg).
- Raised zebra crossing to replace existing pedestrian refuge at Trafalgar Street / Regent Street intersection (southern leg).

Darling Street / Balmain Road, Rozelle (State Road)

A ‘40 km/h Local Traffic Area’ scheme is currently present throughout Balmain peninsula and includes the full length of Darling Street north of Victoria Road. The proposed HPAA zone will encompass the southern part of Darling Street from Victoria Road to Balmain Road, and Balmain Road from Darling Street to Park Drive.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb extensions on both sides at Matilda Street / Darling Street intersection (southern leg).
- Kerb extension on western side at Oxford Street / Darling Street intersection (northern leg).

- Kerb blisters on both sides at Cambridge Street / Darling Street intersection (northern leg).
- Continuous footpath treatment across side street at Red Lion Street / Darling Street intersection (southern leg).
- Kerb extension that ties in with Council's proposed wombat crossing (from Rozelle North LATM) at Merton Street / Darling Street on the southern side (eastern leg).
- Kerb blister on the northern side at Merton Street / Darling Street (western leg).
- Kerb extension that ties in with Council's proposed adjacent accessible parking space and kerb extension design (from Rozelle North LATM) at Nelson Street / Darling Street intersection (eastern leg).
- Kerb extension on the northern side at Norman Street / Darling Street intersection (western leg).
- Kerb extensions on both sides at Thornton Street / Wisbeach Street / Darling Street intersection (eastern and western legs).
- Associated signage and linemarking on Balmain Road at the entry point to the HPAA zone.
- Investigate opportunity for a raised intersection at Waterloo Street / Darling Street intersection.

Percival Road, Stanmore

The proposed HPAA zone will encompass Percival Road from Douglas Street to St Michael's Catholic Primary School, Temple Street from Percival Lane to Percival Road, and Salisbury Road from Percival Road to Percival Lane East.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb blister on the northern side at Percival Road / Myrtle Street intersection (western leg).
- New refuge island with compliant dimensions; kerb extension on the northern side at Percival Road / Myrtle Street intersection (eastern leg).
- Continuous footpath treatment across side street at Percival Road / Temple Street intersection (western leg).
- Convert existing crossing to raised zebra crossing at Percival Road / Salisbury Road intersection (northern leg).

Lackey Street / Hardie Avenue / Smith Street, Summer Hill

A HPAA zone currently exists in the Summer Hill town centre precinct south of Summer Hill Station, and includes Lackey Street, Hardie Avenue, Smith Street between Summer Hill Community Garden and south of Nowranie Street, Morris Street south of Smith Street and Moonbie Street south of Smith Street. The HPAA areas are proposed to be upgraded with the implementation of the proposed treatments.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Convert existing crossing to raised zebra crossing at Hardie Avenue / Lackey Street intersection (western leg).

- Convert existing crossing to raised zebra crossing at Hardie Avenue / Smith Street intersection (northern leg).
- Kerb blister on western side and kerb extension on eastern side at Moonbie Street / Smith Street intersection (southern leg).
- Kerb extensions on both sides at Nowranie Street / Smith Street intersection (southern leg).

Railway Parade / Gleeson Avenue / Railway Road, Sydenham (State Road)

The proposed HPAA zone will encompass all three station entries to Sydenham Station and the surrounding pedestrian-generating land uses. This includes Marrickville Road from Buckley Street to Railway Parade, Railway Parade, Burrows Avenue, Railway Road from Burrows Avenue to Gleeson Avenue, Wright Street, Gleeson Avenue, Railway Road from Gleeson Avenue to south of Rowe Lane, and Unwins Bridge Road from west of Park Road to Memory Reserve.

It is proposed the following treatments be implemented as part of the HPAA scheme:

- Kerb extensions on both sides at Railway Parade (lower section) / Sydenham Road intersection (western leg).
- Convert existing crossing to raised zebra crossing at Railway Road / Gleeson Avenue intersection (western leg).
- Speed cushions on side street at Rowe Lane / Railway Road intersection (eastern and western legs).
- Kerb extensions on both sides to replace existing pedestrian refuge at Park Road / Unwins Bridge Road intersection (southern leg).
- Associated signage and linemarking on Sydenham Road and Marrickville Road at the entry points to the HPAA zone.
- Proposed signalised intersection at the 3-legged intersection of Marrickville Road and Buckley Street.

PUBLIC CONSULTATION

Consultation will be undertaken once the concept designs are further refined to detailed designs for each proposed HPAA location.

FINANCIAL IMPLICATIONS

Further details of cost estimates will be provided in subsequent reports relating to each proposed HPAA.

ATTACHMENTS

1.⇩ LGA-Wide HPAA Investigations - Final Report
2.⇩ LGA-Wide HPAA Investigations - Concept Designs

Inner West Council

High Pedestrian Activity Area Investigations



July 2024 **Ref: 300305431**

PREPARED FOR:
Inner West Council

PREPARED BY:
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Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	03/07/2024	Draft Report V1	John Lim	Florence Asiimwe	Volker Buhl	Volker Buhl
2	30/07/2024	Draft Report V2	John Lim	Volker Buhl	Volker Buhl	Volker Buhl
3	14/11/2024	Final Report V1	John Lim	Volker Buhl		Volker Buhl

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1 Introduction

Stantec was commissioned by Inner West Council (IWC) to undertake High Pedestrian Activity Area (HPAA) investigations for a number of town centres within the LGA. The objective of implementing HPAA in these locations is to reduce traffic speeds and thereby improve liveability and safety for pedestrians.

The objectives of this study are as follows:

- To develop transport evidence for the study areas through the review of existing transport conditions and data collection.
- To identify locations with opportunities for improvement where the following applies:
  - Gateway locations to the HPAA areas
  - Locations with previous crash history
  - Road sections which experience high vehicular traffic volumes and where a greater level of separation is required
  - Areas where vehicle speeds are unsafe for high pedestrian areas
  - Existing pedestrian infrastructure that does not provide an adequate level of service or safety
  - Areas where pedestrian desire lines are not adequately supported
  - Adequacy of existing HPAA treatments, service of desire lines and proper gateway treatments within existing HPAA areas
- To define boundaries for the proposed 40km/h HPAA areas
- To develop options for the identified opportunity locations with the consideration to the following:
  - Identifying the transition between the HPAA and surrounding road network, and alerting drivers to the presence of pedestrians
  - Reducing traffic speeds within the study areas
  - Prioritising pedestrian movements within, across and through the study area corridors
  - Enhancing streetscape and the overall sense of Place
  - Enable community connections by improving pedestrian access to activity centres, schools, places of worship and other local destinations
  - Improving safety and accessibility for children, the elderly and people with mobility issues.

Figure 1 shows the locations of the 10 key sites that were assessed as part of this study. Study area boundaries for each site are provided in Section 4.

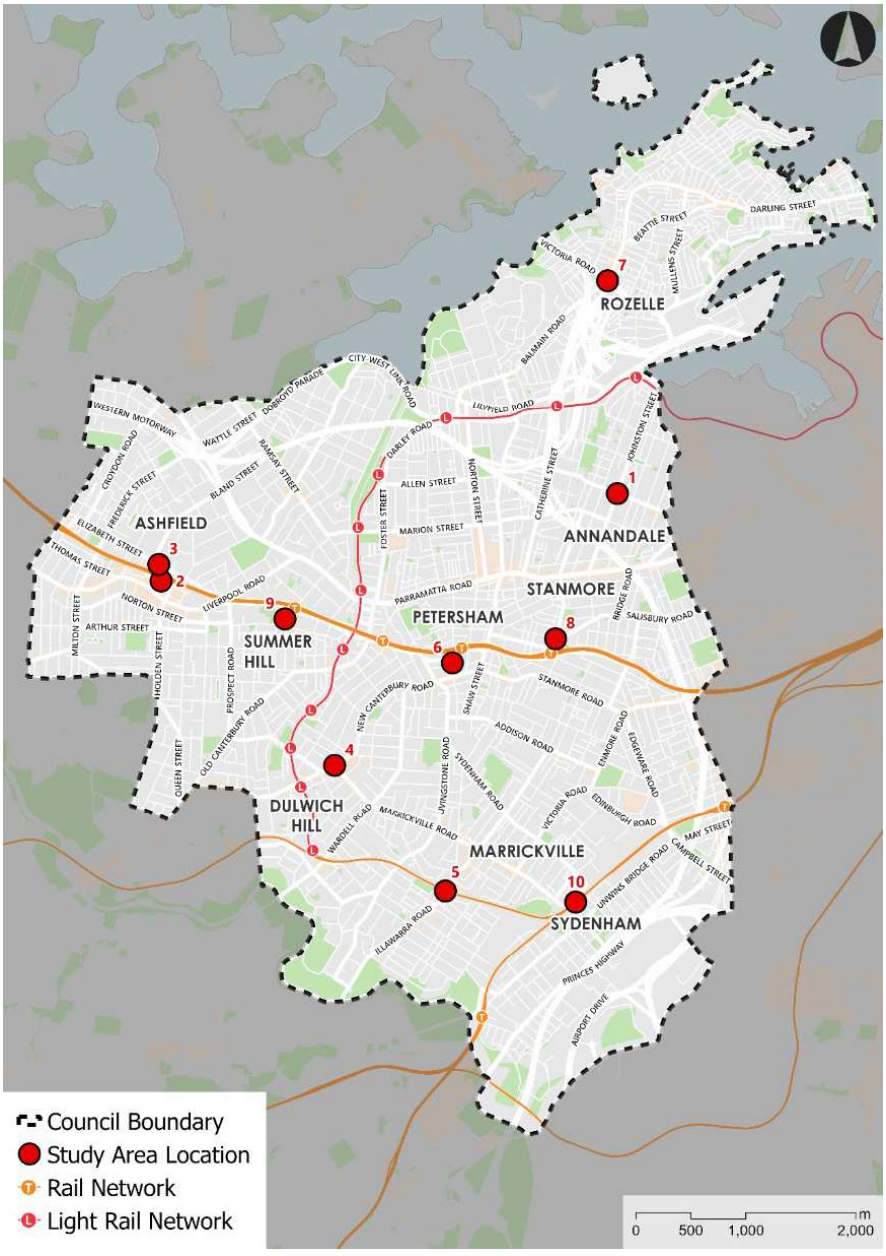


Figure 1: Study Area Locations

2 Strategic Context

This chapter provides a summary of the state and local government strategic context applicable to this study as outlined in Table 1 and Table 2 respectively, with further details provided in Appendix A. A review of the state and local government documentation aims to provide the necessary background information on which this study can be built upon, ensuring that the recommendations and initiatives put forward by this study are in alignment with the government strategies and policies.

Table 1: State Government Documentation Summary

Guideline	Description
Future Transport Strategy, Transport for NSW	The Future Transport Strategy details the strategic directions and responses for delivering TfNSW's vision for safe, healthy, sustainable, accessible and integrated passenger and freight journeys in NSW. It works to deliver Transport's three high-level outcomes of connecting customers' whole lives, successful places for communities and enabling economic activity.
Active Transport Strategy, Transport for NSW	The NSW Active Transport Strategy draws on the Future Transport Strategy and provides a 5-year plan to guide investment and prioritise actions to deliver safe and accessible active transport infrastructure in NSW.
2026 Road Safety Action Plan – Towards Zero, Transport for NSW	The 2026 Road Safety Action Plan – Towards Zero seeks to build on the accomplishments of the Road Safety Plan 2021. The plan adopts the Safe System approach onto achieving a safe transport system and focuses on enhancing education and local engagement, transforming the safety of the NSW road network and accelerating safety features in vehicles.
Evaluation of Permanent 40 km/h Speed Limits, Transport for NSW	The Evaluation of Permanent 40 km/h Speed Limits report provides an evaluation of the effectiveness and implications of implementing permanent 40 km/h speed limits, including HPAA zones. The findings of the report show significant benefits in terms of road safety and urban amenity with the implementation of lower speed zones and supports the continued implementation and expansion of permanent 40 km/h speed limits in areas with high pedestrian activity.

Table 2: Local Government Documentation Summary

Guideline	Description
Community Strategic Plan, Inner West Council	The Inner West Council's CSP, Our Inner West 2036, outlines the long-term vision and aspiration for the LGA, including strategic directions, outcomes, strategies and indicators. strategic outcomes and actions.
Local Strategic Planning Statement, Inner West Council	The Inner West Council's LSPS, Our Place Inner West, outlines the key visions and planning priorities across six themes for the LGA. The LSPS provides a strategic framework for the land use planning within the LGA.
Inner West Integrated Transport Strategy, Inner West Council	The Inner West Council's ITS outlines strategies and actions to meet the transport needs of the LGA, across all modes of transport including active transport, public transport, road, parking and freight.
Inner West Pedestrian Access and Mobility Plan, Inner West Council	The Inner West Council's PAMP provides a strategy for the development and improvement of pedestrian routes and facilities within the Inner West LGA. The PAMP has identified the implementation of HPAAs in key centres and areas of high pedestrian concentration which have informed the designation of investigation areas for potential HPAAs for this study.
InnerWest@40: Investigation in Potential Local Road Speed Limit Reductions, Inner West Council	The Inner West Council's InnerWest@40 - Investigation in Potential Local Road Speed Limit Reductions study provides an investigation on the feasibility of reducing speed limits on local roads within the Inner West LGA. The study proposes lowering the speed limit to 40 km/h on all local streets and to 50 km/h on all regional roads, with further reduction to 40 km/h to be proposed in the long term.

InnerWest@40: Investigation in Potential Regional and State Road Speed Limit Reductions, Inner West Council	The Inner West Council's InnerWest@40 - Investigation in Potential Regional and State Road Speed Limit Reductions study provides an investigation on the feasibility of reducing speed limits on state and regional roads which are under the jurisdiction of Transport for New South Wales within the Inner West LGA.

3 Guidelines

This chapter provides a summary of the relevant guidelines and standards to be considered in the planning and implementation of this study as outlined in Table 3, with further details provided in Appendix B. These guidelines have been utilised to align treatment recommendations to best practice.

Table 3: Guidelines and Standards Summary

Guideline	Description
NSW Speed Zoning Standard, Transport for NSW	The NSW Speed Zoning Standard by TfNSW sets out the principles and technical information for reviewing, determining, and implementing speed zones on NSW public roads. The document outlines the principles for setting speed zones on roads and streets within NSW, with the aim to promote safe and efficient movement of people and goods, facilitating people-centred environments and connecting places.
Guide to Traffic Management Part 8: Local Street Management, Austroads	The Austroads Guide to Traffic Management – Part 8 provides guidance and best practice for design and implementation of different Local Area Traffic Management (LATM) devices based on previous research and practice in Australia and New Zealand. The guide provides a toolkit and selection system for a list of LATM devices with their relative uses
Walking Space Guide, Transport for NSW	The Walking Space Guide developed by TfNSW sets out standards and principles for improved pedestrian comfort and safety, and details recommended widths for footpaths of different street activity levels.
Cycleway Design Toolbox, Transport for NSW	The Cycleway Design Toolbox by TfNSW provides guidance for practitioners in the design of cycling and micro-mobility infrastructure across NSW. The toolbox outlines a range of design tools and best practices for the design and delivery of high-quality cycling infrastructure.
Practitioners Guide to Movement and Place	In partnership with the Government Architect NSW, Transport for NSW has developed the Practitioners Guide to Movement and Place for use on NSW Government projects. The guide provides guidance for practitioners involved in the planning, design, delivery, and operation of transport networks and the surrounding areas, with consideration to the needs of movement (transport) and place (the quality of the surrounding environment).
Pedestrian Crossing Guideline, Transport for NSW	The Pedestrian Crossing Guideline by TfNSW provides guidance on the planning, evaluation and implementation of pedestrian crossings. The document provides guidance on elements for consideration for the development of pedestrian crossings and details on various pedestrian crossing facility options. In addition, the document provides guidelines for the planning and selection of pedestrian crossing facility based on the street classification with consideration to NSW Movement and Place Framework
Pedestrian Crossing Warrant Policy, Transport for NSW	In this study, TfNSW's pedestrian crossing warrant policy applies to the installation of pedestrian (zebra) crossings on all roads under the State's jurisdiction.
Pedestrian Crossing Warrant Policy, Inner West Council	In this study, Inner West Council's pedestrian crossing warrant policy applies to the installation of pedestrian (zebra) crossings on all local and regional roads under the Council's jurisdiction.
TS 02667 (TDT2013/05) Continuous footpath treatments, Transport for NSW	The Technical Direction TDT2013/05 by TfNSW outlines the criteria and guidelines for implementing continuous footpath treatments.

4 Investigation Areas

This chapter provides a summary of the 10 investigation areas that were assessed as part of this study. For each investigation area, a brief description of the area is provided as well as a summary of the existing land use, road network, transport infrastructure, crash data analysis, traffic data analysis, issues identified as well as proposed treatments. More detailed information and analysis regarding existing conditions for each investigation area is provided in Appendix C to Appendix L of the report.

4.1 Study Area 1: Annandale

The extent of the study area spans along the Annandale town centre strip at Booth Street as shown in Figure 2. It is bounded by Alfred Street to the north-west and Alexandra Drive to the south-east. Section 4.1.1 to Section 4.1.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix C of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.



Figure 2: Study Area – Annandale

4.1.1 Existing Land Use

Within the study area, land uses comprise a retail and dining strip along Booth Street between Annandale Street and Wigram Road. Additionally, several retail premises are intermittently spread along Booth Street west of Annandale Street. Long stretches of on-street parking are available on streets adjoining Booth Street, including Young Street, Annandale Street, Johnston Street (south of Booth Street), View Street, Trafalgar Street, Nelson Street, and Taylor Street. The area also features a mix of low- to medium-density residential dwellings and mixed-use developments along Booth Street. Surrounding key land uses include Annandale Neighbourhood Centre, Annandale North Public School, St Brendan's

Catholic Primary School, Annandale Public School, and industrial areas to the west in Leichhardt and to the south-east in Camperdown.

4.1.2 Existing Road Network

With the exception of Johnston Street and Booth Street, all roads in the study area are classified as local roads.

Booth Street is classified as a regional road and runs east-west in the study area. It has one lane of traffic in each direction with restricted kerbside parking. Within the study area, a posted speed limit of 40 km/h applies to the segment between Collins Lane and Nelson Lane, with the remaining area subject to a 50 km/h speed limit. Johnston Road is a state road that intersects with Booth Street at the core of the Annandale Town Centre. It generally has two lanes per direction with restricted kerbside parking. Within the study area, the road is subject to a posted speed limit of 50 km/h.

4.1.3 Existing Transport Infrastructure and Facilities

Footpaths are present on both sides of the roads, and pedestrian crossing facilities support crossing movements across Booth Street and the local streets. West of the Booth Street and Wigram Road intersection, on-road cycle routes are present along Booth Street and several side streets, including Young Street, Trafalgar Street, Nelson Street, and Taylor Street. East of the Booth Street and Wigram Road intersection, off-road cycle routes run along Wigram Road to the north-east and Booth Street to the south-east, transitioning to a separated cycleway. Public bus routes service Booth Street, with several stops located along the Annandale town centre strip.

Traffic calming treatments in use include wombat crossings, speed cushions, kerb blisters, kerb extensions, and median treatments.

4.1.4 Historical Crash Data

In the five-year period from 2018 to 2022, two crashes involving pedestrians were reported in the study area. Both crashes occurred at intersections, with one crash resulting in major injuries while the other resulted in minor injuries.

4.1.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 13th and 19th March 2024, the following was observed:

- Along Booth Street, west of Young Street, the northbound weekday average volume was 429 vehicles/hr in the AM peak and 532 vehicles/hr in the PM peak. The southbound weekday average volume was 548 vehicles/hr in the AM peak and 439 vehicles/hr in the PM peak.
- Along Booth Street, south of Wigram Street, the northbound weekday average volume was 402 vehicles/hr in the AM peak and 511 vehicles/hr in the PM peak. The southbound weekday average volume was 490 vehicles/hr in the AM peak and 388 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Booth Street, where the HPAA does not apply. 85th percentile speeds on Booth Street west of Young Street have been observed to be consistently lower than 40 km/h during higher volume traffic periods between 8:00am and 7:00pm.

4.1.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at four locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the four pedestrian survey sites are 7:45 am to 8:45 am for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were situated at both ends of the Annandale town centre strip. At the western end of the town centre strip west of Annandale Street, the main pedestrian volumes were associated with east-west movements along Booth Street with higher pedestrian activity observed closer to the core retail strip with a concentration of retail and dining establishments. At the eastern end of the town centre strip east of Taylor Street, the highest pedestrian activity was observed to be along Booth Street south of Wigram Road which can be attributed to the cluster of high-density residential dwellings to the east.

4.1.7 Proposed HPAA zones

The proposed HPAA zones are illustrated in Figure 3. The proposed expansion of the existing HPAA along Booth Street encompasses the retail strip to the east and pockets of retail premises to west. The designation aims to maintain consistency of speed limits in areas with similar land use characteristics and ensures prioritisation of pedestrian safety at areas with high foot traffic.



Figure 3: Proposed HPAA Zone – Annandale

4.1.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 4 details the list of issues identified, with locations referenced in Figure 4.

Table 4: Issues – Annandale

ID	Location	Coordinates	Issue
1	Booth Street / Young Street intersection (northern leg)	-33.880547, 151.168281	Informal crossing facility with a crossing distance of 14m; opportunity to improve
2	Booth Street / Young Street intersection (southern leg)	-33.880657, 151.168230	Informal crossing facility with a crossing distance of 14m; opportunity to improve
3	Booth Street / Young Street intersection (southern leg)	-33.880663, 151.168137	Elevated sidewalk on western side; lack of ramps poses accessibility issues, particularly for those with limited mobility
4	Booth Street / Young Street intersection (western leg)	-33.880600, 151.168102	Elevated sidewalk on southern side; lack of ramps poses accessibility issues, particularly for those with limited mobility
5	Booth St / Young Street intersection (western leg)	-33.880553, 151.168138	Informal crossing facility with a crossing distance of 13m; narrow storage space at refuge island (1.4m parallel and 1.2m perpendicular to the road direction of travel)
6	Booth Street / Young Street intersection (eastern leg)	-33.880607, 151.168302	Informal crossing facility with a crossing distance of 13m; narrow storage space at refuge island (1.4m parallel and 1.2m perpendicular to the road direction of travel); nearest prioritised pedestrian crossing (raised zebra crossing) on Booth Street is located 110m away
7	Booth Street / Annandale Street intersection (northern leg)	-33.88088, 151.16933	Narrow storage space at refuge island (1.5m parallel and 1.1m perpendicular to the road direction of travel)
8	Booth Street / Annandale Street intersection (southern leg)	-33.881036, 151.169259	Narrow storage space at refuge island (1.5m parallel and 1.1m perpendicular to the road direction of travel)
9	Booth Street / View Street / Johnson Lane intersection (southern leg)	-33.881764, 151.171435	Informal crossing facility with a crossing distance of 4m across a one-way street; opportunity to improve
10	Booth Street / View Street / Johnson Lane intersection (northern leg)	-33.88161, 151.171493	Narrow storage space at refuge island (2m parallel and 1.1m perpendicular to the road direction of travel)

ID	Location	Coordinates	Issue
11	Booth Street / Trafalgar Street intersection (southern leg)	-33.882012, 151.172112	Narrow storage space at refuge island (2m parallel and 1m perpendicular to the road direction of travel)
12	Booth Street / Trafalgar Street intersection (northern leg)	-33.881851, 151.172183	Narrow storage space at refuge island (1.9m parallel and 1m perpendicular to the road direction of travel)
13	Booth Street / Nelson Street intersection (northern leg)	-33.88229, 151.173609	Narrow storage space at refuge island (2.5m parallel and 1.3m perpendicular to the road direction of travel)
14	Booth Street / Nelson Street intersection (eastern leg)	-33.882455, 151.173692	Narrow storage space at refuge island (3m parallel and 0.9m perpendicular to the road direction of travel)
15	Booth Street / Wells Street intersection (southern leg)	-33.882235, 151.172822	Informal crossing facility with a crossing distance of 6.5m across a one-way street and steep slope at Wells Street; opportunity to improve
16	Booth Street / Nelson Street intersection (southern leg)	-33.88251519, 151.17350913	Informal crossing facility with a crossing distance of 12m; opportunity to improve
17	Booth Street / Taylor Street intersection (northern leg)	-33.882721, 151.174645	Informal crossing facility with a crossing distance of 13m; opportunity to improve
18	Booth Street / Wigram Road intersection (north-eastern leg)	-33.882941, 151.175381	Narrow storage space at refuge island (1.2m perpendicular to the road direction of travel at the narrowest point)
19	Booth Street / Wigram Road intersection (southern leg)	-33.883151, 151.175360	Informal crossing facility with a crossing distance of 9m; opportunity to improve
20	Booth St between Wigram Road and Alexandra Drive	-33.883467, 151.175533	Speed risk with downhill slope towards the north on approach to the Booth Street / Wigram Road intersection



Figure 4: Issue Locations – Annandale

4.1.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 5 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.1.8. Figure 5 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 5: Proposed Treatments – Annandale

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Booth Street, west of Young Street	-33.880479, 151.167873	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in the speed environment	-
2	Booth Street / Young Street intersection (north leg)	-33.880547, 151.168281	Kerb extensions on both sides	Reduces crossing distance and increases crossing visibility; narrowing of carriageway reduces vehicle speeds	1
3	Booth Street / Young Street intersection (south-western corner)	-33.880631, 151.168134	Implementation of a kerb blister which wraps around the elevated sidewalks at the south-western corner of the intersection, alongside four new kerb ramps that align with the opposing existing kerb ramps and connect to the adjoining footpaths (proposed by Council)	Kerb blister reduces crossing distance and increases crossing visibility for both north-south and east-west crossings, while serving as horizontal deflection device in reducing vehicle speeds; the associated kerb ramps	2, 3, 4, 5
4	Booth Street / Young Street intersection (eastern leg)	-33.880607, 151.168302	Raised zebra crossing to replace existing pedestrian refuge; requires the relocation of bus zone on south side of Booth Street to further east No data is available for this location, however, it is anticipated that there would be high traffic volumes with the associated regional road classification and notable pedestrian traffic with proximity to key land uses such as retail establishments and bus stops.	Provides a prioritised pedestrian crossing and ensures formalised mid-block crossings points across the main street approx. every 100m	6
5	Booth Street / Annandale Street intersection (northern leg)	-33.88088, 151.16933	New refuge island with compliant dimensions	Provides adequate waiting space in the middle of the road; further narrowing of carriageway with widened refuge island slows down vehicle speeds	7

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
6	Booth Street / Annandale Street intersection (southern leg)	-33.881036, 151.169259	New refuge island with compliant dimensions	Provides adequate waiting space in the middle of the road; further narrowing of carriageway with widened refuge island slows down vehicle speeds	8
7	Booth Street / View Street / Johnson Lane intersection (southern leg)	-33.881764, 151.171435	Continuous footpath treatment across side street (consistent with Inner West PAMP detailed works program) No data is available for this location, however, it is anticipated that there would be low traffic volumes given that it is a laneway	Provides a prioritised pedestrian crossing point along the town centre strip and raised threshold reduces vehicle speeds; the existing tight street geometry further supports the implementation of footpath continuation.	9
8	Booth Street / Trafalgar Street intersection (southern leg)	-33.882012, 151.172112	New refuge island with compliant dimensions	Provides adequate waiting space in the middle of the road; further narrowing of carriageway with widened refuge island slows down vehicle speeds	11
9	Booth Street / Trafalgar Street intersection (northern leg)	-33.881851, 151.172183	New refuge island with compliant dimensions	Provides adequate waiting space in the middle of the road; further narrowing of carriageway with widened refuge island slows down vehicle speeds	12
10	Booth Street / Nelson Street intersection (northern leg)	-33.88229, 151.173609	Widening of the refuge island parallel to the road direction of travel to provide a 3.0m opening; widening in the perpendicular direction not possible due to road space constraints	Provides adequate waiting space in the middle of the road	13
11	Booth Street / Wells Street intersection (southern leg)	-33.882235, 151.172822	Continuous footpath treatment across side street (consistent with Inner West PAMP detailed works program) Data collected in March 2024 indicated weekday average traffic volumes of 21 and 20 for AM and PM peak respectively. This meets the criteria for a continuous footpath treatment	Provides a prioritised pedestrian crossing point along the town centre strip and raised threshold serves as traffic calming measure and gateway entry onto the HPAA zone; the existing relatively tight street geometry for a two-way street further supports the implementation of footpath continuation treatment	15
12	Booth Street / Nelson Street intersection (southern leg)	-33.88251519, 151.17350913	Kerb blisters on both sides; requires relocation of parking signage to the south	Reduces crossing distance and improves crossing visibility; carriageway narrowing reduces vehicle speeds	16

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
13	Booth Street / Taylor Street intersection (northern leg)	-33.882721, 151.174645	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; carriageway narrowing reduces vehicle speeds	17
14	Booth Street / Taylor Street intersection (western leg)	-33.882964, 151.175150	Relocate existing crossing point slightly to the west and adjust kerb blister positioning accordingly	Provides adequate distance between the crossing point and vehicles on approach from the roundabout, allowing for adequate visibility for both pedestrians and drivers	-
15	Booth Street / Wigram Road intersection (southern leg)	-33.883151, 151.175360	Raised zebra crossing to replace existing pedestrian refuge Data collected on Thursday 6h June 2024 indicated volumes of 871 vehicles and 46 pedestrians for AM peak, and 908 vehicles and 37 pedestrians for PM peak. This meets the Council's warrant requirements for a pedestrian zebra crossing	Provides a prioritised pedestrian crossing and raised threshold slows down vehicle speeds at the crossing	19, 20
16	Booth Street, north of Alexandra Drive	-33.883795, 151.175638	Speed cushion on northbound lane	Gateway treatment to signify start of HPAA zone and reduce vehicle speeds along the downhill slope	20
17	Booth Street / Wigram Road intersection (north-eastern leg)	-33.882941, 151.175381	Speed cushion on approach to the refuge island crossing, on the southbound lane approach to the intersection	Reduces vehicle speeds approaching the crossing and acts as a visual cue in alerting drivers to the upcoming crossing, providing improved pedestrian safety	18

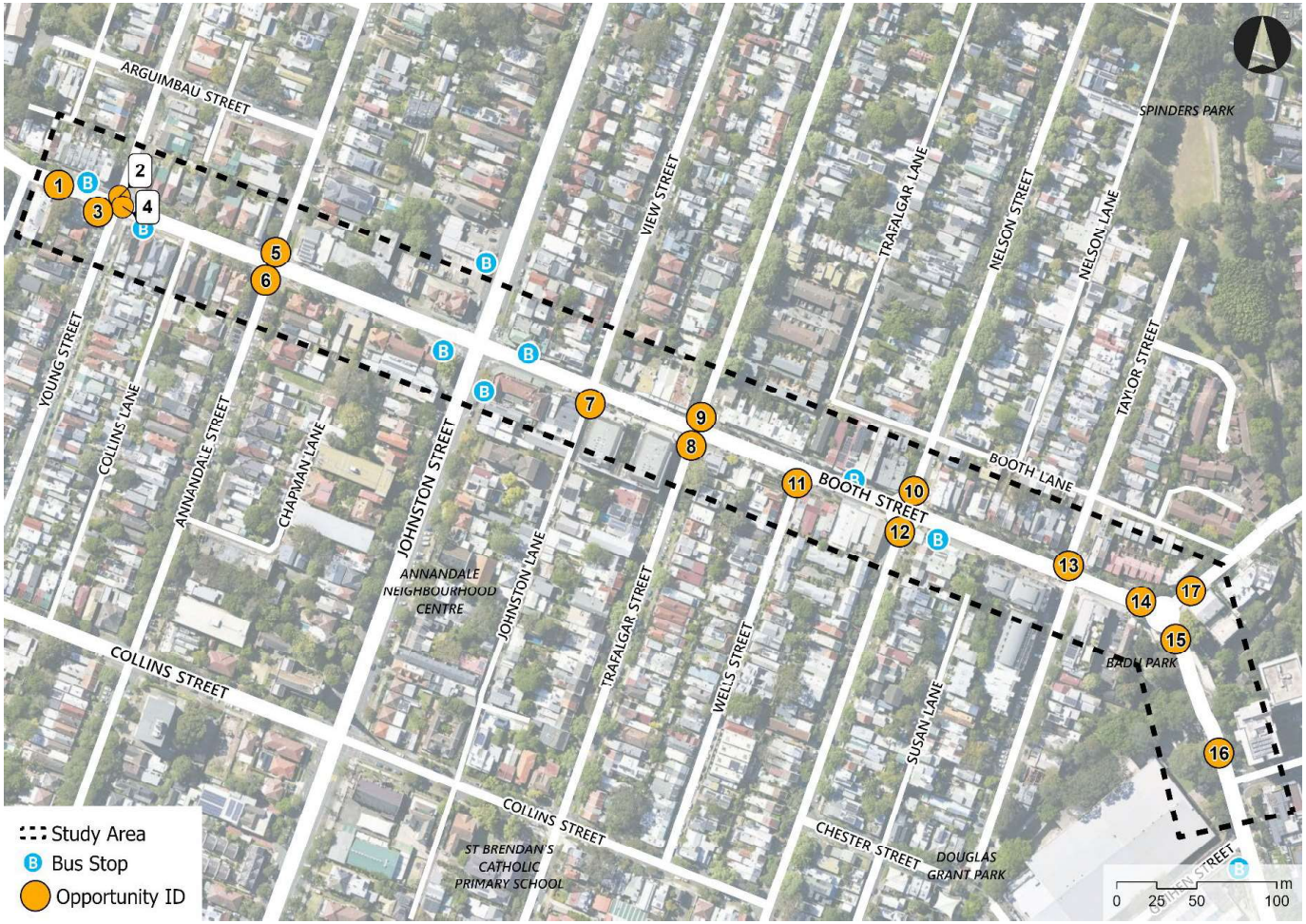


Figure 5: Proposed Treatment Locations – Annandale

4.2 Study Area 2: Ashfield (Brown Street)

The extent of the study area covers the Ashfield town centre section south of Ashfield Station along Brown Street as shown in Figure 6. It is bounded by the rail corridor to the north and Liverpool Road to the south. Section 4.2.1 to Section 4.2.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix D of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.

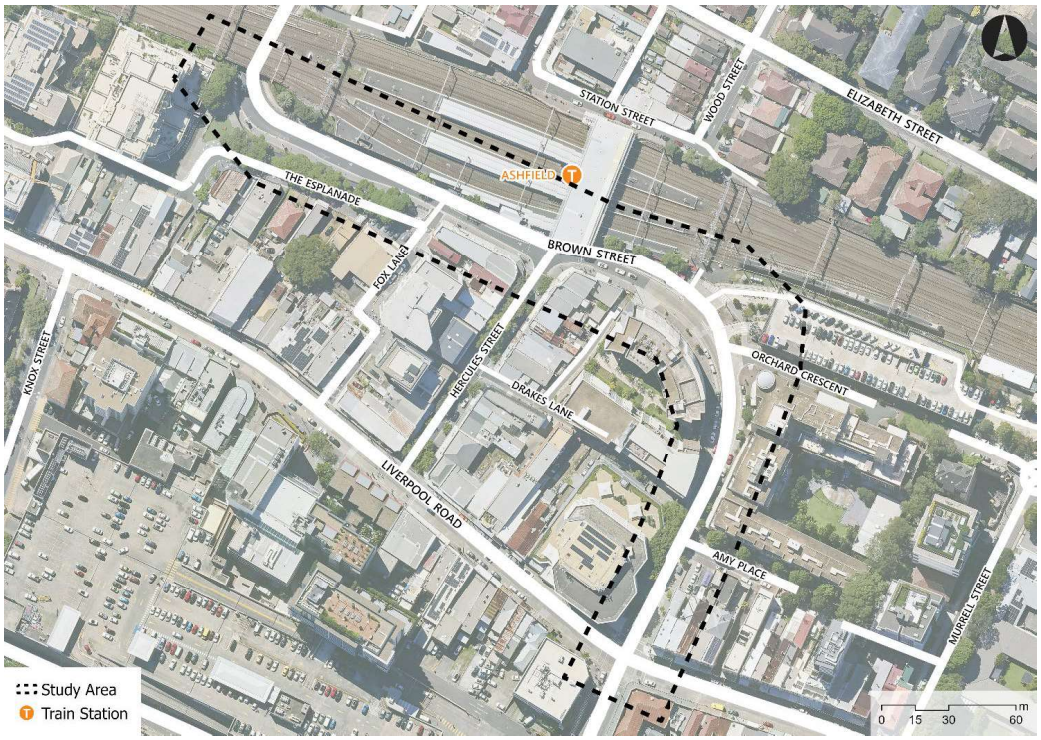


Figure 6: Study Area – Ashfield (Brown Street)

4.2.1 Existing Land Use

The study area features a variety of land uses, including a commercial centre situated to the south and mixed-use developments surrounding Ashfield Station. Along Brown Street, there is a blend of retail and commercial premises. The area also includes a large off-street car park, comprising Ashfield Park & Ride and the Brown Street Car Park. High-density residential developments are present along Brown Street, surrounded by retail and commercial land uses. Surrounding key land uses include Ashfield shopping mall, retail and commercial strip along Hume Highway and Hercules Street, mixed use developments to the west along The Esplanade, Ashfield Public School and Ashfield Boys High School.

4.2.2 Existing Road Network

With the exception of Liverpool Road, the rest of the roads in the study area are classified as local roads. Brown Street is classified as a local road and runs from south-east to north-west in the study area. It intersects with Liverpool Road on the southern end of the study area and has one lane of traffic in each direction with restricted kerbside parking. The posted speed limit on Brown Street is 50 km/h while the posted speed limit on Liverpool Road is 60 km/h within the study area.

4.2.3 Existing Transport Infrastructure and Facilities

Footpaths are present on both sides of the roads, and pedestrian crossing facilities support crossing movements across Brown Street, Liverpool Road and other streets, as well as a railway underpass which connects to north of the train station via an entry west of Fox Lane. On-road cycle routes are present along Brown Street and Liverpool Road. Ashfield Station is centrally located at Brown Street with station entries within close proximity to the scramble crossing at the Brown Street / Hercules Street intersection. Public bus routes service Brown Street, Hercules Street and Liverpool Road, with stops along Brown Street within proximity to the train station.

Traffic calming treatments in use include median treatments.

4.2.4 Historical Crash Data

In the five-year period from 2018 to 2022, two crashes involving pedestrians were reported along Liverpool Road in the vicinity of the study area. No pedestrian crashes were recorded within the study area.

4.2.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 14th and 20th March 2024, the following was observed:

- Along Brown Street, West of Fox Lane, the eastbound weekday average volume was 260 vehicles/hr in the AM peak and 243 vehicles/hr in the PM peak. The southbound weekday average volume was 397 vehicles/hr in the AM peak and 312 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Brown Street, with the 85th percentile speeds ranging between 41 km/h and 42km/h throughout the day between 7:00am and 7:00pm.

4.2.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Thursday, 14th March 2024, at Brown Street, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the pedestrian survey site are 8:00 am to 9:00 am for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey site was located at the scramble crossing at Brown Street / Hercules Street intersection fronting Ashfield Station. The observed primary pedestrian activity at the intersection was associated with the movements across Brown Street, with higher volumes for the western leg. This can be attributed to a higher concentration of retail and commercial land uses, such as the Ashfield shopping precinct, to the south-west, as well as high-density residential housing to the west.

4.2.7 Proposed HPAA zones

The proposed HPAA zone, as shown in Figure 7, extends along Brown Street which encompasses areas with consistently high pedestrian traffic. These areas are made up of a mix of retail and commercial establishments, Ashfield Station and high-density residential housing. It connects to the existing HPAAs along The Esplanade and Hercules Street and existing shared zone on Fox Lane, and further to the proposed HPAA zone north of the rail line as detailed in Section 4.3.7. This designation ensures comprehensive coverage of high pedestrian traffic zones and safe pedestrian access routes, particularly the scramble pedestrian crossing at Brown Street / Hercules Street intersection which acts as the primary link between the Ashfield commercial precinct and the train station.

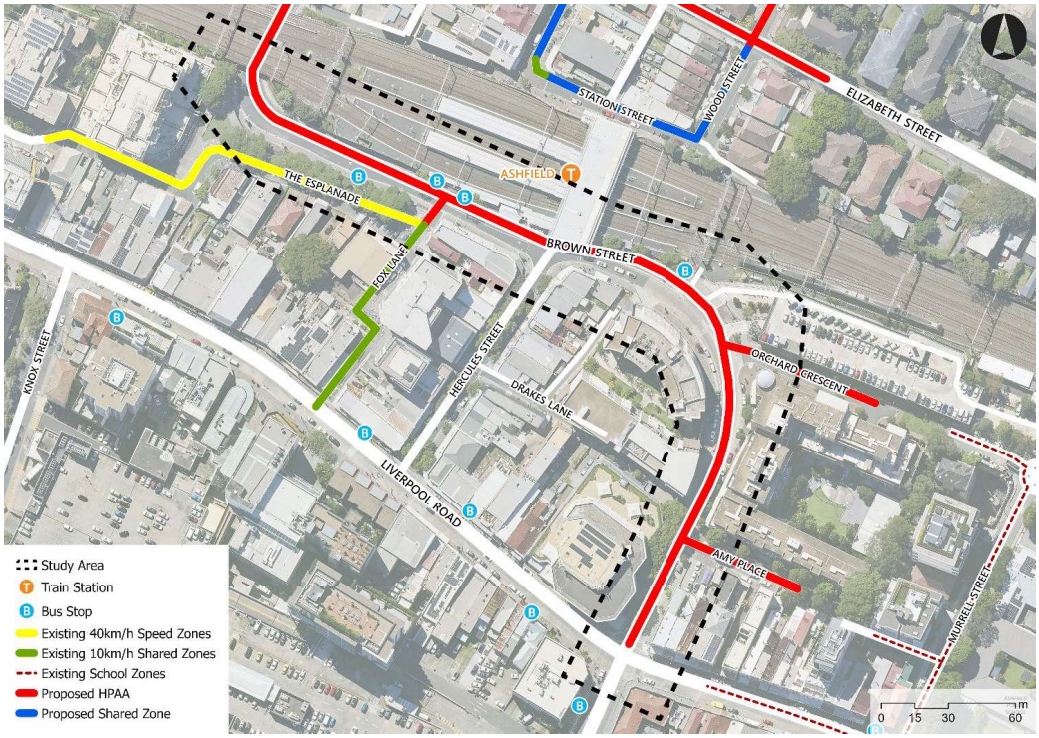


Figure 7: Proposed HPAA Zone – Ashfield (Brown Street)

4.2.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 6 details the list of issues identified, with locations referenced in Figure 8.

Table 6: Issues – Ashfield (Brown Street)

ID	Location	Coordinates	Issue
1	Brown Street / Amy Place intersection	-33.889119, 151.126333	Informal crossing facility across a minor side street with a crossing distance of 6.5m; opportunity to improve
2	Brown Street / Orchard Crescent intersection	-33.888355, 151.126570	Informal crossing facility with a crossing distance of 7.5m; opportunity to improve
3	Brown Street / Fox's Lane intersection	-33.887732, 151.125124	Informal crossing facility with a crossing distance of 7m; opportunity to improve
4	Brown Street between Bland St and Liverpool Rd	-33.889158, 151.126228	Speed risk due to downhill slopes along Brown Street from Liverpool Road to Bland Street, particularly segment north of Orchard Crescent due to steeper gradient
5	Access driveways to Ashfield Park & Ride	-33.888175, 151.126556	Existing zebra crossings are not raised

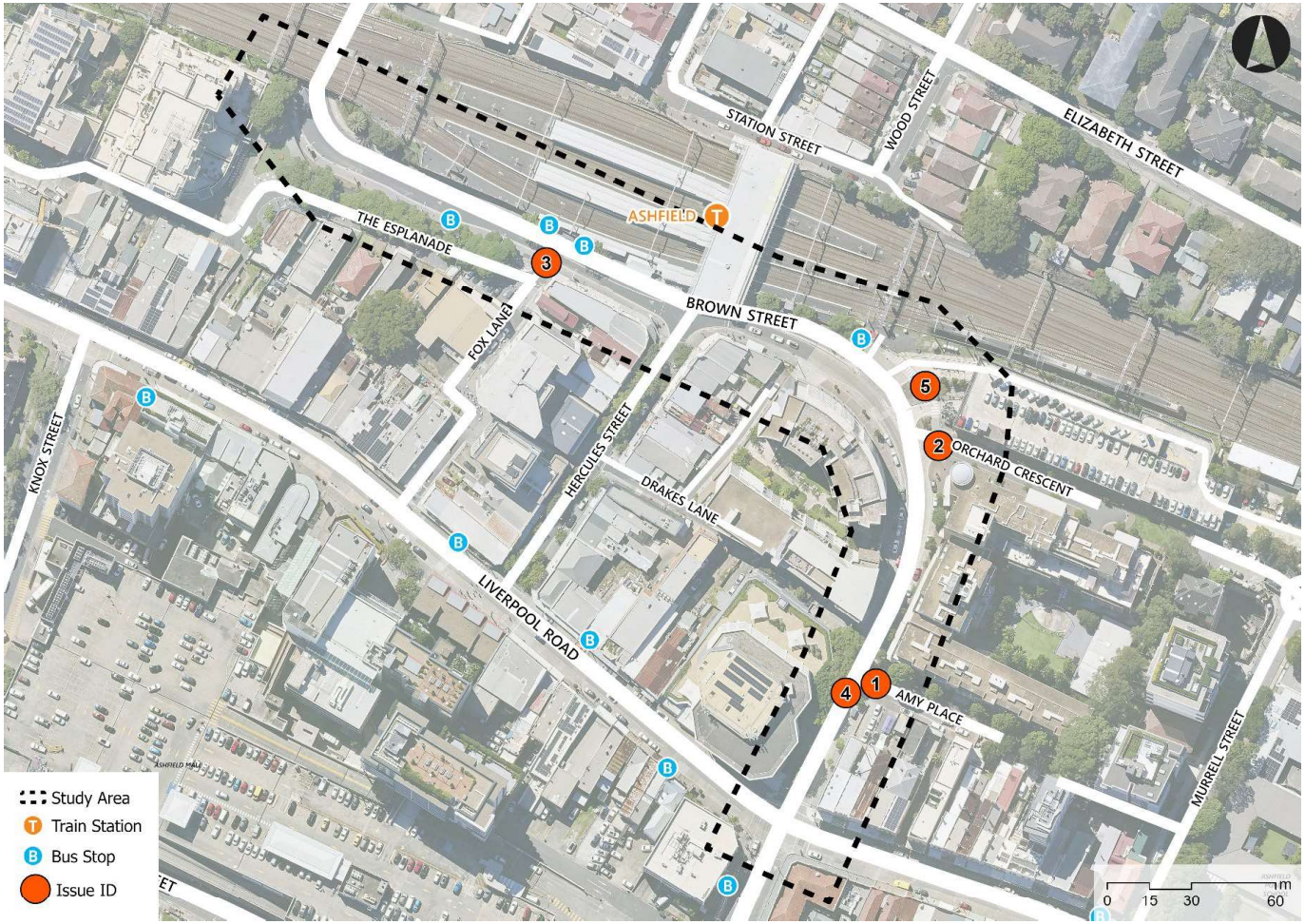


Figure 8: Issue Locations – Ashfield (Brown Street)

4.2.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 7 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.2.8. Figure 9 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 7: Proposed Treatments – Ashfield (Brown Street)

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Brown Street / Orchard Crescent intersection	-33.888355, 151.126570	Continuous footpath treatment (consistent with Inner West PAMP detailed works program) Data collected on Thursday 30th March 2023 indicated traffic volumes of 32, 12 and 31 for AM, mid and PM peak respectively. This meets the criteria for a continuous footpath treatment.	Provides a prioritised pedestrian crossing point along the town centre strip and raised threshold reduces vehicle speeds at the crossing	2
2	Brown Street / Fox's Lane intersection	-33.887732, 151.125124	Continuous footpath treatment (consistent with Inner West PAMP detailed works program) Data collected on Thursday 30th March 2023 indicated traffic volumes of 96, 75 and 121 for AM, mid and PM peak respectively. These surveyed peak traffic volumes exceed the criteria for a continuous footpath treatment. However, since Fox Lane primarily functions as an access point for residential properties and the rear of shops rather than a connector of Brown Street to the nearby arterial road (Liverpool Road), the implementation of a continuous footpath treatment is not likely to cause major impacts to the main traffic flow in the surrounding network. Furthermore, considering the significant pedestrian traffic with proximity to a mix of medium- to high-density residential dwellings to the west and the train station, it is advised to provide a continuous footpath treatment at this location to ensure pedestrian safety.	Provides a prioritised pedestrian crossing point along the town centre strip and raised threshold reduces vehicle speeds at the crossing	3

3	Brown St between Bland St and Liverpool Rd	-33.889256, 151.126162	Tactile surface treatments on traffic lanes in each direction	Tactile surface treatments aim to alert drivers to take greater care and reduce vehicle speeds along the downhill slope, while serving as gateway treatment for entry to the proposed HPAA zone	4

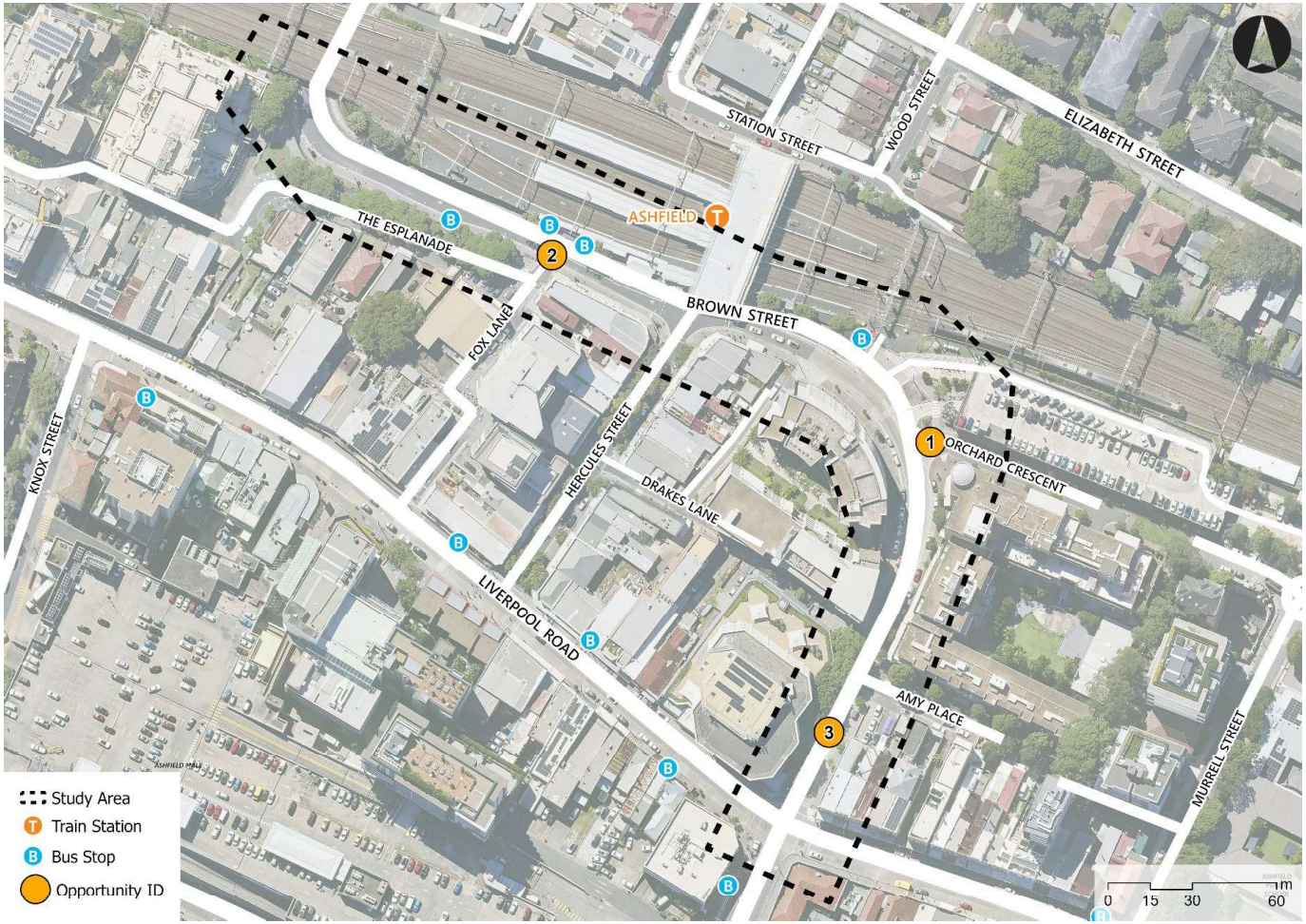


Figure 9: Proposed Treatment Locations – Ashfield (Brown Street)

4.3 Study Area 3: Ashfield (Elizabeth Street)

The extent of the study area covers the Ashfield town centre section north of Ashfield Station as shown in Figure 10, and stretches along Elizabeth Street and a number of other streets. It is bounded by the rail corridor to the south. To the west, the study area extends just west of Nixon Avenue. To the east, it extends just east of Wood Street. Section 4.3.1 to Section 4.3.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix E of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.

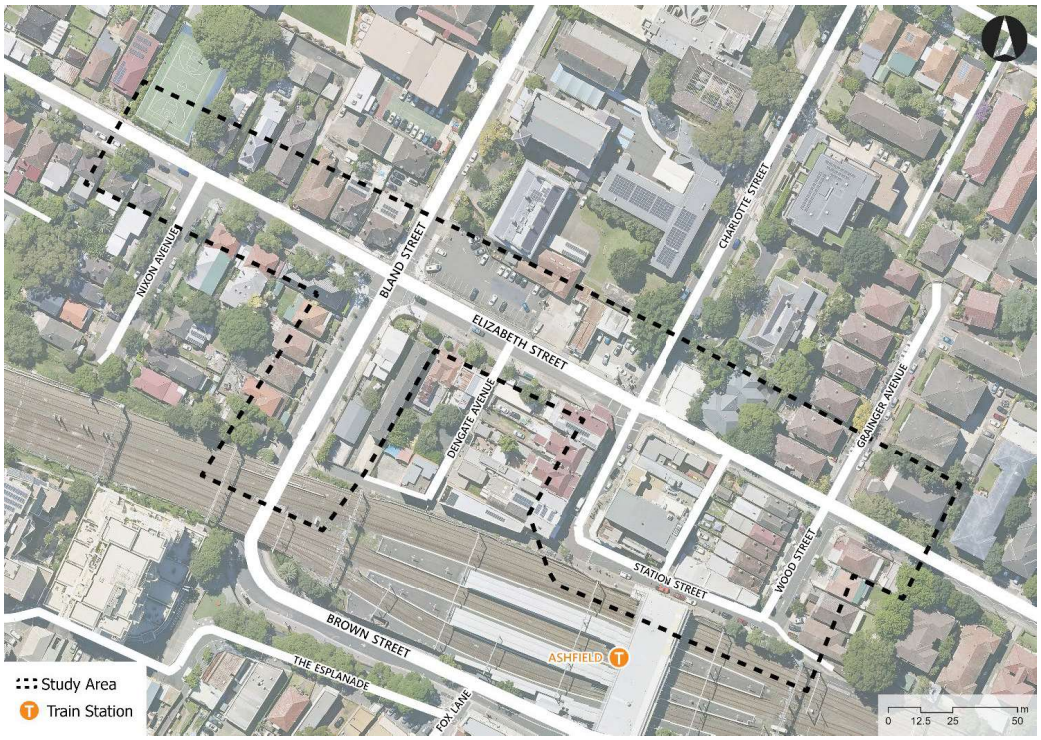


Figure 10: Study Area – Ashfield (Elizabeth Street)

4.3.1 Existing Land Use

The study area consists of a local core situated just north of Ashfield station east of Dengate Avenue, surrounded by low- and medium-density residential housing. Surrounding key land uses include St Vincent's College, St Vincent's Catholic Primary School, Bethlehem College and St Vincent's Catholic Church.

4.3.2 Existing Road Network

With the exception of Elizabeth Street, the rest of the roads in the study area are classified as local roads.

Elizabeth Street is classified as a regional road and runs east-west in the study area. It has one lane of traffic in each direction and a posted speed limit of 50 km/h.

Station Street is a local road with an east-west alignment and located directly in front of Ashfield Station. It has one lane of traffic in each direction with restricted kerbside parking. A 50 km/h speed limit applies to most of this road, with a 10 km/h zone in place at the western end.

4.3.3 Existing Transport Infrastructure and Facilities

Footpaths are present on both sides of the roads, and pedestrian crossing facilities support crossing movements across Brown Street and the local streets, as well as a railway underpass which connects to south of the train station via an entry between Dengate Avenue and Station Street. On-road cycle routes are present along Elizabeth Street and Bland Street. Public bus routes service Elizabeth Street, with 4 stops located in the study area.

Traffic calming treatments in use include raised threshold and a wombat crossing.

4.3.4 Historical Crash Data

In the five-year period from 2018 to 2022, two crashes involving pedestrians were reported in the study area. Both crashes occurred at intersections, with one crash resulting in serious injuries while the other resulted in minor injuries.

4.3.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 9th and 15th March 2024, the following was observed:

- Along Elizabeth Street, west of Wood Street the eastbound weekday average volume was 350 vehicles/hr in the AM peak and 283 vehicles/hr in the PM peak. The westbound weekday average volume was 298 vehicles/hr in the AM peak and 356 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Elizabeth Street. The 85th percentile speeds have been observed to be below 40km/h for the majority of the day, with the exception of the pre-dawn hours between 1:00am and 5:00am.

4.3.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Thursday, 14th March 2024, at three locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 3:00 pm to 4:00 pm. Based on the traffic survey results, the identified peak hours for the three pedestrian survey sites are 7:45 am to 8:45 am for the weekday AM peak hour and 3:00 pm to 4:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were positioned at multiple points along Elizabeth Street. The main pedestrian volumes were associated with east-west movements along the southern side of Booth Street with highest pedestrian activity observed at the segment within proximity to Ashfield Station and its surrounding retail establishments.

4.3.7 Proposed HPAA zones

The proposed HPAA zone, as shown in Figure 19, spans along Elizabeth Street and a number of side streets. Along Elizabeth Street, the proposed zone extends from the pedestrian site entrance of St Vincent's college in the west, past Ashfield Station and the cluster of retail establishments around the station, to the wombat crossing in the east. It connects to the existing school zones on Bland Street and Charlotte Street fronting a number of schools, including St Vincent's College, Bethlehem College and St Vincent's Catholic Primary School. To the south, it further connects to the proposed HPAA zone on Brown Street south of the rail corridor which is detailed in Section 4.2.7. The designation of this HPAA zone ensures that a low speed environment is applied consistently across areas with high foot traffic, with a focus in providing safe access routes to key pedestrian areas including schools, Ashfield Station and retail establishments north of the station. Additional proposal for reduced speed zoning includes the expansion of existing shared zone at Station Street to cover the entire length of the one-way street from Charlotte Street to Wood Street, south of Elizabeth Street.

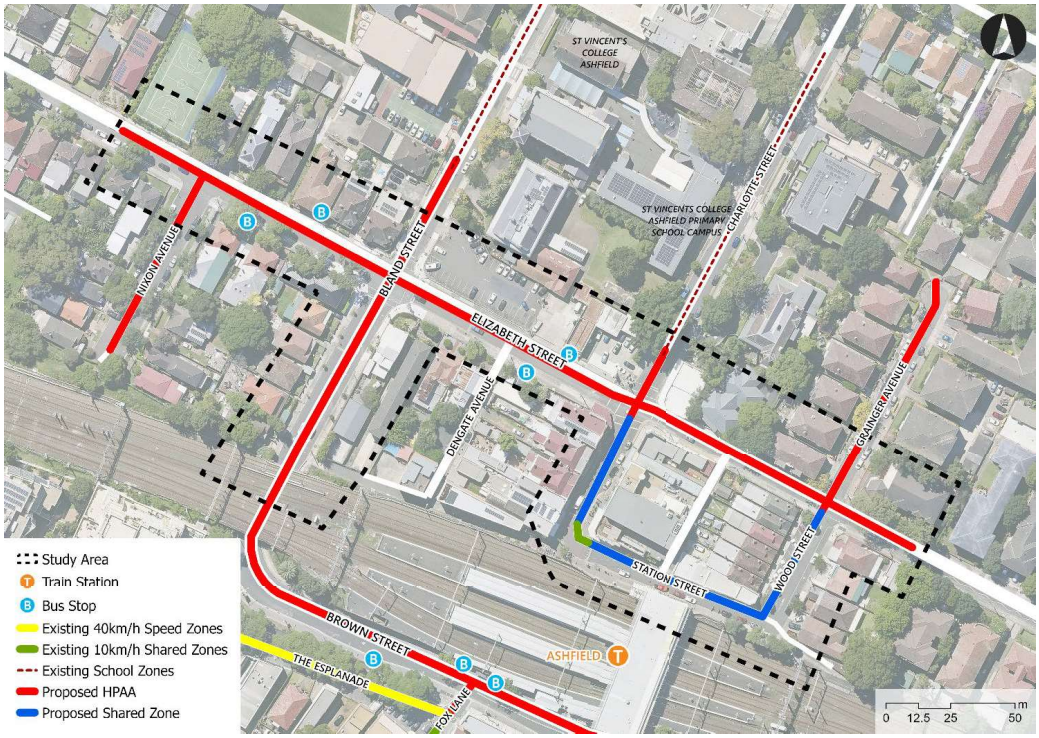


Figure 11: Proposed HPAA Zone – Ashfield (Elizabeth Street)

4.3.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 8 details the list of issues identified, with locations referenced in Figure 12.

Table 8: Issues – Ashfield (Elizabeth Street)

ID	Location	Coordinates	Issue
1	Elizabeth Street / Nixon Avenue intersection (southern leg)	-33.885941, 151.124051	Informal crossing facility with a crossing distance of 12m; opportunity to improve
2	Elizabeth Street between Bland Street and Nixon Avenue (northern extent)	-33.886098, 151.124588	Insufficient footpath width (1.6m) on northern extent to accommodate pedestrian demand, and is consistently narrowed by street poles
3	Elizabeth Street / Bland Street intersection (western leg)	-33.886221, 151.124847	Missing kerb ramp (northern side)
4	Elizabeth Street / Bland Street intersection	-33.886221, 151.124847	Limited pedestrian waiting space at northeast/northwest corners of intersection; problematic with large student pedestrian volumes at end of day (St Vincent's College and Bethlehem College)
5	Elizabeth Street between Bland Street and Charlotte Street (northern extent)	-33.886422, 151.125305	Insufficient footpath width (1.7m) on northern extent to accommodate pedestrian demand which is consistently narrowed by street poles and close to roadway; vehicle turning movements in and out of access driveways for service station impact pedestrian safety
6	Elizabeth Street between Bland Street and Charlotte Street (northern extent)	-33.886500, 151.125336	Safety risks with notable undesignated pedestrian crossing movements observed in north-south direction along this street segment, particularly during the morning and afternoon student travel periods of the surrounding schools (St Vincent's College and Bethlehem College)
7	Elizabeth Street / Charlotte Street intersection	-33.886647, 151.125831	Limited pedestrian waiting space at northwest corner of intersection; problematic with large student pedestrian volumes at end of day (St Vincent's Catholic Primary School, St Vincent's College and Bethlehem College)
8	Elizabeth Street / Charlotte Street intersection	-33.886704, 151.125846	Observed waiting times at the signalised crossings of 40s to 55s may be considered long, particularly during the morning and afternoon student travel periods of the surrounding schools (St Vincent's Catholic Primary School, St Vincent's College and Bethlehem College)
9	Elizabeth Street / Grainger Avenue / Wood Street intersection (western leg)	-33.887067, 151.126636	Missing crossing facility for north-south movement

ID	Location	Coordinates	Issue
10	Elizabeth Street / Grainger Avenue / Wood Street intersection (northern leg)	-33.887056, 151.126695	Kerb ramp pair misalignment; dilapidated kerb ramp (eastern side);
11	Elizabeth Street / Grainger Avenue / Wood Street intersection (southern leg)	-33.887141, 151.126659	Informal crossing facility with a crossing distance of 8.5m across a one-way street; opportunity to improve
12	Station Street / Wood Street intersection (western leg)	-33.887471, 151.126395	Missing crossing facility for north-south movement
13	Station Street between Wood Street and Station Street (northern extent)	-33.887365, 151.126136	Narrow footpath (1.5m) along the active frontage (northern extent of Station Street), and is intermittently narrowed by street poles; lack of direct crossing pathway between the shops and train station

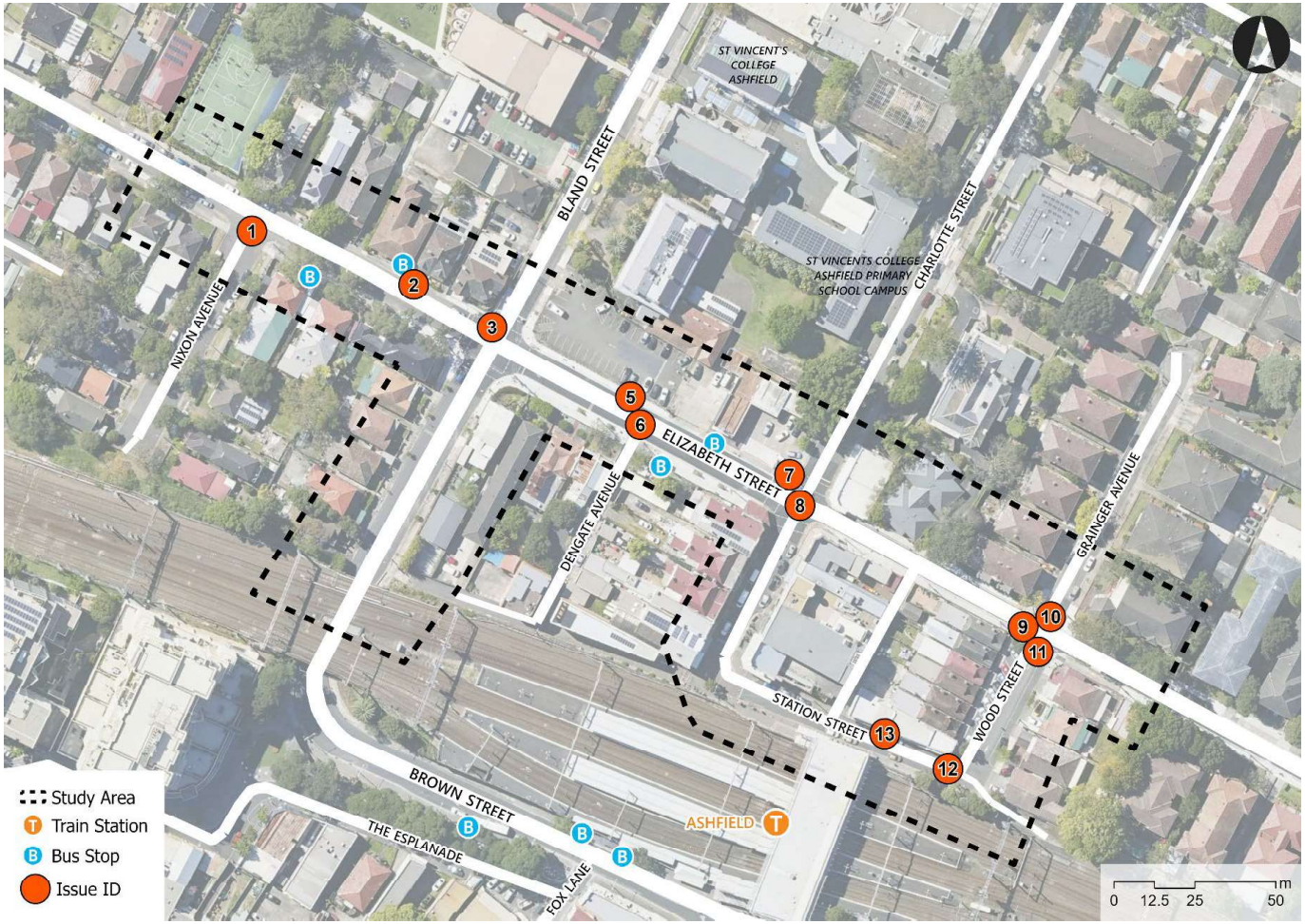


Figure 12: Issue Locations – Ashfield (Elizabeth Street)

4.3.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 9 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.3.8. Figure 13 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 9: Proposed Treatments – Ashfield (Elizabeth Street)

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Elizabeth Street, west of Nixon Avenue	-33.885766, 151.123789	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in the speed environment	-
2	Elizabeth Street / Nixon Avenue intersection (southern leg)	-33.885941, 151.124051	Footpath continuation treatment across a side street No data is available for this location, however it is anticipated that there would be low traffic volumes given that it is a no-through road and only services a number of residential properties.	Provides a prioritised pedestrian crossing along a main walking route to and from the surrounding key land uses such as Ashfield Station; minor side street servicing single residential culdesac with on-street parking supports implementation of continuous footpath; raised threshold slows down vehicle speeds at the crossing	1
3	Elizabeth Street / Bland Street intersection (western leg)	-33.886221, 151.124847	Install kerb ramp on the northern side	Ensures the presence of kerb ramps at both ends of the crossing to facilitate transition between footpaths and road	3
4	Elizabeth Street / Bland Street intersection Elizabeth Street / Charlotte Street intersection	-33.886270, 151.124861 -33.886704, 151.125846	Consider reducing signal waiting times to less than 30 seconds for the north-south crossings, particularly during the morning and afternoon student travel periods of the surrounding schools (St Vincent's Catholic Primary School, St Vincent's College and Bethlehem College) However, this can be constrained by the prioritisation of through vehicular movement along Elizabeth Street (regional road).	Reduction in pedestrian crossing waiting times to be less than 30s at every intersection leg to improve ease of crossing and give higher prioritisation to pedestrian movement, particularly to accommodate higher pedestrian activity over a short period during the school travel periods and discourage informal crossing movements across Elizabeth Street	6, 8
5	Elizabeth St between Bland St and Charlotte St	-33.886514, 151.125499	Line marking to provide clear delineation of driveway crossings and introduce pedestrian priority signage	Line marking and signage to reenforce the pedestrian environment and drivers' awareness for pedestrian movement along the footpath	5

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			Investigate opportunity for footpath widening. Footpath widening along this segment requires road space reallocation and potentially realignment of underground stormwater drains (costly). This is advised to keep it as is at this stage.	Footpath widening to address inadequate footpath space, while also serving as a road narrowing measure to reduce vehicle speeds	4, 5, 7
6	Elizabeth Street / Grainger Avenue / Wood Street intersection (northern leg)	-33.887056, 151.126695	New kerb ramps on both sides	Ensures kerb ramp alignment and better services pedestrian desire line	9, 10
7	Elizabeth Street / Grainger Avenue / Wood Street intersection (southern leg)	-33.887141, 151.126659	Kerb extension on the eastern side	Reduces crossing distance and improves crossing visibility; narrowing of roadway reduces vehicle speeds at the crossing	11
8	Station Street, Charlotte Street and Wood Street, south of Elizabeth Street	-33.887348, 151.125980	Extension of shared zone along the one-way street south of Elizabeth Street, with flush threshold treatment	Ensures pedestrian ownership of the space is prioritised in areas with high pedestrian traffic, such as station frontage and retail establishments along this segment	12, 13

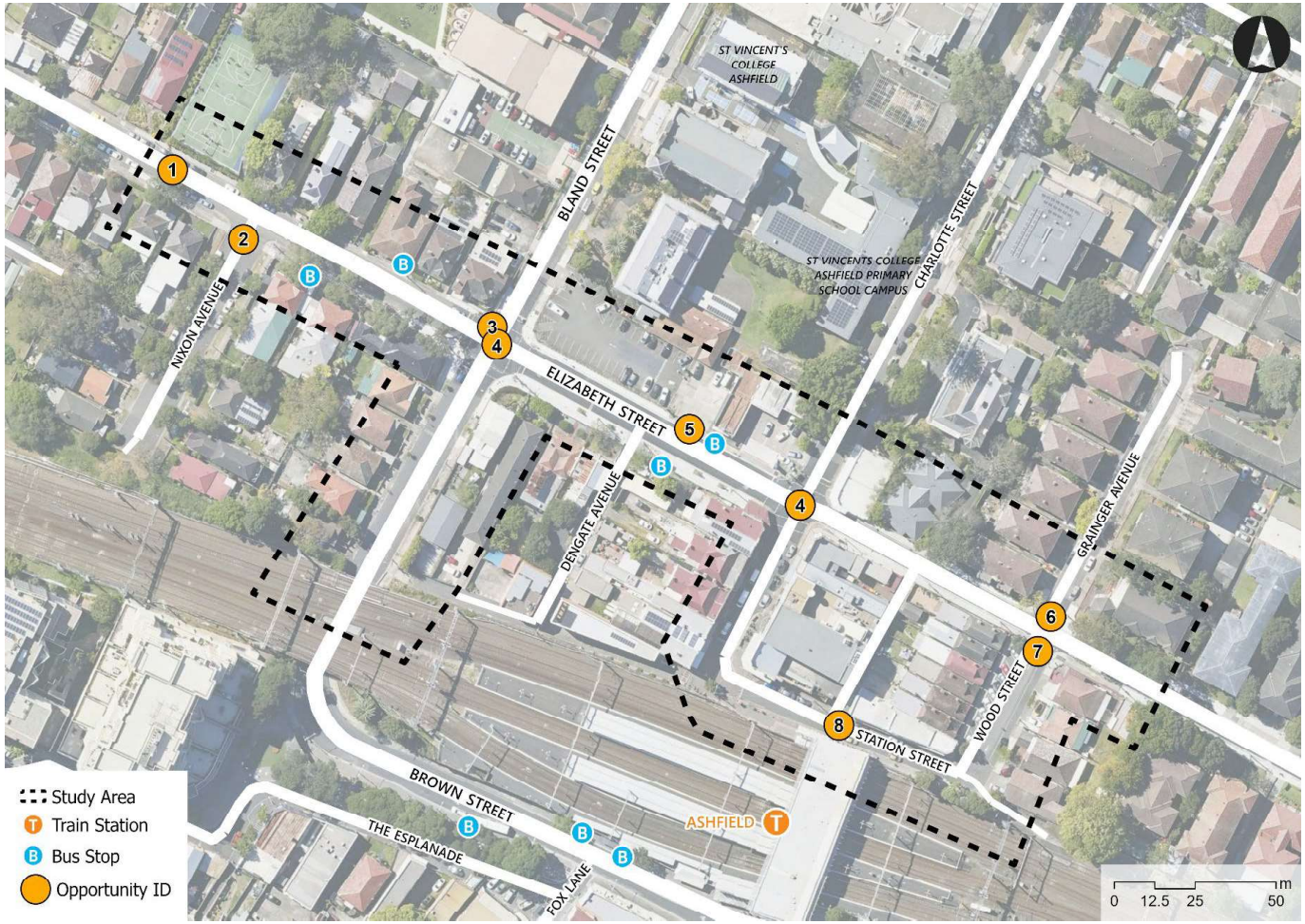


Figure 13: Proposed Treatment Locations – Ashfield (Elizabeth Street)

4.4 Study Area 4: Dulwich Hill

The extent of the study area spans along the Dulwich Hill town centre strip at New Canterbury Road as shown in Figure 14. It is bounded by Herbert Street to the north-east and Terrace Road to the south-west. Section 4.4.1 to Section 4.4.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix F of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.



Figure 14: Study Area – Dulwich Hill

4.4.1 Existing Land Use

The study area features a diverse range of land uses, including a retail strip and mixed-use developments along New Canterbury Road, a small industrial area, and the Dulwich Grove Light Rail Station. Key surrounding land uses encompass another retail strip along Marrickville Road, Dulwich Hill Public School, Dulwich High School of Visual Arts and Design, and large off-street public parking at Seaview Street and Loftus Street.

4.4.2 Existing Road Network

With the exception of New Canterbury Road and Marrickville Road, the rest of the roads in the study area are classified as local roads.

New Canterbury Road is classified as a state road and runs east-west in the study area. It has two lanes of traffic in each direction with restricted kerbside parking permitted outside the clearway hours. Within the study area, a posted speed limit of 60 km/h applies on New Canterbury Road. Marrickville Road intersects with New Canterbury Road and has a posted speed limit of 40 km/h (HPAA) and one lane per direction with kerbside parking within the study area.

4.4.3 Existing Transport Infrastructure and Facilities

Footpaths are present on both sides of the roads, with pedestrian crossing facilities available to facilitate safe crossing movements across New Canterbury Road and the side streets. On-road cycle routes run north-to-south along Dulwich Street, Marrickville Road, Pigott Street, and Herbert Street, while off-road cycle routes run parallel to the Inner West light rail line and cover a short section along New Canterbury Road at the eastern end of the town centre strip. The Dulwich Grove Light Rail Station is situated towards the western end of the Dulwich Hill Town Centre strip on New Canterbury Road. Public bus routes service New Canterbury Road and Marrickville Road, with several stops around the New Canterbury Road and Marrickville Road intersection and at Dulwich Grove Light Rail Station.

Traffic calming measures, such as kerb extensions and median treatments, are in place within the study area.

4.4.4 Historical Crash Data

In the five-year period from 2018 to 2022, seven crashes involving pedestrians were reported in the study area. Two crashes resulted in a serious injury, four resulted in moderate injuries and one resulted in minor injuries.

4.4.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 15th and 21st March 2024, the following was observed:

- Along New Canterbury Road, between Arthur Street and Byrnes Street, the northbound weekday average volume was 1,012 vehicles/hr in the AM peak and 659 vehicles/hr in the PM peak. The southbound weekday average volume was 400 vehicles/hr in the AM peak and 801 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are well below the current posted speed limit of 60 km/h at New Canterbury Road, whereby 85th percentile speeds ranged between 42 km/h and 51km/h throughout the day with lower speeds during the daytime hours.

4.4.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at four locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the four pedestrian survey sites are 7:45 am to 8:45 am for one location and 8:00 am to 9:00 am at the remaining three locations for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour at the four locations.

Pedestrian survey count locations have been positioned at multiple points along the Dulwich Hill town centre strip at New Canterbury Road. The main pedestrian volumes were associated with east-west movements along the southern side of the town centre strip and the north-south signalised crossing points across New Canterbury Road between Dulwich Street and Pigott Street.

Highest pedestrian volumes were observed around the signalised intersection of New Canterbury Road with Dulwich Street and Marrickville Road. In the AM peak, highest pedestrian volumes were observed for the north-south crossing movement across New Canterbury Road at the signalised intersection. In the PM peak, highest pedestrian volumes were observed for the east-west movements along the southern side of New Canterbury Road east of Marrickville Road. This can be attributed to the concentration of bus stops around the intersection and the core retail strip along Marrickville Road, both of which serve as significant generators and attractors of pedestrian activity.

4.4.7 Proposed HPAA zones

The proposed HPAA zone is illustrated in Figure 19. The proposed HPAA zone covers the extent of Dulwich Hill town centre strip and Dulwich Grove Light Rail Station along New Canterbury Road and serves as an expansion of existing HPAA coverage along the town centre strip at Marrickville Road and a number of other local streets. This ensures consistency with speed limits for areas with high pedestrian activity and enhances connectivity between the town centre and the light rail station.

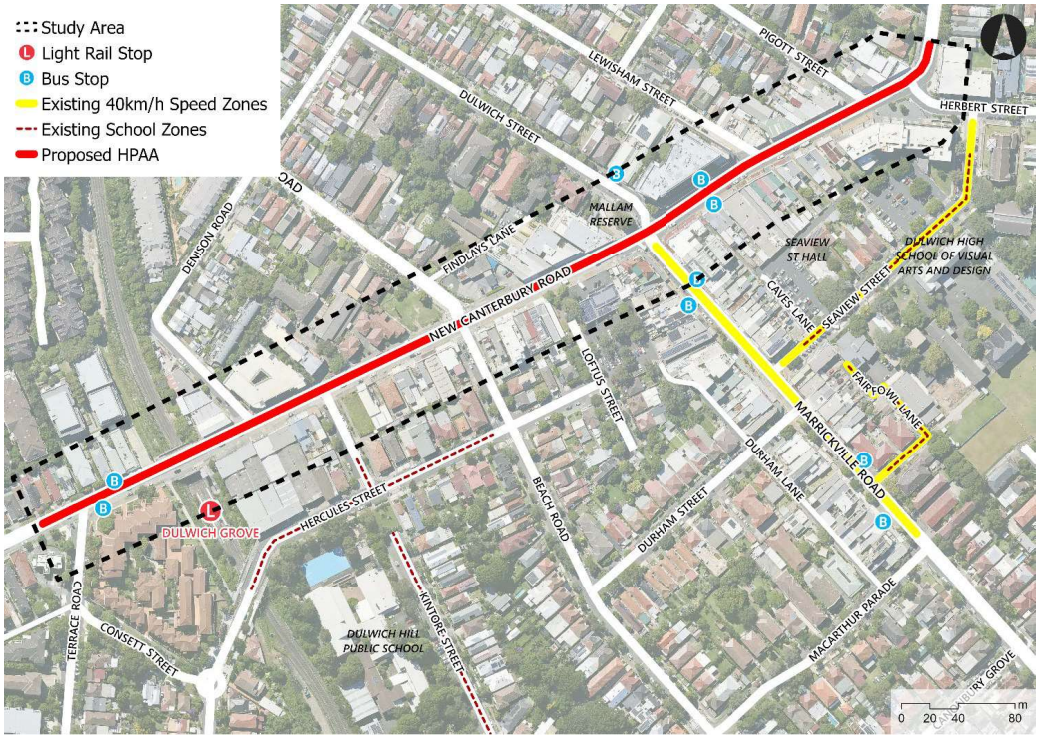


Figure 15: Proposed HPAA Zone – Dulwich Hill

4.4.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 10 details the list of issues identified, with locations referenced in Figure 16.

Table 10: Issues – Dulwich Hill

ID	Location	Coordinates	Issue
1	New Canterbury Road / Herbert Street intersection (southern leg)	-33.902457, 151.144522	Informal crossing facility with a crossing distance of 12.5m; opportunity to improve
2	New Canterbury Road between Lewisham Street and Yule Street	-33.902313, 151.144527	Higher vehicular speeds with downhill slopes from west to east along New Canterbury Road between Lewisham Street and Herbert Street; East of Herbert Street, cars travelling in the eastbound direction reported to come around the bend too fast and even clip the kerb (based on Dulwich Hill Town Centre Public Domain Plan community engagement survey feedback)
3	Pigott Street / New Canterbury Road intersection (northern leg)	-33.902475, 151.144002	Informal crossing facility with a crossing distance of 12m; misalignment of pedestrian refuge walkthrough space with the adjacent kerb ramps; narrow storage space at refuge island (1.4m parallel and 1.2m perpendicular to the road direction of travel)
4	New Canterbury Road between Lewisham Street and Pigott Street	-33.90266, 151.1438	Narrow and slightly misaligned kerb ramp (northern side)
5	Lewisham Street / New Canterbury Road intersection (northern leg)	-33.902833, 151.143137	Informal crossing facility with a crossing distance of 13m; opportunity to improve
6	Marrickville Road / Dulwich Street / New Canterbury Road intersection	-33.903304, 151.142417	Waiting time of over 60s at the signalised crossings with up to 85s observed for the east-west crossings, while a range of 40s to 55s observed for north-south crossings
7	Beach Road / Constitution Road / New Canterbury Road intersection (eastern leg)	-33.903868, 151.141071	Kerb ramp pair misalignment
8	Beach Road / Constitution Road / New Canterbury Road intersection (northern leg)	-33.903796, 151.140928	Narrow kerb ramp (eastern side)
9	Kintore Street / New Canterbury Road intersection (eastern leg)	-33.904249, 151.140059	Narrow storage space (approx. 1m perpendicular to the road direction of travel) at refuge island

ID	Location	Coordinates	Issue
10	Kintore Street / New Canterbury Road intersection (southern leg)	-33.90437, 151.139984	Informal crossing facility with a crossing distance of 13m; dilapidated kerb ramp (western side); opportunity to improve
11	New Canterbury Road between Kintore Street and Dulwich Grove Light Rail Station	-33.904586, 151.139407	Vehicle turning movements in and out of warehouse driveways impact pedestrian safety
12	Denison Road / New Canterbury Road intersection (northern leg)	-33.904452, 151.139269	Informal crossing facility with a crossing distance of 11m; opportunity to improve
13	Terrace Road / New Canterbury Road intersection (eastern leg)	-33.904971, 151.138128	Narrow storage space (approx. 1.1m perpendicular to the road direction of travel) at the refuge island

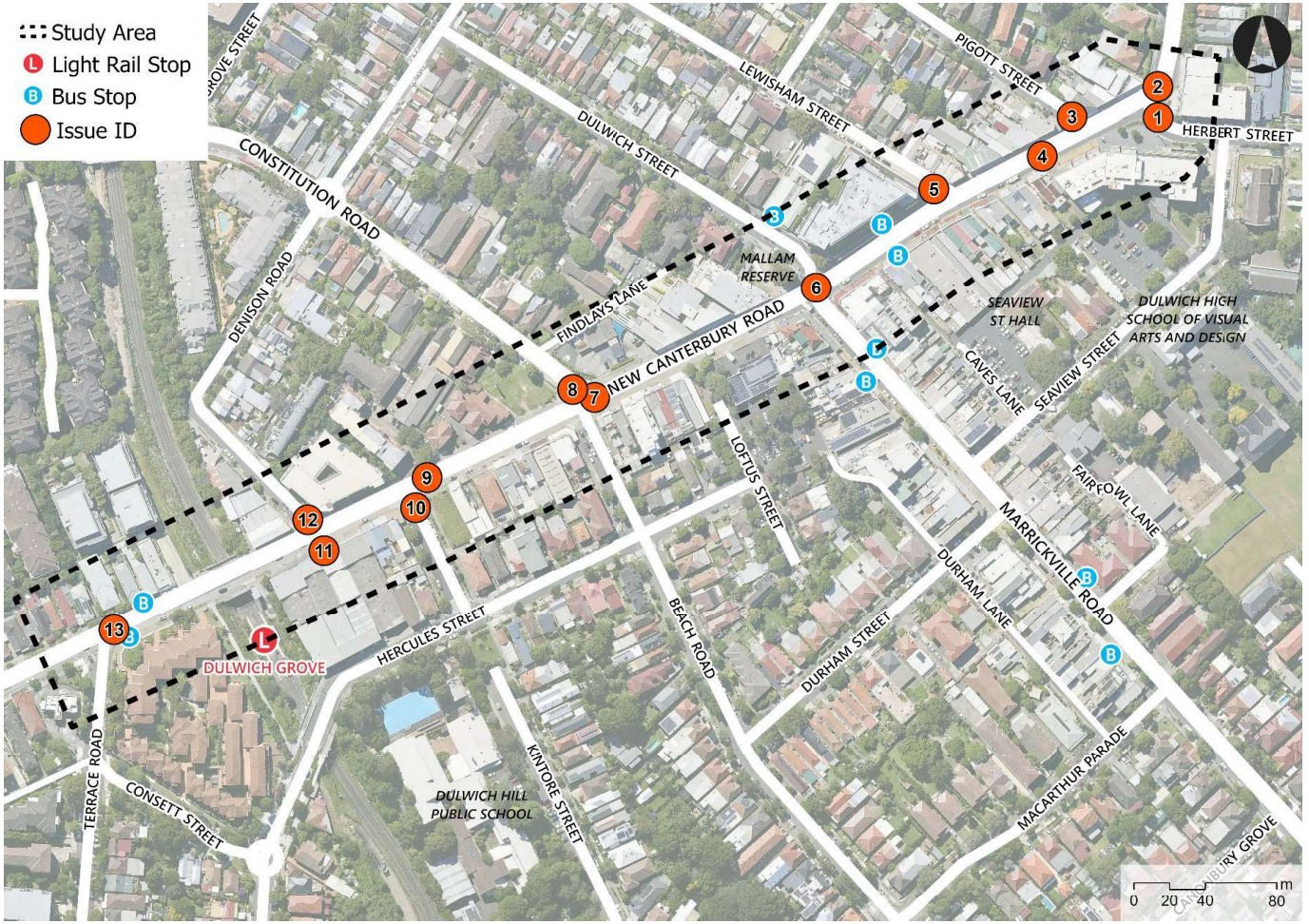


Figure 16: Issue Locations – Dulwich Hill

4.4.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 11 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.4.8. Figure 17 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 11: Proposed Treatments – Dulwich Hill

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	New Canterbury Road / Herbert Street intersection (eastern leg)	-33.902457, 151.144522	Kerb extension on the northern side	Provides a shorter crossing distance and narrows the carriageway which helps to reduce vehicle speeds; improving pedestrian safety at the crossing	1
2	New Canterbury Road between Lewisham Street and Yule Street	-33.902313, 151.144527	Tactile surface treatments on traffic lanes in each direction; street furniture (such as planter boxes) to be placed along the western footpath extent around the bend	Tactile surface treatments aim to alert drivers to take greater care when approaching a bend and reduce vehicle speeds along the downhill slope, while serving as gateway treatment for entry to the proposed HPAA zone; placement of street furniture along the footpath creates a buffer zone between pedestrians and the adjacent carriageway	2
3	Pigott Street / New Canterbury Road intersection (northern leg)	-33.902475, 151.144002	New refuge island with compliant dimensions	Provides adequate waiting space in the middle of the road; provides further traffic calming effect in reducing vehicle speeds due to road narrowing with widened median	3
4	New Canterbury Road between Lewisham Street and Pigott Street	-33.90266, 151.1438	New kerb ramp (northern side)	Ensures kerb ramp alignment and better services pedestrian desire line	4
5	Lewisham Street / New Canterbury Road intersection (northern leg)	-33.902833, 151.143137	Continuous footpath treatment (consistent with Inner West PAMP detailed works program) Data collected on Thursday 6th June 2024 indicated traffic volumes of 56 and 51 for AM and PM peak respectively. This does not meet the criteria for a continuous footpath treatment. The surveyed traffic volumes are slightly higher than	Provides traffic calming effect in reducing vehicle speeds due to raised threshold; provides a prioritised pedestrian crossing point for pedestrians along the town centre strip	5

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			While the surveyed traffic volumes exceed the criteria for a continuous footpath treatment, they remain within an acceptable range and warrants consideration for the subject treatment. Considering the need for pedestrian prioritisation along the town centre strip, it is advised to provide a continuous footpath treatment at this location.		
6	Marrickville Road / Dulwich Street / New Canterbury Road intersection	-33.903304, 151.142417	For east-west crossings, consider reducing signal wait times to be <60s or extending the pedestrian crossing green times However, it should be noted that reduced waiting times for east-west crossings may come with the trade-off of increased waiting times for north-south crossings	Reducing waiting times/increasing crossing times helps improve ease of crossing; ensures maximum pedestrian crossing times of less than 60s at each leg	6
7	Beach Road / Constitution Road / New Canterbury Road intersection (eastern leg)	-33.903868, 151.141071	New kerb ramps on both sides Concerning the upgrade of the kerb ramp on the southern side, this may require the relocation of power pole and traffic lights	Ensures kerb ramp alignment and better services pedestrian desire line	7
8	Beach Road / Constitution Road / New Canterbury Road intersection (northern leg)	-33.903796, 151.140928	New kerb ramp on eastern side, with associated kerb extension	Ensures kerb ramp provides adequate grade and width to accommodate transitions between the footpath and the road Kerb extension accommodates the implementation of a wider kerb ramp	8
9	Kintore Street / New Canterbury Road intersection (eastern leg)	-33.904249, 151.140059	New refuge island with compliant dimensions However, further expansion to the refuge island width is constrained by the limited road width available and requires the removal of traffic lane(s) which is not feasible along a major movement corridor; therefore, it is advised to keep it as is at this stage	Ensures safer crossing for pedestrians with sufficient waiting space at the refuge island	9

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
10	Kintore Street / New Canterbury Road intersection (southern leg)	-33.90437, 151.139984	Kerb extensions on both sides	Reduces crossing distance and increases crossing visibility; narrowing of carriageway reduces vehicle speeds	10
11	New Canterbury Road between Kintore Street and Dulwich Grove Light Rail Station	-33.904586, 151.139407	Line marking to provide clear delineation of driveway crossings and introduce pedestrian priority signage; use of convex mirrors to allow drivers to have better visibility of pedestrians on the footpath when existing the driveways.	To reenforce the pedestrian environment and drivers' awareness for pedestrian movement along the footpath	11
12	Denison Road / New Canterbury Road intersection (northern leg)	-33.904452, 151.139269	Kerb extension on eastern side	Reduces crossing distance and increases crossing visibility; improving pedestrian safety	12
13	Terrace Road / New Canterbury Road intersection (eastern leg)	-33.904971, 151.138128	New refuge island crossing with widened storage space However, further expansion to the refuge island width is constrained by the limited road width available and requires the removal of traffic lane(s) which is not feasible along a major movement corridor; therefore, it is advised to keep it as is at this stage	Ensures safer crossing for pedestrians with sufficient waiting space at the refuge island	13
14	New Canterbury Road (west of Terrace Road)	-33.905085, 151.137824	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in the speed environment (60km/h to 40km/h along New Canterbury Road)	-

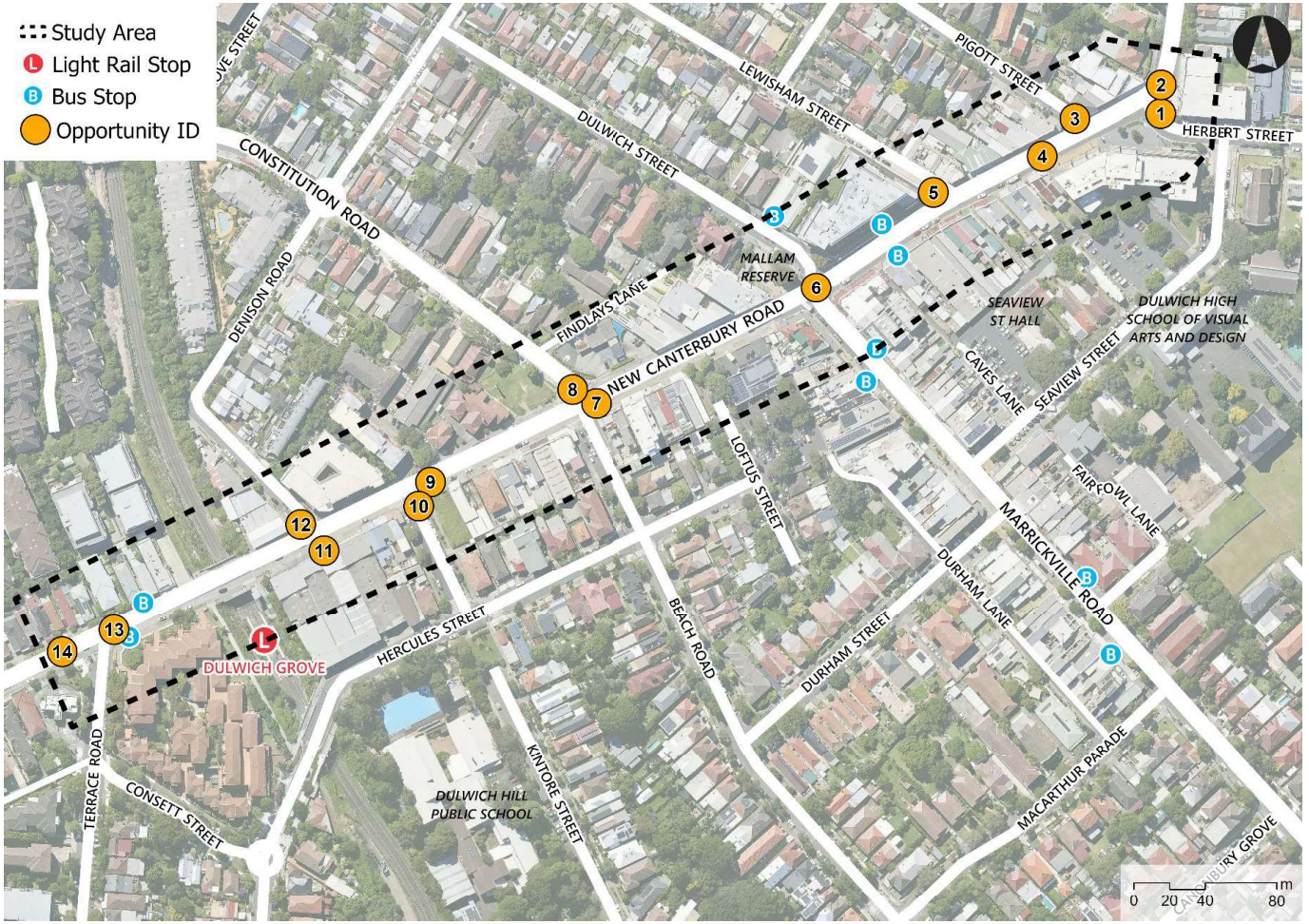


Figure 17: Proposed Treatment Locations – Dulwich Hill

4.5 Study Area 5: Marrickville

The extent of the study area spans along the Marrickville town centre strip along Illawarra Road as shown in Figure 18. It is bounded by Marrickville Road to the north and Harnett Avenue to the south. Section 4.5.1 to Section 4.5.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix G of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.



Figure 18: Study Area - Marrickville

4.5.1 Existing Land Use

The study area includes a retail strip along Illawarra Road between Marrickville Road and Renwick Avenue, Marrickville Station and pockets of mixed-use developments along Illawarra Road to the south of Petersham Road. Surrounding key land uses include high-density residential area along Arthur Street west of Marrickville Station, McNeilly Park, another retail strip along Marrickville Road, a number of social and educational establishments to the north-east including Marrickville Town Hall, Marrickville Library, St Brigid's Catholic Primary School, Casimir Catholic College, and industrial area to the east.

4.5.2 Existing Road Network

With the exception of Illawarra Road, the rest of the roads in the study area are classified as local roads.

Illawarra Road is a regional road with a north-south alignment through the Marrickville Town Centre. It is a two-way road configured with one lane in each direction, and restricted kerbside parking. Within the study area, the road is subject to a 40 km/h speed limit (HPAA) north of Petersham Road and a 50 km/h speed limit south of Petersham Road.

4.5.3 Existing Transport Infrastructure and Facilities

Footpaths are available on both sides of the roads, except for the Station Street segment between the train station entrance and Leofrene Avenue. Pedestrian crossing facilities are in place to support crossing movements across Illawarra Road and the side streets. On-road cycle routes are established along Illawarra Road and several side streets, including Petersham Road, Warburton Street, Schwebel Street, Station Street, Leofrene Avenue, Greenbank Street, and Church Street. Marrickville Station is centrally located in the town centre strip along Illawarra Road, with entries on Illawarra Road and Station Street. Public bus routes service Illawarra Road, with stops between Marrickville Road and Warren Road.

Traffic calming measures, such as wombat crossings, kerb extensions, kerb blisters, and median treatments, are in use.

4.5.4 Historical Crash Data

In the five-year period from 2018 to 2022, eleven crashes involving pedestrians were reported in the study area with majority occurring at intersections. Eight crashes resulted in serious injuries while three resulted in moderate injuries.

4.5.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 13th and 19th March 2024, the following was observed:

- Along Illawarra Road, between Arthur Street and Byrnes Street, the northbound weekday average volume was 678 vehicles/hr in the AM peak and 435 vehicles/hr in the PM peak. The southbound weekday average volume was 425 vehicles/hr in the AM peak and 680 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Illawarra Road south of Petersham Road, with 85th percentile speeds recorded at 40 km/h or below across the 8:00am to 6:00pm period.

4.5.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at two locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the two pedestrian survey sites are 7:45 am to 8:45 am for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were situated within proximity to Marrickville Station and along the Marrickville town centre strip at Illawarra Road. Main pedestrian volumes were associated with the north-south movements along the eastern side of Illawarra Road and the east-west signalised crossing in front of the station, with a higher concentration of pedestrian activity around the station.

4.5.7 Proposed HPAA zones

The proposed HPAA zone is illustrated in Figure 19. The proposed HPAA zone is an extension of the existing HPAA zone southwards along Illawarra Road to provide continuity of lower speed limit along the Marrickville town centre strip and ensure consistency of speed limit for areas with pedestrian-generating land uses. Additional proposal for reduced speed zoning includes the implementation of a shared zone along Station Street which is currently a one-way street and fronts the Marrickville Station entry.

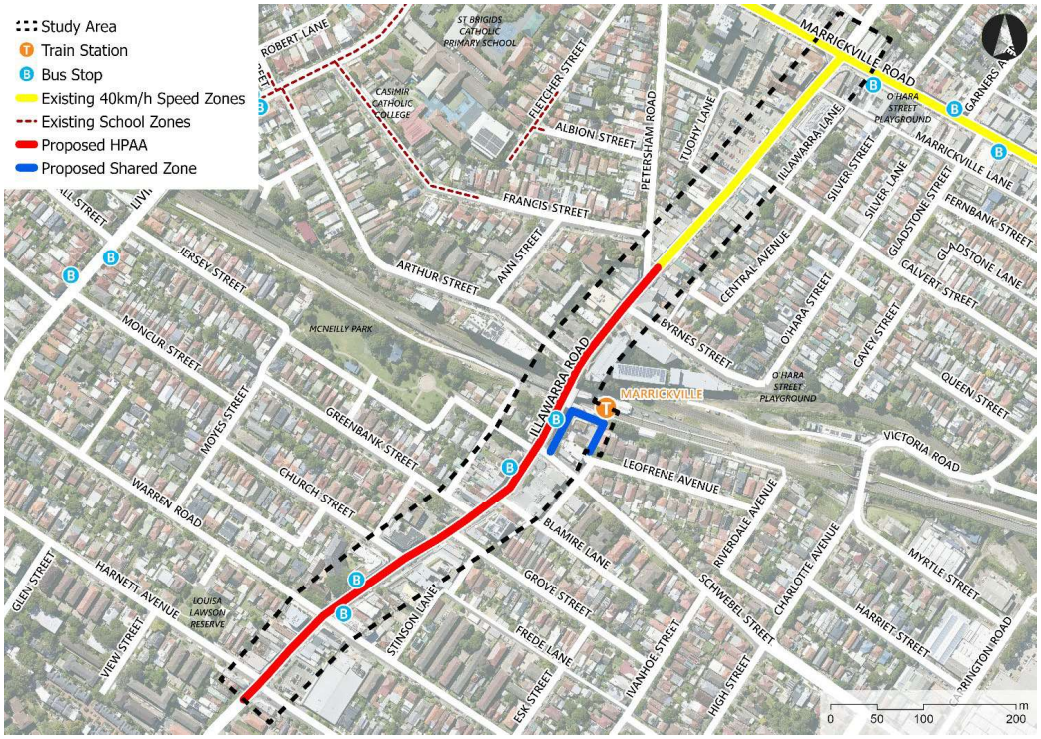


Figure 19: Proposed HPAA Zone - Marrickville

4.5.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 12 details the list of issues identified, with locations referenced in Figure 20 and Figure 21.

Table 12: Issues - Marrickville

ID	Location	Coordinates	Issue
1	Illawarra Road / Marrickville Road intersection (western leg)	-33.910479, 151.156282	Kerb ramp misalignment
2	Illawarra Road / Marrickville Road intersection	-33.910537, 151.156389	Waiting times of over 60s at the signalised crossings, with approximately 70s observed for north-south crossings and approximately 77s to 92s observed for east-west crossings
3	Illawarra Road / Marrickville Road intersection (eastern leg)	-33.910568, 151.156489	Kerb ramp misalignment
4	Illawarra Road / Marrickville Road intersection (southern leg)	-33.910623, 151.156329	Slight kerb ramp misalignment
5	Illawarra Road between Marrickville Road and Tuohy Lane (western extent)	-33.911036, 151.155753	Core retail strip along Illawarra Road is located between Marrickville Road and Petersham Road which experiences higher pedestrian activity compared to the other areas along Illawarra Road; existing footpath width (2.9m) is not sufficient to accommodate pedestrian demand; this is exacerbated by the lack of a buffer zone between the footpath and traffic lane and footpath space which is intermittently narrowed by street objects and trees
6	Calvert Street / Illawarra Road intersection (eastern leg)	-33.911632, 151.155352	Existing zebra crossing is not raised; 2 serious injury pedestrian crashes recorded around this location in 2020 and 2021
7	Calvert Street / Illawarra Lane intersection (eastern leg)	-33.91172, 151.155457	Lack of signage to indicate end/start of 40km/h HPAA zone
8	Tuohy Lane / Illawarra Road intersection (western leg)	-33.911823, 151.154978	Informal crossing facility with a crossing distance of 5.5m across a one-way street; opportunity to improve
9	Illawarra Road	-33.911914, 151.154948	190m gap between east-west crossings across Illawarra Road; opportunity for a mid-block crossing (suggested spacing between crossing points for a main street is 40m to 100m according to TfNSW Pedestrian Crossing Guideline)
10	Petersham Road / Illawarra Road intersection (southern leg)	-33.912687, 151.154037	Missing pedestrian crossing leg at the southern approach of the signalised intersection

ID	Location	Coordinates	Issue
11	Arthur Street / Illawarra Road intersection (eastern leg)	-33.913463, 151.153134	Informal crossing point with a crossing distance of 5.3m over a one-way street; opportunity to improve
12	Illawarra Road between Arthur Street and Warburton Street (western extent)	-33.91364, 151.153083	Along the western extent of the bridge, narrow footpath width and narrow waiting space at the signalised crossing fronting the train station
13	Schwebel Street / Illawarra Road intersection (eastern leg)	-33.91433, 151.152829	Existing zebra crossing is not raised
14	Schwebel Street / Illawarra Road intersection (southern leg)	-33.914409, 151.152664	Existing zebra crossing is not raised
15	Schwebel Street / Illawarra Road intersection (western leg)	-33.914285, 151.152629	Kerb ramp misalignment (not on desire line); informal crossing facility with a crossing distance of 13.5m; opportunity to improve
16	Station Street between Schwebel Stret and Leofrene Avenue	-33.914011, 151.153319	Need for pedestrian movements to be prioritised at Station Street plaza where the Marrickville station entry is located; lack of footpath along Station Street between the station entry and Leofrene Avenue
17	Blamire Lane / Illawarra Road intersection (eastern leg)	-33.914809, 151.152372	Informal crossing facility with a crossing distance of 5.5m; opportunity to improve
18	Greenbank Street / Illawarra Road intersection (western leg)	-33.914892, 151.151938	Slight kerb ramp misalignment; informal crossing facility with a total crossing distance of 15m; narrow storage space at refuge island with 1.3m width parallel to the road direction of travel; opportunity to improve
19	Illawarra Road between Greenbank Street and Grove Street	-33.91504, 151.151882	Existing zebra crossing is not raised
20	Grove Street / Illawarra Road intersection (eastern leg)	-33.915141, 151.151789	Informal crossing facility with a crossing distance of 14m; relative narrow storage space at the refuge island with a width of approx. 1.3m perpendicular to the road direction of travel; in addition, unwanted heavy truck usage is reported to be occurring here (based on Marrickville Town Centre Public Domain Plan community engagement survey feedback); speed risk with the downhill slope (avg. slope of 8-10%) along Grove Street on approach to the crossing location
21	Church Street / Illawarra Road intersection (western leg)	-33.915332, 151.151091	Informal crossing facility with a crossing distance of 15.5m; narrow storage space at refuge island with a width of 1.3m perpendicular to the road direction of travel
22	Warren Road / Illawarra Road intersection (northern leg)	-33.915845, 151.150287	Poor kerb ramp alignment

ID	Location	Coordinates	Issue
23	Warren Road / Illawarra Road intersection (eastern leg)	-33.915951, 151.150306	Slight kerb ramp misalignment
24	Harnett Avenue / Renwick Street / Illawarra Road intersection (northern leg)	-33.916427, 151.149575	Informal crossing facility with a crossing distance of 11m; opportunity to improve
25	Harnett Avenue / Renwick Street / Illawarra Road intersection (western leg)	-33.916476, 151.149388	Informal crossing facility with a crossing distance of 12m; Relatively narrow storage space at the refuge island (1.5m parallel and 1.8m perpendicular to the road direction of travel)
26	Harnett Avenue / Renwick Street / Illawarra Road intersection (eastern leg)	-33.916605, 151.149541	Informal crossing facility with a crossing distance of 18m; opportunity to improve



Figure 20: Issue Locations – Marrickville (North of Marrickville Station)

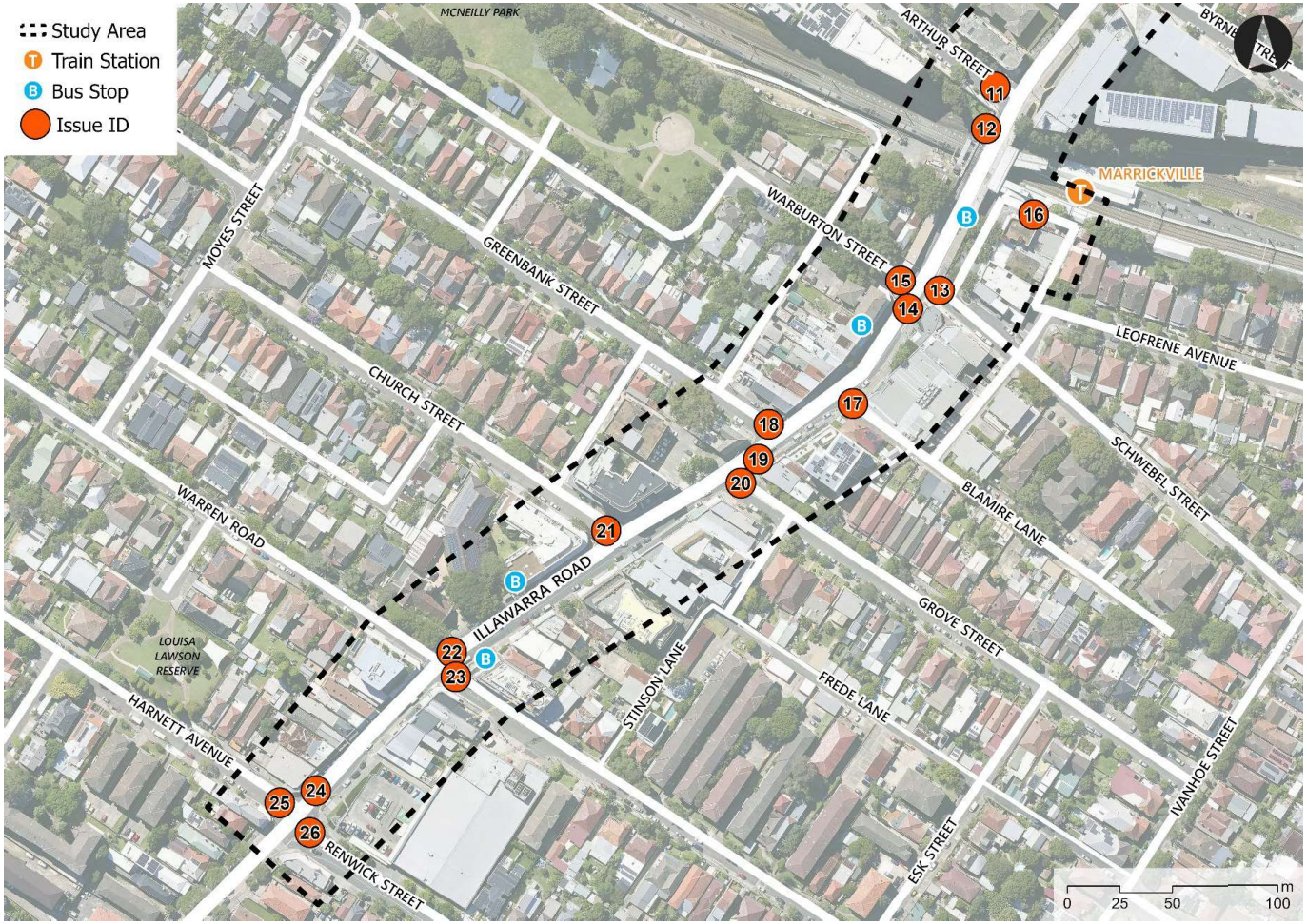


Figure 21: Issue Locations – Marrickville (South of Marrickville Station)

4.5.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 13 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.5.8. Figure 22 and Figure 23 show the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 13: Proposed Treatments – Marrickville

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Illawarra Road / Marrickville Road intersection (western leg)	-33.910479, 151.156282	New kerb ramp on the southern side	Ensures kerb ramp alignment and better services pedestrian desire line	1
2	Illawarra Road / Marrickville Road intersection	-33.910537, 151.156389	Consider reducing pedestrian signal wait times to be <60s	Reduction in pedestrian crossing waiting times to be less than 60s at every intersection leg to improve ease of crossing and give higher prioritisation to pedestrian movement	2
3	Illawarra Road / Marrickville Road intersection (eastern leg)	-33.910568, 151.156489	New kerb ramp on the southern side	Ensures kerb ramp alignment and better services pedestrian desire line	3
4	Illawarra Road / Marrickville Road intersection (southern leg)	-33.910623, 151.156329	New kerb ramp on the eastern side	Ensures kerb ramp alignment and better services pedestrian desire line	4
5	Illawarra Road between Marrickville Road and Tuohy Lane (western extent)	-33.911036, 151.155753	Investigate opportunities for footpath widening However, this is constrained by the limited road width available and is advised to keep it as is at this stage	Address the inadequate footpath space during peak pedestrian activity periods	5
6	Calvert Street / Illawarra Road intersection (eastern leg)	-33.911632, 151.155352	Convert to raised zebra crossing	Increases crossing visibility and raised threshold acts as a vertical deflection device in slowing vehicles speeds at the crossing while also serves as a gateway treatment to the existing HPAA zone	6

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
7	Calvert Street / Illawarra Lane intersection (eastern leg)	-33.91172, 151.155457	Introduce HPAA signage	Signify start/end of HPAA zone	7
8	Tuohy Lane / Illawarra Road intersection (western leg)	-33.911823, 151.154978	Continuous footpath across side street (consistent with Inner West PAMP detailed works program) Data collected on Thursday 6th June 2024 indicated traffic volumes of 82 and 97 for AM and PM peak respectively. While the surveyed peak traffic volumes exceed the criteria for a continuous footpath treatment, the consideration for the subject treatment should still be warranted given the positioning of the crossing point along the town centre where high pedestrian movements have been recorded at 135 and 153 for AM and PM peak respectively. Considering the need for pedestrian prioritisation along the town centre strip, it is advised to provide a continuous footpath treatment at this location to ensure pedestrian safety.	Provides a prioritised pedestrian crossing across the town centre strip with high footfall; improves crossing visibility and raised threshold acts as a traffic calming intervention in slowing down vehicle speeds	8
9	Illawarra Road	-33.911914, 151.154948	Raised zebra crossing Data collected on Thursday 6h June 2024 indicated volumes of 640 vehicles and 12-27 pedestrians for AM peak, and 740 vehicles and 22-55 pedestrians for PM peak. It should be noted that the recorded pedestrian volumes are associated with informal crossing movements as there is no designated crossing facility at this location. The surveyed volumes meet the Council's warrant requirements for a pedestrian zebra crossing.	Provides a mid-block crossing and ensures formalised crossing points across Illawarra Roads approx. every 100m, improving ease of crossing Illawarra Road along the town centre strip; raised threshold reduces vehicle speeds traversing the street	9
10	Petersham Road / Illawarra Road	-33.912687, 151.154037	Investigate provision of additional crossing leg at the southern approach of the intersection	Reduce the crossing times/number of crossings required for pedestrian travelling from south-western corner of intersection to the eastern side;	10

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
	intersection (southern leg)			ensures pedestrian crossings on all intersection legs	
11	Arthur Street / Illawarra Road intersection (eastern leg)	-33.913463, 151.153134	Continuous footpath treatment (consistent with Inner West PAMP detailed works program) Data collected on Thursday 30th March 2023 indicated traffic volumes of 56, 43 and 62 for AM, mid and PM peak respectively. This partially meets the criteria for a continuous footpath treatment. While the surveyed AM and PM peak traffic volumes exceed the criteria for a continuous footpath treatment, they remain within an acceptable range and warrant consideration for the subject treatment. Considering the need for pedestrian prioritisation along the town centre strip and the route leading to the train station (high pedestrian volumes recorded at 96, 88 and 70 for AM, mid and PM peak respectively), it is advised to provide a continuous footpath treatment at this location.	Provides a prioritised pedestrian crossing; raised threshold slows down vehicle speeds at the crossing	11
12	Illawarra Road between Arthur Street and Warburton Street (western extent)	-33.91364, 151.153083	Investigate opportunity for footpath widening; however, this is constrained by the limited road width available and is advised to keep it as is	Ensures adequate footpath space to service pedestrian demand, particularly during peak pedestrian periods such as AM and PM commuter periods	12
13	Warburton Street / Schwebel Street / Illawarra Road intersection	-33.914307, 151.152719	It is noted raised threshold crossings at this intersection are not feasible as they will block major overland flow paths Investigate opportunity for signalisation of the intersection; pedestrian movements are to be prioritised at this intersection, with pedestrian signal wait times of <60s.	Provides formalised crossing points for east-west and north-south movements; pedestrian crossing waiting times of less than 60s improves ease of crossing and gives higher prioritisation to pedestrian movement	13, 14, 15
14	Station Street between Schwebel Stret and Leofrene Avenue	-33.914011, 151.153319	Investigate opportunity for a shared zone along the one-way Station Street to highlight the mix of pedestrians and general traffic at this location and reinforce pedestrian priority over vehicles;	Reinforce pedestrian priority over vehicles; improves pedestrian safety	16

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			current street environment with the pavement surface treatment and landscape features and street furniture such as seating and bollards provides a discernible change in the environment from the surrounding roads		
15	Blamire Lane / Illawarra Road intersection (eastern leg)	-33.914809, 151.152372	Continuous footpath treatment (consistent with with Inner West PAMP detailed works program)	Provides a pedestrian-priority crossing and raised threshold slows down vehicle speeds	17
16	Greenbank Street / Illawarra Road intersection (western leg)	-33.914892, 151.151938	Kerb extensions on both sides to replace existing pedestrian refuge	Reduces crossing distance and improves crossing visibility; narrows carriageway which slows down vehicle speeds	18
17	Illawarra Road between Greenbank Street and Grove Street	-33.91504, 151.151882	Convert to raised zebra crossing	Improves crossing visibility and raised threshold slows down vehicle speeds	19
18	Grove Street / Illawarra Road intersection (southern leg)	-33.915141, 151.151789	Kerb extensions on both sides to replace existing pedestrian refuge	Reduces crossing distance and improves crossing visibility; narrows carriageway which slows down vehicle speeds	20
19	Church Street / Illawarra Road intersection (northern leg)	-33.915332, 151.151091	Kerb extensions on both sides to replace existing pedestrian refuge	Reduces crossing distance and improves crossing visibility; narrows carriageway which slows down vehicle speeds	21
20	Warren Road / Illawarra Road intersection (northern leg)	-33.915845, 151.150287	New kerb ramp on eastern side, and requires relocation of power pole and traffic signals	Ensures kerb ramp alignment and better accommodates pedestrian desire line	22
21	Warren Road / Illawarra Road intersection (eastern leg)	-33.915951, 151.150306	New kerb ramp on the northern side, and requires relocation of power pole and traffic signals	Ensures kerb ramp alignment and better accommodates pedestrian desire line	23
22	Harnett Avenue / Renwick Street / Illawarra Road intersection (northern leg)	-33.916427, 151.149575	Raised zebra crossing to replace existing pedestrian refuge No data is available for this location, however it is anticipated that there would be high traffic volumes with the associated regional road classification and notable pedestrian traffic with	Provides a pedestrian-priority crossing across Illawarra Road; raised threshold acts as a traffic calming treatment and a physical gateway treatment to signify start of proposed HPAA zone	24

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			proximity to key land uses such as Woolworths and other retail establishments.		
23	Harnett Avenue / Renwick Street / Illawarra Road intersection (western leg)	-33.916476, 151.149388	New refuge island with compliant dimensions	Provides sufficient waiting space for pedestrians when crossing at pedestrian refuge island; further narrowing of carriageway with the widened refuge island slows down vehicle speeds	25
24	Harnett Avenue / Renwick Street / Illawarra Road intersection (eastern leg)	-33.916605, 151.149541	Raised zebra crossing to replace existing pedestrian refuge	Provides a pedestrian-priority crossing across Renwick Street; raised threshold acts as a traffic calming treatment	26



Figure 22: Proposed Treatment Locations – Marrickville (North of Marrickville Station)

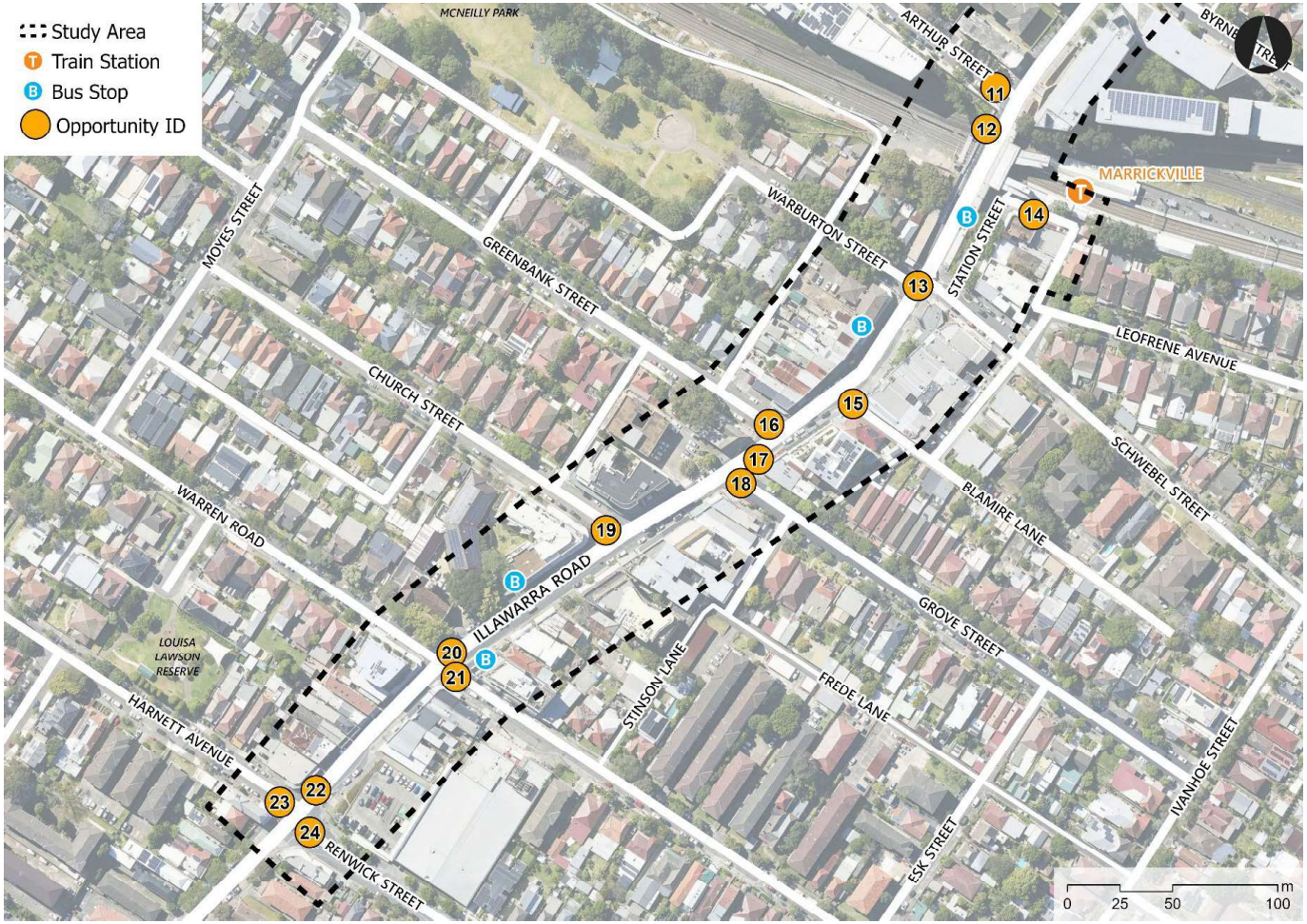


Figure 23: Proposed Treatment Locations – Marrickville (South of Marrickville Station)

4.6 Study Area 6: Petersham

The extent of the study area spans along the Petersham town centre strip at Audley Street and a section of Trafalgar Street between Audley Street to the west and Petersham Station to the east, as shown in Figure 24. Section 4.6.1 to Section 4.6.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix H of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.

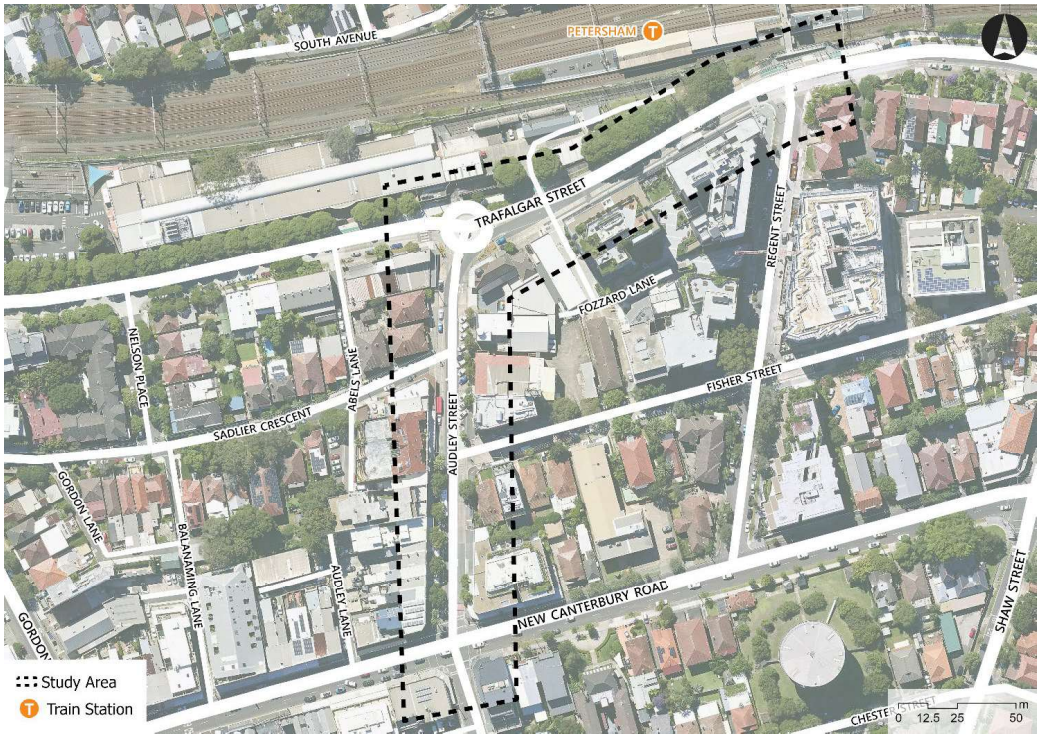


Figure 24: Study Area – Petersham

4.6.1 Existing Land Use

Within the study area, land uses comprise a retail strip that runs along Audley Street, while Trafalgar Street hosts a mixed-use development and houses the Transport for NSW Training Centre. Petersham Station is situated to the north-east of Petersham town centre. Surrounding key land uses include retail strip which extends along New Canterbury Road, Petersham Service Centre and Petersham Public School.

4.6.2 Existing Road Network

Audley Street is a local road with a north-south alignment through Petersham town centre. It is a two-way configured with one traffic lane in each direction, with restricted kerbside parking on both sides. The road is subject to a speed limit of 50 km/h. Trafalgar Street is a regional road that runs in an east to west alignment. It has one lane of traffic in each direction on restricted kerbside parking along the southern extent. The road is subject to a speed limit of 50 km/h. New Canterbury Road is a state road that is aligned in east-west alignment and intersects with Audley Street at the southern periphery of the study area. It has two traffic lanes in each direction. Kerbside parking is permitted outside the clearway and bus lane hours, and subject to time restrictions. The road is subject to a posted speed limit of 60 km/h within the study area.

4.6.3 Existing Transport Infrastructure and Facilities

Footpaths are available on both sides of the roads, and pedestrian crossings facilitate safe movement across Audley Street, Trafalgar Street, New Canterbury Road, and adjacent side streets. Along Trafalgar Street, there is a bi-directional separated cycleway. Petersham Station is situated northeast of Petersham Town Centre, accessible via entries on Trafalgar Street. Public bus routes serve Audley Street, Trafalgar Street, and New Canterbury Road, with stops located along Petersham's town centre strip at Audley Street and near the train station on Trafalgar Street. Traffic calming measures implemented include median treatments, kerb extensions, and roundabouts to manage vehicular speed and enhance safety within the study area.

4.6.4 Historical Crash Data

In the five-year period from 2018 to 2022, five crashes involving pedestrians were reported in the study area. Three crashes resulted in moderate injuries while two resulted in minor injuries.

4.6.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 9th and 15th March 2024, the following was observed:

- Along Audley Street, north of Fisher Street, the northbound weekday average volume was 160 vehicles/hr in the AM peak and 94 vehicles/hr in the PM peak. The southbound weekday average volume was 180 vehicles/hr in the AM peak and 180 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Audley Street, with 85th percentile speeds below 40 km/h for majority of the day except for brief periods in the early morning (1:00am-2:00am and 5:00am-6:00am).

4.6.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Thursday, 14th March 2024, at three locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 3:00 pm to 5:00 pm. Based on the traffic survey results, the identified peak hours for the three pedestrian survey sites are 7:30 am to 8:30 am for the weekday AM peak hour and 3:00 pm to 4:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were positioned at multiple points along the Petersham town centre strip at Audley Street. The primary pedestrian volumes were associated with north-south movements along the western side of the town centre strip, and this can be attributed to the proximity to the pedestrian crossing which connects to the Transport for NSW Training Centre and further to Petersham Station, a higher concentration of retail land uses on the western side of Audley Street, and the cluster of retail establishments along New Canterbury Road to the south-west.

4.6.7 Proposed HPAA zones

The proposed HPAA zone, as shown in Figure 19, covers the extent of Petersham town centre strip along Audley Street. This designation establishes a consistent low speed environment along the entire length of the town centre strip along Audley Street from Trafalgar Street to New Canterbury Road, both of which are higher-order roads.

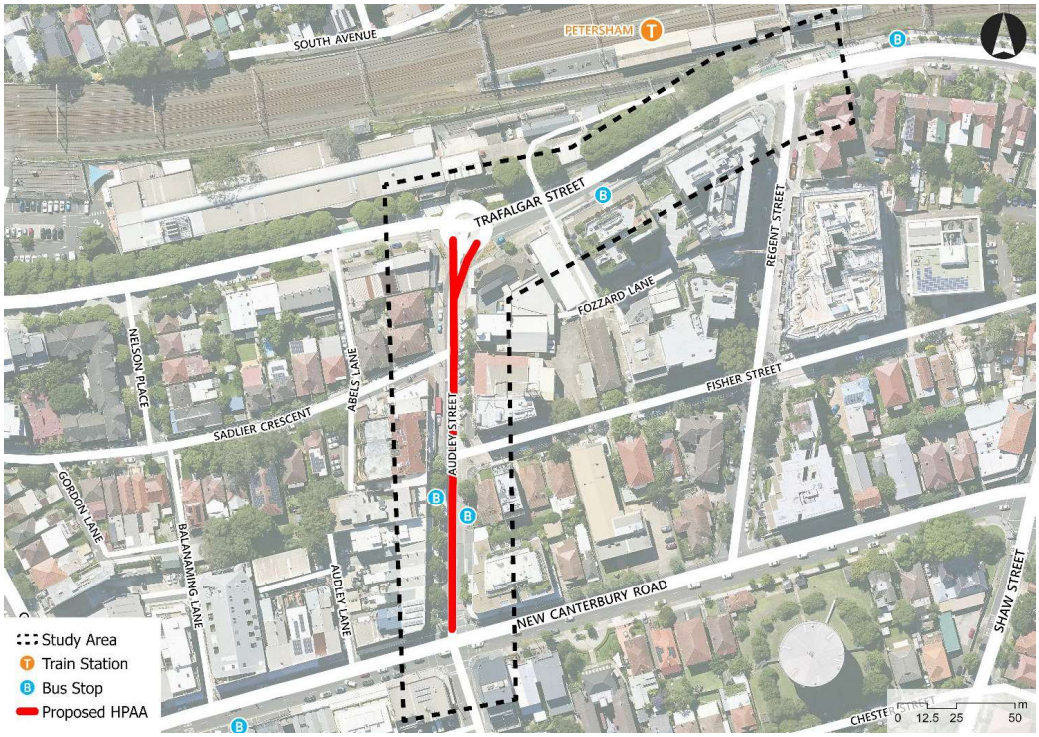


Figure 25: Proposed HPAA Zone – Petersham

4.6.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 14 details the list of issues identified, with locations referenced in Figure 26.

Table 14: Issues – Petersham

ID	Location	Coordinates	Issue
1	Audley Street / Fisher Street intersection (eastern leg)	-33.895474, 151.154198	Informal crossing facility across a wide street with a crossing distance of 11m; opportunity to improve
2	Audley Street, north of Fisher Street	-33.895380, 151.154162	Informal mid-block crossing facility with a crossing distance of 10m; opportunity to improve
3	Audley Street / Sadlier Crescent intersection (western leg)	-33.895135, 151.154064	Informal crossing facility with a crossing distance of 8m; opportunity to improve
4	Trafalgar Street / Audley Street intersection (southern leg)	-33.894747, 151.154199	Narrow storage space at pedestrian refuge island with a 1.2m width parallel to the road direction of travel
5	Trafalgar Road between Audley Street and Regent Street	-33.894265, 151.155185	Safety risks associated with notable pedestrian activity observed crossing mid-block in north-south direction outside of designated crossing points between Audley Street and Regent Street
6	Trafalgar Street / Regent Street intersection (southern leg)	-33.894140, 151.155745	Misalignment of the refuge island walkthrough space with the adjacent kerb ramps, particularly the kerb ramp to the east

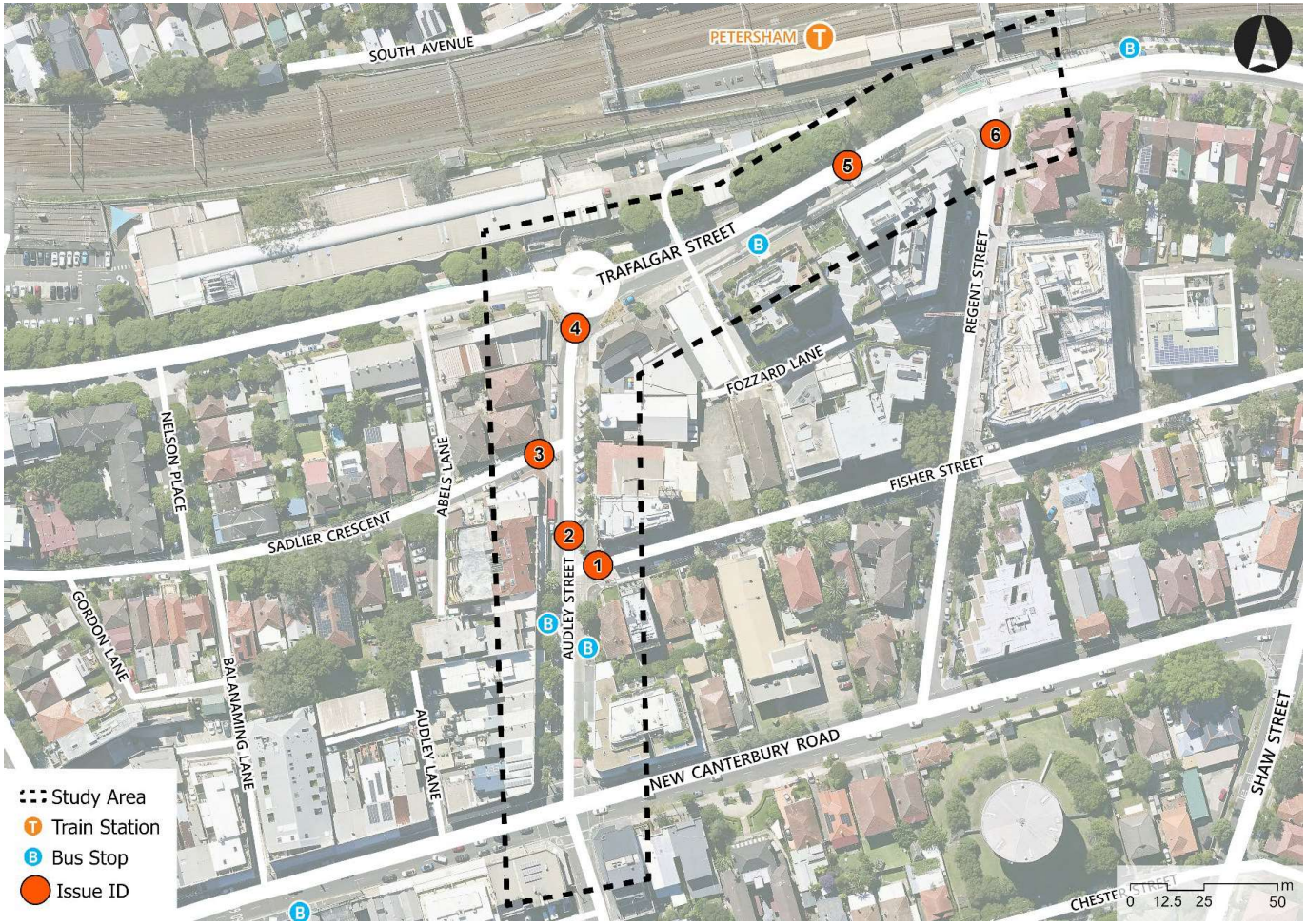


Figure 26: Issue Locations – Petersham

4.6.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 15 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.6.8. Figure 27 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 15: Proposed Treatments – Petersham

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Audley Street, north of New Canterbury Road	-33.896017, 151.154145	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in the speed environment	-
2	Audley Street / Fisher Street intersection (eastern leg)	-33.895474, 151.154198	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; narrowing of carriageway slows down vehicle speeds	1
3	Audley Street, north of Fisher Street	-33.895380, 151.154162	Raised zebra crossing Data collected on Thursday 30th March 2023 indicated volumes of 368 vehicles and 29 pedestrians for AM peak, 220 vehicles and 43 pedestrians for mid-day peak and 299 vehicles and 35 pedestrians for PM peak. The surveyed peak volumes meet the Council's warrant requirements for a pedestrian zebra crossing.	Provides a prioritised pedestrian crossing across Audley Street midway along the town centre strip; raised threshold slows down vehicle speeds	2
4	Audley Street / Sadlier Crescent intersection (western leg)	-33.895135, 151.154064	Continuous footpath across side street Data collected on Thursday 6th June 2024 indicated traffic volumes of 31 and 42 for AM and PM peak respectively. This meets the criteria for a continuous footpath treatment.	Provides a prioritised pedestrian crossing along the town centre strip with high footfall; improves crossing visibility and raised threshold acts as a traffic calming intervention in slowing down vehicle speeds	3
5	Trafalgar Street / Regent Street intersection (southern leg)	-33.894140, 151.155745	Raised zebra crossing to replace existing pedestrian refuge No data is available for this location, however, it is anticipated that there would be high traffic volumes with the associated regional road classification and notable pedestrian traffic with proximity to key land uses such as train station and retail establishments to the west.	Provides a prioritised pedestrian crossing and raised threshold reduces vehicle speeds at the crossing; the use of a pedestrian-priority crossing provides improved pedestrian safety and encourages pedestrians to use the designated crossing points to travel to/from the surrounding key land uses including Petersham Station, public	5, 6

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
				bus stops and retail establishment to the south-west	

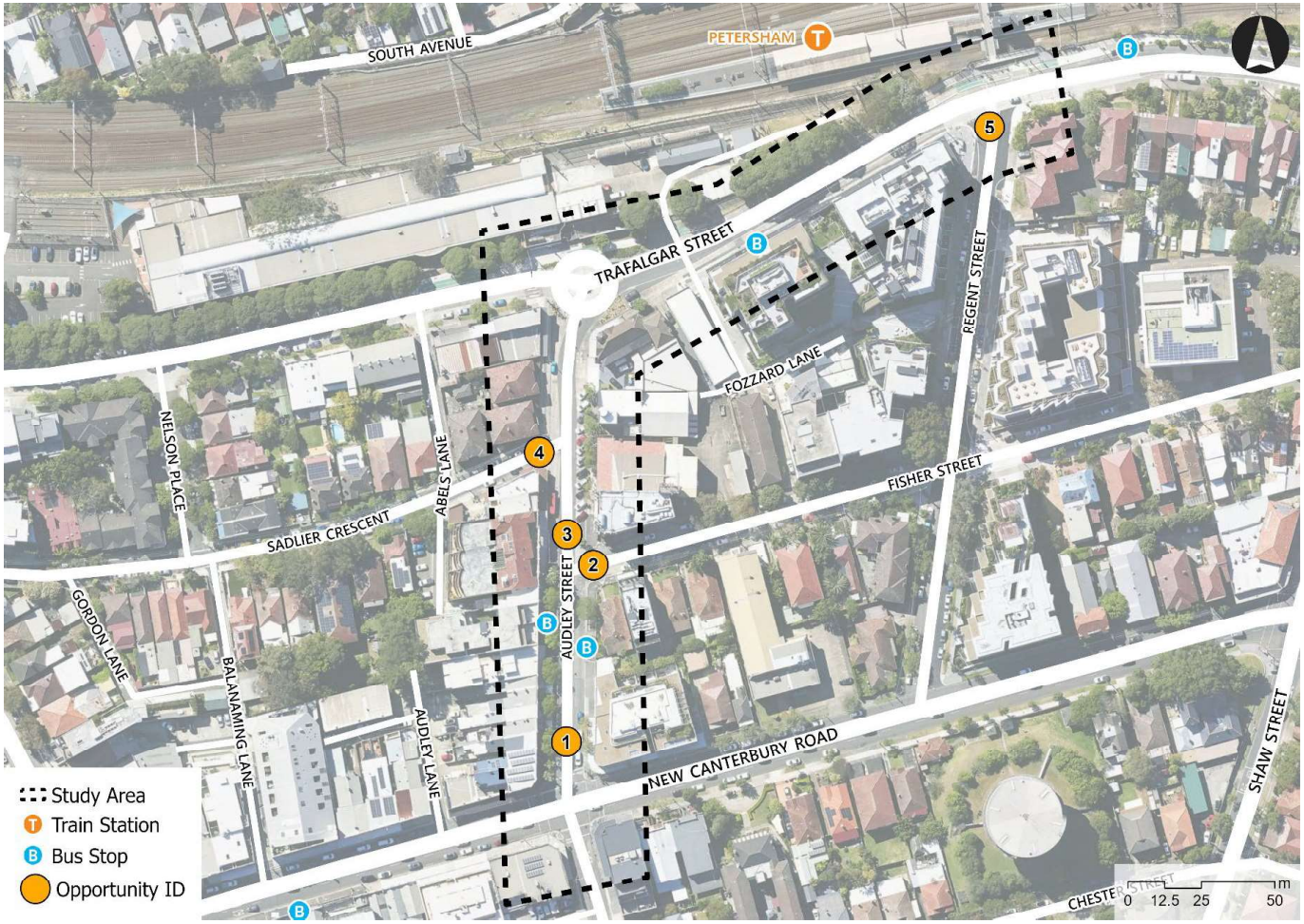


Figure 27: Proposed Treatment Locations – Petersham

4.7 Study Area 7: Rozelle

The extent of the study area spans along the Rozelle town centre strip along Darling Street as shown in Figure 28. It is bounded by Wisbeach Street to the north and Cecily Street to the south. Section 4.7.1 to Section 4.7.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix I of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.



Figure 28: Study Area – Rozelle

4.7.1 Existing Land Use

Within the study area, land uses include a retail strip along Darling Street between Norman Street and Deniston Street, Rozelle Public School located along the town centre strip, and industrial land uses such as warehouses and supply stores along Darling Street south of Manning Street. Surrounding key land uses feature Sydney Secondary College Balmain Campus to the northwest of the Rozelle Town Centre, recreational parks and sporting grounds west of Balmain Road, and strips of retail and industrial land uses along Victoria Road

4.7.2 Existing Road Network

With the exception of Victoria Road and Darling Street/Balmain Road, the rest of the roads in the study area are classified as local roads.

North of Victoria Road, Darling Street is a regional road with a north-south alignment through the Rozelle Town Centre. It is a two-way road with one lane per direction and restricted kerbside parking. The road is subject to a posted speed limit of 40 km/h. South of Victoria Road, Darling Street / Balmain Road is a state road that runs in a north-south alignment along the town centre strip. It is a two-way road with two lanes per direction. Parking is permitted at kerbside traffic lane on each side. “No Stopping” zones apply to the kerbside traffic lanes on both sides north of Hancock Lane, and a clearway

restriction applies on the northbound kerbside lane north of Oxford Street. The road is subject to a posted speed limit of 50 km/h.

4.7.3 Existing Transport Infrastructure and Facilities

In the study area, footpaths are present on both sides of the roads, and pedestrian crossing facilities are available to support movements across Darling Street and the side streets. On-road cycle routes are established along Darling Street and various side streets, including Wise Street, Beattie Street, Nelson Street, Waterloo Street, Belmore Street, Red Lion Street, Denison Street, Park Drive, and Cecily Street. Additionally, off-road cycle routes with an east-west alignment run along Victoria Road. Public bus routes service Darling Street and Victoria Road, with bus stops located along these corridors, especially in the Rozelle town centre strip. Traffic calming treatments implemented in the area include wombat crossings, kerb extensions, kerb blisters, speed humps, and speed cushions.

4.7.4 Historical Crash Data

In the five-year period from 2018 to 2022, five crashes involving pedestrians were reported in the study area. All crashes occurred at intersections. Two crashes resulted in serious injuries, one in moderate injuries and two in minor injuries.

4.7.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 8th and 14th March 2024, the following was observed:

- Along Darling Street, south of Bruce Street, the northbound weekday average volume was 421 vehicles/hr in the AM peak and 428 vehicles/hr in the PM peak. The southbound weekday average volume was 430 vehicles/hr in the AM peak and 364 vehicles/hr in the PM peak.
- Along Darling Street, north of National Street, the northbound weekday average volume was 505 vehicles/hr in the AM peak and 517 vehicles/hr in the PM peak. The southbound weekday average volume was 427 vehicles/hr in the AM peak and 349 vehicles/hr in the PM peak.
- Along Darling Street, west of Cambridge Street, the northbound weekday average volume was 663 vehicles/hr in the AM peak and 596 vehicles/hr in the PM peak. The southbound weekday average volume was 932 vehicles/hr in the AM peak and 866 vehicles/hr in the PM peak.

At Darling Street north of Victoria Road, the recorded average and 85th percentile speeds at the surveyed sites south of Bruce Street and north of National Street are below or at the current posted speed limit of 40km/h, with the exception of early periods of the day between 1:00am and 5:00am where 85th percentile speeds exceed the posted speed limit. At Darling Street south of Victoria Road, the recorded average and 85th percentile speeds at the surveyed site west of Cambridge Street are below the current posted speed limit of 50km/h, with the exception of later periods of the day between 9:00pm and 11:00pm where 85th percentile speeds exceed the posted speed limit.

4.7.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Thursday, 14th March 2024, at seven locations, covering the weekday AM peak period from 8:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the seven pedestrian survey sites are 8:00 am to 9:00 am for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were positioned at multiple points along Rozelle town centre strip on Darling Street, both north and south of Victoria Road. North of Victoria Road, the main pedestrian volumes were associated with the north-south movements along the town centre strip, with higher pedestrian activity observed on the eastern side. South of Victoria Road, the majority of pedestrian volumes were observed to be north-south movements along the eastern side. In comparison to the section south of Victoria Road, the northern section experienced notably higher pedestrian activity overall. This difference can be attributed to the higher density and mix of land uses to the north, including a higher concentration of retail and educational establishments.

4.7.7 Proposed HPAA zones

The proposed HPAA zone is illustrated in Figure 19. The proposed HPAA zone is an extension of the existing HPAA along Illawarra Road further south of Victoria Road to the signalised intersection at Park Drive to accommodate for retail and commercial land uses along the Rozelle town centre strip, where the existing HPAA does not apply. This designation provides prioritisation for pedestrian connectivity between the northern and southern sections of the town centre, separated by the major thoroughfare of Victoria Road.

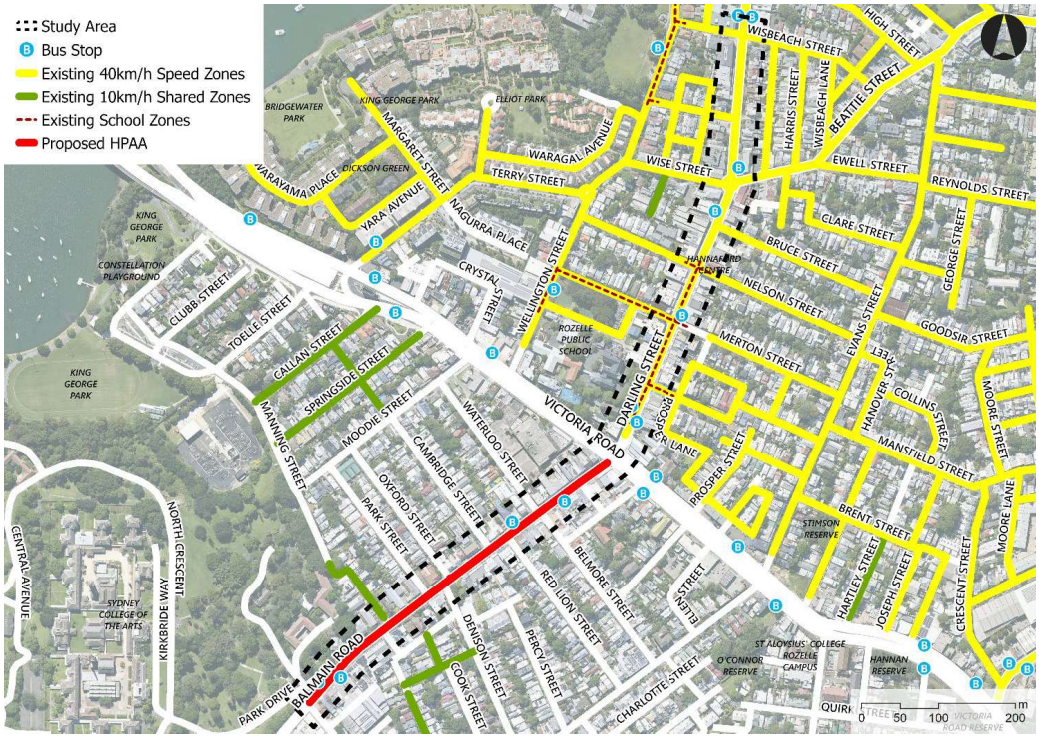


Figure 29: Proposed HPAA Zone – Rozelle

4.7.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 16 details the list of issues identified, with locations referenced in Figure 30 and Figure 31.

Table 16: Issues – Rozelle

ID	Location	Coordinates	Issue
1	Matilda Street / Darling Street intersection (southern leg)	-33.865978, 151.16683	Informal crossing facility with a crossing distance of 8.5m; opportunity to improve
2	Park Street / Darling Street intersection (northern leg)	-33.865461, 151.167365	Informal crossing facility with a crossing distance of 5.5m; opportunity to improve
3	Denistone Street / Darling Street intersection (southern leg)	-33.865461, 151.1677	Informal crossing facility with a crossing distance of 7m; opportunity to improve
4	Darling Street between Park Street and Denison Street	-33.865415, 151.167575	Lack of a mid-block crossing across Darling Street west of Waterloo Street, with a gap of 375m between north-south crossing points along Darling Street between Park Drive and Waterloo Street
5	Oxford Street / Darling Street intersection (northern leg)	-33.865259, 151.167686	Slightly misaligned kerb ramp (western side); informal crossing facility with crossing distance of 8m; opportunity to improve
6	Cambridge Street / Darling Street intersection (northern leg)	-33.864909, 151.168248	Informal crossing facility with a crossing distance of 9.5m; opportunity to improve
7	Red Lion Street / Darling Street intersection (southern leg)	-33.864897, 151.168614	Misaligned kerb ramp with a pillar in the way; informal crossing facility with a crossing distance of 6m over a one-way street
8	Waterloo Street / Darling Street intersection (northern leg)	-33.864469, 151.168976	Misaligned kerb ramp (eastern side)
9	Waterloo Street / Darling Street intersection	-33.864558, 151.168987	Lack of existing traffic calming treatments (e.g. vertical deflection devices) on Darling Street south of Victoria Road
10	Hancock Lane / Darling Street intersection (southern leg)	-33.864265, 151.169675	Informal crossing facility with a crossing distance of 3.8m; opportunity to improve
11	Darling Street between Waterloo Street and Victoria Road (northern extent)	-33.864168, 151.169455	Lack of buffer between footpath and traffic lane

ID	Location	Coordinates	Issue
12	Darling Street / Victoria Road intersection	-33.863868, 151.170076	Long waiting times with 80s to105s observed for east-west crossings and 90s observed for north-south crossings; opportunity to improve connectivity between both sides of the Rozelle town centre strip along Darling Street north and south of Victoria Road and to revitalise the southern portion of the town centre
13	Darling Street / Victoria Road intersection (western leg)	-33.863758, 151.170034	Slight kerb ramp misalignment
14	Merton Street / Darling Street (eastern leg)	-33.862376, 151.171059	Slight kerb ramp misalignment (southern side); existing kerb blister on the southern side partially obstructs the adjacent kerb ramp access
15	Merton Street / Darling Street (western leg)	-33.862306, 151.170896	Informal crossing facility with a crossing distance of 10m; opportunity to improve
16	Darling Street, south of Merton Street	-33.862395, 151.170940	Informal mid-block crossing facility with a crossing distance of 8.5m; opportunity to improve
17	Nelson Street / Darling Street intersection (eastern leg)	-33.861753, 151.171394	Slightly misaligned kerb ramp (southern side); existing kerb blister on the southern side partially obstructs the adjacent kerb ramp access
18	Wise Street / Beattie Street / Darling Street intersection (western leg)	-33.860732, 151.171607	Existing zebra crossing is not raised
19	Beattie Street / Wise Street / Darling Street (eastern leg)	-33.860692, 151.171979	Kerb ramp misalignment; informal crossing facility with a crossing distance of 10m
20	Norman Street / Darling Street intersection (western leg)	-33.859946, 151.171766	Informal crossing facility with a crossing distance of 8m; opportunity to improve
21	Darling Street between Wise Street and Thornton Street	-33.859703, 151.171929	Lack of physical gateway treatments to signify start/end of existing HPAA zone at the northern end of the town centre strip on Darling Street; lack of existing traffic calming treatments (e.g. vertical deflection devices) on this street segment
22	Thornton Street / Wisbeach Street / Darling Street intersection (western leg)	-33.858991, 151.171887	Informal crossing facility with a crossing distance of 9.5m; opportunity to improve
23	Thornton Street / Wisbeach Street / Darling Street intersection (eastern leg)	-33.859008, 151.172145	Informal crossing facility with a crossing distance of 9m; opportunity to improve

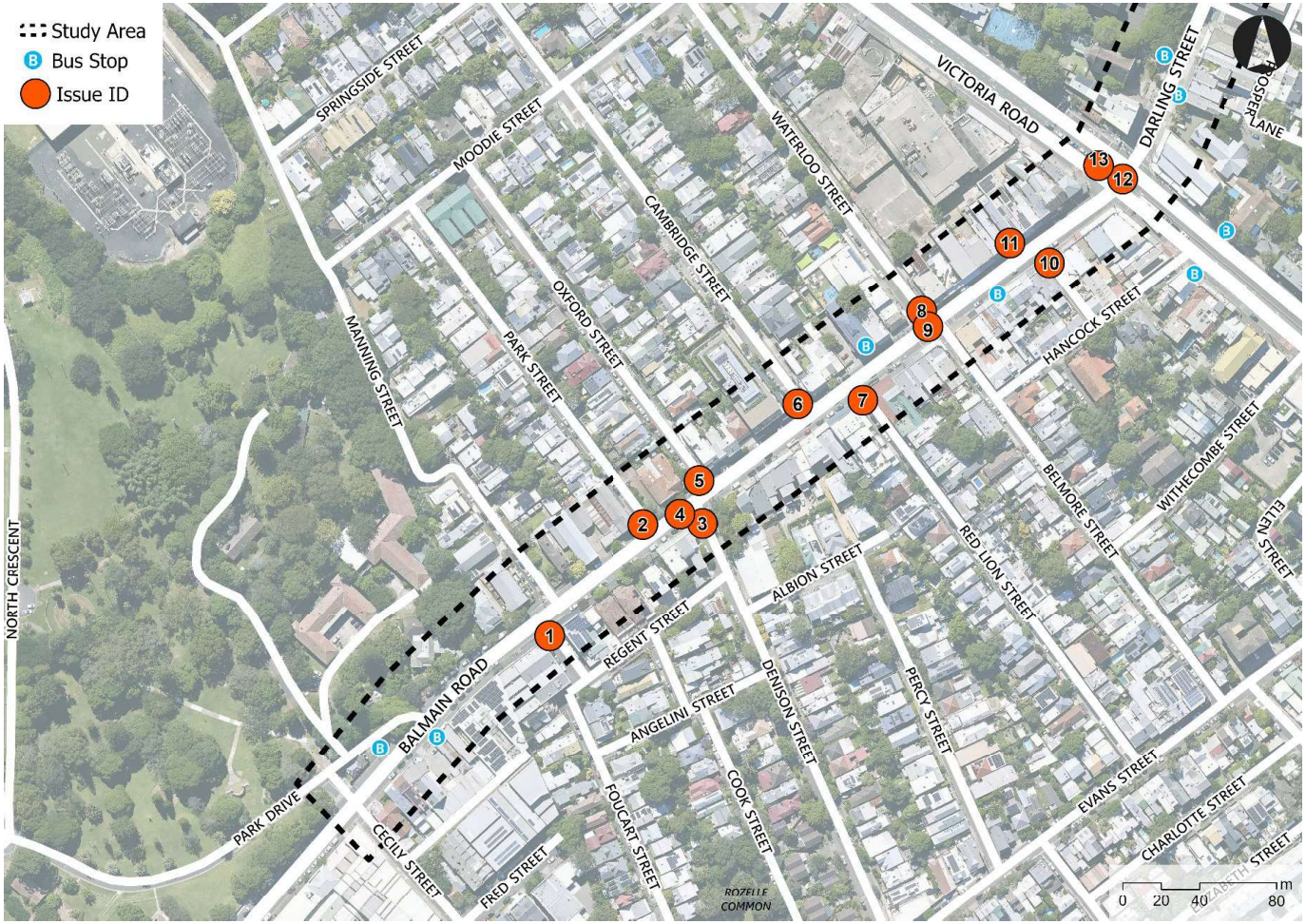


Figure 30: Issue Locations – Rozelle (South of Victoria Road)

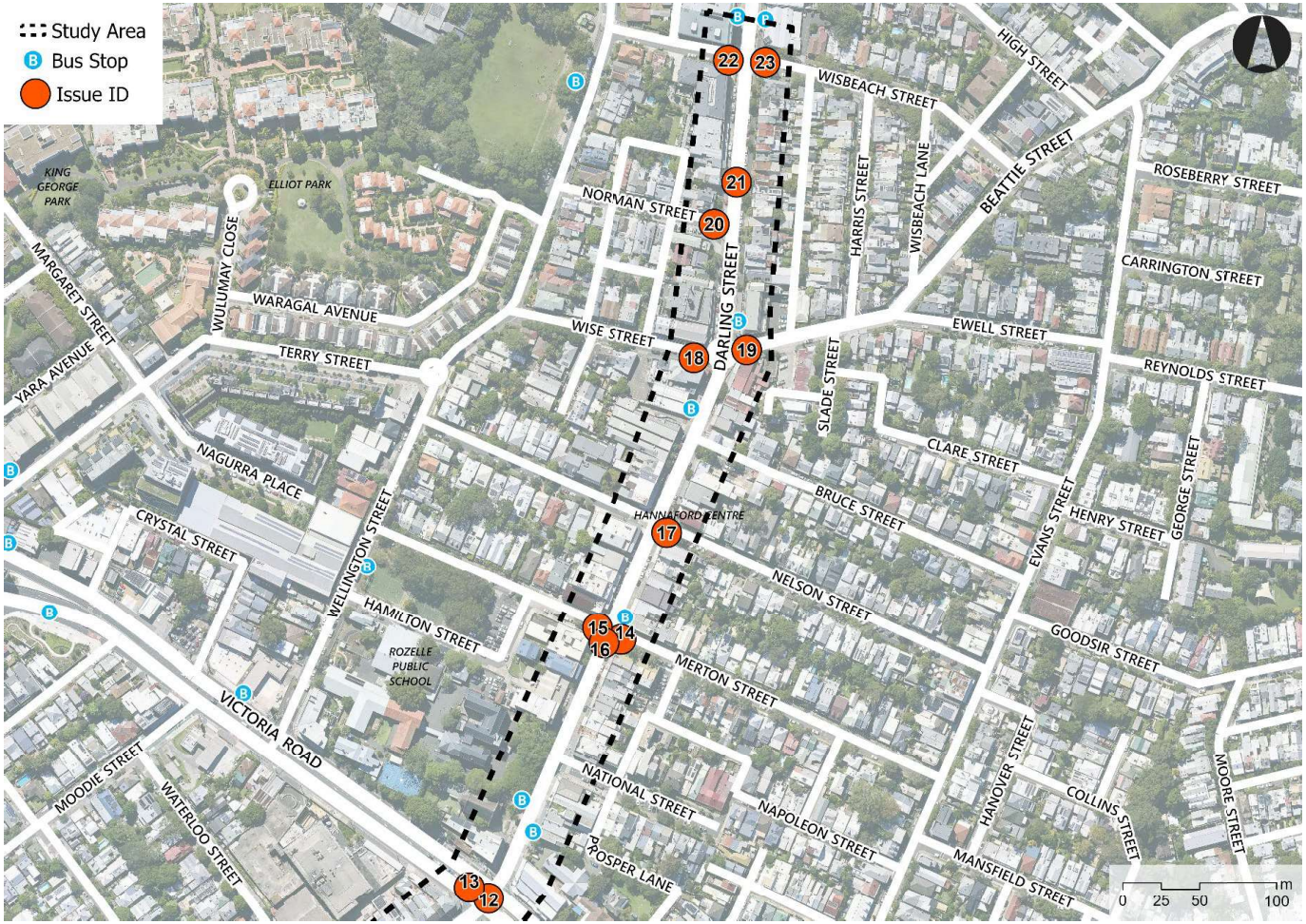


Figure 31: Issue Locations – Rozelle (North of Victoria Road)

4.7.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 17 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.7.8. Figure 32 and Figure 33 show the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 17: Proposed Treatments – Rozelle

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Balmain Road, east of Park Drive and Cecily Street	-33.866666, 151.16579	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in speed environment	-
2	Matilda Street / Darling Street intersection (southern leg)	-33.865978, 151.16683	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; narrowing of carriageway reduces vehicle speeds	1
3	Oxford Street / Darling Street intersection (northern leg)	-33.865259, 151.167686	Kerb extension on western side	Ensures kerb ramp alignment and better services pedestrian desire line; reduces crossing distance and improves crossing visibility; narrowing of carriageway reduces vehicle speeds	5
4	Cambridge Street / Darling Street intersection (northern leg)	-33.864909, 151.168248	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; narrows carriageway which further reduces vehicle speeds	6
5	Red Lion Street / Darling Street intersection (southern leg)	-33.864897, 151.168614	Footpath continuation treatment across side street Data collected on Thursday 30th March 2023 indicated traffic volumes of 42, 55 and 48 for AM, mid and PM peak respectively. This partially meets the criteria for a continuous footpath treatment. While the surveyed mid-day and PM peak traffic volumes exceed the criteria for a continuous footpath treatment, they remain within an acceptable range and warrant consideration for the subject treatment. Considering the need for pedestrian prioritisation along the town centre strip (high pedestrian volumes recorded at 184,	Provides a prioritised pedestrian crossing and raised threshold further acts as traffic calming measure in slowing down vehicle speeds at the crossing	7

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			169 and 122 for AM, mid and PM peak respectively), it is advised to provide a continuous footpath treatment at this location.		
6	Waterloo Street / Darling Street intersection	-33.864558, 151.168987	Investigate opportunity for a raised intersection	Raised intersection serves as a threshold treatment to reduce vehicle speeds; consistent with the typology along the Rozelle town centre strip on Darling Street north of Victoria Road	8, 9
7	Hancock Lane / Darling Street intersection (southern leg)	-33.864265, 151.169675	Road closure and shared zone along Hancock Lane (proposed by Council)	Provides a continuous footpath along the southern extent of Darling Street between Waterloo Street and Victoria Road; eliminates right-turning traffic from busy road (Darling Street)	10
8	Darling Street between Waterloo Street and Victoria Road (northern extent)	-33.864168, 151.169455	Investigate opportunity to install planter boxes or other street furniture to provide a buffer between footpath and adjacent traffic lane	Provides a separation between the walkway and the traffic lanes; provides a more comfortable walking environment and improves pedestrian safety	11
9	Darling Street / Victoria Road intersection	-33.863868, 151.170076	Consider reducing signal waiting times for pedestrians to be <60s, particularly for north-south crossings It should be noted that this could be constrained by signal timings on Victoria Road (state road) which prioritises through vehicle movements	Reduce pedestrian crossing waiting times for north-south crossing to improve ease of travelling between both sides of the Rozelle Town Centre strip north and south of Victoria Road	12
10	Darling Street / Victoria Road intersection (western leg)	-33.863758, 151.170034	New kerb ramp on the southern side	Ensures kerb ramp alignment and better services pedestrian desire line	13
11	Merton Street / Darling Street (eastern leg)	-33.862376, 151.171059	New kerb ramp on the southern side, with associated kerb extension that ties in with Council's proposed wombat crossing at Darling Street to the west	Ensures kerb ramp alignment and better services pedestrian desire line	14
12	Merton Street / Darling Street (western leg)	-33.862306, 151.170896	Kerb blister on the northern side to further reduce crossing distance	Reduces crossing distance and improves crossing visibility	15
13	Darling Street, south of Merton Street	-33.862395, 151.170940	Raised zebra crossing (proposed by Council)	Provides a prioritised mid-block pedestrian crossing across Darling Street and raised	16

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			Data collected on Thursday 30th March 2023 indicated volumes of 848 vehicles and 30 pedestrians for AM peak, 868 vehicles and 20 pedestrians for mid-day peak, and 814 vehicles and 41 pedestrians for PM peak. The surveyed peak volumes meet the Council's warrant requirements for a pedestrian zebra crossing.	threshold slows down vehicle speeds at the crossing	
14	Nelson Street / Darling Street intersection (eastern leg)	-33.861753, 151.171394	New kerb ramp on the southern side, with associated kerb extension that ties in with Council's proposed adjacent accessible parking space and kerb extension design	Ensures kerb ramp alignment and better services pedestrian desire line	17
15	Wise Street / Beattie Street / Darling Street intersection (western leg)	-33.860732, 151.171607	Convert to raised zebra crossing (proposed by Council)	Improves crossing visibility and acts as a vertical deflection device in slowing down vehicles at the crossing	18
16	Beattie Street / Wise Street / Darling Street (eastern leg)	-33.860692, 151.171979	Raised zebra crossing (proposed by Council) No data is available for this location, however it is anticipated that there would be high traffic volumes with the associated regional road classification and notable pedestrian traffic with proximity to key land uses such as retail strip along Darling Street.	Provides a prioritised pedestrian crossing along the eastern side of the town centre strip and raised threshold slows down vehicle speeds at the crossing; this is also consistent with the street typology at the western and southern legs of the roundabout intersection	19
17	Norman Street / Darling Street intersection	-33.859946, 151.171766	Kerb extension on the northern side	Reduces crossing distance and improves crossing visibility; narrowing of carriageway further reduces vehicle speeds	20
18	Darling Street between Wise Street and Thornton Street	-33.859703, 151.171929	Raised threshold (proposed by Council)	Acts as speed reduction treatment along this street segment and physical gateway device for commencement of existing HPAA at the northern end of the town centre strip on Darling Street	21
19	Thornton Street / Wisbeach Street / Darling Street intersection (western leg)	-33.858991, 151.171887	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; narrowing of carriageway further reduces vehicle speeds	22

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
20	Thornton Street / Wisbeach Street / Darling Street intersection (eastern leg)	-33.859008, 151.172145	Kerb extensions with widening of pavement area on both sides to replace existing kerb blisters	Reduces crossing distance and improves crossing visibility; narrowing of carriageway further reduces vehicle speeds	23

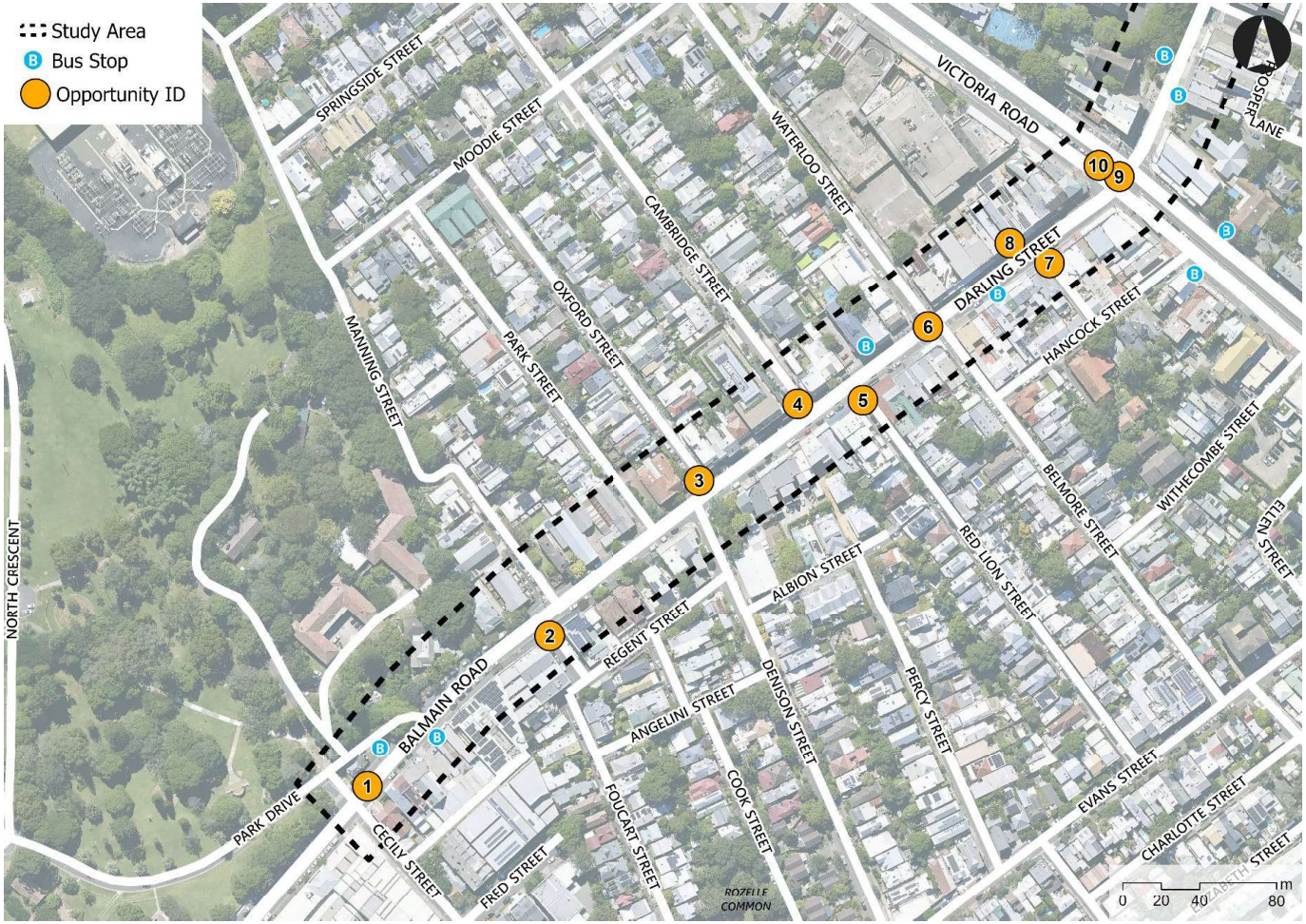


Figure 32: Proposed Treatment Locations – Rozelle (South of Victoria Road)

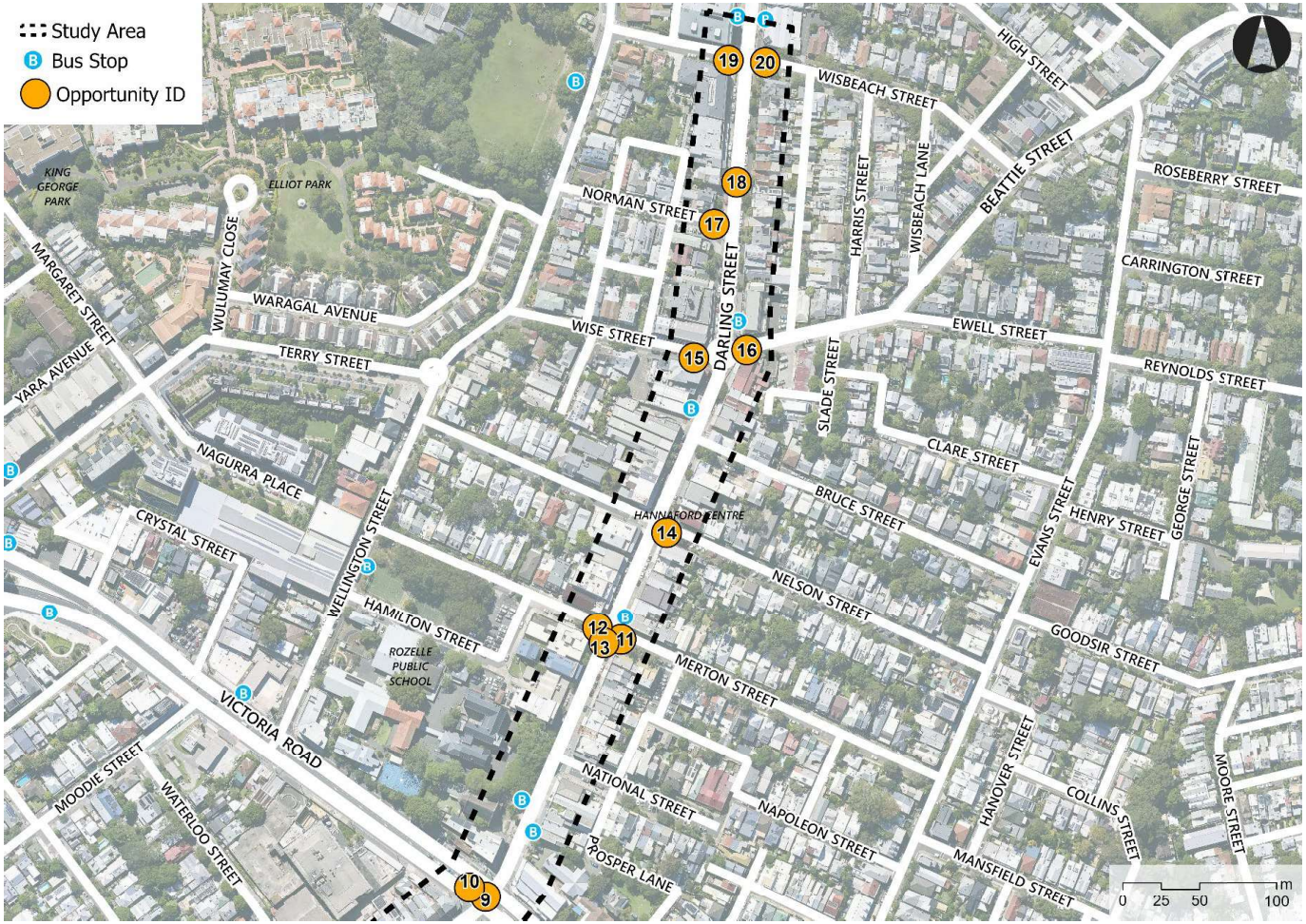


Figure 33: Proposed Treatment Locations – Rozelle (North of Victoria Road)

4.8 Study Area 8: Stanmore

The extent of the study area spans along the Stanmore town centre strip at Percival Road as shown in Figure 34. It is bounded by St Michael's Catholic Primary School to the north and Stanmore Station to the south. Section 4.8.1 to Section 4.8.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix J of the report. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.



Figure 34: Study Area – Stanmore

4.8.1 Existing Land Use

Within the study area, land uses comprise a retail strip along Percival Road, Stanmore Station at the southern terminus of the Stanmore town centre strip, and St Michael's Catholic Primary School. Adjacent key land uses include Stanmore Library, Stanmore Reserve, and Weekley Park.

4.8.2 Existing Road Network

South of Salisbury Road, Percival Road is a regional road with a north-south alignment through Stanmore Town Centre. It is a two-way road configured with two traffic lanes in each direction. The road is subject to a posted speed limit of 50 km/h. North of Salisbury Road, Percival Road is a local road with a north-south alignment through Stanmore Town Centre. It is a two-way road configured with one traffic lanes in each direction and restricted kerbside parking on each side. The road is subject to a posted speed limit of 50 km/h, and a school zone applies to the northern section of the road within the study area. Salisbury Road is a regional road that extends north-eastwards from Percival Road. Within the study area, it has one lane of traffic in each direction with restricted kerbside parking. The road is subject to a posted speed limit of 50 km/h.

4.8.3 Existing Transport Infrastructure and Facilities

Footpaths are provided on both sides of the roads, and pedestrian crossing facilities are available to support movements across Percival Road and adjacent side streets. Along Douglas Street, a separated cycleway is in place, complemented by on-road cycle routes along Percival Road. Stanmore Station is positioned towards the southern terminus of the Stanmore town centre strip, accessible via Percival Road. Public bus routes operate from Douglas Street in the west to Salisbury Road in the northeast, with corresponding routes in the opposite direction. A northbound bus stop is situated on Percival Road just north of the train station. Traffic calming measures implemented include kerb extensions, kerb blisters, median treatments, and a wombat crossing to enhance safety and regulate traffic flow throughout the area.

4.8.4 Historical Crash Data

In the five-year period from 2018 to 2022, no crashes involving pedestrians were reported in the study area.

4.8.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 15th and 21st March 2024, the following was observed:

- Along Percival Road, south of Salisbury Road, the northbound weekday average volume was 702 vehicles/hr in the AM peak and 406 vehicles/hr in the PM peak. The southbound weekday average volume was 184 vehicles/hr in the AM peak and 464 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 50 km/h at Percival Road south of Salisbury Road, with 85th percentile speeds ranging from 31 km/h to 34 km/h and well below 40 km/h. This can be attributed to the curve road geometry at the Percival Road / Salisbury Road intersection which causes vehicles to slow down at this section.

4.8.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at two locations, covering the weekday AM peak period from 6:00 am to 8:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the two pedestrian survey sites are 7:00 am to 8:00 am for the weekday AM peak hour and 5:00 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey count locations were situated along the Stanmore town centre strip on Percival Road, both north and south of Salisbury Road. The majority of pedestrian traffic were associated with north-south movements along the western side of Percival Road. In comparison to the section north of Salisbury Road, the town centre strip to the south experienced higher pedestrian activity, likely due to its proximity to the train station.

4.8.7 Proposed HPAA zones

The proposed HPAA zone, as shown in Figure 19, covers the extent of Stanmore town centre strip along Percival Road. This designation establishes a consistent low speed environment across the entire length of the town centre strip along Percival Road, between Stanmore Station to the south and St Michael's Catholic Primary School to the north.

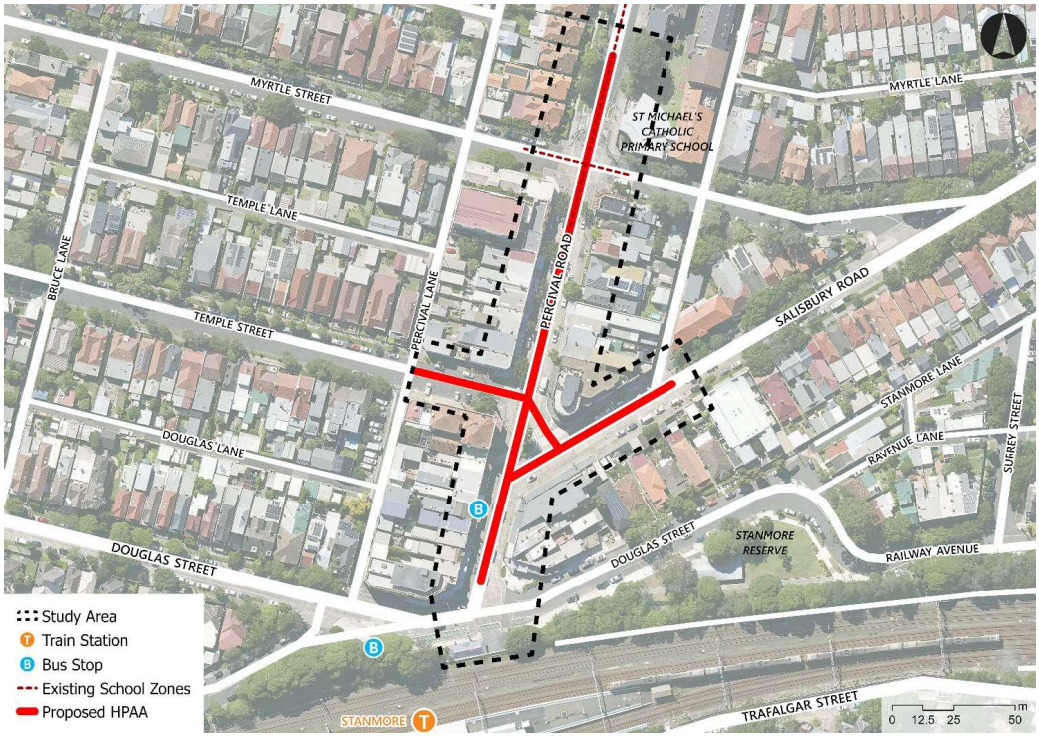


Figure 35: Proposed HPAA Zone – Stanmore

4.8.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 18 details the list of issues identified, with locations referenced in Figure 36.

Table 18: Issues – Stanmore

ID	Location	Coordinates	Issue
1	Percival Road / Myrtle Street intersection (western leg)	-33.892386, 151.164603	Informal crossing facility with a crossing distance of 10m; opportunity to improve
2	Percival Road / Myrtle Street intersection (eastern leg)	-33.892403, 151.164672	Informal crossing facility with a crossing distance of 10m; narrow storage space (approx. 1.2m perpendicular to the road direction of travel) at the refuge island
3	Percival Road / Myrtle Street intersection (southern leg)	-33.892424, 151.164632	Missing crossing facility for east-west movement at the intersection's southern leg
4	Percival Road / Temple Street intersection (western leg)	-33.893216, 151.164277	Informal crossing facility with a crossing distance of 9m; opportunity to improve
5	Percival Road / Temple Street intersection (northern leg)	-33.893094, 151.164422	Missing crossing facility for east-west movement at the intersection's northern leg
6	Percival Road / Salisbury Road intersection (northern leg)	-33.893430, 151.164346	Existing zebra crossings are not raised
7	Salisbury Road, east of Percival Road	-33.893425, 151.164543	Lack of crossing facility for north-south movement across Salisbury Road, hindering pedestrian connectivity along the eastern side of the town centre strip
8	Percival Road between Salisbury Road and Douglas Street	-33.893642, 151.164240	Safety risks with notable undesignated pedestrian crossing movements observed in east-west direction at the bus stop
9	Percival Road / Douglas Street intersection	-33.893985, 151.164128	Observed waiting times at the scramble crossing of approx. 60s may be considered long, particularly where there are no obvious conflicting vehicle movements and low vehicle traffic

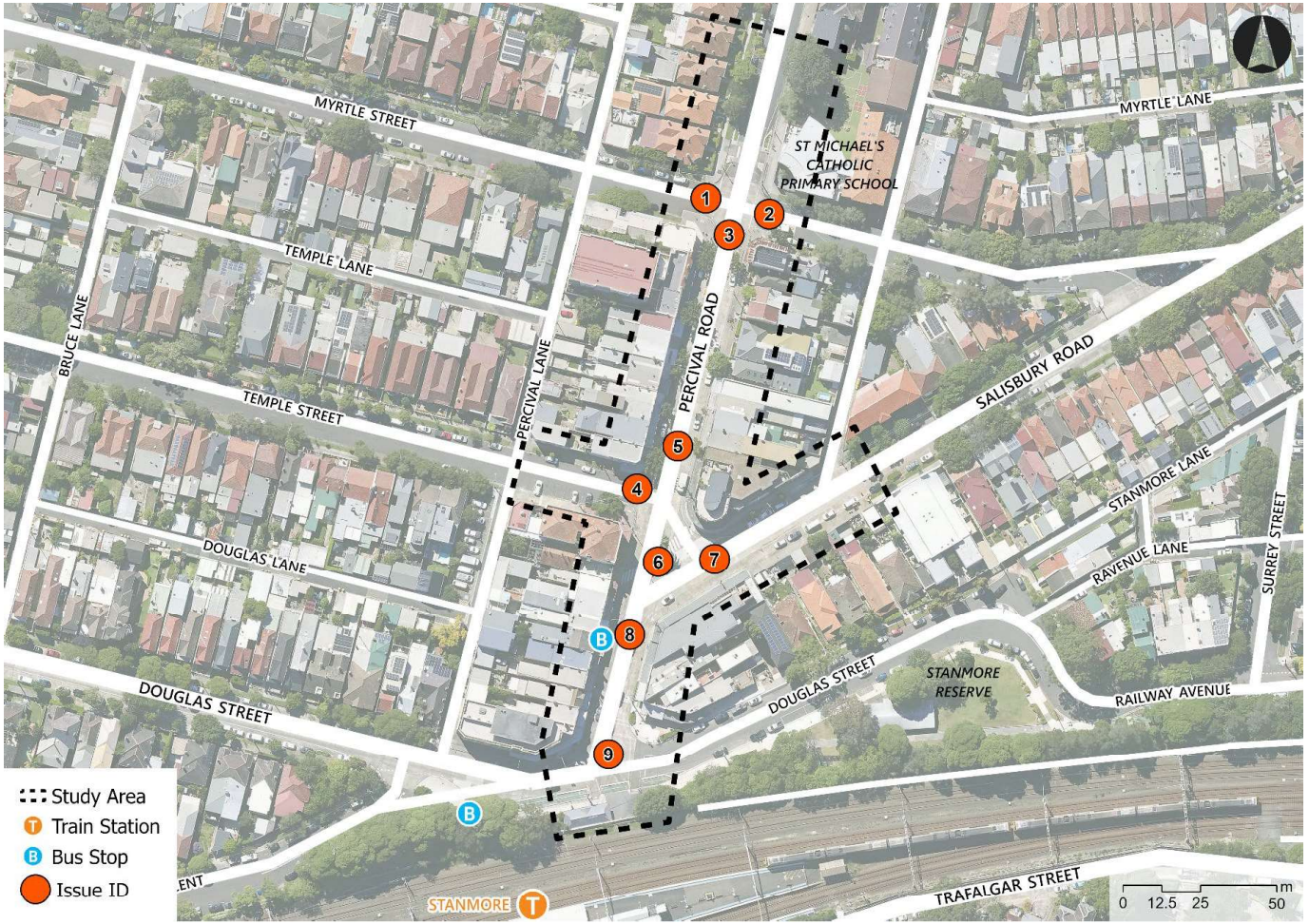


Figure 36: Issue Locations – Stanmore

4.8.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 19 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.8.8. Figure 37 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 19: Proposed Treatments – Stanmore

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Percival Road / Myrtle Street intersection (western leg)	-33.892386, 151.164603	Kerb blister on the northern side	Reduces crossing distance and improves crossing visibility; serves as a traffic calming measure via narrowing of carriageway	1
2	Percival Road / Myrtle Street intersection (eastern leg)	-33.892403, 151.164672	New refuge island with compliant dimensions; kerb extension on the northern side	Widened pedestrian refuge provides adequate waiting space in the middle of the road; the introduction of kerb blister reduces crossing distance and complements the widened kerb blister in narrowing carriageway and further reduces vehicle speeds at the crossing	2
3	Percival Road / Temple Street intersection (western leg)	-33.893216, 151.164277	Continuous footpath treatment across side street (consistent with Inner West PAMP detailed works program) Data collected on Thursday 30th March 2023 indicated traffic volumes of 73, 61 and 67 for AM, mid and PM peak respectively. While the surveyed peak traffic volumes exceed the criteria for a continuous footpath treatment, they remain within an acceptable range and warrant consideration for the subject treatment. Considering the need for pedestrian prioritisation along the town centre strip and the route leading to the train station (high pedestrian volumes recorded at 232, 61 and 212 for AM, mid and PM peak respectively), it is advised to provide a continuous footpath treatment at this location.	Provides a prioritised pedestrian crossing; raised threshold slows down vehicle speeds at the crossing	4

4	Percival Road / Salisbury Road intersection (northern leg)	-33.893430, 151.164346	Convert to raised zebra crossings	Improves crossing visibility and raised threshold slows down vehicle speeds; improving pedestrian safety	6
5	Percival Road between Salisbury Road and Douglas Street	-33.893642, 151.164240	Street furniture (such as planter boxes) to be placed along the eastern footpath extent	The placement of street furniture along the kerb serves as physical barrier to discourage pedestrians from crossing mid-block and guide them towards the designated crossing point to the south for east-west crossings	8
6	Percival Road / Douglas Street intersection	-33.894010, 151.164127	Consider reducing signal wait times to be <60s or extending the pedestrian crossing green times	Reduction in pedestrian crossing waiting times to be less than 60s to improve ease of crossing and give higher prioritisation to pedestrian movement	9

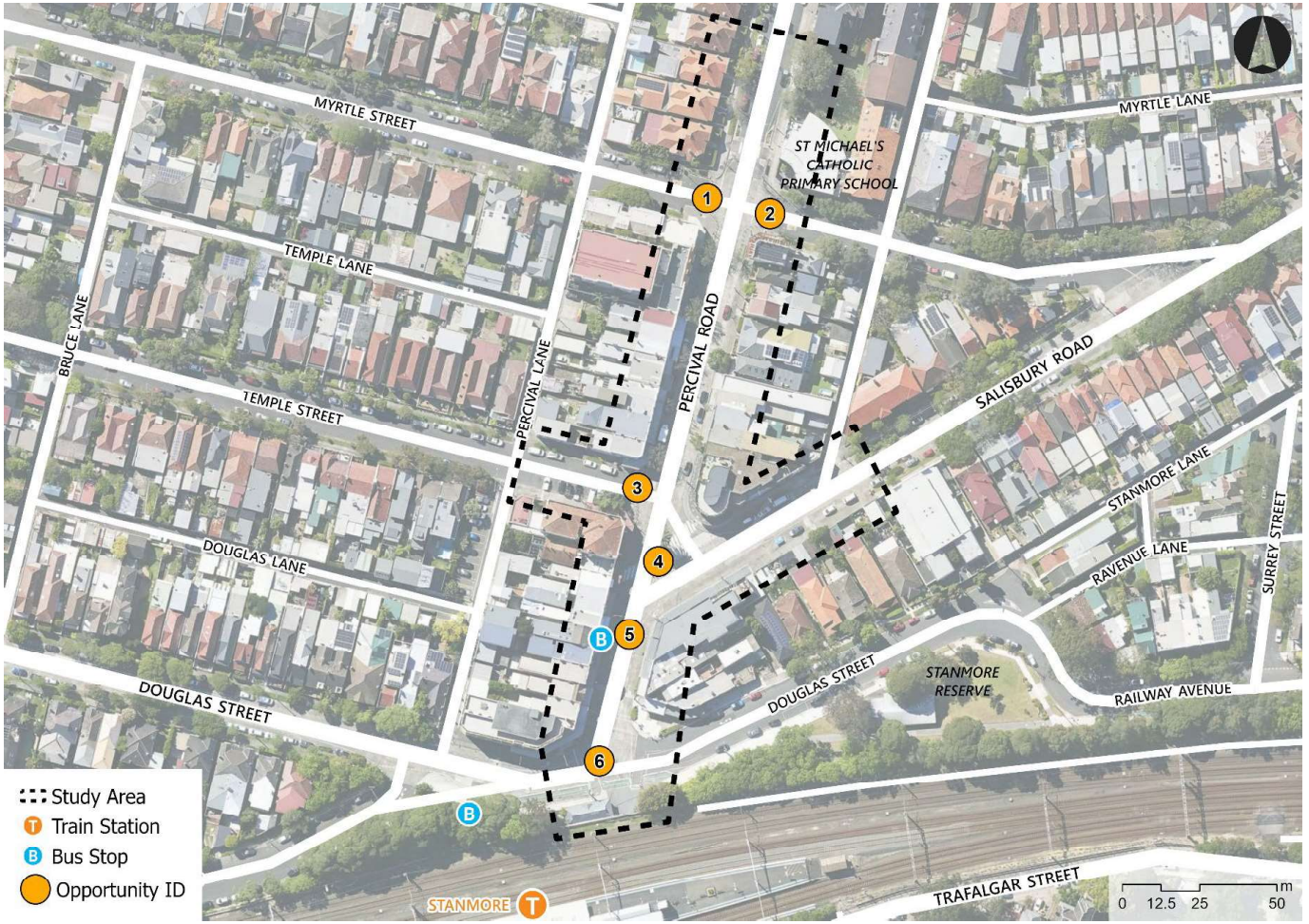


Figure 37: Proposed Treatment Locations – Stanmore

4.9 Study Area 9: Summer Hill

The extent of the study area covers the Summer Hill town centre precinct south of Summer Hill Station as shown in Figure 38. Section 4.9.1 to Section 4.9.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix K. The remaining sections detail the issues identified and proposed treatments.



Figure 38: Study Area – Summer Hill

4.9.1 Existing Land Use

Within the study area, land uses include Romeo's Mall (IGA Summer Hill) at Hardie Avenue, retail and dining strips along Lackey Street and Smith Street, a public square at the center of the town center precinct, Summer Hill Community Centre and Summer Hill Station to the north. Surrounding key land uses encompass industrial facilities, recreational parks, and sporting amenities along Carlton Crescent west of Lackey Street.

4.9.2 Existing Road Network

The roads in the study area are classified as local roads except for Carlton Crescent at the northern boundary of the study area which is classified as a regional road. The posted speed limit on Carlton Crescent is 50km/h.

Smith Street has an east-west alignment along the southern boundary of the town centre. Within the study area, it has one traffic lane in each direction with restricted kerbside parking. Lackey Street connects Carlton Crescent to Smith Street through the town centre. It has one lane of traffic in each direction with restricted kerbside parking. Hardie Avenue extends between Lackley Street and Smith Street, with shop frontage along the western side and operates as a circulation road for the at-grade off-street carpark at the core of the Summer Hill Town Centre. It is a two-way road configured with one lane of traffic in each direction. An existing HPAA currently applies to the local streets in the study area, with the posted speed limit of 40km/h.

4.9.3 Existing Transport Infrastructure and Facilities

The study area features footpaths on both sides of the roads and pedestrian crossing facilities across Hardie Avenue, Lackey Street, Smith Street, and side streets. A painted walkway through the car park provides connectivity between Romeo's Mall and the public square. On-road cycle routes are provided along Carlton Crescent, Smith Street, and Nowranie Street. Summer Hill Station is situated at the northern edge of the town center on Carlton Crescent, which is also serviced by public bus routes with multiple stops around the station. Traffic calming treatments in the area include wombat crossings, speed humps, speed cushions, and kerb extensions.

4.9.4 Historical Crash Data

In the five-year period from 2018 to 2022, two crashes involving pedestrians were reported in the study area. One crash resulted in serious injuries while the other resulted in minor injuries.

4.9.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 15th and 21st March 2024, the following was observed:

- Along Hardie Avenue, west of Lackey Street, the eastbound weekday average volume was 82 vehicles/hr in the AM peak and 99 vehicles/hr in the PM peak. The westbound weekday average volume was 90 vehicles/hr in the AM peak and 125 vehicles/hr in the PM peak.
- Along Hardie Avenue, north of Smith Street, the northbound weekday average volume was 84 vehicles/hr in the AM peak and 120 vehicles/hr in the PM peak. The southbound weekday average volume was 87 vehicles/hr in the AM peak and 125 vehicles/hr in the PM peak.

The results indicate that all recorded average and 85th percentile speeds are below the current posted speed limit of 40 km/h at Hardie Avenue.

4.9.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at two locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the two pedestrian survey sites are 7:45 am to 8:45 am and 8:00 to 9:00 am for the weekday AM peak hour. The PM peak hour is 5:30 pm to 6.30 pm and 5:00 pm to 6:00 pm for the two sites respectively.

Pedestrian survey sites were positioned along Hardie Avenue which borders Romeo's Mall shop frontage and the large off-street carpark. The highest pedestrian volumes were observed at the pedestrian crossing fronting the mall which connects to the painted walkway through the off-street carpark and the public square.

4.9.7 Existing HPAA zones

HPAA zones currently exist across the Summer Hill town centre precinct as shown in Figure 39. The adequacy of existing HPAA treatments have been evaluated and additional treatments have been identified to further ensure and improve pedestrian safety, as detailed in Section 4.9.8 and 4.9.9.

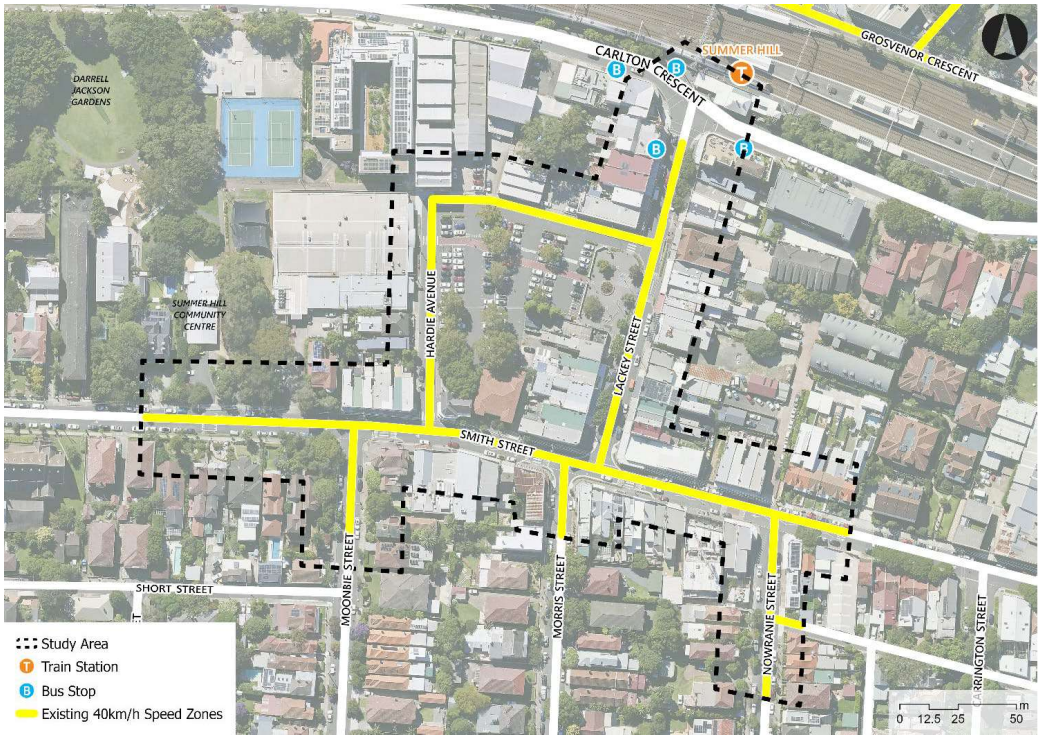


Figure 39: Existing HPAA Zones - Summer Hill

4.9.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 20 details the list of issues identified, with locations referenced in Figure 40.

Table 20: Issues – Summer Hill

ID	Location	Coordinates	Issue
1	Hardie Avenue public carpark	-33.890977, 151.137764	Dilapidated/faded speed humps
2	Hardie Avenue public carpark	-33.891058, 151.137756	Not a pedestrian priority walkway; safety risks due to potential collisions between pedestrians and vehicles navigating within the carpark
3	Hardie Avenue / Lackey Street intersection (western leg)	-33.890984, 151.138188	Existing zebra crossing is not raised
4	Hardie Avenue / Smith Street intersection (northern leg)	-33.891642, 151.137286	Existing zebra crossing is not raised
5	Moonbie Street / Smith Street intersection (southern leg)	-33.891745, 151.136912	Impediment of pedestrian crossing visibility due to on-street parking lane; informal crossing facility with a crossing distance of 10.5m
6	Nowranie Street / Smith Street intersection (southern leg)	-33.892118, 151.138828	Informal crossing facility with a crossing distance of 10.5m; opportunity to improve
7	Carlton Crescent / Lackey Street intersection (eastern leg)	-33.890515, 151.138609	Slight kerb ramp misalignment; narrow and steep kerb ramp on the northern side
8	Carlton Crescent / Lackey Street intersection (western leg)	-33.890421, 151.13846	Slight kerb ramp misalignment



Figure 40: Issue Locations – Summer Hill

4.9.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 21 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.9.8. Figure 22 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 21: Proposed Treatments – Dulwich Hill

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Hardie Avenue / Lackey Street intersection (western leg)	-33.890984, 151.138188	Convert to raised zebra crossing	Raised zebra crossing improves crossing visibility and further acts as a vertical deflection device to reduce vehicle speeds	3
2	Hardie Avenue / Smith Street intersection (northern leg)	-33.891642, 151.137286	Convert to raised zebra crossing	Raised zebra crossing improves crossing visibility and further acts as a vertical deflection device to reduce vehicle speeds	4
3	Moonbie Street / Smith Street intersection (southern leg)	-33.891745, 151.136912	Kerb blister on western side and kerb extension on eastern side	Reduces crossing distance and improves crossing visibility; narrows carriageway to reduce vehicle speeds	5
4	Nowranie Street / Smith Street intersection (southern leg)	-33.892118, 151.138828	Kerb extensions on both sides	Reduces crossing distance and improves crossing visibility; narrows carriageway to reduce vehicle speeds	6
5	Carlton Crescent / Lackey Street intersection (eastern leg)	-33.890515, 151.138609	New kerb ramp on the northern side	Ensures kerb ramp alignment and better services pedestrian desire line; ensures kerb ramp has adequate gradient and width to accommodate transition between footpath and road	7
6	Carlton Crescent / Lackey Street intersection (western leg)	-33.890421, 151.13846	New widened kerb ramp on the southern side	Ensures kerb ramp alignment and better services pedestrian desire line	8



Figure 41: Proposed Treatment Locations – Summer Hill

4.10 Study Area 10: Sydenham

The extent of the study area spans across Sydenham Station and the surrounding land uses including the industrial area to the north and town centre strips to the south along Gleeson Avenue, Railway Road and Unwins Bridge Road, as shown in Figure 42. Section 4.10.1 to Section 4.10.6 provide a summary of the existing conditions, with more detailed information and analysis provided in Appendix L. The remaining sections detail the proposed HPAA boundary, issues identified and proposed treatments.

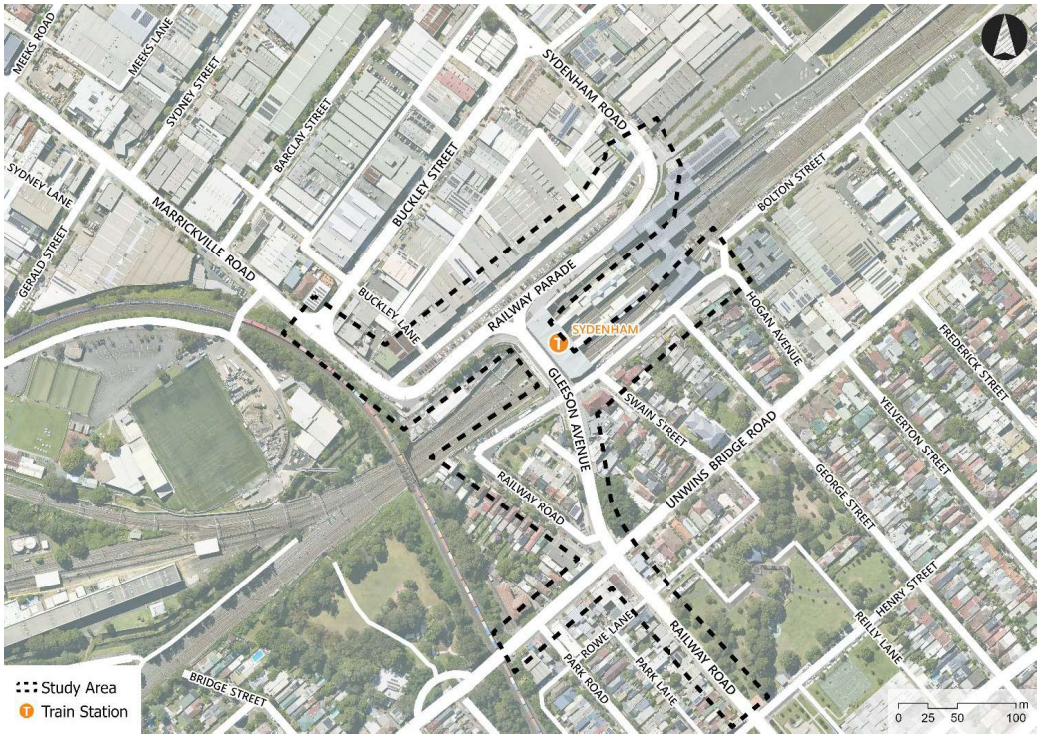


Figure 42: Study Area – Sydenham

4.10.1 Existing Land Use

The land uses within the study area are diverse and encompass several key features. Sydenham Station serves as a central transportation hub. To the north of the station lies a major industrial area accommodating various industries. South of the station, retail strips extend east-west along Gleeson Avenue and Railway Road, and north-south along Unwins Bridge Road. Parks and reserves, including Memory Reserve and Sydenham Green, line the north-south town centre strip along Gleeson Avenue and Railway Road. Low-density residential dwellings are present on local streets such as Burrows Avenue and Railway Road. Surrounding these focal points are other significant land uses such as Petersham Town Hall, industrial establishments along Unwins Bridge Road to the southeast, and recreational areas such as Fraser Park and Tillman Park.

4.10.2 Existing Road Network

With the exception of Sydenham Road, Railway Parade, Marrickville Road, Gleeson Avenue and Unwins Bridge Road, the rest of the roads in the study area are classified as local roads.

To the north-east end of the study area, Sydenham Road is a one-way configuration road with two lanes of traffic and restricted kerbside parking on each side The road is subject to a posted speed limit of 60 km/h. To the north-west end of the study area lies Marrickville Road which has different classification east and west of Buckley. To the East of Buckley Street, it is a state road with a one-way configuration consisting of two traffic lanes and restricted kerbside parking on the northern extent. This section of the road is subject to a posted speed limit of 60km/h. West of Buckley Street, it is a regional road under a two-way configuration with one traffic lane and kerbside parking in each direction. This section of the road is subject to a posted speed limit of 50km/h.

Railway Parade is a two-level road that extends between Sydenham Road to the north and Marrickville Road to the south. The upper section is a state road that forms part of the state road network with roads including Marrickville Road, Buckley Street, Gleeson Avenue and Princes Highway further south. It has three lanes of traffic in the southbound direction with a bus zone along the Sydenham station frontage north of Gleeson Avenue and restricted kerbside parking south of Gleeson Avenue. This section is subject to a posted speed limit of 60 km/h. The lower section is a local road with one lane of traffic in each direction with restricted kerbside parking. This section is subject to a posted speed limit of 50 km/h.

Gleeson Avenue is a state road with a north-south alignment that extends between Railway Parade to the north and Unwins Bridge Road and Railway Road to the south. The road comprises two traffic lanes in each direction with restricted kerbside parking permitted along the northern extent outside clearway hours. The road is subject to a posted speed limit of 60 km/h. Railway Road is a state road that extends between Gleeson Avenue to the north and Princes Highway to the south. Within the study area, the road has two lanes in each direction with restricted kerbside parking permitted along segments of the road outside the clearway hours. Unwins Bridge Road is a regional road that intersects with Gleeson Avenue and Railway Road. It has two lanes in each direction with restricted kerbside parking permitted outside the clearway hours. The road is subject to a posted speed limit of 50 km/h.

4.10.3 Existing Transport Infrastructure and Facilities

The transport infrastructure within the study area is designed to accommodate diverse modes of travel and ensure safe pedestrian and cyclist access. Footpaths are provided on both sides of the roads and pedestrian crossing facilities are provided to facilitate crossing Buckley Street, Sydenham Road, Gleeson Avenue, Unwins Bridge Road, and adjacent side streets. On-road cycle routes are established along Burrows Avenue north of Gleeson Avenue and Unwins Bridge Road south of Railway Road. Sydenham Station serves as a pivotal transit point situated amidst industrial zones to the north and southeast, and retail strips to the south, accessible via entries at Gleeson Avenue, Burrows Avenue, and Railway Road (with future access planned as part of station upgrade works). Public bus routes traverse Railway Parade, Burrows Avenue, Gleeson Avenue, and Railway Road, with multiple bus stops strategically positioned near the station and the town centre strip along Railway Road. Traffic calming measures implemented include kerb extensions and median treatments to manage vehicular speed and enhance safety throughout the area.

4.10.4 Historical Crash Data

In the five-year period from 2018 to 2022, six crashes involving pedestrians were reported in the study area. Two crashes resulted in serious injuries while four resulted in moderate injuries.

4.10.5 Existing Traffic Volumes and Speed

Based on tube count surveys that were conducted for seven consecutive days between 14th and 20th March 2024, the following was observed:

- Along Sydenham Road, north of Gleeson Avenue, the southbound weekday average volume was 881 vehicles/hr in the AM peak and 857 vehicles/hr in the PM peak.
- Along Railway Parade, south of Gleeson Avenue, the southbound weekday average volume was 657 vehicles/hr in the AM peak and 738 vehicles/hr in the PM peak.
- Along Gleeson Avenue, between Burrows Avenue and Unwins Bridge Road, the northbound weekday average volume was 1,231 vehicles/hr in the AM peak and 1,474 vehicles/hr in the PM peak. The southbound weekday average volume was 1,415 vehicles/hr in the AM peak and 1,139 vehicles/hr in the PM peak.
- Along Railway Road, between Unwins Bridge Road and Rowe Lane, the northbound weekday average volume was 646 vehicles/hr in the AM peak and 823 vehicles/hr in the PM peak. The southbound weekday average volume was 825 vehicles/hr in the AM peak and 698 vehicles/hr in the PM peak.

North of the rail corridor, the recorded average and 85th percentile speeds at the surveyed sites on Railway Road and Sydenham Road are well below the current posted speed limit of 60 km/h, with 85th percentile speeds ranging between 37 km/h and 46 km/h at Railway Road west of Gleeson Avenue and 85th percentile speeds ranging between 29 km/h and 43 km/h at Sydenham Road east of Gleeson Avenue.

South of the rail corridor, the recorded average and 85th percentile speeds at the surveyed sites on Gleeson Avenue and Railway Road are below or at the current posted speed limit of 60 km/h, with 85th percentile speeds ranging between 41 km/h and 52 km/h at Gleeson Avenue and 85th percentile speeds ranging between 45 km/h and 60 km/h at Railway Road. Across the daytime period (7:00am to 7:00pm), 85th percentile speeds were observed to be consistently below 50km/h, ranging between 41 km/h and 49 km/h.

4.10.6 Pedestrian Volumes

Pedestrian count surveys were conducted on Tuesday, 19th March 2024, at five locations, covering the weekday AM peak period from 7:00 am to 9:00 am and the weekday PM peak period from 4:00 pm to 6:00 pm. Based on the traffic survey results, the identified peak hours for the five pedestrian survey sites varied between 7:45 am to 9:00 am for the weekday AM peak hour and between 4:30 pm to 6:00 pm for the weekday PM peak hour.

Pedestrian survey sites can be grouped into three distinct locations in Sydenham: north of the rail corridor, in front of Sydenham Station on Gleeson Avenue and south of the rail corridor along the Sydenham town centre strip on Railway Road. North of the rail corridor, the majority of pedestrian volumes were observed to be along the footpath on the southern extent of Railway Parade east of Gleeson Avenue and along the footpath on the northern extent of Railway Parade west of Gleeson Avenue. At Gleeson Avenue bordering the station, the highest pedestrian volumes were observed along the station frontage. South of the rail corridor, the main pedestrian volumes were associated with the north-south movements along Railway Road, with higher foot traffic north of Unwins Bridge Road. Overall, the portion north of the rail corridor experienced notably higher pedestrian activity in comparison to the portion to the south along Railway Parade.

4.10.7 Proposed HPAA zones

The proposed HPAA zone, as shown in Figure 19, spans across all three station entries to Sydenham Station and the surrounding pedestrian-generating land uses which encompass the Sydenham local centre strips to the south along Gleeson Avenue, Railway Road and Unwins Bridge Road.

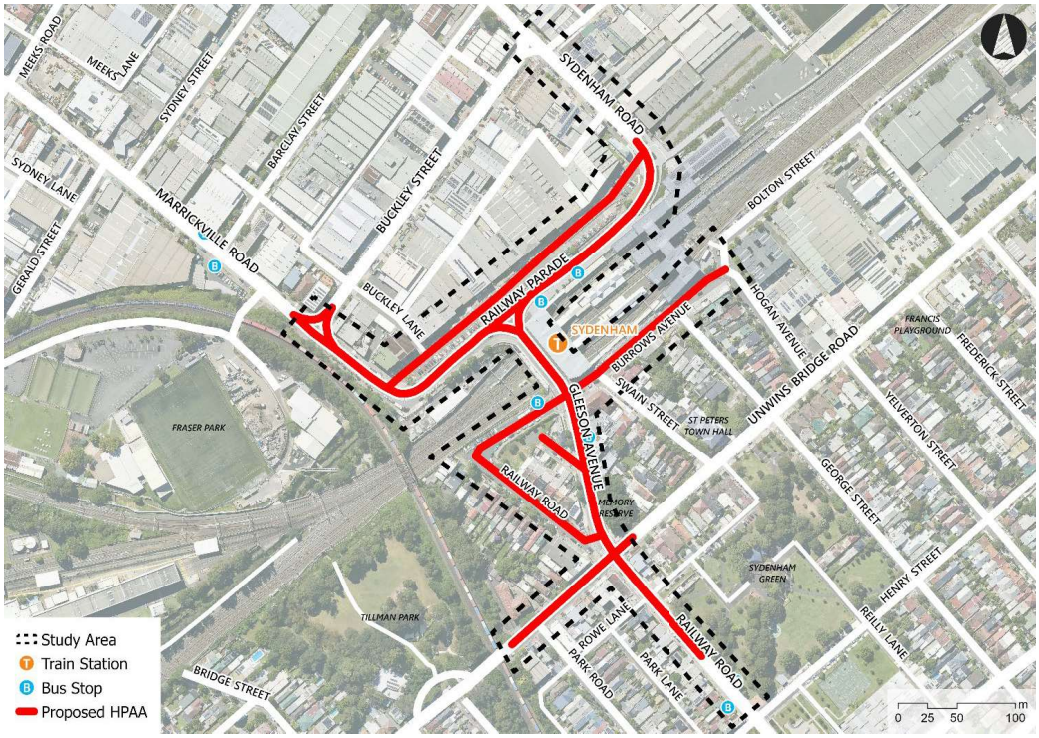


Figure 43: Proposed HPAA Zone – Sydenham

4.10.8 Issues

Issues across the study area have been identified based on a review of existing transport conditions and data collection which included traffic and pedestrian surveys, as well as site inspection to observe travel behaviours, assess pedestrian and vehicle conflict points and any other safety concerns. Table 22 details the list of issues identified, with locations referenced in Figure 44.

Table 22: Issues – Sydenham

ID	Location	Coordinates	Issue
1	Buckley Street / Marrickville Road intersection (eastern leg)	-33.914627, 151.163882	Existing zebra crossings are not raised, with a crossing distance of 18m; A number of pedestrian crashes with moderate to serious injuries have been recorded around this location with 2 moderate injuries in 2018, 1 moderate injury in 2019 and 1 serious injury in 2021.
2	Marrickville Road / Buckley Street intersection	-33.914706, 151.16376	Other than the signalised crossing at Gleeson Avenue and Railway Road, there is a lack of north-south crossing providing direct route to footpath on the southern side of Marrickville Road for walking trips from Sydenham Station
3	Railway Parade (lower section) / Marrickville Road intersection (eastern leg)	-33.915087, 151.164602	Informal crossing facility with a crossing distance of 14m; opportunity to improve
4	Railway Parade (lower section) / Sydenham Road intersection (western leg)	-33.91347, 151.166806	Informal crossing facility with a crossing distance of 12m; opportunity to improve
5	Railway Parade (upper section) / Gleeson Avenue intersection (eastern leg)	-33.914644, 151.165608	Observed pedestrian crossing signal waiting times ranging between 40s to 70s
6	Railway Parade (upper section) between Sydenham Road and Marrickville Road (northern extent)	-33.914753, 151.165251	Lack of separation buffer between the footpath (2.6m wide) along the northern extent of Railway Parade (upper section) and the adjacent busy traffic lanes
7	Railway Parade (upper section) between Gleeson Avenue and Marrickville Road	-33.915084, 151.164863	Higher speeds associated with downhill slopes for vehicles travelling east to west along Railway Parade, west of Gleeson Avenue
8	Gleeson Avenue / Railway Road / Burrows Avenue intersection	-33.9152, 151.166107	Signal waiting times of >60s for east-west crossings across Gleeson Avenue with notable pedestrian demand between the station and the bus stops to the west on Burrows Avenue. Pedestrian crossing waiting times for east-west movements observed to be ranging between approximately 75s to 110s, while for north-south movements observed to be approximately 45s
9	Gleeson Avenue / Railway Road / Burrows Avenue intersection (northern leg)	-33.915125, 151.166059	Narrow and steep kerb ramp (eastern side)

ID	Location	Coordinates	Issue
10	Gleeson Avenue / Railway Road / Burrows Avenue intersection (eastern leg)	-33.915188, 151.166208	Kerb ramp misalignment; narrow and steep kerb ramp (northern side)
11	Gleeson Avenue / Railway Road / Burrows Avenue intersection (northern leg)	-33.915148, 151.16599	Accessibility issues with the placement of pedestrian actuator button on the side facing away from the footpath side
12	Wright Street / Gleeson Avenue intersection (western leg)	-33.91569, 151.166162	Informal crossing facility with a crossing distance of 15m; kerb ramp misalignment
13	Railway Road / Gleeson Avenue intersection (western leg)	-33.916343, 151.166326	Existing zebra crossing is not raised
14	Unwins Bridge Road / Gleeson Avenue / Railway Road intersection (northern leg)	-33.916372, 151.166486	Slightly misaligned kerb ramp; narrow kerb ramp on the eastern side
15	Unwins Bridge Road / Gleeson Avenue / Railway Road intersection (eastern leg)	-33.916378, 151.166586	Missing kerb ramp on the southern side
16	Rowe Lane / Railway Road intersection (western leg)	-33.916827, 151.166798	Informal crossing facility with a crossing distance of 5.5m; opportunity to improve
17	Rowe Lane / Railway Road intersection (eastern leg)	-33.91673, 151.166927	Informal crossing facility with a crossing distance of 5.5m; opportunity to improve
18	Park Road / Unwins Bridge Road intersection (southern leg)	-33.917053, 151.165844	Incompliant refuge island crossing with barrier kerb only on one side; crossing distance of 10m
19	Swain Street / Burrows Avenue intersection (southern leg)	-33.915117, 151.166474	Narrow kerb ramp (eastern side); informal crossing facility with a crossing distance of 5.5m over one-way street; opportunity to improve
20	George Street / Burrows Avenue intersection (southern leg)	-33.914616, 151.167169	Informal crossing facility with a crossing distance of 8m; opportunity to improve
21	George Street / Burrows Avenue intersection (eastern leg)	-33.914487, 151.167261	Existing zebra crossing is not raised

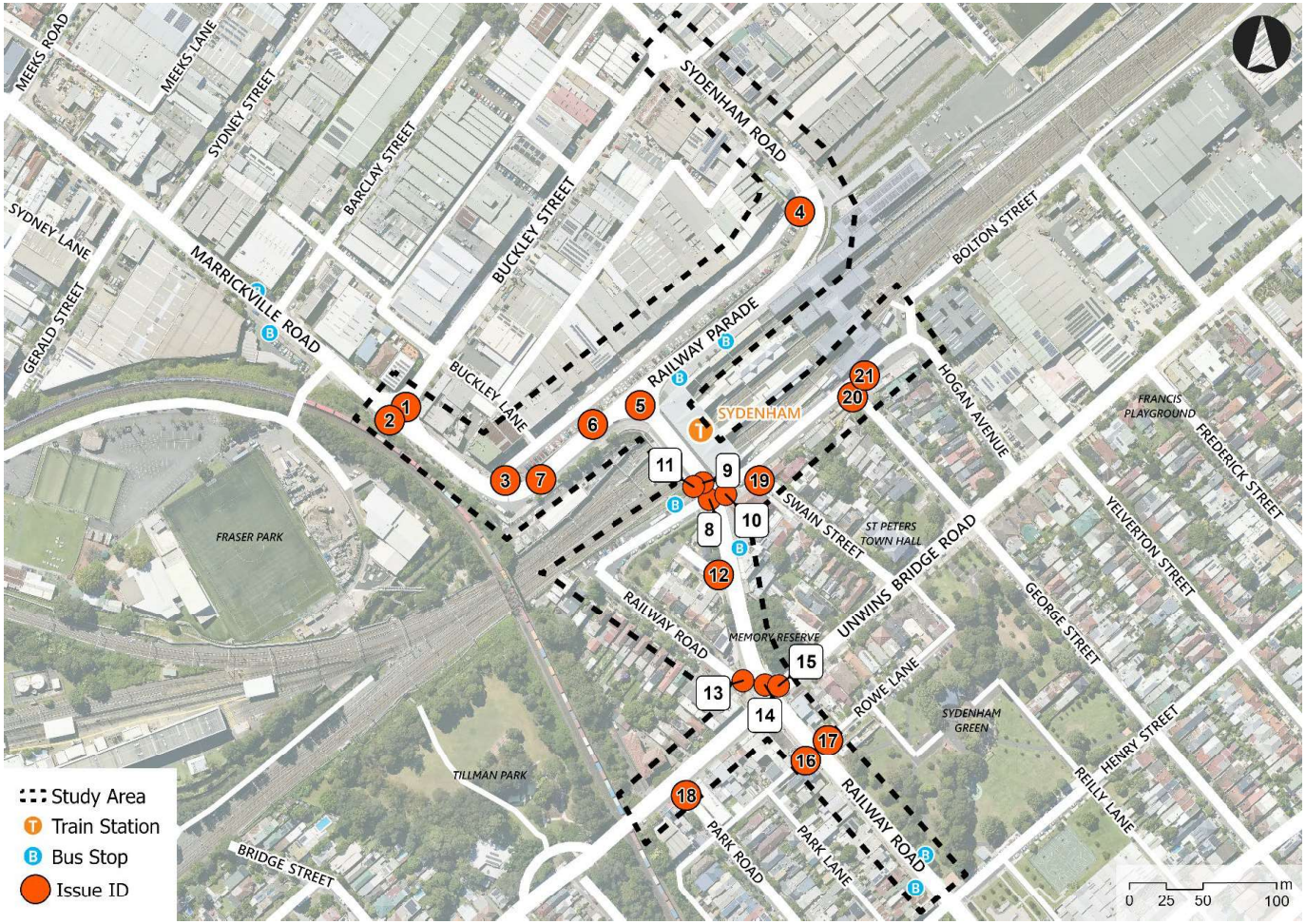


Figure 44: Issue Locations – Sydenham

4.10.9 Proposed Treatments

This section provides a series of proposed treatments to support the implementation of HPAA zones, reduce traffic speeds and improve pedestrian and road safety. Table 23 details the proposed treatments, including their respective locations, underlying rationale and references to issues outlined in Section 4.10.8. Figure 45 shows the locations of the proposed treatments. Concept plans for the proposals are provided in Appendix M.

Table 23: Proposed Treatments – Sydenham

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
1	Buckley Street / Marrickville Road intersection	-33.914651, 151.163821	Investigate opportunity for signalisation of the intersection; pedestrian movements are to be prioritised at this intersection, with pedestrian signal wait times of <60s.	Provides formalised crossing points for east-west and north-south movements; pedestrian crossing waiting times of less than 60s improves ease of crossing and gives higher prioritisation to pedestrian movement	1, 2
2	Railway Parade (lower section) / Marrickville Road intersection (eastern leg)	-33.915087, 151.164602	Kerb extensions on both sides (proposed as part of Marrickville Road East cycleway)	Reduces crossing distance and improves crossing visibility; narrowing of carriageway reduces vehicle speeds at the crossing	3
3	Railway Parade (lower section) / Sydenham Road intersection (western leg)	-33.91347, 151.166806	Kerb extensions on both sides	Reduce crossing distance and improve crossing visibility; narrowing of carriageway reduces vehicle speeds at the crossing	4
4	Railway Parade (upper section) / Gleeson Avenue intersection (eastern leg)	-33.914644, 151.165608	Consider reducing signal waiting times for pedestrians to be less than <30s It should be noted that signal modifications are proposed as part of the Marrickville Road East cycleway design	Reduces pedestrian delays at the crossing point and improves ease of crossing; discourages jaywalking movements	5
5	Railway Parade (upper section) between Gleeson Avenue and Marrickville Road	-33.915084, 151.164863	Installation of tactile surface treatments	Tactile surface treatments aim to alert drivers to take greater care when approaching a bend and reduce vehicle speeds along the downhill slope	7
6	Gleeson Avenue / Railway Road / Burrows Avenue intersection	-33.9152, 151.166107	Investigate opportunity to reduce signal waiting time for pedestrians to be <60s for the east-west crossing movements	Reduces pedestrian delays for east-west crossings and improves ease of crossing	8

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
			However, the alteration of signal timings can be constrained by the prioritisation of through vehicular movements on a main road; reduced waiting times for east-west crossings may come with the trade-off of increased waiting times for north-south crossings (north-south crossings are to be prioritised to ensure connectivity between the station and the Sydenham town centre to the south)		
7	Gleeson Avenue / Railway Road / Burrows Avenue intersection (northern leg)	-33.915125, 151.166059	New kerb ramp on eastern side with kerb extension (proposed as per St Peters Interchange Cycleway 2997 consultation plan)	Ensures kerb ramp has adequate gradient and width to accommodate transition between footpath and road	9
8	Gleeson Avenue / Railway Road / Burrows Avenue intersection (eastern leg)	-33.915188, 151.166208	New kerb ramp on northern side with kerb extension (proposed as per St Peters Interchange Cycleway 2997 consultation plan)	Ensures kerb ramp alignment and better services pedestrian desire line; ensures kerb ramp has adequate gradient and width to accommodate transition between footpath and road	10
9	Gleeson Avenue / Railway Road / Burrows Avenue intersection (northern leg)	-33.915148, 151.16599	Adjust the pedestrian actuator button to be facing towards the footpath side	Ensures the pedestrian actuator button is placed in a conspicuous and convenient location for pedestrians	11
10	Railway Road / Gleeson Avenue intersection (western leg)	-33.916343, 151.166326	Convert to raised zebra crossing	Increases crossing visibility and provides a safer crossing for pedestrians; provision of a raised threshold reduces vehicle speeds at the crossing	13
11	Unwins Bridge Road / Gleeson Avenue / Railway Road intersection (northern leg)	-33.916372, 151.166486	New widened kerb ramp on the eastern side	Ensures kerb ramp has adequate width to accommodate transition between footpath and road; ensures kerb ramp alignment and better accommodates pedestrian desire line	14
12	Unwins Bridge Road / Gleeson Avenue / Railway Road intersection (eastern leg)	-33.916378, 151.166586	New kerb ramp on southern side; requires relocation of power pole and signal lantern	Ensures the presence of kerb ramps at both ends of the crossing to facilitate transition between footpaths and road	15

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
13	Rowe Lane / Railway Road intersection (western leg)	-33.916827, 151.166798	Speed cushion on side street	Acts as vertical deflection device to reduce vehicle speeds at the crossing point	16
14	Rowe Lane / Railway Road intersection (eastern leg)	-33.91673, 151.166927	Speed cushion on side street	Acts as vertical deflection device to reduce vehicle speeds at the crossing point	17
15	Park Road / Unwins Bridge Road intersection (southern leg)	-33.917053, 151.165844	Kerb extensions on both sides	Reduce crossing distance and improve crossing visibility; narrowing of roadway reduces vehicle speeds at the crossing	18
16	Swain Street / Burrows Avenue intersection (southern leg)	-33.915117, 151.166474	Footpath continuation treatment Data collected on Thursday, 6th June 2024 indicated traffic volumes of 22 and 62 for AM and PM peak respectively. The surveyed volumes for AM peak meet the criteria for a continuous footpath treatment. While the PM peak volume falls outside the requirements, it remains within an acceptable range and warrants the consideration for the subject treatment. Given the need for pedestrian prioritisation along the pathway which connects the station to the surrounding area m and considering the existing tight street geometry with a one-way configuration, it is advised to provide a continuous footpath treatment at this location.	Provides a pedestrian-priority crossing and continuous walking pathway for pedestrians; raised threshold improves crossing visibility and serves as a vertical deflection device for traffic calming and a gateway treatment to the proposed HPAA on Burrows Avenue	19
17	George Street / Burrows Avenue intersection (eastern leg)	-33.914487, 151.167261	Convert to raised zebra crossing (proposed as per St Peters Interchange Cycleway 2997 consultation plan)	Provides increased crossing visibility; further acts as vertical deflection device for traffic calming and serves as gateway treatment to proposed HPAA zone on Burrows Avenue	21
18	Railway Road between Rowe Lane and Henry Street	-33.917306, 151.167386	Tactile surface treatments	Gateway treatment to signify start of HPAA zone and indicate a change in the speed environment (60km/h to 40km/h along Railway Road)	-

ID	Location	Coordinates	Proposed Treatment	Justification	Target Issue(s)
19	Marrickville Road, north of Buckley Street	-33.914330, 151.163338	Investigate future extension of HPAA along Marrickville Road in line with the proposed Marrickvile Road East cycleway along this corridor that links to nearby rail interchange and the broader cycle network	Expected high usage of cyclists along this corridor which necessitates a lower speed environment to improve safety for cyclists and other road users	-

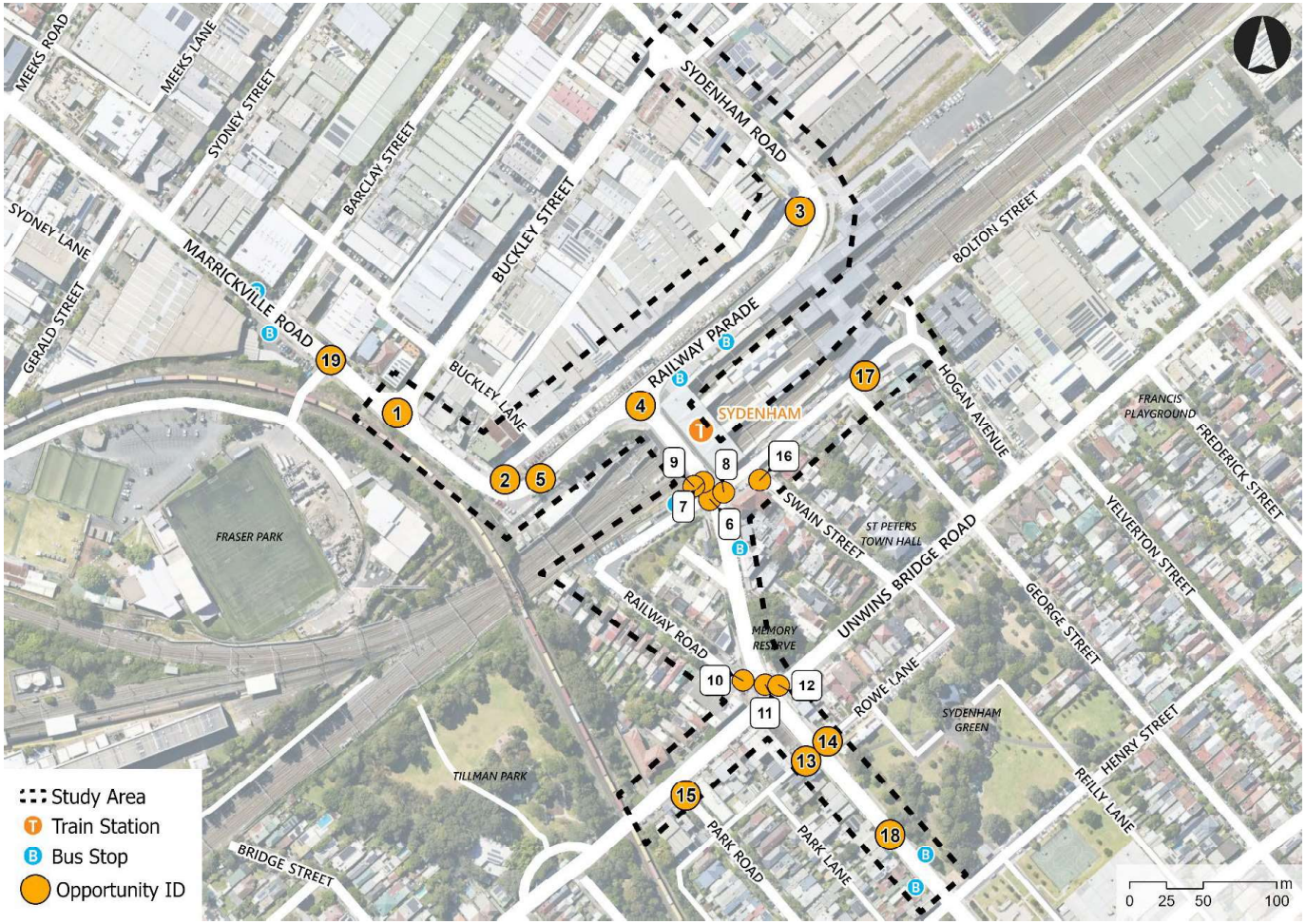


Figure 45: Proposed Treatment Locations – Sydenham

5 Conclusion

The Inner West Council HPAA Investigations project aimed to develop transport evidence for the 10 study areas through the review of existing transport conditions and data collection, to define boundaries for the proposed 40km/h HPAA areas, to develop options for the identified opportunity locations and to identify locations with opportunities for improvement. To achieve this, the methodology included undertaking a review of strategic documents relevant to the study, analysis of traffic counts and pedestrian counts and site visits to confirm existing conditions. Issues and opportunities were identified and HPAA Treatments were proposed for each area.

The comprehensive review of existing transport conditions revealed several critical insights:

- Certain areas exhibited high vehicle speeds, posing risks in areas with high pedestrian activity.
- Pedestrian desire lines were inadequately catered for in some areas, affecting pedestrian safety and convenience.

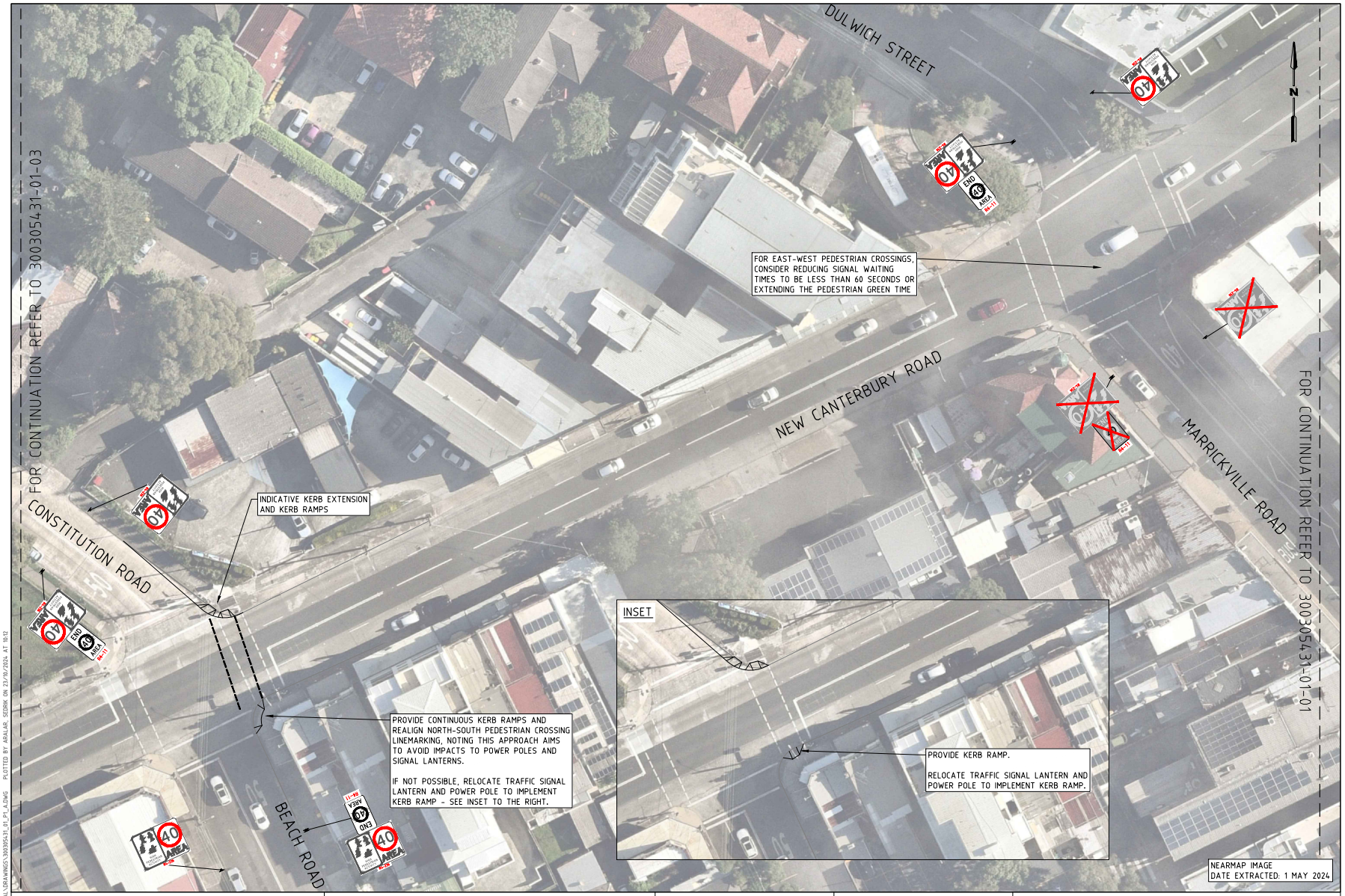
Boundaries for the proposed 40km/h HPAA areas were defined by evaluating pedestrian and vehicle traffic patterns, existing speed limits, and the distribution of pedestrian activities. The proposed HPAAs aim to enhance safety and accessibility in high pedestrian zones. Treatments were developed for locations identified with improvement opportunities. These treatments focused on:

- Reducing vehicle speeds in high pedestrian activity areas.
- Enhancing pedestrian infrastructure to cater to pedestrian desire lines.
- Enhancing gateway treatments and ensuring pedestrian pathways are clear and direct.
- Enhancing streetscape and the overall sense of Place.
- Implementing safety measures to improving safety and accessibility for all pedestrians.

The proposed 40km/h HPAA boundaries and the development of tailored options for each identified location are crucial steps towards achieving the objectives set out for this study. It is recommended that the proposed HPAA treatments should be implemented to enhance pedestrian safety and convenience thus creating a more liveable and pedestrian-friendly environment.

Regular monitoring and data collection should be undertaken to assess the effectiveness of the implemented measures. In addition, Council should undertake continuous evaluation to ensure the treatments remain effective and adapt to changing conditions.


MODIFY REFUGE ISLAND TO PROVIDE 2.0m REFUGE WIDTH AND 3.0m OPENING.
INSTALL GATEWAY HPAA SIGNAGE AND LINEMARKING (40km/h SPEED LIMIT)
GREEN HATCH SHOWS INDICATIVE ZONES FOR PLANTER BOXES (OR SIMILAR STREET FURNITURE)
INDICATIVE TACTILE SURFACE TREATMENT ON APPROACH TO BEND
PROVIDE NEW KERB RAMP
INSTALL CONTINUOUS FOOTPATH
FOR CONTINUATION REFER TO 300305431-01-02
PIGOTT STREET
NEW CANTERBURY ROAD
LEWISHAM STREET
HERBERT STREET
LEGEND
KERB RAMP
SPEED LIMIT PAVEMENT MARKINGS
ROAD SIGN
FOOTPATH TO BE REFURBISHED
SURFACE TREATMENT
KERB EXTENSION
CONTINUOUS FOOTPATH
D REFUGE ISLAND
SPEED CUSHION
VERGE PLANTING
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
nearmap.com
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
DULWICH HILL - AREA 1
CONCEPT DESIGN
DRAWING NO. 300305431-01-01
SHEET 01 OF 35
ISSUE P2


DULWICH STREET
NEW CANTERBURY ROAD
MARRICKVILLE ROAD
CONSTITUTION ROAD
BEACH ROAD
FOR CONTINUATION REFER TO 300305431-01-03
FOR CONTINUATION REFER TO 300305431-01-01
FOR EAST-WEST PEDESTRIAN CROSSINGS, CONSIDER REDUCING SIGNAL WAITING TIMES TO BE LESS THAN 60 SECONDS OR EXTENDING THE PEDESTRIAN GREEN TIME
INDICATIVE KERB EXTENSION AND KERB RAMPS
PROVIDE CONTINUOUS KERB RAMPS AND REALIGN NORTH-SOUTH PEDESTRIAN CROSSING LINEMARKING, NOTING THIS APPROACH AIMS TO AVOID IMPACTS TO POWER POLES AND SIGNAL LANTERNS.
IF NOT POSSIBLE, RELOCATE TRAFFIC SIGNAL LANTERN AND POWER POLE TO IMPLEMENT KERB RAMP - SEE INSET TO THE RIGHT.
INSET
PROVIDE KERB RAMP.
RELOCATE TRAFFIC SIGNAL LANTERN AND POWER POLE TO IMPLEMENT KERB RAMP.
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
N
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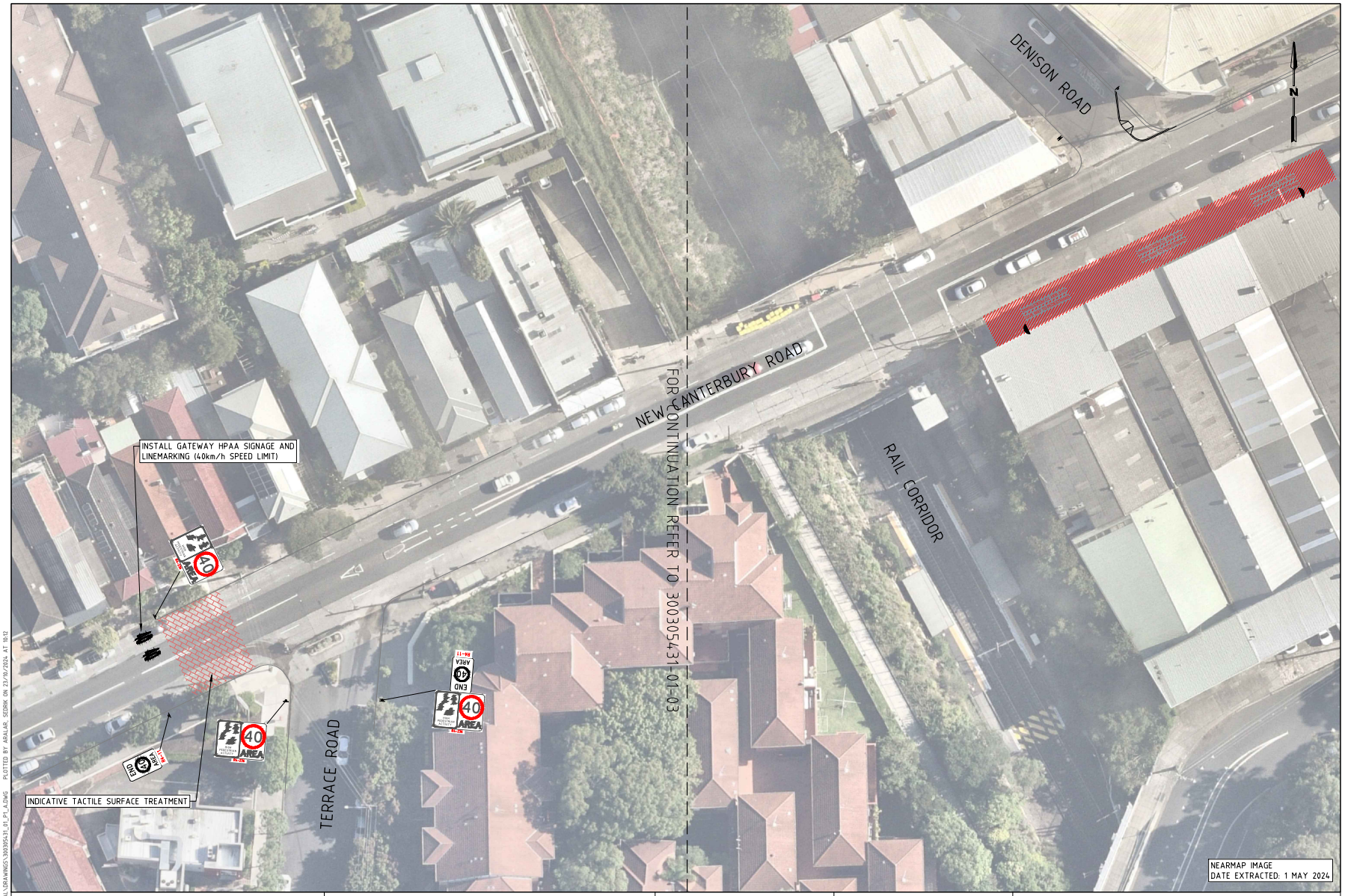
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. WE GUARANTEE TO ORIGIN THAT ALL EXISTING SERVICES ARE SHOWN.
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
DULWICH HILL - AREA 2
CONCEPT DESIGN
DRAWING NO. 300305431-01-02
SHEET 02 OF 35
ISSUE P2


DENISON ROAD
NEW CANTERBURY ROAD
KINTORE STREET
PROPOSED INDICATIVE EXTENSIONS
INDICATIVE PROPOSED LINEMARKING AND CONVEX MIRRORS (MOUNTED ON END SUPPORTS), NOTING CONVEX MIRRORS WILL BE ON PRIVATE PROPERTY
7.2
6.5
FOR CONTINUATION REFER TO 300305431-01-04
FOR CONTINUATION REFER TO 300305431-01-02
N
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
nearmap.com
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
DULWICH HILL - AREA 3
CONCEPT DESIGN
DRAWING NO. 300305431-01-03
SHEET 03 OF 35
ISSUE P2



Stantec INNER WEST

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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA DULWICH HILL - AREA 4
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN DRAWING NO. 300305431-01-04 SHEET 04 OF 35 ISSUE P2

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REDUCE SIGNAL WAIT TIME TO LESS THAN 60 SECONDS FOR SIGNALISED PEDESTRIAN CROSSINGS
PROVIDE NEW KERB RAMPS
MARRICKVILLE ROAD
ILLAWARRA ROAD
50
N
FOR CONTINUATION REFER TO 300305431-01-06
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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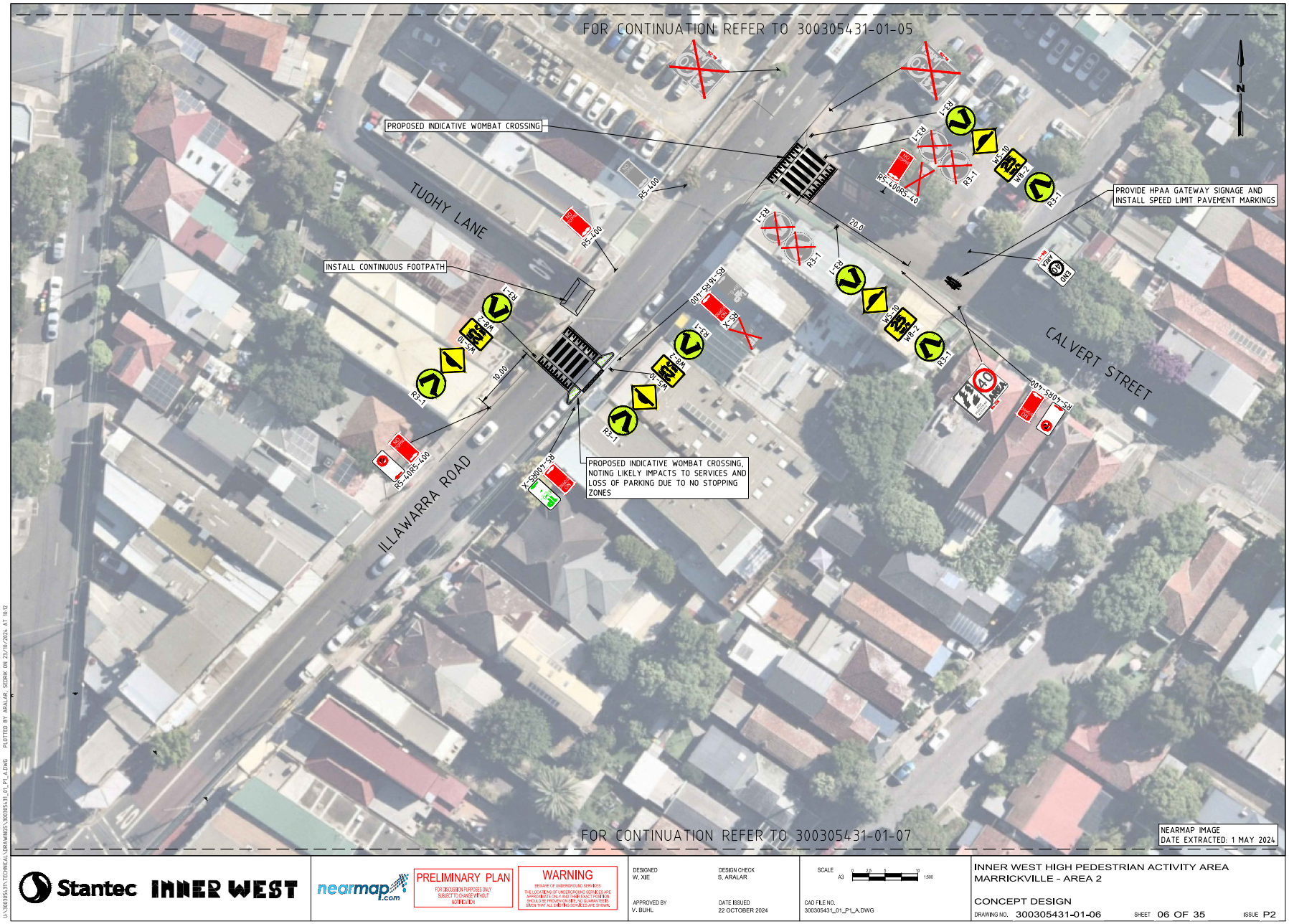
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
MARRICKVILLE - AREA 1
CONCEPT DESIGN
DRAWING NO. 300305431-01-05
SHEET 05 OF 35
ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA MARRICKVILLE - AREA 2
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN
			DRAWING NO. 300305431-01-06 SHEET 06 OF 35 ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA MARRICKVILLE - AREA 3
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN
			DRAWING NO. 300305431-01-07 SHEET 07 OF 35 ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
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DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3 0 2.5 5 10 1:500
CAD FILE NO. 300305431_01_P1_A.DWG

INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
MARRICKVILLE - AREA 4

CONCEPT DESIGN

DRAWING NO. 300305431-01-08 SHEET 08 OF 35 ISSUE P2


WARBURTON STREET
ILLAWARRA ROAD
RAIL CORRIDOR
STATION STREET
SCHWEBEL STREET
LEOFRENE AVENUE
FOR CONTINUATION REFER TO 300305431-01-08
FOR CONTINUATION REFER TO 300305431-01-10
MOUNT HPAA GATEWAY SIGNS ON EXISTING 'NO LEFT TURN' SIGN POST
POTENTIAL TRAFFIC SIGNAL SITE AT INTERSECTION
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
N
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
BEWARE OF UNDERGROUND SERVICES
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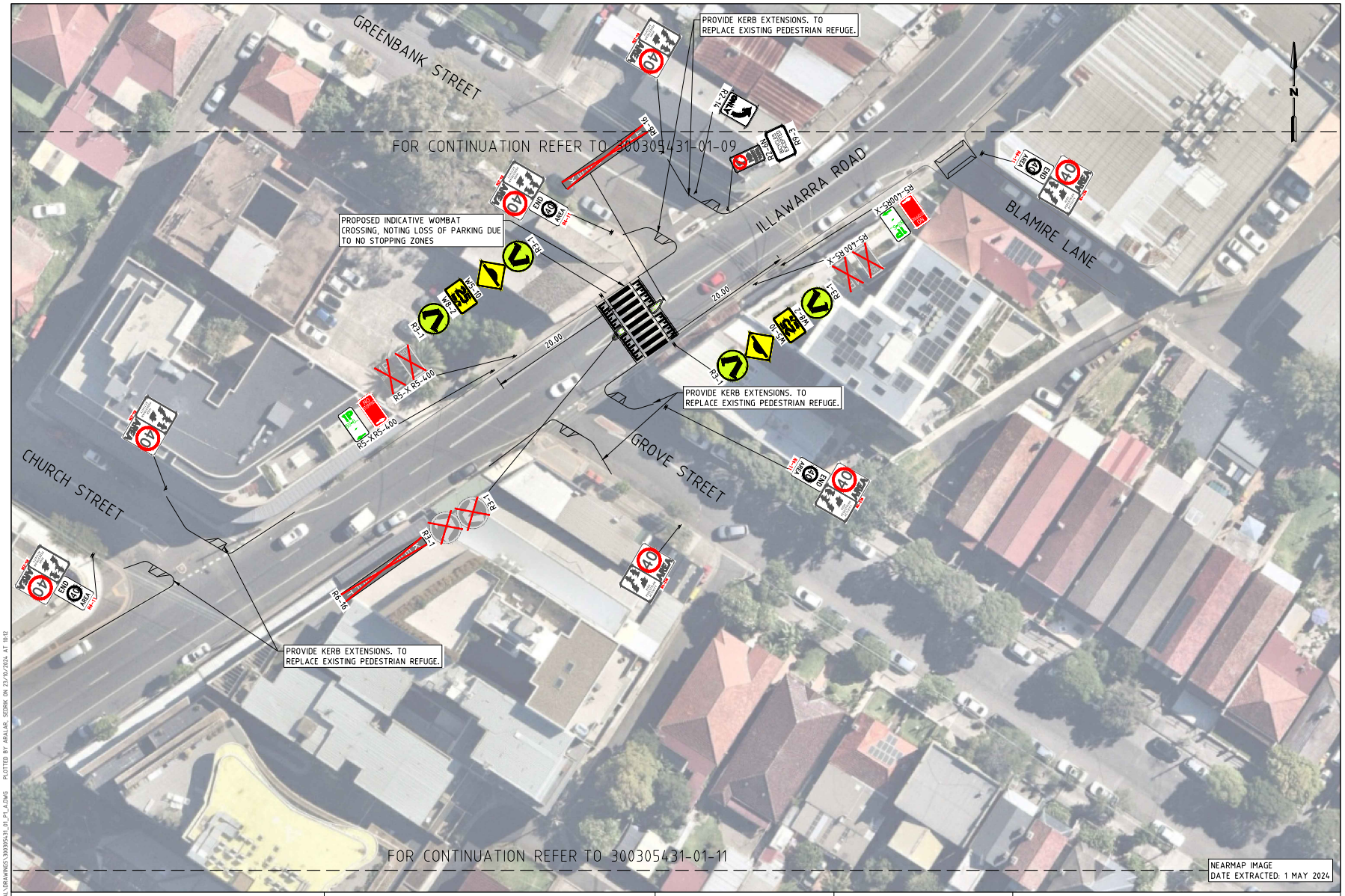
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
MARRICKVILLE - AREA 5
CONCEPT DESIGN
DRAWING NO. 300305431-01-09
SHEET 09 OF 35
ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
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WARNING
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA MARRICKVILLE - AREA 6
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN
			DRAWING NO. 300305431-01-10 SHEET 10 OF 35 ISSUE P2



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SUBJECT TO CHANGE WITHOUT NOTIFICATION

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BEWARE OF UNDERGROUND SERVICES
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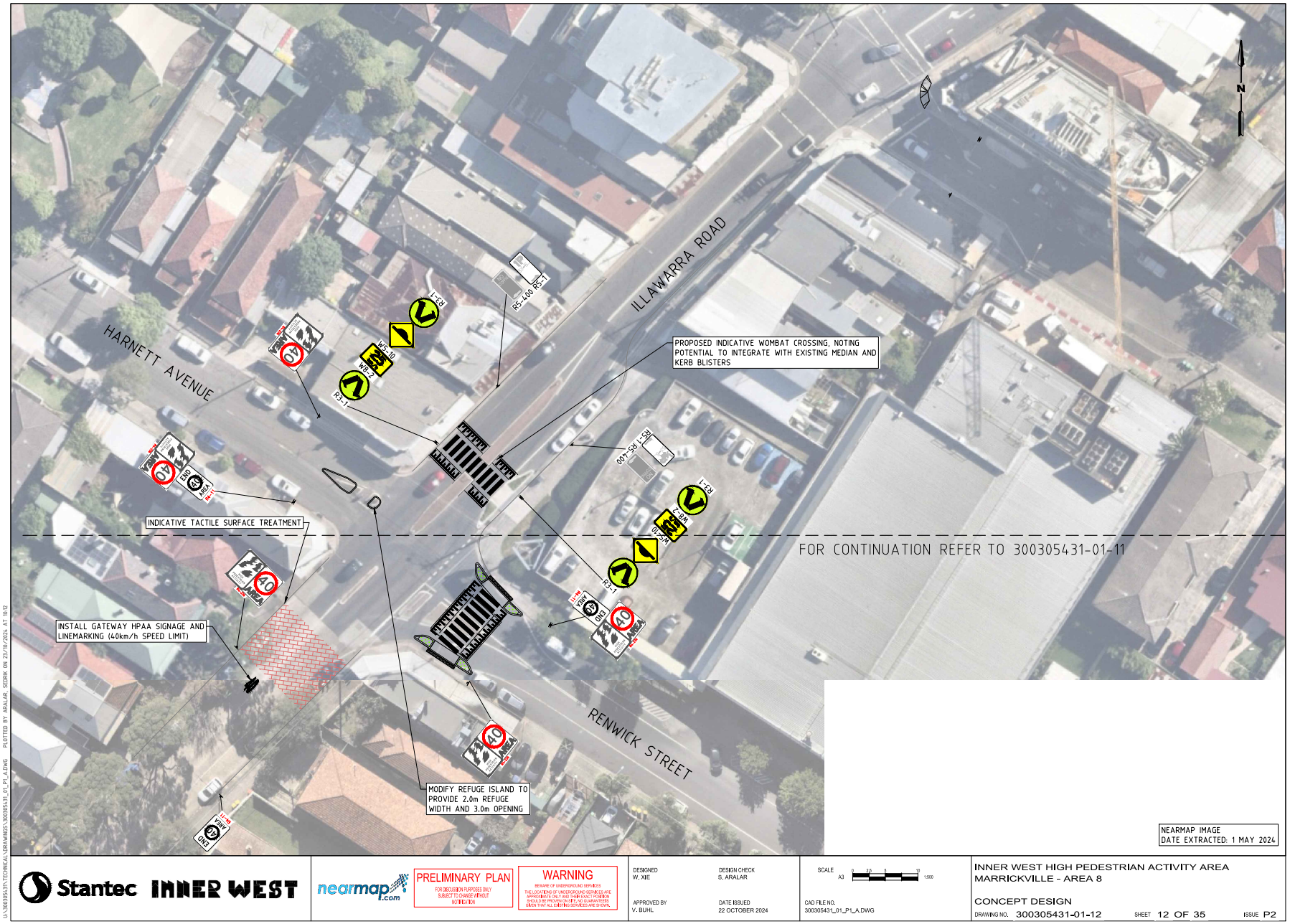
DESIGNED	W. XIE
DESIGN CHECK	S. ARALAR
APPROVED BY	V. BUHL
DATE ISSUED	22 OCTOBER 2024
SCALE	A3 0 2.5 5 10 1:500
CAD FILE NO.	300305431_01_P1_A.DWG

INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
MARRICKVILLE - AREA 7

CONCEPT DESIGN

DRAWING NO. 300305431-01-11 SHEET 11 OF 35 ISSUE P2


HARNETT AVENUE
ILLAWARRA ROAD
RENWICK STREET
PROPOSED INDICATIVE WOMBAT CROSSING, NOTING POTENTIAL TO INTEGRATE WITH EXISTING MEDIAN AND KERB BLISTERS
INDICATIVE TACTILE SURFACE TREATMENT
INSTALL GATEWAY HPAA SIGNAGE AND LINEMARKING (40km/h SPEED LIMIT)
MODIFY REFUGE ISLAND TO PROVIDE 2.0m REFUGE WIDTH AND 3.0m OPENING
FOR CONTINUATION REFER TO 300305431-01-11
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
MARRICKVILLE - AREA 8
CONCEPT DESIGN
DRAWING NO. 300305431-01-12
SHEET 12 OF 35
ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
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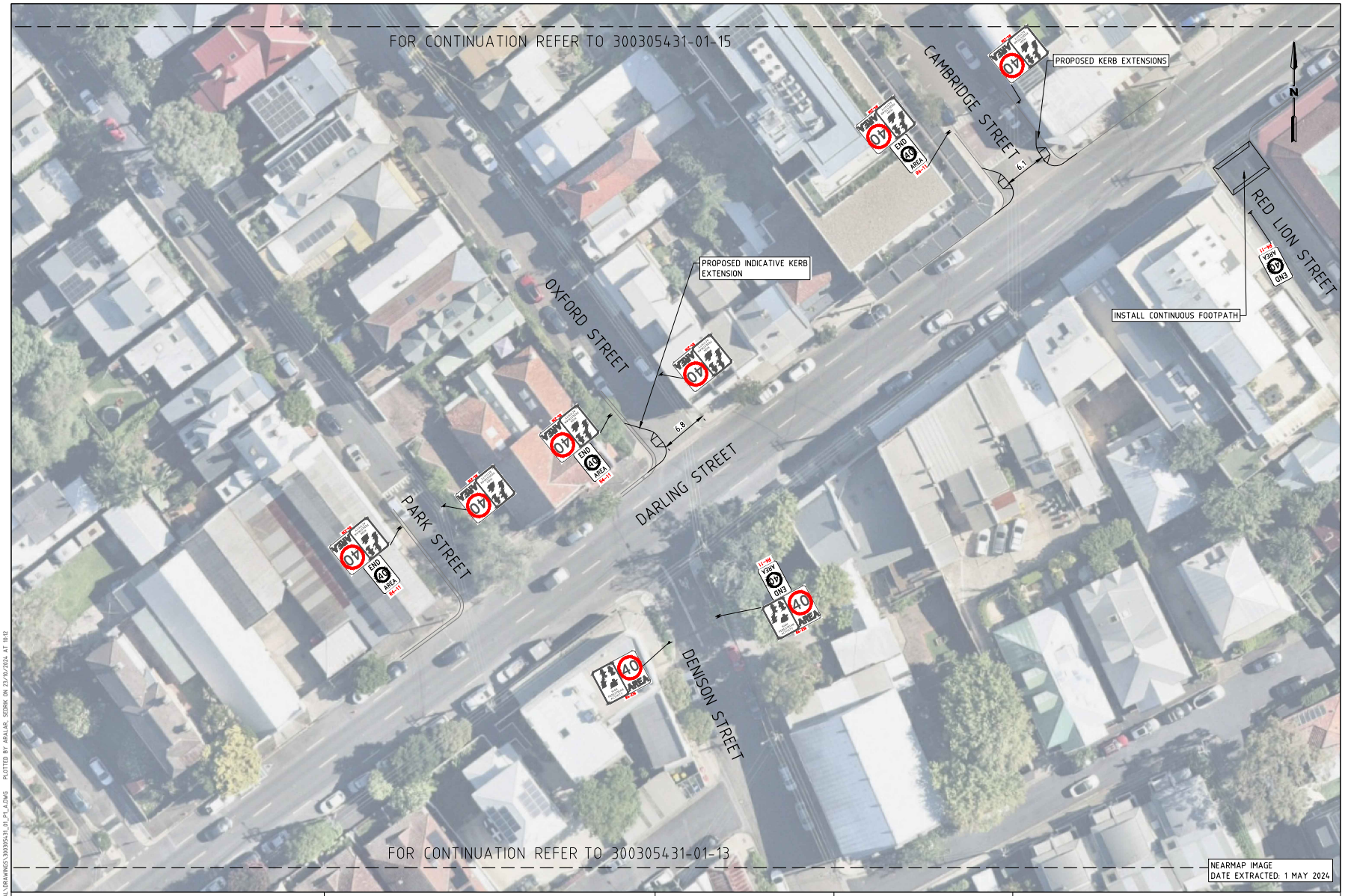
DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG

INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 1

CONCEPT DESIGN

DRAWING NO. 300305431-01-13 SHEET 13 OF 35 ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA ROZELLE - AREA 2
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN
			DRAWING NO. 300305431-01-14 SHEET 14 OF 35 ISSUE P2

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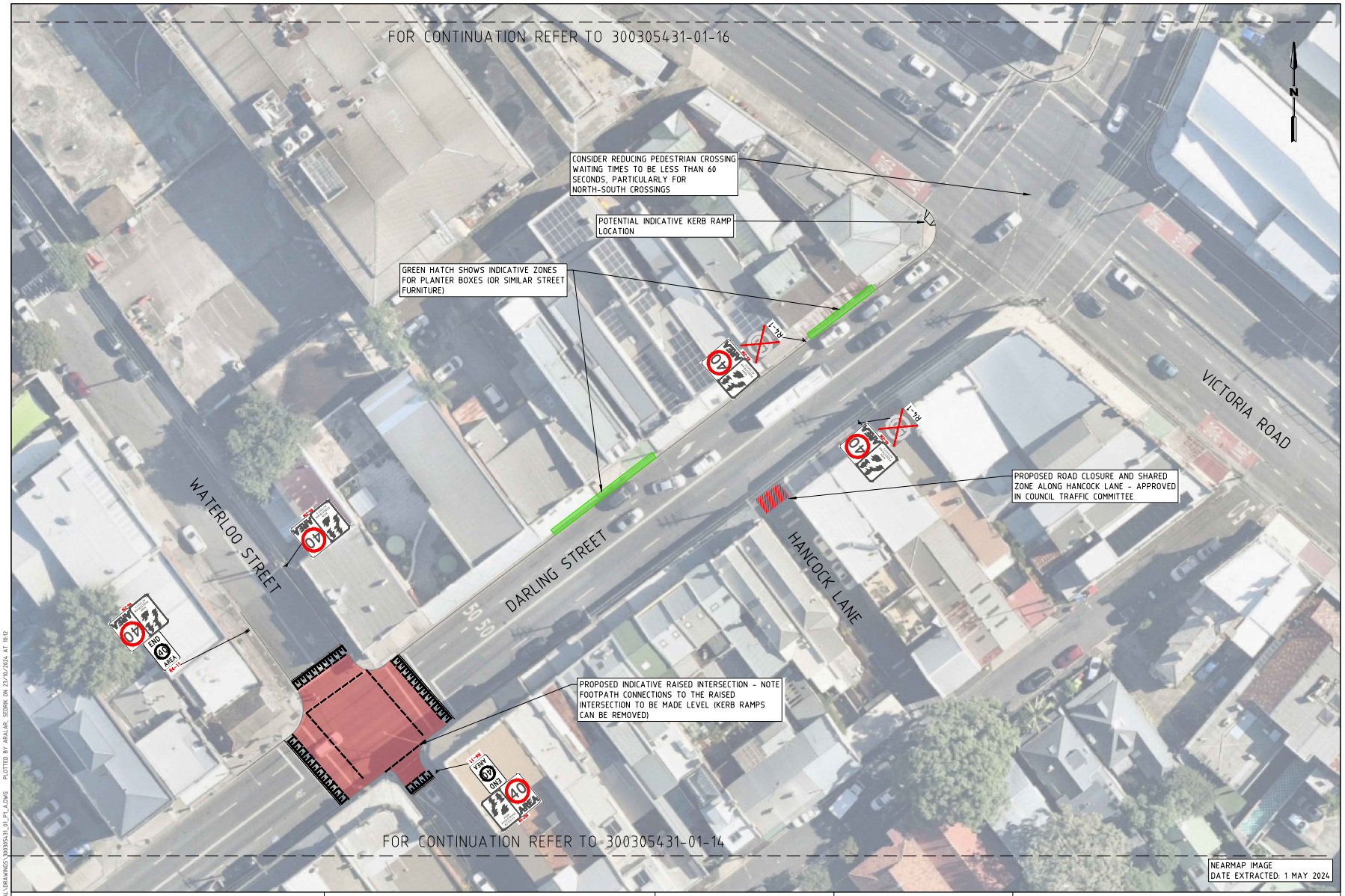
FOR CONTINUATION REFER TO 300305431-01-16
CONSIDER REDUCING PEDESTRIAN CROSSING WAITING TIMES TO BE LESS THAN 60 SECONDS, PARTICULARLY FOR NORTH-SOUTH CROSSINGS
POTENTIAL INDICATIVE KERB RAMP LOCATION
GREEN HATCH SHOWS INDICATIVE ZONES FOR PLANTER BOXES (OR SIMILAR STREET FURNITURE)
PROPOSED ROAD CLOSURE AND SHARED ZONE ALONG HANCOCK LANE - APPROVED IN COUNCIL TRAFFIC COMMITTEE
PROPOSED INDICATIVE RAISED INTERSECTION - NOTE FOOTPATH CONNECTIONS TO THE RAISED INTERSECTION TO BE MADE LEVEL (KERB RAMPS CAN BE REMOVED)
WATERLOO STREET
DARLING STREET
HANCOCK LANE
VICTORIA ROAD
50
FOR CONTINUATION REFER TO 300305431-01-14
N
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
BEWARE OF UNDERGROUND SERVICES
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DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3 0 2.5 5 10 1:500
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 3
CONCEPT DESIGN
DRAWING NO. 300305431-01-15
SHEET 15 OF 35
ISSUE P2


FOR CONTINUATION REFER TO 300305431-01-17
N
NATIONAL STREET
DARLING STREET
FOR CONTINUATION REFER TO 300305431-01-15
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED
W. XIE
DESIGN CHECK
S. ARALAR
APPROVED BY
V. BUHL
DATE ISSUED
22 OCTOBER 2024
SCALE
A3
CAD FILE NO.
300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 4
CONCEPT DESIGN
DRAWING NO. 300305431-01-16
SHEET 16 OF 35
ISSUE P2


FOR CONTINUATION REFER TO 300305431-01-18
NELSON STREET
N
NELSON STREET
DARLING STREET
INDICATIVE KERB EXTENSION, TO TIE IN WITH PROPOSED ADJACENT ACCESSIBLE SPACE DESIGN BY COUNCIL AND EXISTING ISLAND TO THE EAST
INDICATIVE KERB BLISTERS
MERTON STREET
7.8
INSTALL KERB EXTENSION TO TIE WITH EXISTING ISLAND TO THE EAST OF MERTON STREET
INSTALL WOMBAT CROSSING (REFER TO DRAWING 20005/08 REV. A BY TEF CONSULTING)
MERTON STREET
FOR CONTINUATION REFER TO 300305431-01-16
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
nearmap.com
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3 0 2.5 5 10 1:500
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 5
CONCEPT DESIGN
DRAWING NO. 300305431-01-17
SHEET 17 OF 35
ISSUE P2


FOR CONTINUATION REFER TO 300305431-01-19
WISE STREET
BEATTIE STREET
DARLING STREET
BRUCE STREET
PROPOSED WOMBAT CROSSING. REFER TO ROZELLE NORTH LATM DRAWINGS
PROPOSED WOMBAT CROSSING. REFER TO ROZELLE NORTH LATM DRAWINGS
FOR CONTINUATION REFER TO 300305431-01-17
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
N
M3-1
W8-2
W5-10
R3-1
Stantec
INNER WEST
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 6
CONCEPT DESIGN
DRAWING NO. 300305431-01-18
SHEET 18 OF 35
ISSUE P2


FOR CONTINUATION REFER TO 300305431-01-20
N
7-8M
W5-10
W8-2
7-8M
01-5M
INSTALL KERB EXTENSION
LOCATION FOR PROPOSED RAISED THRESHOLD NOTED FROM COUNCIL SKETCH
NORMAN STREET
DARLING STREET
W3-4
FOR CONTINUATION REFER TO 300305431-01-18
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 7
CONCEPT DESIGN
DRAWING NO. 300305431-01-19
SHEET 19 OF 35
ISSUE P2



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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. WE GUARANTEE TO ADVISE THAT ALL EXISTING SERVICES ARE SHOWN.

DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3 0 2.5 5 10 1:500
CAD FILE NO. 300305431_01_P1_A.DWG

INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ROZELLE - AREA 8

CONCEPT DESIGN

DRAWING NO. 300305431-01-20 SHEET 20 OF 35 ISSUE P2

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PRELIMINARY PLAN
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DESIGNED W. XIE	DESIGN CHECK S. ARALAR	SCALE A3 0 2.5 5 10 1:500	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA SUMMER HILL - AREA 1
APPROVED BY V. BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_A.DWG	CONCEPT DESIGN
			DRAWING NO. 300305431-01-21 SHEET 21 OF 35 ISSUE P2



Stantec INNER WEST

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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
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WARNING
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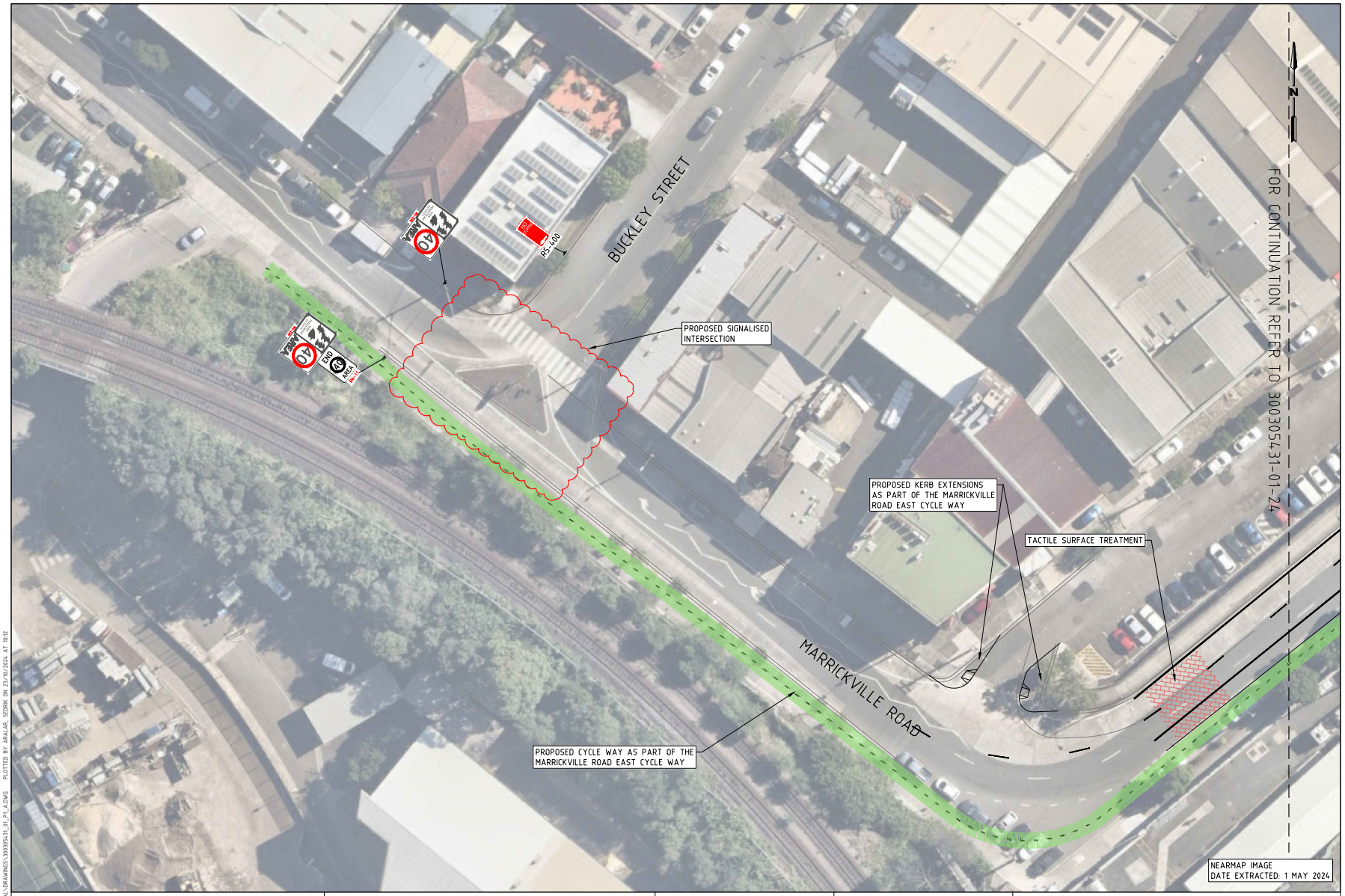
DESIGNED	W. XIE
DESIGN CHECK	S. ARALAR
APPROVED BY	V. BUHL
DATE ISSUED	22 OCTOBER 2024
SCALE	A3
CAD FILE NO.	300305431_01_P1_A.DWG

INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
SUMMER HILL - AREA 2

CONCEPT DESIGN

DRAWING NO. 300305431-01-22 SHEET 22 OF 35 ISSUE P2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PROPOSED SIGNALISED INTERSECTION
PROPOSED KERB EXTENSIONS AS PART OF THE MARRICKVILLE ROAD EAST CYCLE WAY
TACTILE SURFACE TREATMENT
MARRICKVILLE ROAD
PROPOSED CYCLE WAY AS PART OF THE MARRICKVILLE ROAD EAST CYCLE WAY
FOR CONTINUATION REFER TO 300305431-01-24
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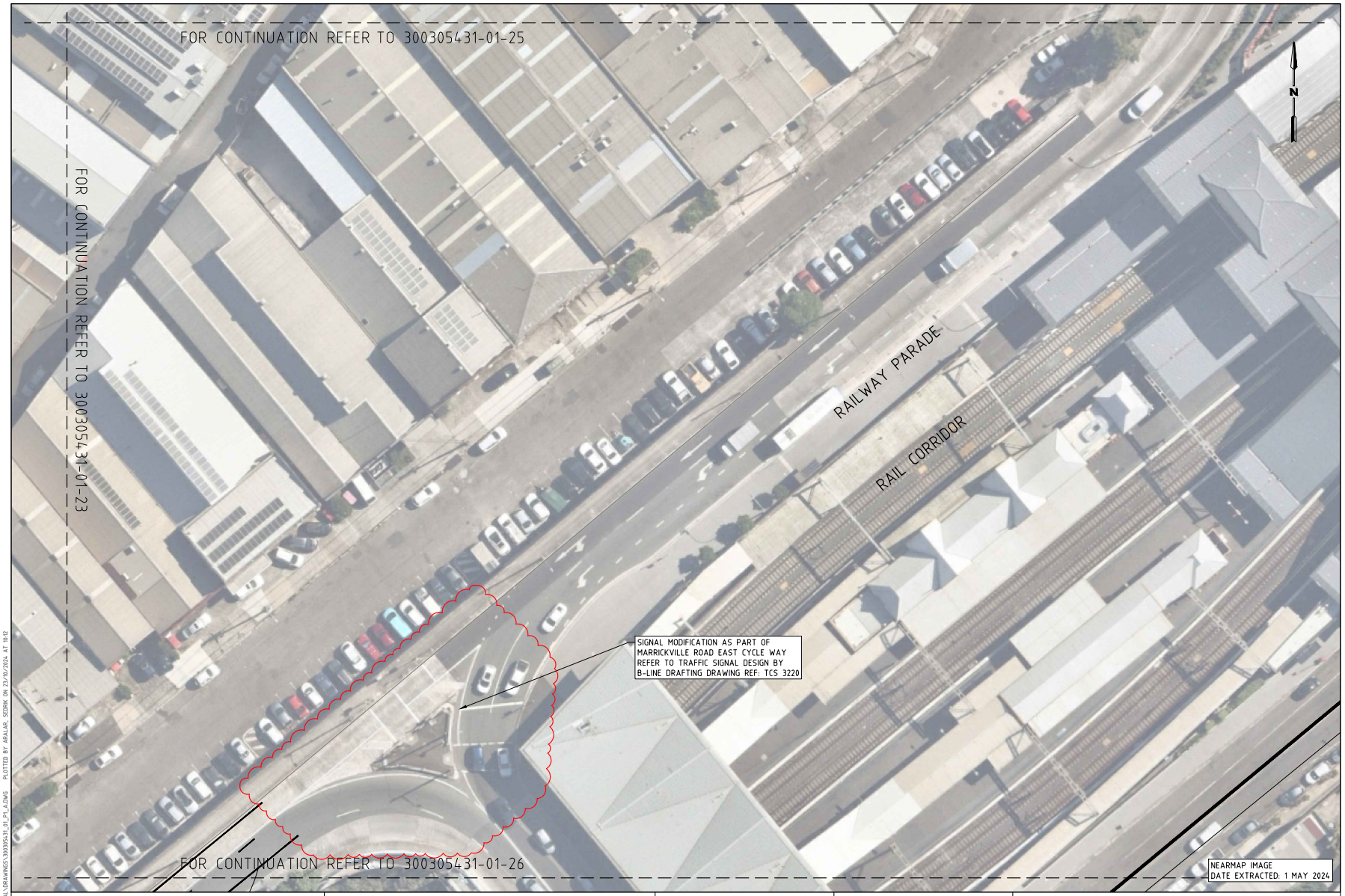
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
nearmap.com
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
SYDENHAM - AREA 1
CONCEPT DESIGN
DRAWING NO. 300305431-01-23
SHEET 23 OF 35
ISSUE P2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RAILWAY PARADE
RAIL CORRIDOR
SIGNAL MODIFICATION AS PART OF MARRICKVILLE ROAD EAST CYCLE WAY REFER TO TRAFFIC SIGNAL DESIGN BY B-LINE DRAFTING DRAWING REF: TCS 3220
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NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. WE GUARANTEE TO GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
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CAD FILE NO. 300305431_01_P1_A.DWG
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SYDENHAM - AREA 2
CONCEPT DESIGN
DRAWING NO. 300305431-01-24
SHEET 24 OF 35
ISSUE P2


SYDENHAM ROAD
INDICATIVE KERB EXTENSIONS
FOR CONTINUATION REFER TO 300305431-01-24
RAILWAY PARADE
N
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
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PRELIMINARY PLAN
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WARNING
DESIGNED W. XIE
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SCALE A3
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SYDENHAM - AREA 3
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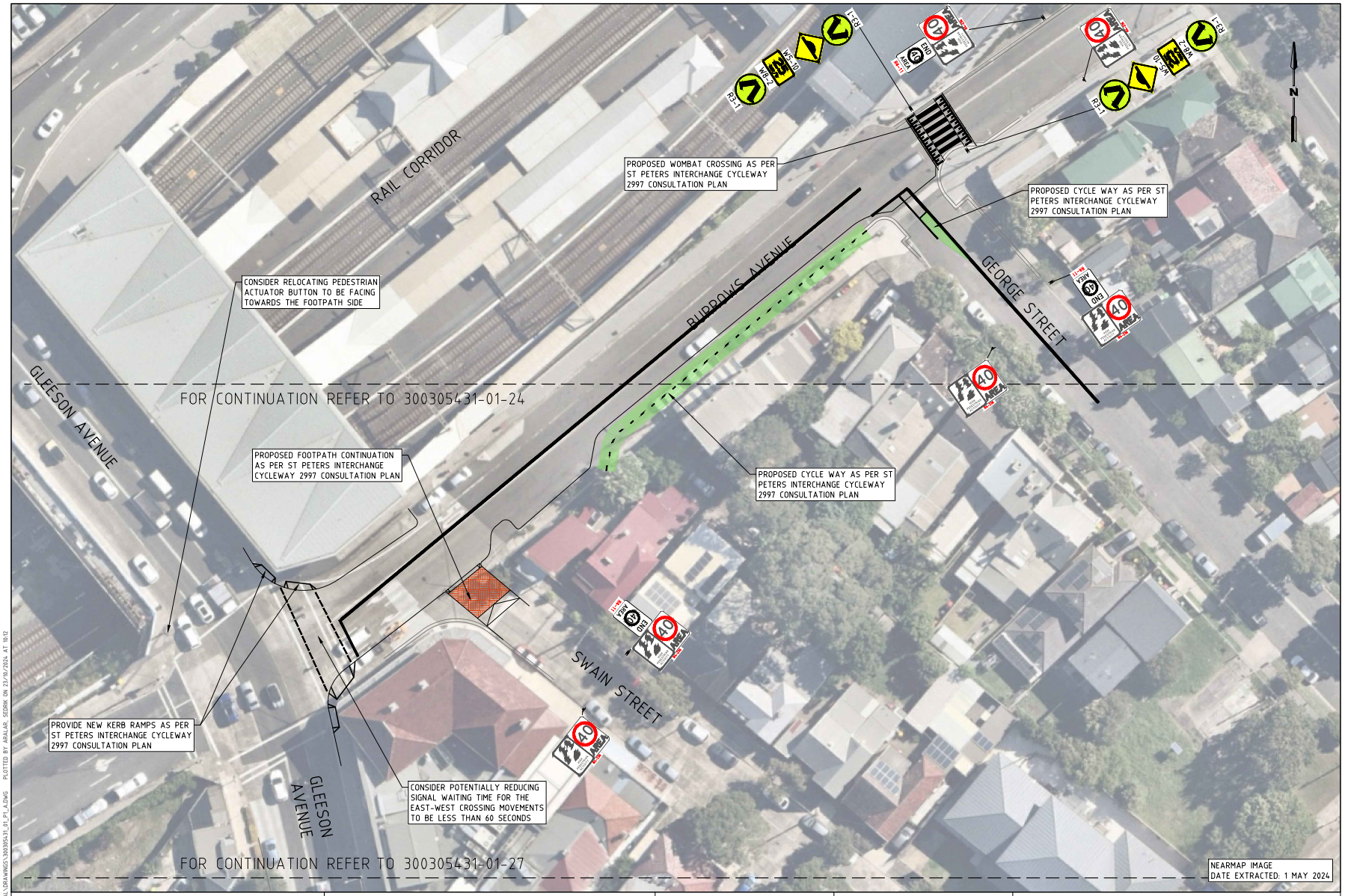
SHEET 25 OF 35
ISSUE P2


RAIL CORRIDOR
PROPOSED WOMBAT CROSSING AS PER ST PETERS INTERCHANGE CYCLEWAY 2997 CONSULTATION PLAN
PROPOSED CYCLE WAY AS PER ST PETERS INTERCHANGE CYCLEWAY 2997 CONSULTATION PLAN
CONSIDER RELOCATING PEDESTRIAN ACTUATOR BUTTON TO BE FACING TOWARDS THE FOOTPATH SIDE
BURROWS AVENUE
GEORGE STREET
GLEESON AVENUE
FOR CONTINUATION REFER TO 300305431-01-24
PROPOSED FOOTPATH CONTINUATION AS PER ST PETERS INTERCHANGE CYCLEWAY 2997 CONSULTATION PLAN
PROPOSED CYCLE WAY AS PER ST PETERS INTERCHANGE CYCLEWAY 2997 CONSULTATION PLAN
SWAIN STREET
PROVIDE NEW KERB RAMPS AS PER ST PETERS INTERCHANGE CYCLEWAY 2997 CONSULTATION PLAN
CONSIDER POTENTIALLY REDUCING SIGNAL WAITING TIME FOR THE EAST-WEST CROSSING MOVEMENTS TO BE LESS THAN 60 SECONDS
GLEESON AVENUE
FOR CONTINUATION REFER TO 300305431-01-27
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DATE EXTRACTED: 1 MAY 2024
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APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
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INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
SYDENHAM - AREA 4
CONCEPT DESIGN
DRAWING NO. 300305431-01-26
SHEET 26 OF 35
ISSUE P2


FOR CONTINUATION REFER TO 300305431-01-26
WRIGHT STREET
GLEESON AVENUE
RAILWAY ROAD
UNWINS BRIDGE ROAD
PROPOSED WOMBAT CROSSING
R3-1
W5-10
W8-2
PROVIDE KERB RAMPS.
RELOCATE POWER POLES AND SIGNAL LANTERN TO ACCOMMODATE SOUTHERN KERB RAMP.
FOR CONTINUATION REFER TO 300305431-01-28
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DATE EXTRACTED: 1 MAY 2024
Stantec
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DATE ISSUED 22 OCTOBER 2024
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CAD FILE NO. 300305431_01_P1_A.DWG
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SYDENHAM - AREA 5
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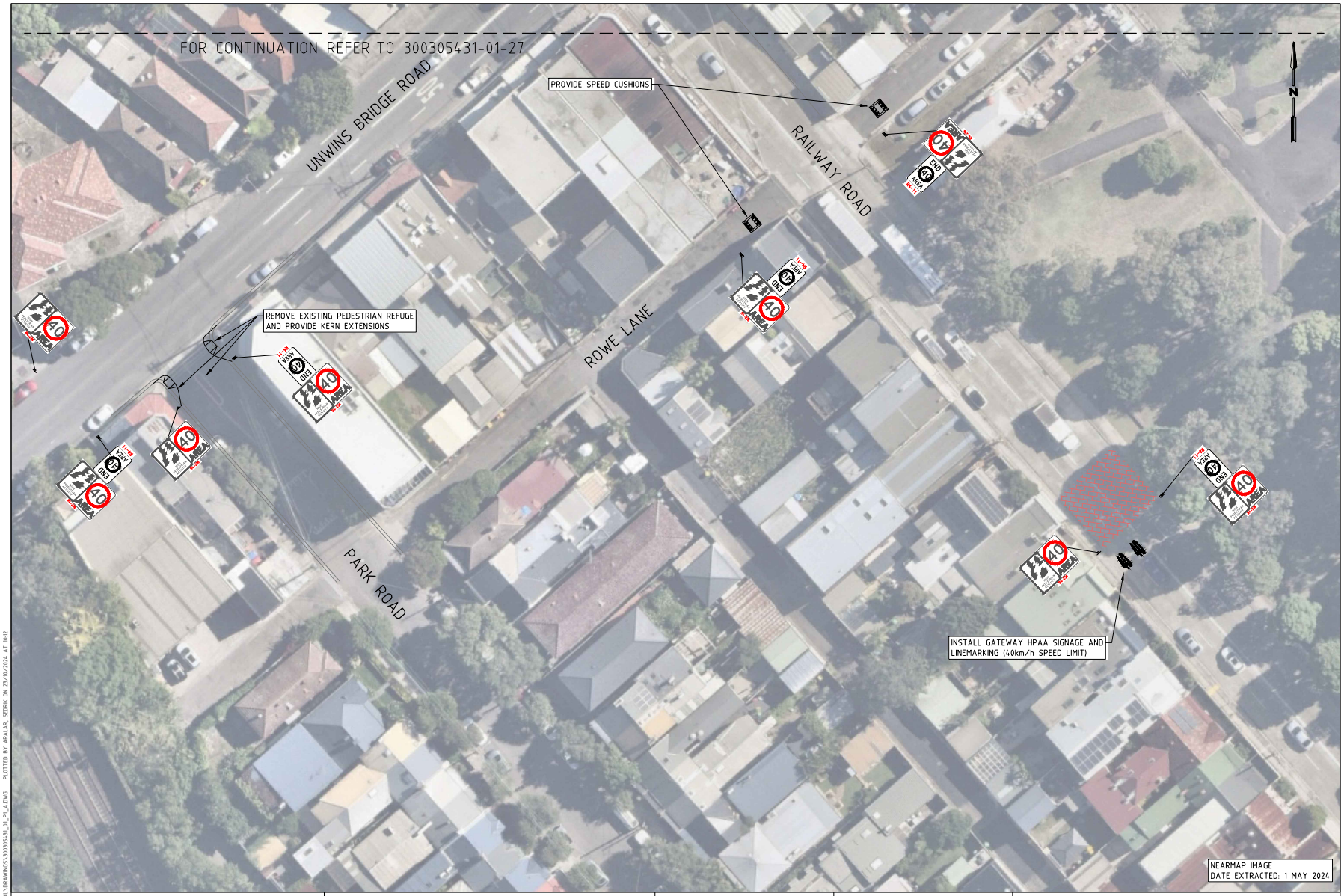
DRAWING NO. 300305431-01-27
SHEET 27 OF 35
ISSUE P2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UNWINS BRIDGE ROAD
PROVIDE SPEED CUSHIONS
RAILWAY ROAD
REMOVE EXISTING PEDESTRIAN REFUGE AND PROVIDE KERN EXTENSIONS
ROWE LANE
PARK ROAD
INSTALL GATEWAY HPAA SIGNAGE AND LINEMARKING (40km/h SPEED LIMIT)
N
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
nearmap.com
PRELIMINARY PLAN
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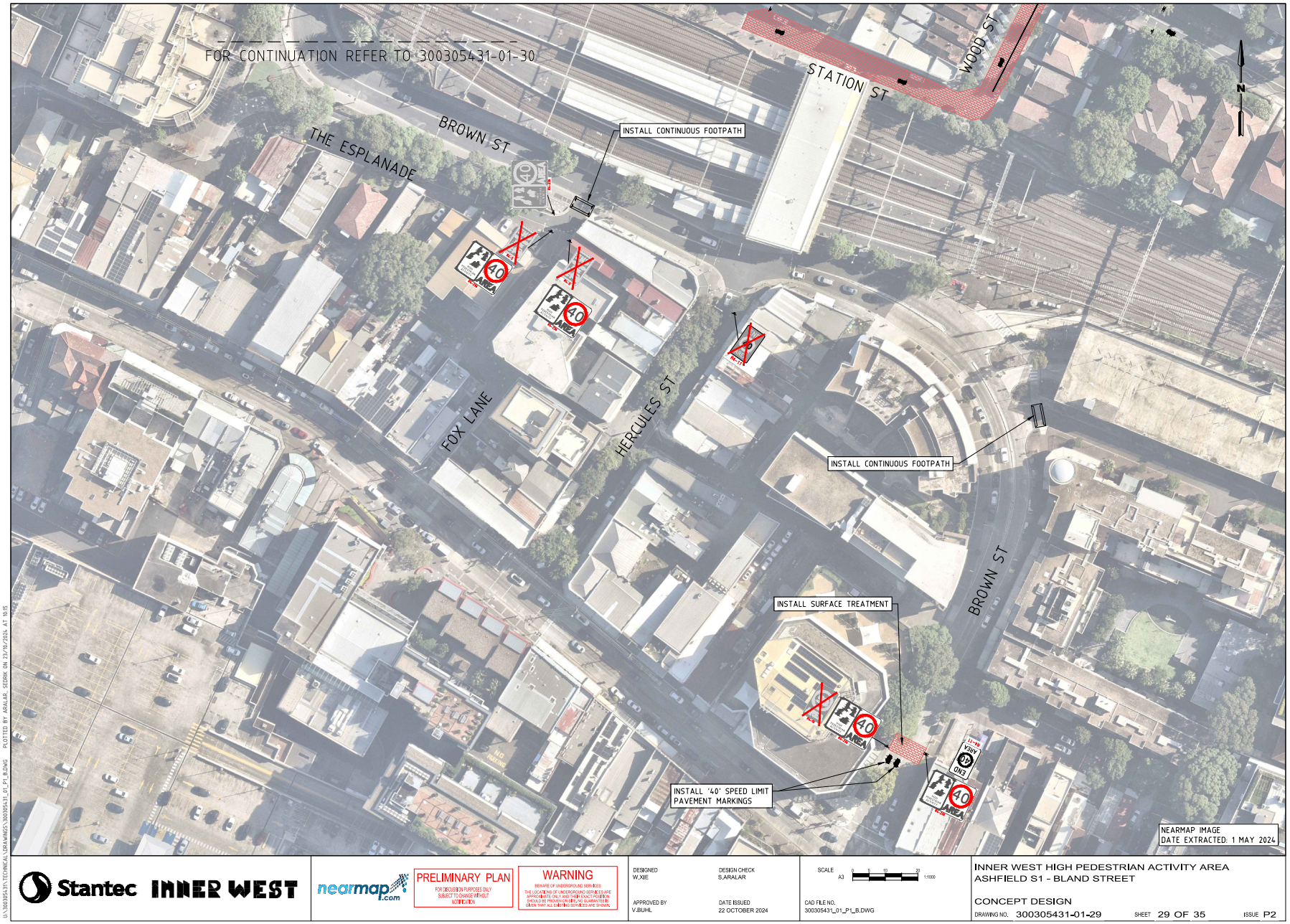
WARNING
DESIGNED W. XIE
DESIGN CHECK S. ARALAR
APPROVED BY V. BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_A.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
SYDENHAM - AREA 6
CONCEPT DESIGN
DRAWING NO. 300305431-01-28
SHEET 28 OF 35
ISSUE P2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STATION ST
WOOD ST
BROWN ST
THE ESPLANADE
INSTALL CONTINUOUS FOOTPATH
FOX LANE
HERCULES ST
INSTALL CONTINUOUS FOOTPATH
BROWN ST
INSTALL SURFACE TREATMENT
INSTALL '40' SPEED LIMIT PAVEMENT MARKINGS
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
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WARNING
DESIGNED W.XIE
DESIGN CHECK S.ARALAR
APPROVED BY V.BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_B.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ASHFIELD S1 - BLAND STREET
CONCEPT DESIGN
DRAWING NO. 300305431-01-29
SHEET 29 OF 35
ISSUE P2


CONSIDER REDUCING SIGNAL WAITING TIMES TO LESS THAN 30 SECONDS FOR THE NORTH-SOUTH CROSSINGS, PARTICULARLY DURING THE MORNING AND AFTERNOON BELL PERIODS OF THE SURROUNDING SCHOOLS
INSTALL KERB RAMP
INSTALL KERB BLISTERS
INSTALL HATCHED PAVEMENT MARKING
CONSIDER REDUCING SIGNAL WAITING TIMES TO LESS THAN 30 SECONDS FOR THE NORTH-SOUTH CROSSINGS, PARTICULARLY DURING THE MORNING AND AFTERNOON BELL PERIODS OF THE SURROUNDING SCHOOLS
INSTALL KERB RAMPS
REMOVE '50' SPEED LIMIT PAVEMENT MARKING
INSTALL KERB RAMPS
INSTALL KERB EXTENSION
INSTALL '40' SPEED LIMIT PAVEMENT MARKING
EXTEND SHARED ZONE BY INSTALLING SURFACE TEXTURE ON THE SAME LEVEL AS THE EXISTING SHARED ZONE
FOR CONTINUATION REFER TO 300305431-01-29
BLAND ST
NIXON AV
ELIZABETH ST
CHARLOTTE ST
GRAINGER AVE
WOOD ST
STATION ST
BROWN ST
THE ESPLANADE
N
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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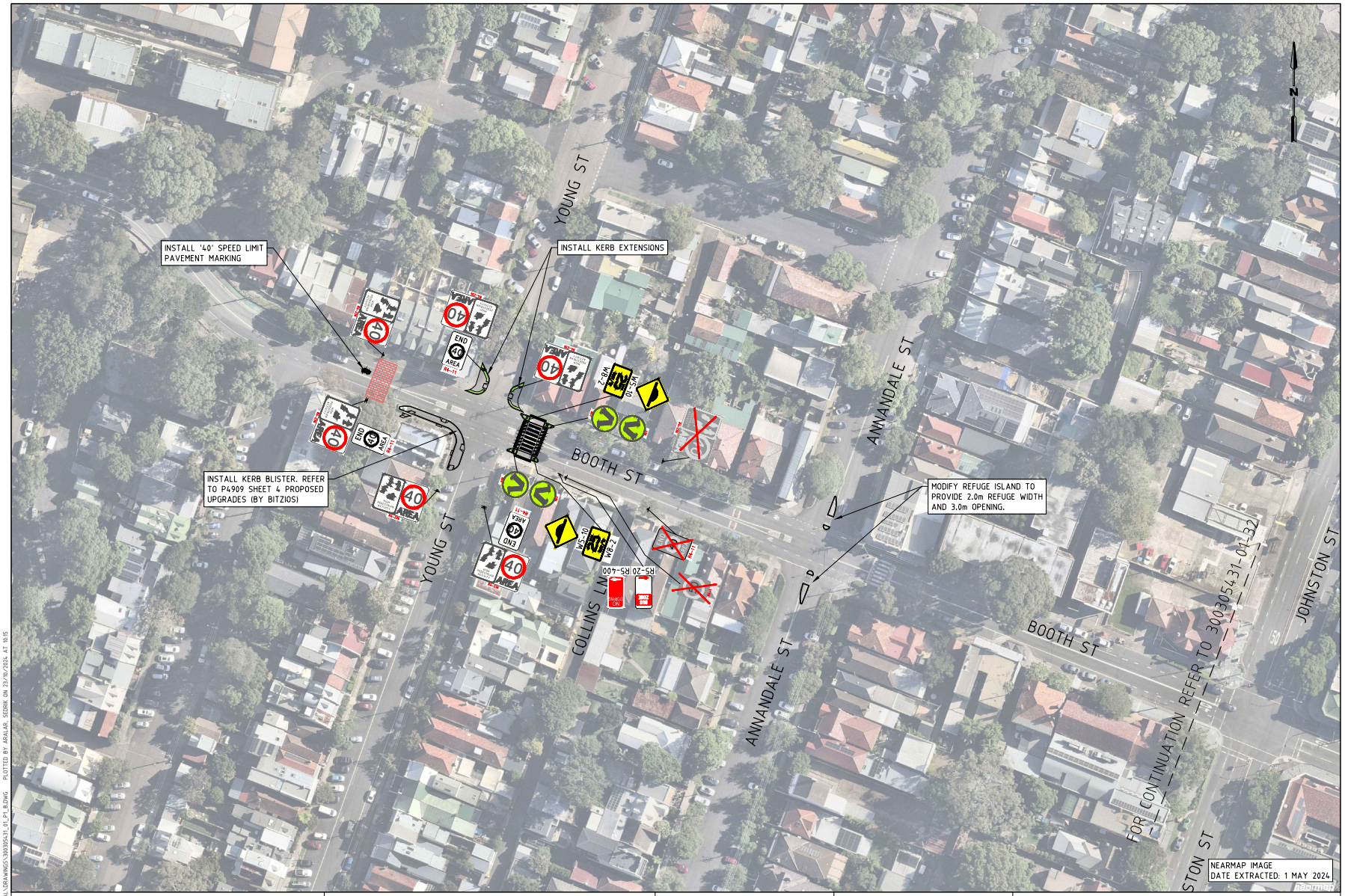
PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W.XIE
DESIGN CHECK S.ARALAR
APPROVED BY V.BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_B.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
ASHFIELD - ELIZABETH STREET
CONCEPT DESIGN
DRAWING NO. 300305431-01-30
SHEET 30 OF 35
ISSUE P2



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DESIGNED W.XIE	DESIGN CHECK S.ARALAR	SCALE A3	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA ANNANDALE - BOOTH STREET
APPROVED BY V.BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_B.DWG	CONCEPT DESIGN DRAWING NO. 300305431-01-31 SHEET 31 OF 35 ISSUE P2



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DESIGNED W.XIE	DESIGN CHECK S.ARALAR	SCALE A3 0 5 10 20 1:1000	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA ANNANDALE - BOOTH STREET
APPROVED BY V.BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_B.DWG	CONCEPT DESIGN DRAWING NO. 300305431-01-32 SHEET 32 OF 35 ISSUE P2



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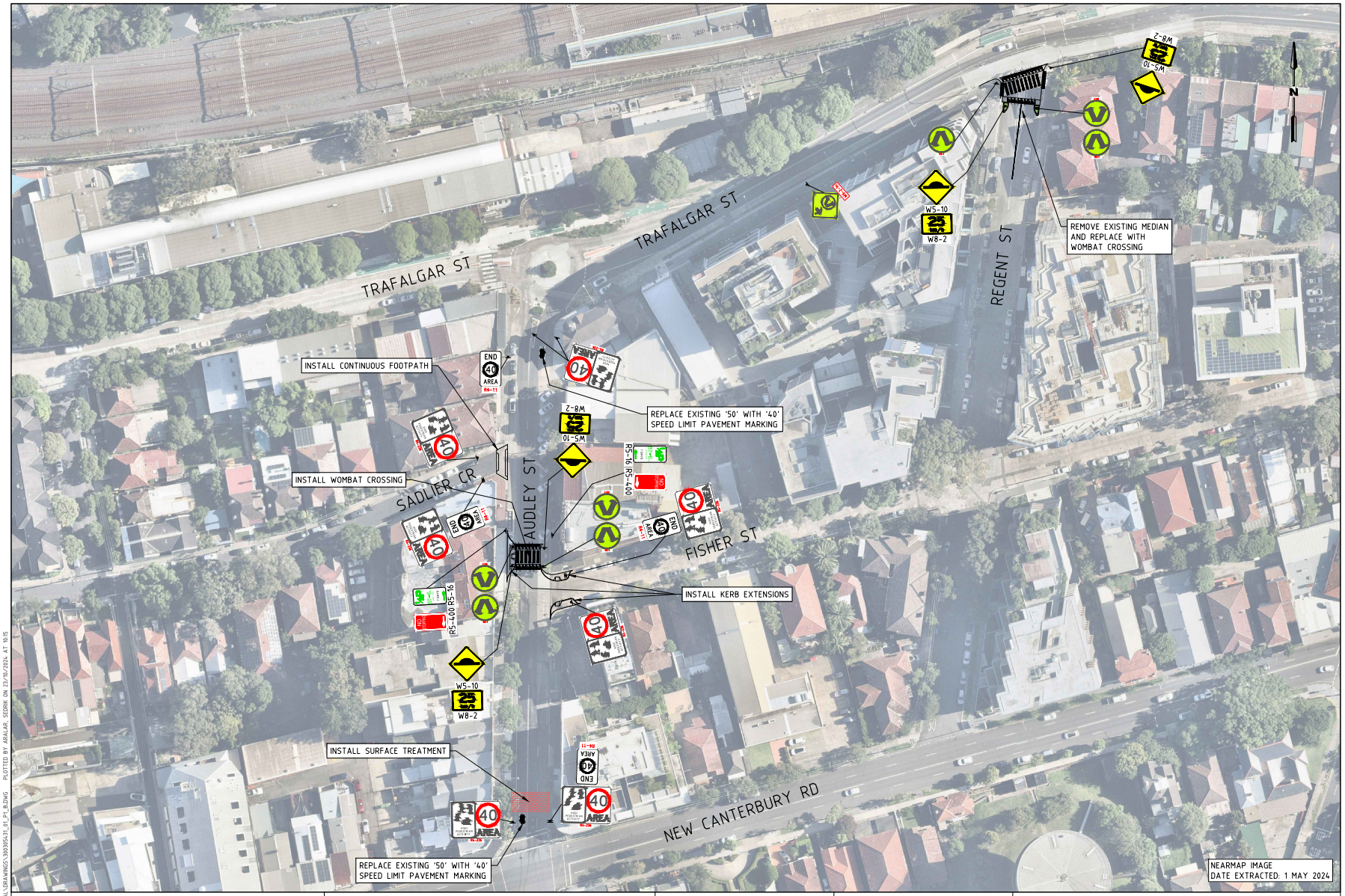
DESIGNED W.XIE	DESIGN CHECK S.ARALAR	SCALE A3	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA ANNANDALE - BOOTH STREET
APPROVED BY V.BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_B.DWG	CONCEPT DESIGN DRAWING NO. 300305431-01-33 SHEET 33 OF 35 ISSUE P2


TRAFALGAR ST
TRAFALGAR ST
REGENT ST
SADLIER CR
AUDLEY ST
FISHER ST
NEW CANTERBURY RD
INSTALL CONTINUOUS FOOTPATH
INSTALL WOMBAT CROSSING
REPLACE EXISTING '50' WITH '40' SPEED LIMIT PAVEMENT MARKING
REMOVE EXISTING MEDIAN AND REPLACE WITH WOMBAT CROSSING
INSTALL KERB EXTENSIONS
INSTALL SURFACE TREATMENT
REPLACE EXISTING '50' WITH '40' SPEED LIMIT PAVEMENT MARKING
NEARMAP IMAGE
DATE EXTRACTED: 1 MAY 2024
Stantec
INNER WEST
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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
WARNING
DESIGNED W.XIE
DESIGN CHECK S.ARALAR
APPROVED BY V.BUHL
DATE ISSUED 22 OCTOBER 2024
SCALE A3
CAD FILE NO. 300305431_01_P1_B.DWG
INNER WEST HIGH PEDESTRIAN ACTIVITY AREA
PETERSHAM - AUDLEY STREET
CONCEPT DESIGN
DRAWING NO. 300305431-01-34
SHEET 34 OF 35
ISSUE P2



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DESIGNED W.XIE	DESIGN CHECK S.ARALAR	SCALE A3 0 5 10 20 1:1000	INNER WEST HIGH PEDESTRIAN ACTIVITY AREA STANMORE - PERCIVAL ROAD
APPROVED BY V.BUHL	DATE ISSUED 22 OCTOBER 2024	CAD FILE NO. 300305431_01_P1_B.DWG	CONCEPT DESIGN DRAWING NO. 300305431-01-35 SHEET 35 OF 35 ISSUE P2

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Item No: **LTC1224(1) Item 4**

Subject: **RE-EXHIBITION OF PROPOSED PERMANENT ROAD CLOSURE JAGGERS LANE, BALMAIN (BALUDARRI - BALMAIN WARD / BALMAIN ELECTORATE / LEICHHARDT PAC)**

Prepared By: Amir Falamarzi - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the permanent full road closure of Jaggers Lane, Balmain between Duncan Street and Caroline Street (Option 1) be approved subject to the approval of the Traffic Management Plan (TMP) by Transport for NSW (TfNSW).**

2. **That the closure of Jaggers Lane, Balmain (Option 1) be implemented as per the bollards and signposting plan provided in *Attachment 1.***

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

The previous decision for the closure of Jaggers Lane was deferred at the Council's Ordinary meeting of 9 April 2024. This was as a result of a pending Land and Environment Court Appeal relating to 4 Caroline Street, Balmain which proposed a modified access to Jaggers Lane for approved onsite carparking.

On 30 August 2024 a Court judgment was handed down in the Appeal making it conditional that unless there was a Traffic Management Committee approval for the Jaggers Lane access to 4 Caroline Street there would be no access permitted to the property. The Court judgment included a permanent road closure with a single bollard along the mid-block of Jaggers lane, including a splay at the intersection of Jaggers Lane at Caroline Street to accommodate vehicular access and appropriate signage at no cost to Council.

As the proposal was different from the previously deferred option considered by Council which included two bollards at either end of Jaggers Lane, three options were put to community engagement, that is Option 1: A full road closure of Jaggers Lane to all traffic; Option 2: A mid-block road closure of Jaggers Lane; and Option 3: No changes to the existing traffic arrangements in Jaggers Lane.

Community Engagement has closed and indicated that Option 1 was the preferred option with 66.7% support rate.

BACKGROUND

In June 2023, Council received a petition from residents requesting the closure of Jaggers Lane, between Duncan Street and Caroline Street, Balmain. The petition was submitted with 47 names and signatures and proposed a closure for motor vehicles in the laneway by installing bollards at each end of the laneway which may be removed for emergency access.

Jaggers Lane is a narrow laneway of approximately 3 meters width. The rationale for the proposed road closure was the insufficient width to allow pedestrians and vehicles to safely pass each other. The proposed closure is expected to improve pedestrian safety and amenity.

Pedestrian movements in the lane are local in nature and provide access to nearby properties, predominately residents accessing Waterview Street properties and properties in Caroline Lane. It is noted that properties on the south side of Waterview Street have pedestrian gates that open onto the travel lane and access in the low volume Jaggers Lane may be a preferred option for pedestrian ingress and egress to these properties.

Council undertook Community Engagement in late 2023 to invite feedback from residents with access to Jaggers Lane and the surrounding streets. Of the 31 submissions received, 23 (74.2%) was in support, while 8 (25.8%) opposed the proposal.

A report summarising the consultation results was considered by the Local Traffic Committee on 18 March 2024. Whilst the Traffic Committee supported the proposed road closure, the closure of Jaggers Lane was deferred at the Council's Ordinary meeting of 9 April 2024. This was as a result of a pending Land and Environment Court Appeal relating to 4 Caroline Street, Balmain which proposed a modified access to Jaggers Lane for approved onsite carparking.

On 30 August 2024 a Court judgment was handed down in the Appeal making it conditional that unless there was a Traffic Management Committee approval for the Jaggers Lane access to 4 Caroline Street there would be no vehicle access permitted to the property. The Court judgment included a permanent road closure with a single bollard along the mid-block of Jaggers lane, including a splay at the intersection of Jaggers Lane at Caroline Street to accommodate vehicular access and appropriate signage at no cost to Council.

Condition 16 of the LEC judgement for No.4 Caroline Street is provided below:

8. Insert condition 16:

PRIOR TO CONSTRUCTION CERTIFICATE

16. Application for Closure of Jaggers Lane to through traffic

Prior to the issue of any Construction Certificate relating to:

a) The car stacker or other parking works; or

b) The gateway from the property to Jaggers Lane;

The applicant must obtain Local Traffic Committee and Council approval for the installation of a bollard and closure of Jaggers Lane to through traffic. The bollard is to be centrally placed within Jaggers Lane and located approximately 2.5m to the south of the southern property boundary.

Alternatively, if the applicant does not obtain this approval the applicant must submit amended architectural plans which illustrate that the proposed parking space, vehicular access and car stacker have been deleted. If the applicant does not obtain this approval then Conditions 2(c), 20A and 27C requiring the dedication of land and public domain works are of no effect.

For the avoidance of doubt this condition does not prevent the applicant from seeking a construction Certificate for works other than those described in a) and b) above

(Condition added – MOD/2023/0137 –30 August 2024)

As this proposal is different from the previous road closure option with two bollards positioned at both ends of Jaggers Lane, Council considered and consulted on three options, which were:

- Option 1: A full road closure of Jaggers Lane to all traffic;
- Option 2: A mid-block road closure of Jaggers Lane; and
- Option 3: No changes to the existing traffic arrangements in Jaggers Lane.

The first two options are illustrated in *Attachment 1*.

DISCUSSION

The application received on behalf of No.4 Caroline Street proposes for a full road closure of Jaggers Lane to all traffic, with a single bollard placed approximately 2.5m south of the southern property boundary. The application included a swept path analysis, showing a B85 Design Vehicle at the Caroline Street and Jaggers Lane intersection, as well as the proposed driveway onto Jaggers lane, serving No.4 Caroline Street.

The application from No.4 Caroline Street for a mid-block road closure is different to the originally considered full road closure due to the following:

- A mid-block closure will still permit vehicular movements in the laneway and potential for conflict between a vehicle and a pedestrian.

- The proposal may allow for the construction of vehicular access for other properties in the laneway in the future, which would increase the conflicts within the laneway.

It is also noted that a single bollard mid-block in Jaggers Lane will stop through traffic in the laneway, however given the location of the laneway within the surrounding road network, the issue of through traffic is not considered significant.

Additional pedestrian and vehicle counts were organised by the applicant's consultant which captured data between the morning (7.30am-8.30am, 19 June 2024) and afternoon period (4.30pm-5.30pm, 20 June 2024), showing one (1) and eight (8) pedestrians per hour respectively. There were no vehicle movements captured during these survey times. This was found to be consistent with previous vehicle and pedestrian counts undertaken by Council in Jaggers Lane. The results of Council's traffic count undertaken in 2024 indicated an average of 2.3 vehicles per day and an 85% percentile speed of 15.7 km/h.

The applicant has also provided the probabilities of a pedestrian and vehicle conflict in Jaggers Lane under the Option 2 closure using a single bollard mid-block in Jaggers Lane:

Peak	Probability of pedestrian along Jaggers Lane (event 1)	Probability of vehicle along Jaggers lane (event 2)	Probability of event 1 and event 2 occurring at the same time
AM	0.90%	0.39%	0.0035%
PM	7.22%	0.39%	0.0282%

CONSULTATION

From 28 October to 1 December 2024, Council conducted further Community Engagement with residents and businesses near Jaggers Lane, inviting them to provide feedback on the proposals for the permanent closure of Jaggers Lane between Duncan Street and Caroline Street, Balmain. A letter was sent to 320 addresses, including the owners and residents of properties on Waterview Street, Colgate Avenue, Caroline Street, Duncan Street, and Jaggers Lane.

The community was given the opportunity to provide their feedback through various methods, including an online survey via *Your Say Inner West*, post, email, and phone.

At the conclusion of the community engagement period, a total of 40 submissions were received. Out of these, 33 were from properties within the consultation area, and 13 were from properties directly impacted from the proposal in Jaggers Lane. There were 7 submissions received that was from outside of the consultation area with two (2) in support of Option 1, no support for Option 2, and five (5) in support of Option 3. Of the 13 properties directly impacted by the road closure, all properties have provided a submission.

The results of the survey are tabled below:

Option	Submissions from properties within the consultation area	Submissions from properties directly impacted
Option 1: A full road closure of Jaggers Lane to all traffic	22 (66.7%)	8 (61.5%)
Option 2: A mid-block road closure of Jaggers Lane	4 (12.1%)	2 (15.4%)
Option 3: No changes to the existing traffic arrangements in Jaggers Lane	7 (21.2%)	3 (23.1%)
Total	33 (100.0%)	13 (100%)

A copy of the engagement outcomes report is included in *Attachment 2*. This report provides a detailed breakdown of the comments and concerns raised by the community.

CONCLUSION

Having considered the concerns regarding vehicle access in Jaggers Lane and noting the outcomes of Council's Community Engagement, it is recommended to proceed with the proposed closure of Jaggers Lane by installing bollards at both ends of the laneway (Option 1).

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

ATTACHMENTS

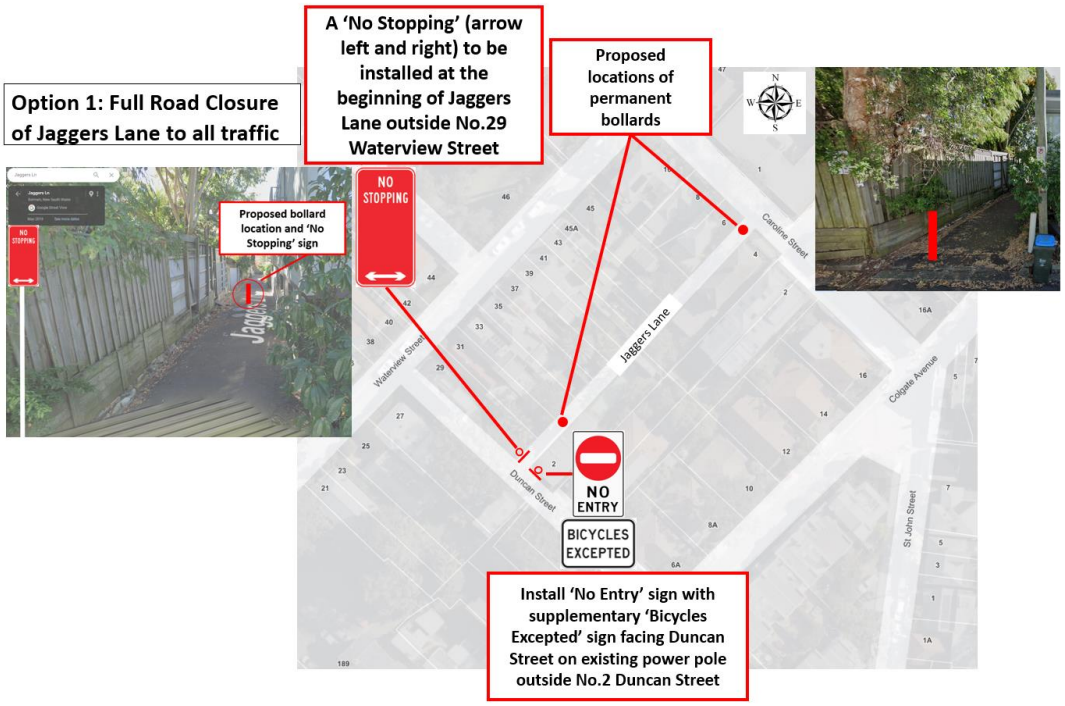
1.⇩ Jaggers Lane - Road Closure Options
2.⇩ Jaggers Lane - Engagement Outcomes Report

Option 1: Full Road Closure of Jaggers Lane to all traffic

This proposal involves the installation of two bollards positioned at each end of the laneway. This was the same option that was consulted upon in late 2023.

Features of Option 1:

- A bollard installed on Jaggers Lane at Caroline Street
- A bollard installed on Jaggers Lane near the rear of 31 Waterview Street.
- 'No Entry, Bicycles Excepted' signage and 'No Stopping' signage will be installed as indicated in the below plan
- This will remove all vehicle movements in the laneway
- Pedestrian and bicycle movements will be maintained



Option 2: Mid-block Road Closure of Jaggers Lane

This proposal involves the installation of a single bollard positioned near the midpoint along Jaggers Lane.

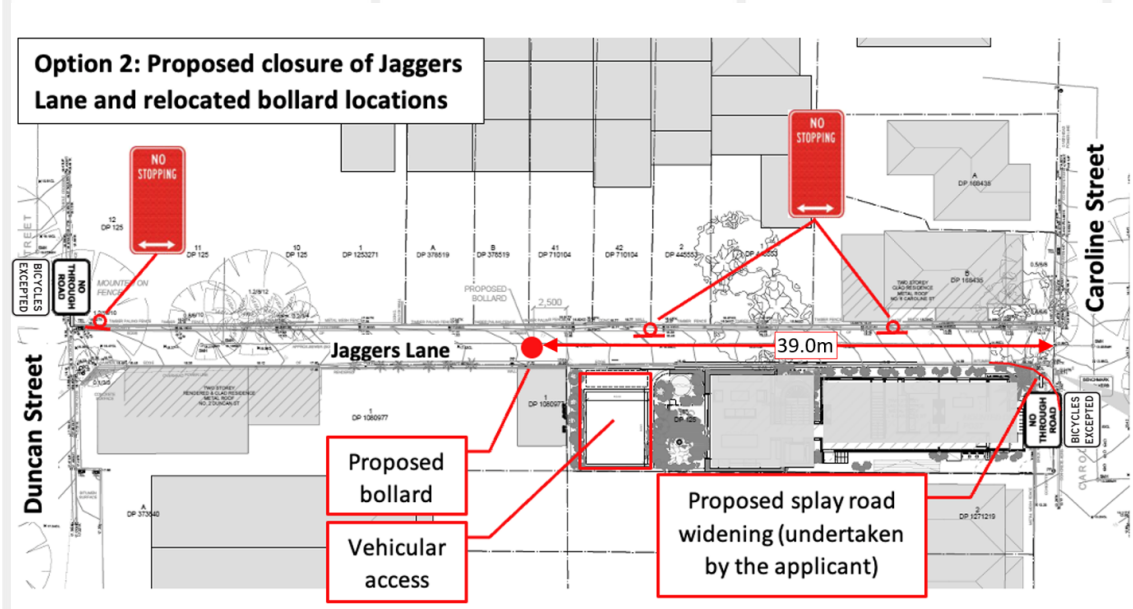
Inner West Council
innerwest.nsw.gov.au
02 9392 5000

council@innerwest.nsw.gov.au
PO Box 14, Petersham NSW 2049

INNER WEST

Features of Option 2:

- A single bollard installed approximately 39m south of Caroline Street, adjacent to the common property alignment between No.39 and 41 Waterview Street.
- Minor widening at the corner of the Caroline Street and Jaggers Lane intersection undertaken by the developer of No.4 Caroline Street to accommodate a splay, improving vehicular access in and out of the laneway. The splay should enable vehicle movements without losing existing on-street parking in Caroline Street.
- Will prevent through movements in the laneway whilst maintaining vehicle access for No.4 Caroline Street as well as vehicle access to the rear of other properties.
- Pedestrian and bicycle movements will be maintained.
- 'No Through Road' sign and 'No Stopping' signs will be installed as shown.



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Re-exhibition of proposed permanent road closure Jaggers Lane, Balmain

Engagement Outcomes Report

28 Oct 2024 – 1 Dec 2024

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Summary

From 28 October to 1 December 2024, Council undertook Community Engagement with residents and businesses near Jaggers Lane inviting to provide feedback on a recent re-exhibition of proposed permanent closure proposal of Jaggers Lane between Duncan Street and Caroline Street, Balmain. Council considered three options for the permanent road closure of Jaggers Lane:

- full road closure of Jaggers Lane to all traffic (Option 1)
- mid-block road closure of Jaggers Lane (Option 2)
- no changes to existing traffic arrangement in Jaggers Lane (Option 3)

A letter was posted to 320 addresses including the owners or residents of affected residents in Waterview Street, Colgate Avenue, Caroline Street, Duncan Street and Jaggers Lane.

The Community Engagement provided a range of opportunities to provide feedback through an online survey (Your Say Inner West), post, email and phone call.

The following criteria were applied during the collation and tallying of the submissions:

- Each property counted as having one vote regardless of the method of submission.
- Submissions from properties outside of the consultation area (except owners identified in Council's records) nor those who did not provide their address, were excluded.
- Duplicate submissions, including multiple submissions from a single property have been excluded.

After applying the above, 7 submissions were removed as they were not from the consultation area. At the close of the survey, a total of 40 submissions were counted, with 33 submissions from the consultation area, and 13 submissions from properties directly impacted by the proposal.

A summary of the survey outcome is tabled below:

Option	Submissions from properties within the consultation area	Submissions from properties directly impacted
Option 1: A full road closure of Jaggers Lane to all traffic	22 (66.7%)	8 (61.5%)
Option 2: A mid-block road closure of Jaggers Lane	4 (12.1%)	2 (15.4%)
Option 3: No changes to the existing traffic arrangements in Jaggers Lane	7 (21.2%)	3 (23.1%)
Total	33 (100.0%)	13 (100%)

Project background

Prior to the public consultation on the recent re-exhibition of proposed permanent closure proposal of Jaggers Lane, a petition was submitted by residents in June 2023 requesting the permanent road closure of Jaggers Lane. Following this, Council undertook a public consultation in late 2023 to invite residents with access to Jaggers Lane and surrounding streets to provide their feedback on the proposed lane closure. Out of the 31 submissions received, 23 supported (74.2 % of submissions), and 8 (25.8% of submissions) opposed the proposal.

At the time, Council was aware of the several Development Applications of properties that would be affected by the permanent closure of the laneway, which were being assessed and incomplete at the time of this Community Engagement.

Upon completion of the road closure investigation, a report outlining the outcome of the consultation and investigation was presented to the Council's Local Traffic Committee (LTC) in March 2024. The LTC approved the proposed road closure subject to the approval of the Traffic Management Plan by Transport for NSW. Subsequently, the closure of Jaggers Lane was deferred at the Council's Ordinary meeting of 9 April 2024. This was as a result of a pending Land and Environment Court Appeal relating to 4 Caroline Street, Balmain which proposed a modified access to Jaggers Lane for approved onsite carparking.

On 30 August 2024 a Court judgment was handed down in the Appeal making it conditional that unless there was a Traffic Management Committee approval for the Jaggers Lane access to 4 Caroline Street there would be no access permitted to the property. The Court judgment included a permanent road closure with a single bollard along the mid-block of Jaggers lane, including a splay at the intersection of Jaggers Lane at Caroline Street to accommodate vehicular access and appropriate signage at no cost to Council.

As this proposal is different from the previous road closure option with two bollards positioned at both ends of Jaggers Lane, Council considered three options, which were:

- Option 1: A full road closure of Jaggers Lane to all traffic;
- Option 2: A mid-block road closure of Jaggers Lane; and
- Option 3: No changes to the existing traffic arrangements in Jaggers Lane.

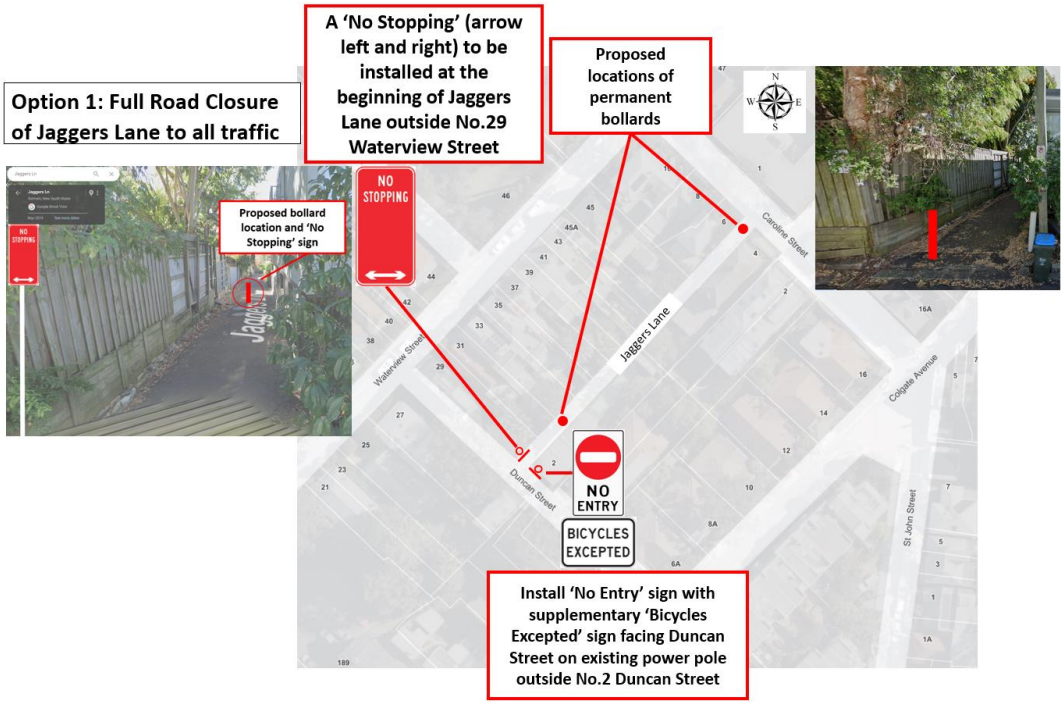
The first two options with their details are shown:

Option 1: Full Road Closure of Jaggers Lane to all traffic

This proposal involves the installation of two bollards positioned at each end of the laneway. This was the same option that was consulted upon in late 2023.

Features of Option 1:

- A bollard installed on Jaggers Lane at Caroline Street
- A bollard installed on Jaggers Lane near the rear of 31 Waterview Street.
- 'No Entry, Bicycles Excepted' signage and 'No Stopping' signage will be installed as indicated in the below plan
- This will remove all vehicle movements in the laneway
- Pedestrian and bicycle movements will be maintained

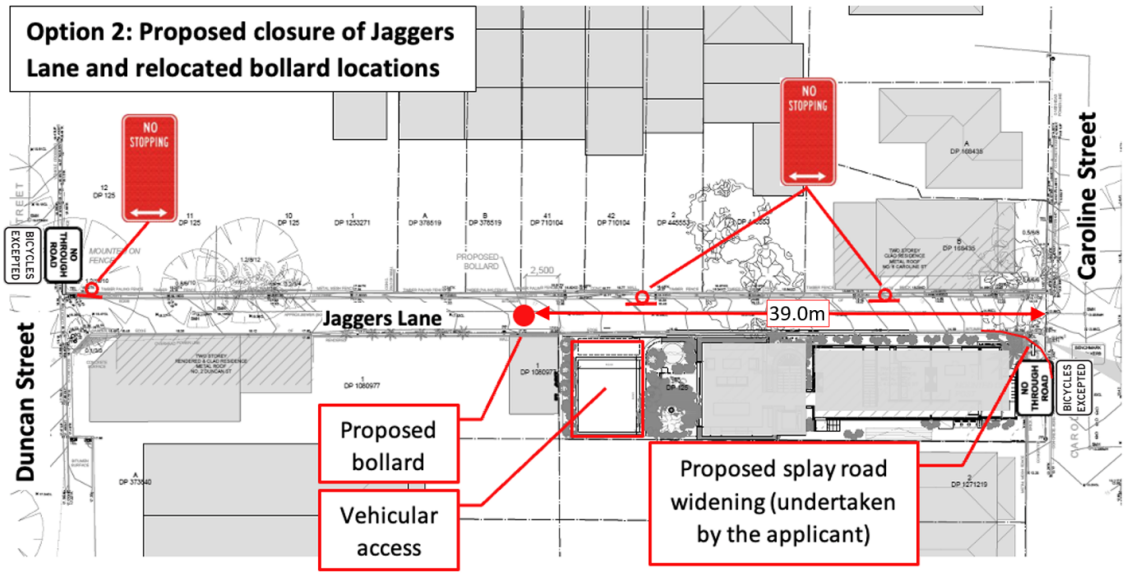


Option 2: Mid-block Road Closure of Jaggers Lane

This proposal involves the installation of a single bollard positioned near the midpoint along Jaggers Lane.

Features of Option 2:

- A single bollard installed approximately 39m south of Caroline Street, adjacent to the common property alignment between No.39 and 41 Waterview Street.
- Minor widening at the corner of the Caroline Street and Jaggers Lane intersection undertaken by the developer of No.4 Caroline Street to accommodate a splay, improving vehicular access in and out of the laneway. The splay should enable vehicle movements without losing existing on-street parking in Caroline Street.
- Will prevent through movements in the laneway whilst maintaining vehicle access for No.4 Caroline Street as well as vehicle access to the rear of other properties.
- Pedestrian and bicycle movements will be maintained.
- 'No Through Road' sign and 'No Stopping' signs will be installed as shown.



Engagement distribution map

The engagement included Residents and businesses within the distribution map below:



Promotion and engagement methods

From 40 submissions received during the public consultation:

Engagement method	Stakeholders engaged
Online survey (Your Say Inner West)	14 submissions received
Email	24 submissions received
Phones	2 submissions received

Summary of feedback

The following criteria were adopted during the collation and tallying of the submissions:

- Each property counted as having one vote regardless of the method of submission.
- Submissions from properties outside of the consultation area (except owners identified in Council's records) nor those who did not provide their address, were excluded.
- Duplicate submissions, including multiple submissions from a single property have been excluded.

After applying the above, 7 submissions were removed as they were not from the consultation area. At the close of the survey, a total of 40 submissions were counted, with 33 submissions from the consultation area, and 13 submissions from properties directly impacted by the proposal.

Feedback received from the public consultation (33 submissions from the consultation area):

We asked	You said	Percentage of response
Re-exhibition of proposed permanent road closure Jaggers Lane, Balmain	Option 1	66.7% (22 responses)
	Option 2	12.1% (4 responses)
	Option 3	21.2% (7 responses)

Feedback received from the public consultation (13 submissions from properties directly impacted by the proposal):

We asked	You said	Percentage of response
Re-exhibition of proposed permanent road closure Jaggers Lane, Balmain	Option 1	61.5% (8 responses)
	Option 2	15.4% (2 responses)
	Option 3	23.1% (3 responses)

Comments received from participants

Comments raised by supporters of Option 1:

Comments	Council response
• Vulnerable people and people with can't move quickly use the laneway to avoid traffic • Mid-block road closure doesn't benefit most of the residents • There will be a risk that other residents seek garage and access to Jaggers Lane if the road closure is not implemented.	Noted
• There has never been "off street" parking in any properties backing on to Jaggers Lane and there is a big risk of property damage due to the width of the lane and size of modern cars. • Due to the lack of a footpath and speeding cars at the front of our home there is no alternative other than to enter and exit in Jaggers Lane	Noted
• Cars and pedestrians cannot safely coexist in the lane • Although there haven't been any accident in last146 years, when the developer driving approximately 2.3 cars per day during the traffic survey, three near misses took place on Jaggers Lane • based on car parking templates representing the 85th percentile vehicle, due to the narrow width of the laneway, manoeuvrability into and out of this area is substandard/poor and hazardous • Blind access from garage doors to Jaggers Lane as it opens directly onto the laneway • Damage to the bollard, cars and property if the road is open to traffic	Noted

• Houses in Waterview Street don't have footpath in Waterview Street, so for the safety reason, they use Jaggers Lane as an alternative footpath	Noted
• Option 2 would be a private driveway for the developer and not benefits the residents	Noted
• The lane is relatively narrow and when cars occupy any space in Jaggers Lane, they block access to cyclists, pedestrians and people who have wheelchairs and/or walking sticks. • Several residents use Jaggers Lane to walk their dogs • It would be nice if Council can improve the landscaping of Jaggers Lane by creating gardens • Having Option 3 would encourage more residents apply for access to the lane for parking access	Noted
• It is proposed to have a key locking removal bollard in case maintenance to the properties is required.	Installing removable bollards with key can make the closure ineffective as pedestrians are still exposed to vehicular traffic. However, it is proposed that the design of the bollards will be such that they could be removed if planned maintenance works require vehicular access to Jaggers Lane.
• Speeding car has been witnessed with high speed which can pose safety hazard to the residents	Noted
• Providing there is an option to remove bollards for access points to renovate or maintenance work etc. • We are happy with the lane remaining open; however, we are against parking in the laneway due to disturbance and safety. There is not enough space to pass a car as a pedestrian in the lane.	Refer to response relating to removable bollards.
• We oppose Option 2, as giving away half the lane is equivalent to giving it all	Noted.

away. It means there is no safe throughfare for pedestrians. It also leaves the south end of the lane open to appeal	
• Vehicle movement has damaged my properties. • The lane is used for social events for surrounding residents, setting up tables and chairs. • I have seen a confrontation between woman with pram and vehicle driver. • Leaving Jaggers Lane open will benefit the developers and enhance the value of their properties at the expense of the amenity of the surrounding residents.	Noted
• Allowing any vehicular access to Jaggers lane, without any sidewalks for pedestrians, will present an unacceptable safety risk to residents. • Propertied without access to sidewalks are heavily reliant on the use of Jaggers Lane to safely move in and out of our property. • There is no way to view oncoming traffic in the laneway when opening the rear door.	Noted

Concerns raised by supporters of Option 2:

Comments	Council response
• Rather than two bollards placed one at each end of the lane, a single bollard can be placed in the middle of the lane. This would prevent through traffic but allow residents to have access to their property and for off-street parking. • The result of swept at the intersection of Caroline Street and Jaggers Lane shows	Noted.

vehicles can enter and exit the laneway in a forward direction. • the turn movements will have no impact on the existing on-street parking along Caroline Street, opposite Jaggers Lane. All on-street car parking will be retained. • Satisfactory movements will be achieved for vehicles entering and exiting the 4 Caroline Street site via the new driveway onto Jaggers Lane. • The closure with two bollards at each end would inflict significant harm on property values, disrupt essential amenities, and there is a lack of any demonstrable benefit to public safety or community well-being.	
• lived in Waterview Street for many years and have rarely encountered a car, bike or pedestrians when walking down the lane • The road- closure proposal is unnecessary and has been a waste of time, in my opinion.	Noted.
• Support Option 2 but without installing 'No Stopping' sign on Laggers Lane	Noted.

Concerns raised by supporters of Option 3:

Comments	Council response
• It is required to be open for resident access, for charging of EV's, workmen etc • This is a public road and should remain open. • It is also of great concern that one approved drive is within the bollards,	Noted. Parking for charging EV car is not permissible in the laneway as it will obstruct vehicular access for others.

and another is in the process of appeal.	
• EV charging could be accessed at rear of property • Tradesmen could utilise rear parking • Who will maintain the lane? Will it become a place to dump rubbish? • What access would Sydney Water / Ausgrid have to their services in the lane? • property values would drop most unfairly. • it could be made a "one way" and "no parking".	• Access to utilities and services have been considered and covered in detail in an earlier report to the Local Traffic Committee in March 2024. • One-way direction will not address the issue regarding the conflict between vehicles and pedestrians.
• Loading and unloading will be difficult with road closure. • Deliveries can be made via Jaggers Lane • Jaggers Lane has been an open road since early 1800s and should remain so. • Access to jaggers Lane has been always safe. • Swept path plan from Duncan Street to 35 Waterview St complies with Inner west requirements.	Noted
• 2024 Land and Environment Court New South Wales; Landmark Investments Australia Pty Ltd v Inner West Council. Principal judgment. "Whilst access to the site changes from Duncan Street to Caroline Street, that Access to the site is still via Jaggers Lane***, which is considered safe***." • Inner west council Local Traffic committee Meeting 18th March 2024, "A traffic counter was deployed, and collected traffic data for 7 days, and found very low levels of traffic. It was	Noted

also found that the vehicle speed was not significant" Traffic Volumes along Jaggers Lane 7- day average (veh/day) 2.3. Traffic speed, average speed (km/h) 12.5km/h. • ROADS ACT 1993 - SECT 6. Right of access to public road by owners of adjoining land. (1) The owner of land adjoining a public road is entitled, as of right, to access (whether on foot, in a vehicle or otherwise) across the boundary between the land and the public road.	
There is no need to waste councils time and resources on this matter any more	Noted

Next steps

A report, including feedback from the community, will be considered by Council's Local Traffic Committee on 9 December 2024. The Committee's recommendations will then be considered by Council where a final decision will be made.
All community members who provided feedback will be advised if they are interested to attend the Traffic Committee.

Item No: **LTC1224(1) Item 5**

Subject: **EMPIRE STREET, HABERFIELD - PROPOSED MOTORBIKE PARKING (GALGADYA-LEICHHARDT WARD/SUMMER HILL ELECTORATE/BURWOOD PAC)**

Prepared By: Charbel El Kazzi - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the proposed 4m length 'Motor Bike Parking' zone between the driveway of No.24 and No.26 Empire Street, Haberfield be not supported due to lack of support from the immediately impacted property.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council has received concerns regarding vehicles obstructing the driveway of No.26 Empire Street, Haberfield. It was reported that the existing 4m kerbspace between No.24 and No.26 Empire Street is insufficient to accommodate a standard sized vehicle without partially obstructing the driveway, and impeding vehicular access to No.26 Empire Steet, Haberfield.

To assist in maintaining vehicular access, Council proposed to install a 4m length 'Motor Bike Only' parking zone. Following consultation, concerns were raised regarding the impact of the restriction from the directly impacted resident and hence the proposal is recommended to not proceed at this time.

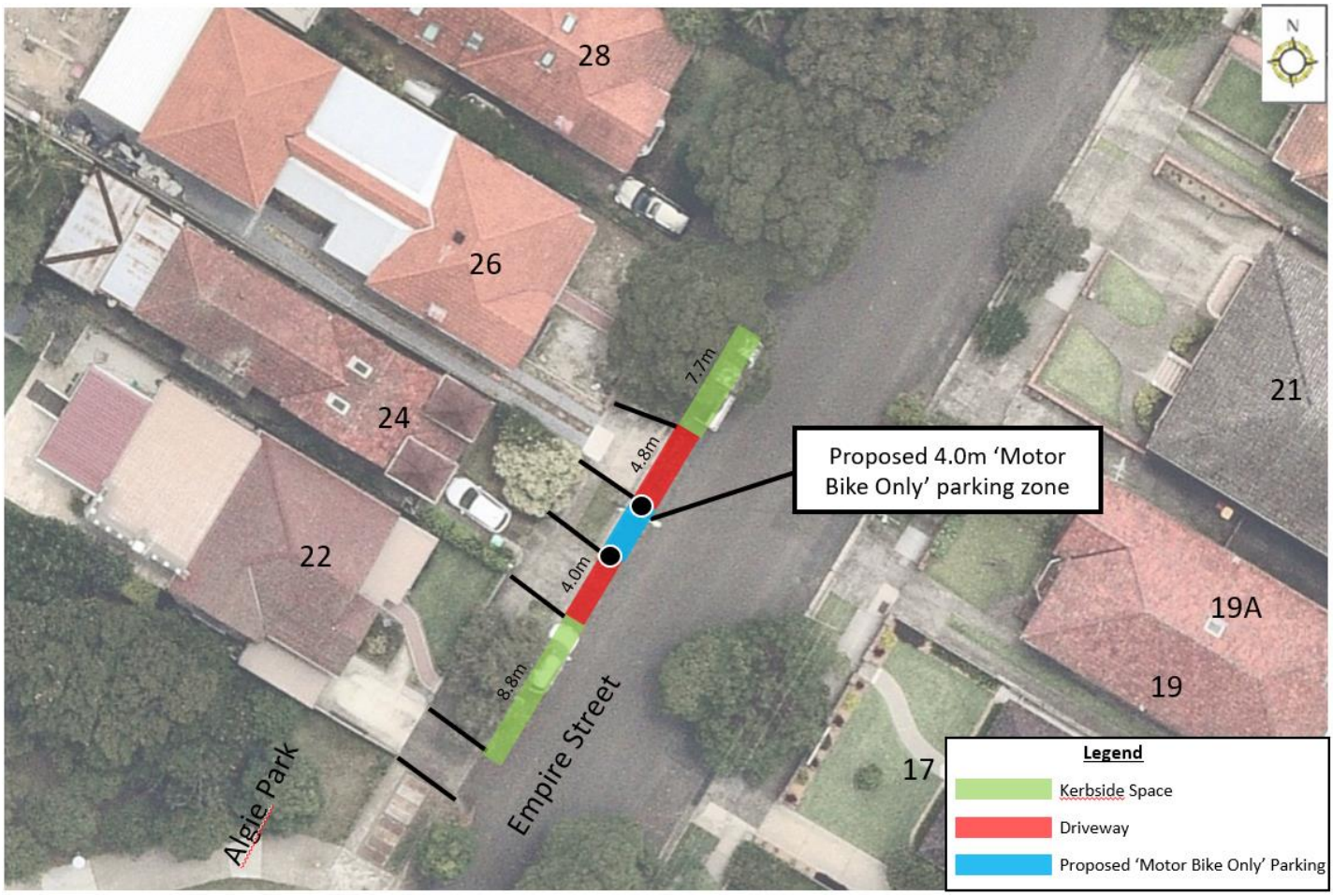
BACKGROUND

Council had received several reports of blocked driveway access for property No.26 Empire Street, Haberfield. Initially, Council advised the resident to install driveway delineation linemarking to alleviate the issue. However, the resident has reported that the issue has persisted after the installation of the lines.

The resident has also highlighted that the site is located adjacent to Algie Park, there are increased demand of parking from sporting events. This has led to increased occurrence of vehicles parking at this location. Photos of vehicles partially and completely obstructing the driveway of No.26 has been provided to Council.

In response, it was proposed to convert a 4m section between No.24 and No.26 Empire Street as a 'motor bike only' parking zone. The below plan shows the proposal to prevent vehicles obstructing driveway access.

Item 5


28
26
24
22
21
19A
19
17
7.7m
4.8m
4.0m
8.8m
Proposed 4.0m 'Motor Bike Only' parking zone
Empire Street
Algie Park
N
Legend
Kerbside Space
Driveway
Proposed 'Motor Bike Only' Parking

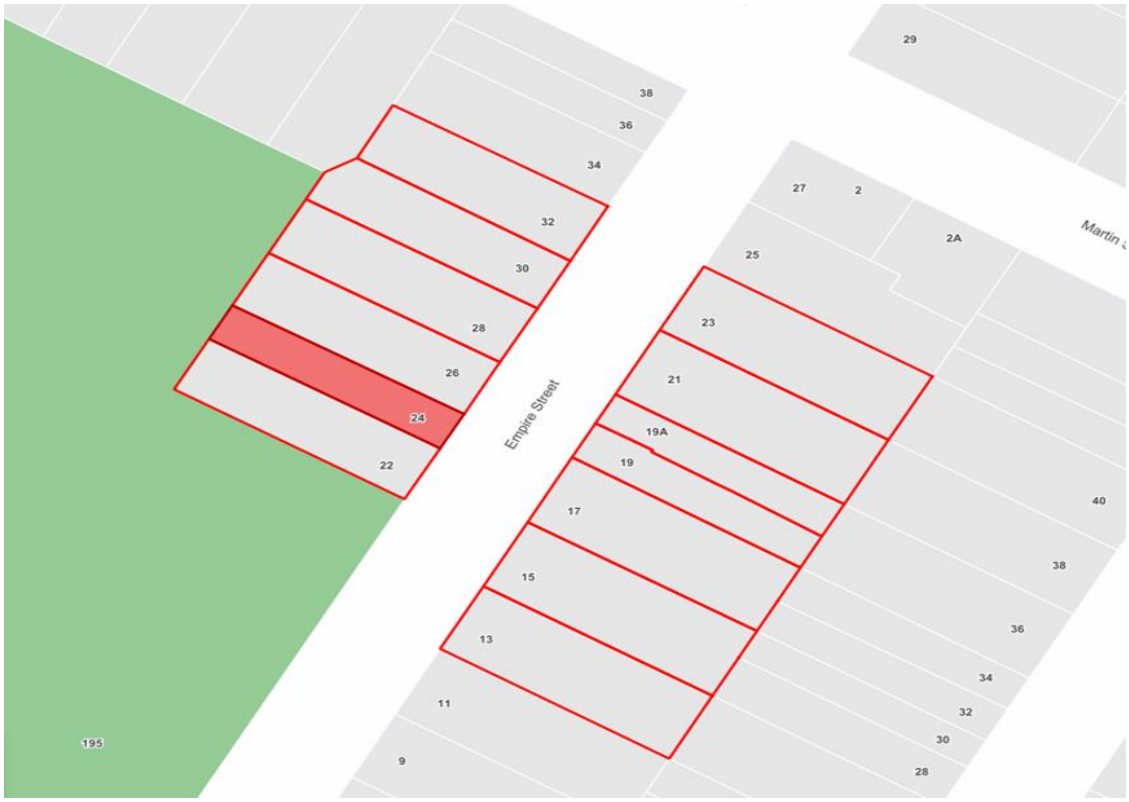

22
24
26
4.0m
4.0m
4.8m
Proposed 'Motor Bike Only' parking zone

DISCUSSION

Council's assessment indicates that the dimensions of the driveways are provided in the diagram above. It has been noted that the driveway of No.26 Empire Street is 4.8m and does allow for a standard sized vehicle to adequately exit in situations where a vehicle may be partially obstructing the driveway.

Observations during different times of the day indicate that outside of sporting events at Algie Park, parking demand was found to be low.

A letter outlining the above proposal was mailed out to the highlighted properties in the diagram below5) submissions were received with four (4) submissions in support and one (1) against the proposal. It is worth noting that opposing submission was received from property No. 24 where the proposed restriction are along the frontage of the property.



Responses to the proposal have been summarised within the table below.

Resident Comments	Officer Comments
- I have no problems with parking in this space and I have had no driveway obstructions over my 20+ years as resident. Extra traffic on the street is infrequent and due to scheduled sport activities at Algie Park for part of year and at specific times. This is a known sporting group and drivers become familiar with the available street parking places and where to park. - I am very concerned about the overall loss of amenity for myself, visitors, and neighbours. This will affect my friends and family with mobility issues. I am particularly distressed by this. - I disagree that the kerb cannot accommodate a 'standard vehicle'. I can park my car safely on the street without obstructing driveways – as can other visitors and neighbours. On a recent walk, I found 9 cases in other Haberfield streets with viable 4m or less parking spaces between a tree and driveway.	Generally, it is a motorist responsibility to ensure they do not park in such a way that it will obstruct vehicular access. Council has issued this proposal in response to frequent reports of obstructed driveway access for No. 26 Empire Street, Haberfield. It is noted that only a few small passenger vehicle models are shorter than 4m in length.
Other signage options might be: "No Parking" signs across 26 Empire St driveway; or physical barriers (like speed humps) at edges of that driveway; or instead of the Motor Bike Parking sign, " Park in Bays Only" or "No Parking 4pm-7pm School days"	The signposting of 'No Parking' across driveways is generally not supported, as a vehicle obstructing a driveway can be enforced under the NSW road rules. Also note Council do not support the installation of physical barriers such as wheel stops as they could become a trip hazard especially at night. The parking bays in Empire Street are currently not line marked and the subject 4m kerbspace does not meet standard parking bay length requirements. A timed 'No Parking' restriction will also be ineffective in preventing illegal parking outside of restriction hours.
Can consideration be given for the proposed restriction to be for 'vehicles under 4m' or 'small car only'.	Please note that 'vehicle under 4m' or 'small vehicle only' parking signage are not approved TfNSW parking signs and are generally installed in private carparks. Also note that 'small cars only' signage are ineffective as they are open to interpretation by motorists.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

ATTACHMENTS

Nil.

Item No: **LTC1224(1) Item 6**

Subject: **EVANS STREET AT MANSFIELD STREET, ROZELLE- PROPOSED RAISED PEDESTRIAN CROSSING**

Prepared By: Charbel El Kazzi - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the attached detailed design plan (No.10307-B) for the proposed new raised pedestrian crossing and kerb extensions on Evans Street at Mansfield Street, Rozelle be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council is planning to improve safety for pedestrians in Evans Street and Mansfield Street, Rozelle by constructing a new raised pedestrian crossing in Evans Street and kerb extensions in Mansfield Street. The proposal aims to improve pedestrian and motorist safety by defining safe pedestrian crossing points, improving sight distances, reducing traffic speeds and conflicts with traffic movements at this location.

This project was one of the recommendations from the Balmain Local Area Traffic Management (LATM) study adopted by Council on 10 October 2023.

It is proposed to adjust the existing 'No Stopping' zones in Evans Street to facilitate implementation of the new raised pedestrian crossing. This will result in the loss of two (2) existing on-street parking spaces in Evans Street. The remainder of the works will generally be within the existing 'No Stopping' zones of Evans Street and Mansfield Street and therefore will not impact parking spaces at these locations.

BACKGROUND

The proposed raised pedestrian crossing and kerb extensions was one of the recommendations from the Balmain LATM study adopted by Council on 10 October 2023. During the study an assessment was undertaken to ensure that the site meets the numerical Warrants for a pedestrian crossing.

The traffic and roadway features of Evans Street at Mansfield Street in Rozelle is tabled below.

Street Name	Evans Street at Mansfield Street
Kerb to Kerb Width (m)	9.7m
Carriageway Type	Two-way, one travel lane each direction
Classification	Collector
Speed Limit	40km/h
85th Percentile Speed	38km/h
Average Traffic Volume	5,377veh/day
Available TfNSW recorded crash history last 5 years (2018-2023)	No reported crashes on Evan Street at Mansfield Street Rozelle
Parking Arrangements	Parking permitted on both sides

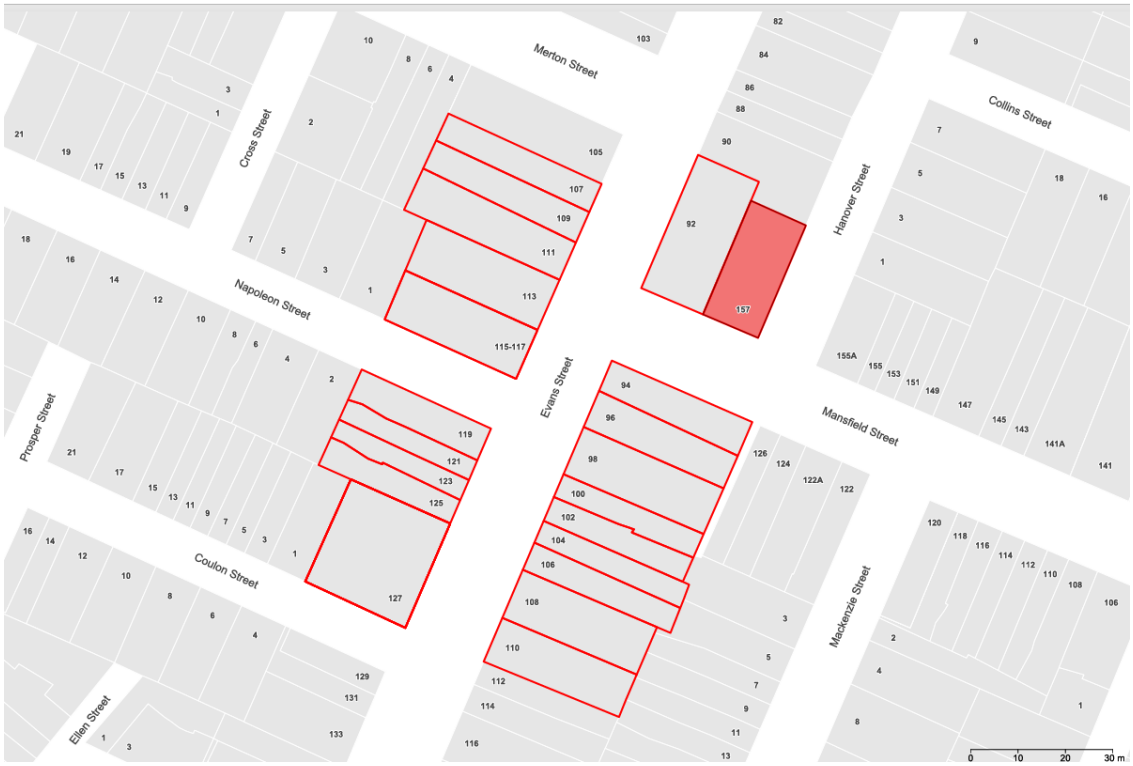
The detailed design plan shown in *Attachment 1* outlines the proposed works on Evans Street at Mansfield Street, Rozelle and includes the following:

- Construct a new raised concrete pedestrian crossing, with 'gutter bridges' comprising heel safe grating to provide safe access over existing kerb and guttering to the new raised pedestrian crossing. Tactile indicators will also be provided either side of the new raised pedestrian crossing.
- Construct landscaped kerb blister islands on both sides of the road adjacent to the new raised pedestrian crossing. Landscaping to be suitable species of native grasses (subject to final design).
- Construct new landscaped kerb blister islands in Mansfield Street (at its intersection with Evans Street) with 'gutter bridges' comprising heel safe grating to provide safe access over existing kerb and gutter, including integrated footpaths and kerb ramps.
- Remove the existing speed hump in Evans Street south of Napoleon Street and replace with new asphalt road pavement.
- Reconstruct some sections of damaged asphalt and concrete footpath with new asphalt and concrete footpath as shown on the plan.
- Extend two existing tree pits adjacent to the works and provide ground cover landscaping.
- Reconstruct sections of kerb and gutter with new concrete kerb and gutter (only where needed to facilitate the works).
- In Evans Street: adjust the existing 'No Stopping' signage and zones adjacent to the new pedestrian crossing to provide suitable sight distance requirements.
- Install associated signage and line marking as required indicated on plan.

The new raised pedestrian crossing will require new lighting to satisfy the required lighting standards. This may involve up to two new flood lights provided on either side of the new raised pedestrian crossing (on existing or new power poles) and will be subject to a lighting and electrical design by a consultant.

DISCUSSION

A letter outlining the above proposal was distributed to highlighted properties within the below map. Two (2) submissions were received in response to this proposal. The comments are summarised within the below table.



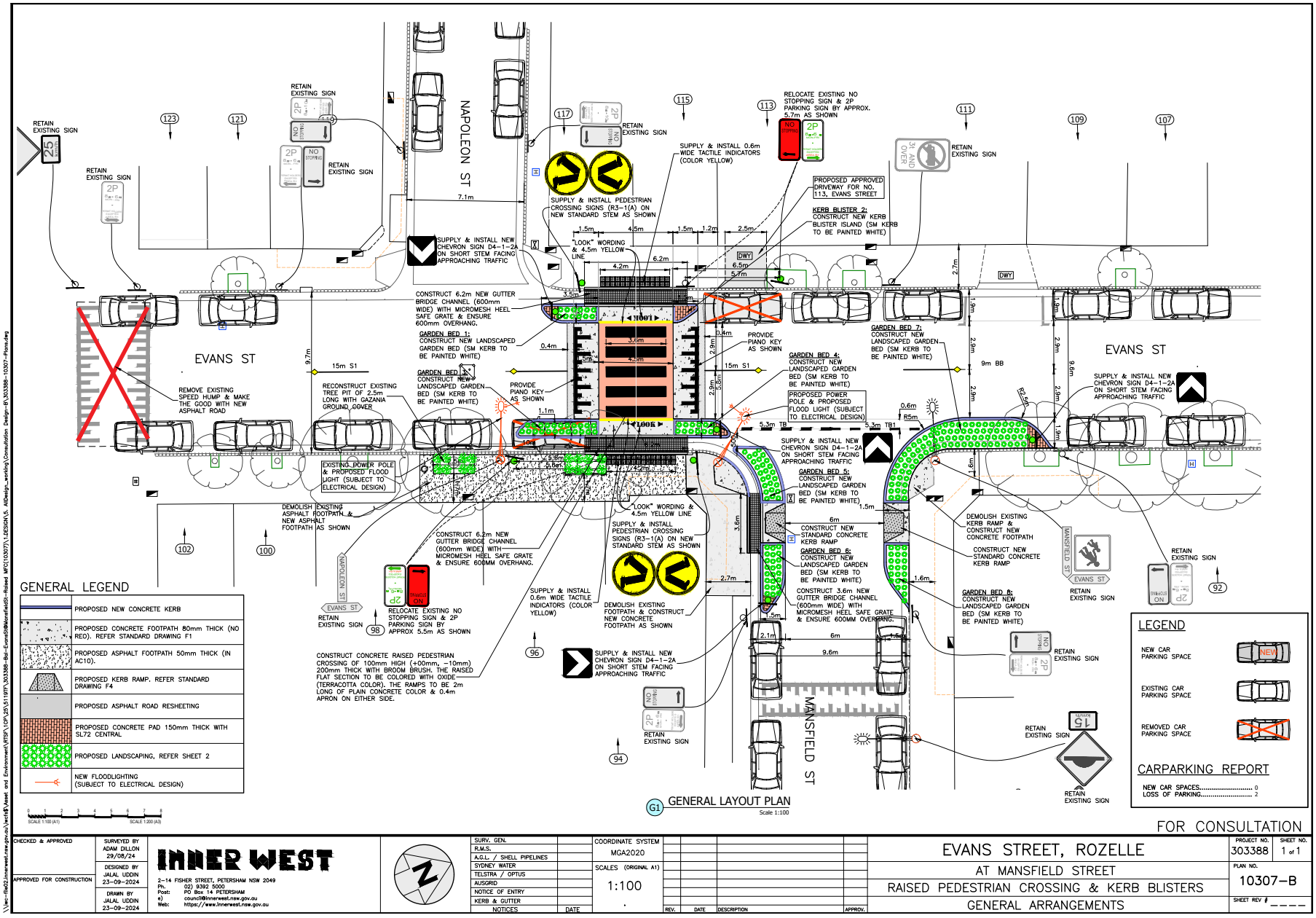
Resident Comments	Officer Feedback
A Construction Certificate was obtained in May 2024 and construction has already progressed, specifically including the construction of the garage opening for 113 Evans Street, Rozelle. Our concerns regarding the proposal by Inner West Council in this instance, include coordination/conflict of: - The proposed civil works and landscaping with that of the works currently underway at 113 Evans Street, Rozelle - Nominated signposting on the northern kerb of Evans Street - Proposed landscaping and impacts of safe sight lines entering/exiting garage of 113 Evans Street, Rozelle - Obtrusive light impacts to 113 Evans Street, Rozelle associated installation of new streetlighting/flood lights - The works intended to be undertaken in the financial year 2024/2025 will have an impact on the works being undertaken at 113 Evans Street, Rozelle	The design has been revised to allow vehicular access to No.113 Evans Street. This has been achieved by reducing the length of the kerb blister island and adjusting the overall footprint (flat-top and ramps) of the raised pedestrian crossing. The signposting has been amended to suit the amended raised pedestrian crossing design and will not impact on the future driveway access to No.113. Lighting levels for all new pedestrian crossing need to meet the required lighting requirements. This is important to ensure safety during night and Council will consider ways to minimize the lighting spill to adjacent properties during the development of the lighting design. It is envisaged the proposed works will be undertaken sometime mid to late 2025. Any works being undertaken adjacent will be considered by the Project Manager at the time to minimise any disruptions.

FINANCIAL IMPLICATIONS

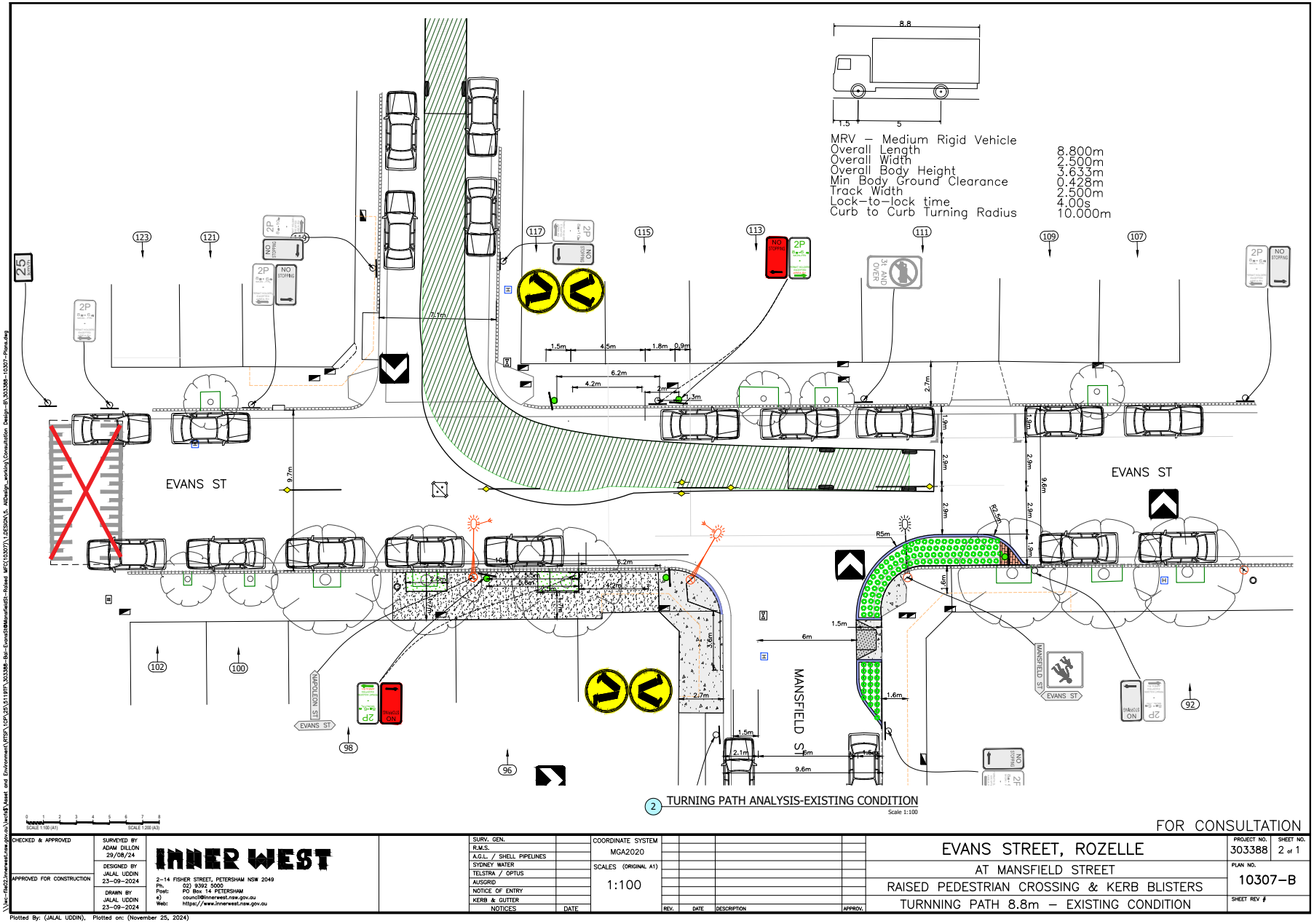
The works are expected to cost approximately $134,000 ex. GST and are to be funded under Council's 2025/26 Capital Works Program.

ATTACHMENTS

1.⇩ Evans Street, Rozelle - Detailed Design
2.⇩ Evans Street, Rozelle - Turning Path Assessment



CHECKED & APPROVED	SURVEYED BY ADAM DILLON 29/08/24	INNER WEST	SURV. GEN.		COORDINATE SYSTEM MGA2020			EVANS STREET, ROZELLE	PROJECT NO. 303388 / SHEET NO. 1 of 1
APPROVED FOR CONSTRUCTION	DESIGNED BY JALAL UDDIN 23-09-2024	2-14 FISHER STREET, PETERSHAM NSW 2049	R.M.S.		SCALES (ORIGINAL A1) 1:100			AT MANSFIELD STREET	PLAN NO. 10307-B
	DRAWN BY JALAL UDDIN 23-09-2024	Ph. 02) 9392 5000	A.G.L. / SHELL PIPELINES					RAISED PEDESTRIAN CROSSING & KERB BLISTERS	
		Post: PO Box 14 PETERSHAM	SYDNEY WATER					GENERAL ARRANGEMENTS	SHEET REV
		e) council@innerwest.nsw.gov.au	TELSTRA / OPTUS						
		Web: https://www.innerwest.nsw.gov.au	AUSGRID						
			NOTICE OF ENTRY						
			KERB & GUTTER						
			NOTICES	DATE	REV.	DATE	DESCRIPTION	APPROV.	


MRV – Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 10.000m
EVANS ST
MANSFIELD ST
NAPOLEON ST
2 TURNING PATH ANALYSIS-EXISTING CONDITION
Scale 1:100
FOR CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 29/08/24
DESIGNED BY JALAL UDDIN 23-09-2024
DRAWN BY JALAL UDDIN 23-09-2024
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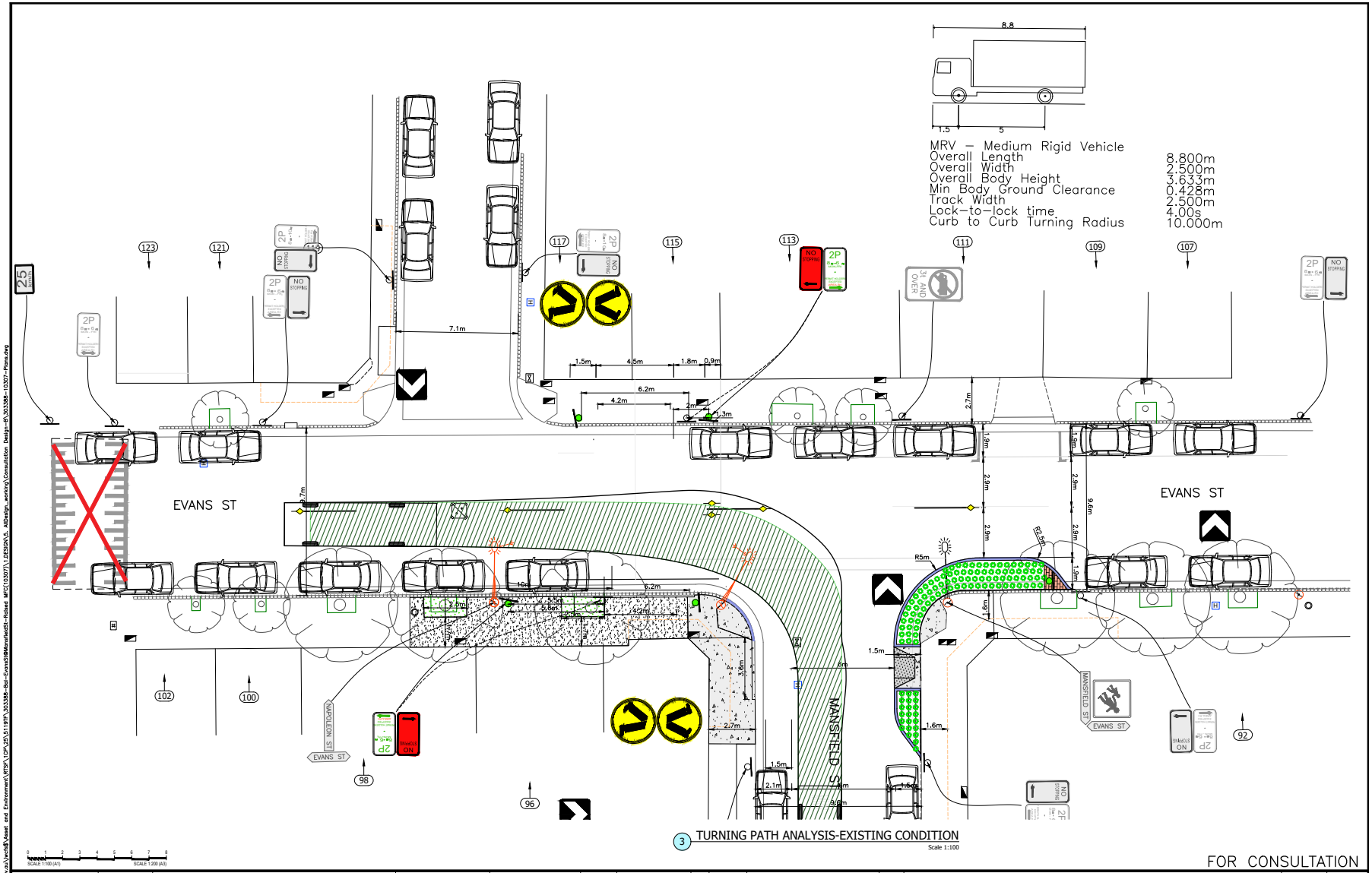
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH 8.8m – EXISTING CONDITION
PROJECT NO. 303388
SHEET NO. 2 of 1
PLAN NO. 10307-B
SHEET REV #
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)


MRV – Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 10.000m
EVANS ST
MANSFIELD ST
NAPOLEON ST
3 TURNING PATH ANALYSIS-EXISTING CONDITION
Scale 1:100
FOR CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 29/08/24
DESIGNED BY JALAL UDDIN 23-09-2024
DRAWN BY JALAL UDDIN 23-09-2024
INNER WEST
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TELSTRA / OPTUS
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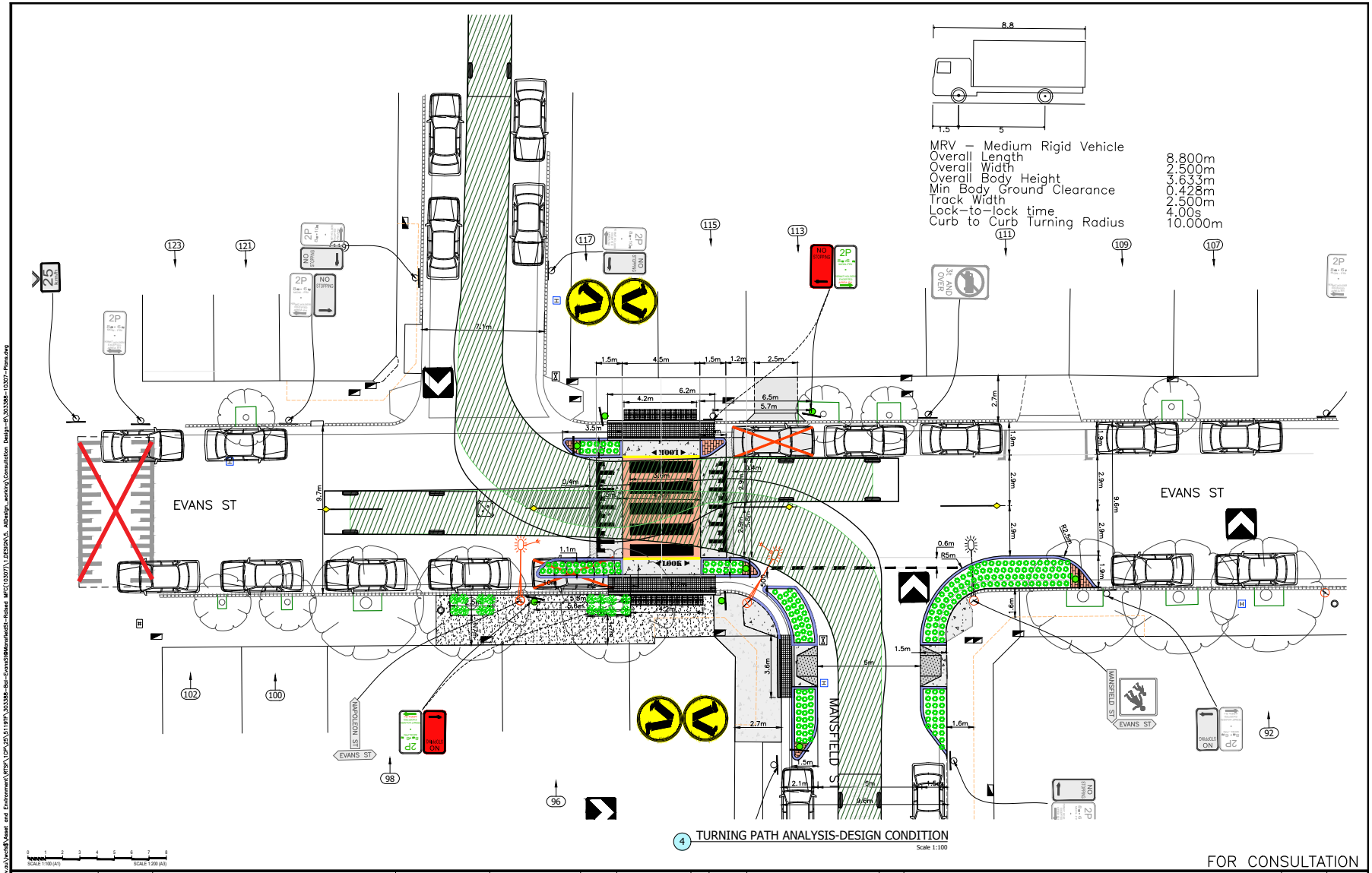
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH 8.8m – EXISTING CONDITION (2)
PROJECT NO. 303388
SHEET NO. 3 of 1
PLAN NO. 10307-B
SHEET REV #
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)


8.8
1.5
5
MRV – Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock–to–lock time 4.00s
Curb to Curb Turning Radius 10.000m
EVANS ST
EVANS ST
MANSFIELD ST
NAPOLEON ST
EVANS ST
MANSFIELD ST
EVANS ST
4 TURNING PATH ANALYSIS-DESIGN CONDITION
Scale 1:100
FOR CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 29/08/24
DESIGNED BY JALAL UDDIN 23-09-2024
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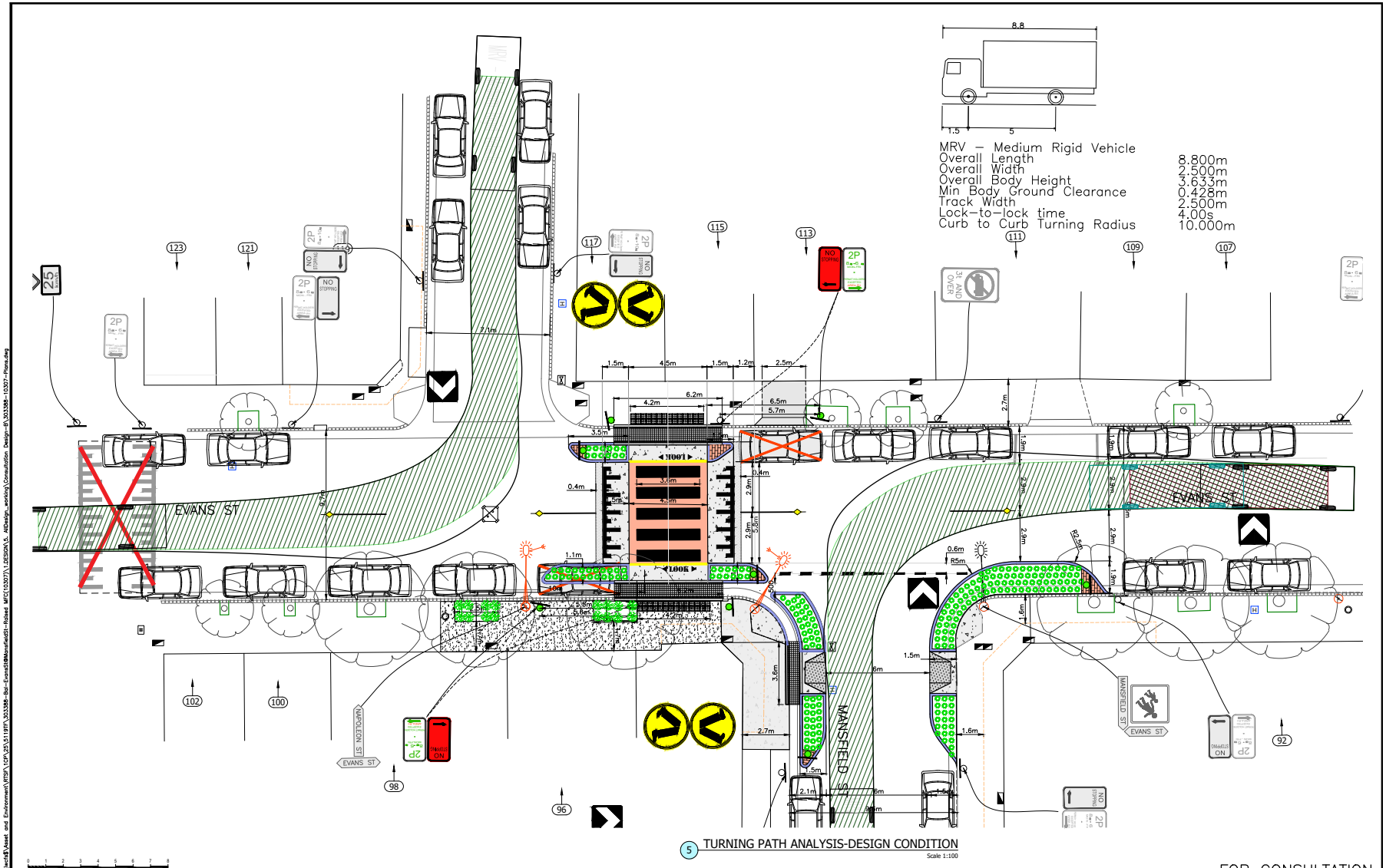
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH 8.8m – DESIGN CONDITION
PROJECT NO. 303388
SHEET NO. 4 of 1
PLAN NO. 10307–B
SHEET REV #
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)


8.8
1.5
5
MRV – Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock–to–lock time 4.00s
Curb to Curb Turning Radius 10.000m
EVANS ST
MANSFIELD ST
MADDISON ST
5 TURNING PATH ANALYSIS-DESIGN CONDITION
Scale 1:100
FOR CONSULTATION
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CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
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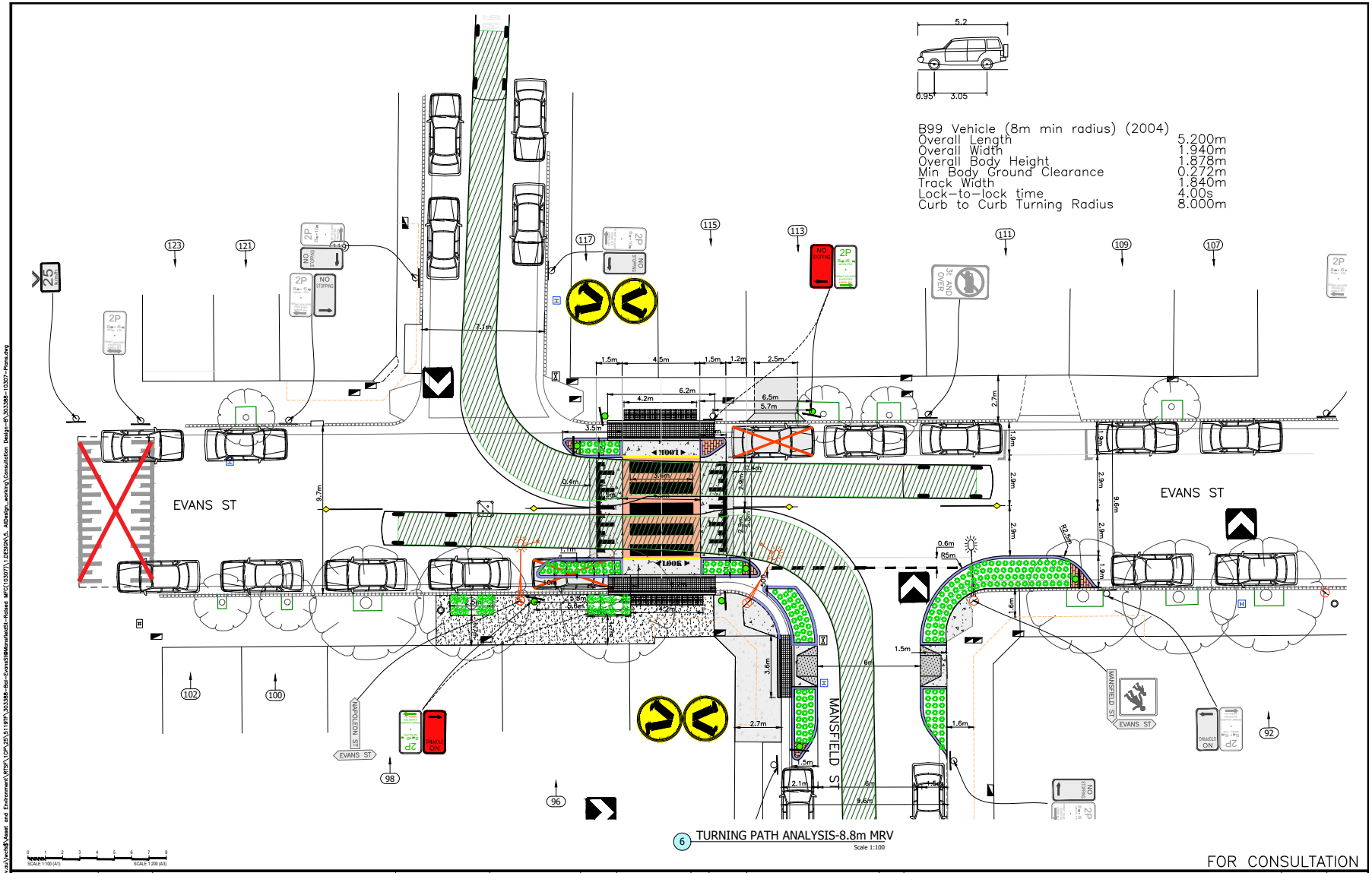
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH 8.8m – DESIGN CONDITION (2)
PROJECT NO. 303388
SHEET NO. 5 of 1
PLAN NO. 10307–B
SHEET REV #
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)


B99 Vehicle (8m min radius) (2004)
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.878m
Min Body Ground Clearance 0.272m
Track Width 1.840m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 8.000m
EVANS ST
EVANS ST
MANSFIELD ST
NAPOLEON ST
EVANS ST
MANSFIELD ST
EVANS ST
6 TURNING PATH ANALYSIS-8.8m MRV
Scale 1:100
FOR CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 29/08/24
DESIGNED BY JALAL UDDIN 23-09-2024
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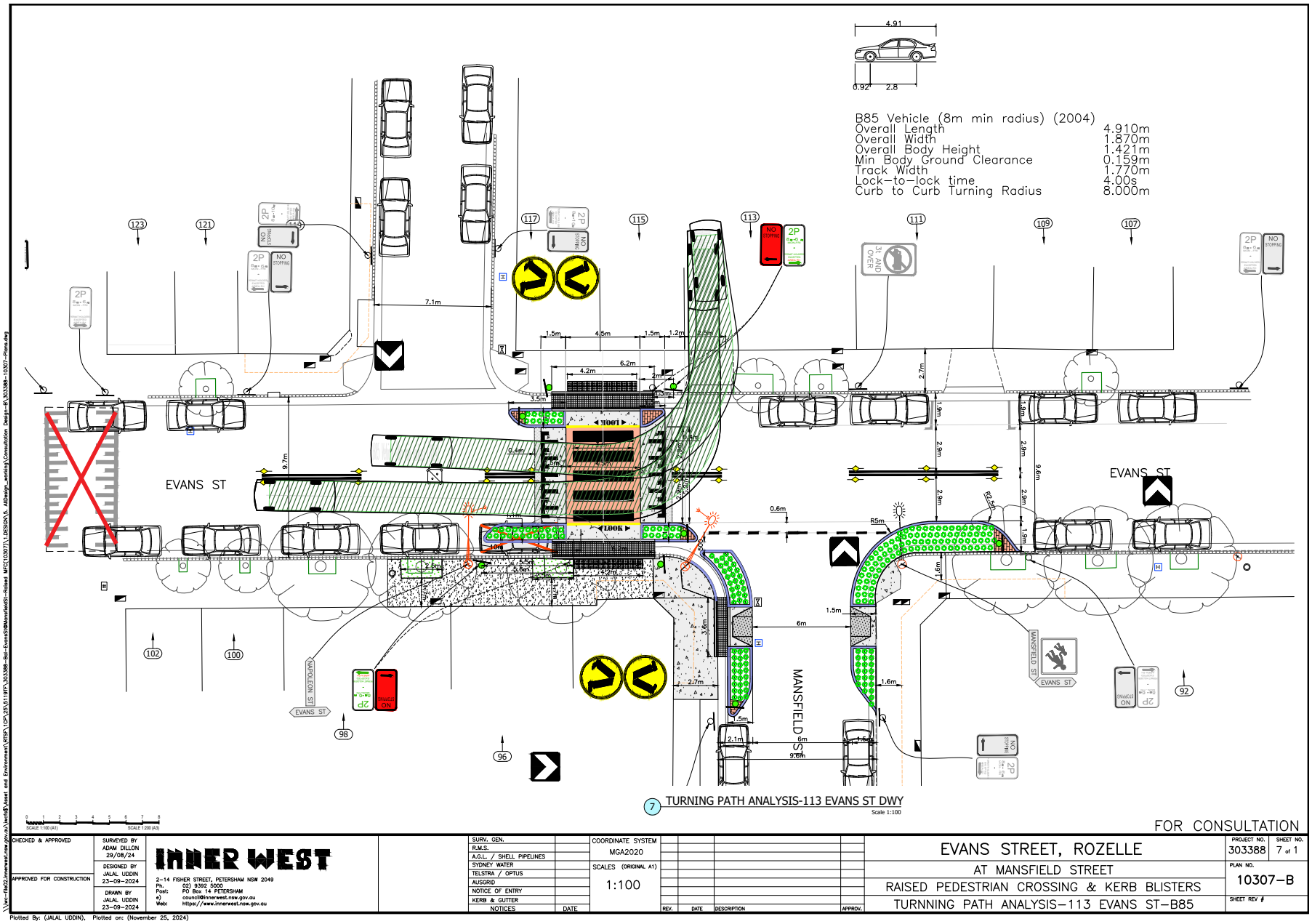
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH ANALYSIS-B99 CAR
PROJECT NO. 303388
SHEET NO. 6 of 1
PLAN NO. 10307-B
SHEET REV #
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)


B85 Vehicle (8m min radius) (2004)
Overall Length 4.910m
Overall Width 1.870m
Overall Body Height 1.421m
Min Body Ground Clearance 0.159m
Track Width 1.770m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 8.000m
EVANS ST
MANSFIELD ST
LOOK
7 TURNING PATH ANALYSIS-113 EVANS ST DWY
Scale 1:100
FOR CONSULTATION
EVANS STREET, ROZELLE
AT MANSFIELD STREET
RAISED PEDESTRIAN CROSSING & KERB BLISTERS
TURNNING PATH ANALYSIS-113 EVANS ST-B85
PROJECT NO. 303388
SHEET NO. 7 of 1
PLAN NO. 10307-B
SHEET REV #
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CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
Plotted By: (JALAL UDDIN), Plotted on: (November 25, 2024)

Item No: **LTC1224(1) Item 7**

Subject: **ELIZABETH STREET, ASHFIELD (FREDERICK STREET TO NIXON AVENUE)-PEDESTRIAN AND PARKING FACILITY IMPROVEMENTS (DJARRAWUNANG-ASHFIELD WARD/SUMMER HILL ELECTORATE/BURWOOD PAC)**

Prepared By: Boris Muha - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the detailed design plans (10295-1 sheets 1-2, 10295-2 & 10295-3) for proposed new kerb realignment, kerb extension and kerb blister islands with in-built kerb ramps, with associated signs and line marking in Elizabeth Street, between Frederick Street and Nixon Avenue, Ashfield, as shown in *Attachments 1, 2* and *3* respectively, be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council is planning to improve safety in Elizabeth Street (between Frederick St to Nixon Avenue), Ashfield by constructing a new kerb realignment, kerb extension and kerb blister islands with in-built kerb ramps along this section of road.

The proposal aims to improve pedestrian and motorist safety by better defining safe pedestrian crossing points, providing more road width for parking and addressing pedestrian safety and driver behaviour at this location.

BACKGROUND

The above proposed pedestrian and parking improvements form part of an overall footpath and road restoration treatment along Elizabeth Street, between Frederick Street and Bland Street.

The pedestrian facilities are proposed under the Pedestrian Access Mobility Plan 2020 to provide additional pedestrian cross-over points in Elizabeth Street between Frederick Street and Bland Street. Elizabeth Street at Frederick Street and Bland Street are signalised intersections with existing pedestrian crossing facilities.

Vehicles in practice park over a low-level footpath on the northern side of Elizabeth Street, between Frederick Street and Eccles Avenue to avoid being hit by passing vehicles and buses turning left from Frederick Street.

DISCUSSION

The following information is provided in discussion.

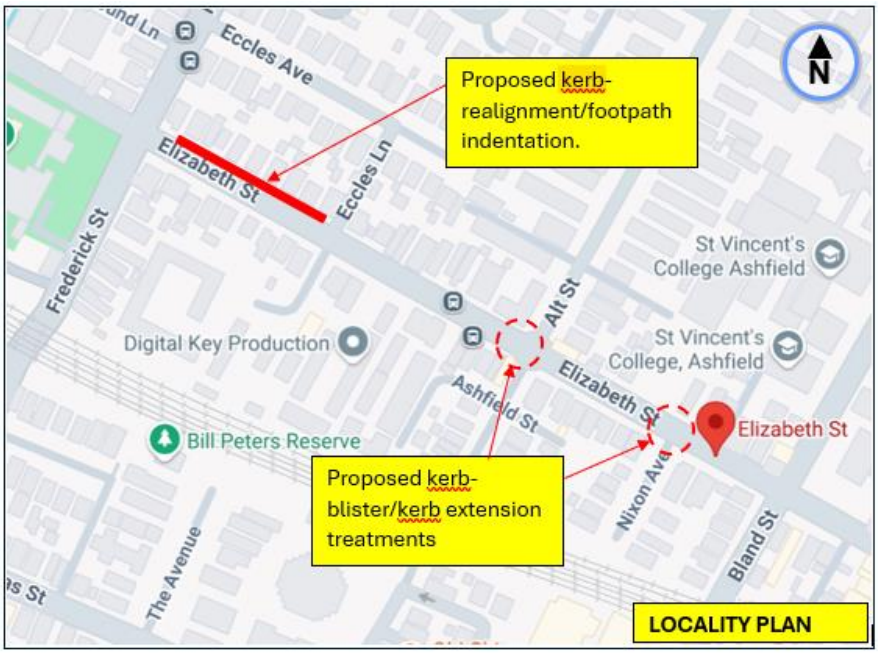


Figure 1. Locality Plan

Street Name	**Elizabeth Street (Frederick Street to Nixon Avenue).**
Carriageway width (m) kerb to kerb	Approx. 10m.
Carriageway type	Two-way, one travel lane each direction.
Classification	Regional Road
Speed Limit km/h	50
85th percentile speed km/h	48.3 to 51.9
Vehicles per day (vpd)	11,000-13000
Last available 5 years of TfNSW recorded crash history	(2) in last 5 years within the above section of Elizabeth Street. Any accidents at the Frederick Street signalised intersection are not included. (1) X 2023, west of Alt Street, RUM 41, U-turn into object, (tow away)-non-casualty. (1) X 2023, east of Alt Street, RUM 73,off road right, (tow away)-non casualty.
Parking arrangements	Parking exits to both sides of the street.
Side street(nearest or along)	Frederick Street, Benalla Avenue, Eccles Lane, Alt Street and Nixon Avenue.

Table 1. Road Network detail.

The Plan

The following works are proposed and are illustrated on the attached plans:

Elizabeth Street (between Frederick Street and Eccles Lane), Ashfield (Plan No. 10295-1 sheet 1 and 2):- see Attachment 1.

- Realign the existing kerb on the northern side of Elizabeth Street, (between Frederick Street and Eccles Lane), Ashfield to provide more space for parking and moving traffic.
- Construct a new kerb extension and kerb blister in Elizabeth Street at Eccles Lane, to reduce crossing distances and better define safe pedestrian crossing points.
- Install associated signage with the works as required and were shown on plans.

Elizabeth Street at Alt Street, Ashfield (Plan No. 10295-2): see Attachment 2.

- Construct a new kerb extension in Elizabeth Street at Alt Street, to reduce crossing distances and better define safe pedestrian crossing points.
- Install associated signage with the works as required and were shown on plans.

Elizabeth Street at Nixon Avenue, Ashfield (Plan No. 10295-3): see Attachment 3.

- Construct new kerb blister islands in Elizabeth Street at Nixon Avenue, to reduce crossing distances and better define safe pedestrian crossing points.
- Install associated signage with the works as required and were shown on plans.

Parking Changes

There will be a loss of one (1) legal parking space as part of the proposal to install a kerb blister with an in-built kerb ramp at Nixon Avenue as shown in Plan No. 10295-3.

Streetlighting

There are no plans to alter the existing lighting in the street as the lighting levels comply with standards.

Other Information

The kerb re-alignment or footpath indentation of 0.5m on the northern side of Elizabeth Street, will allow safe and proper parking of vehicles, and provide additional road width for traffic traveling east bound. Adequate footpath width is still maintained.

FINANCIAL IMPLICATIONS

The project is listed in Council's Traffic Facilities Capital Works program to be carried out in 2024/2025, subject to funding. The traffic components of this work under this report are estimated in total of $65,000.

CONSULTATION

A letter outlining the proposal was mailed out to (25) directly affected properties (56 letters) in Elizabeth Street between Frederick Street and Nixon Avenue, requesting residents' views regarding the proposal. (See map of consultation areas Figure 2,3 and 4).

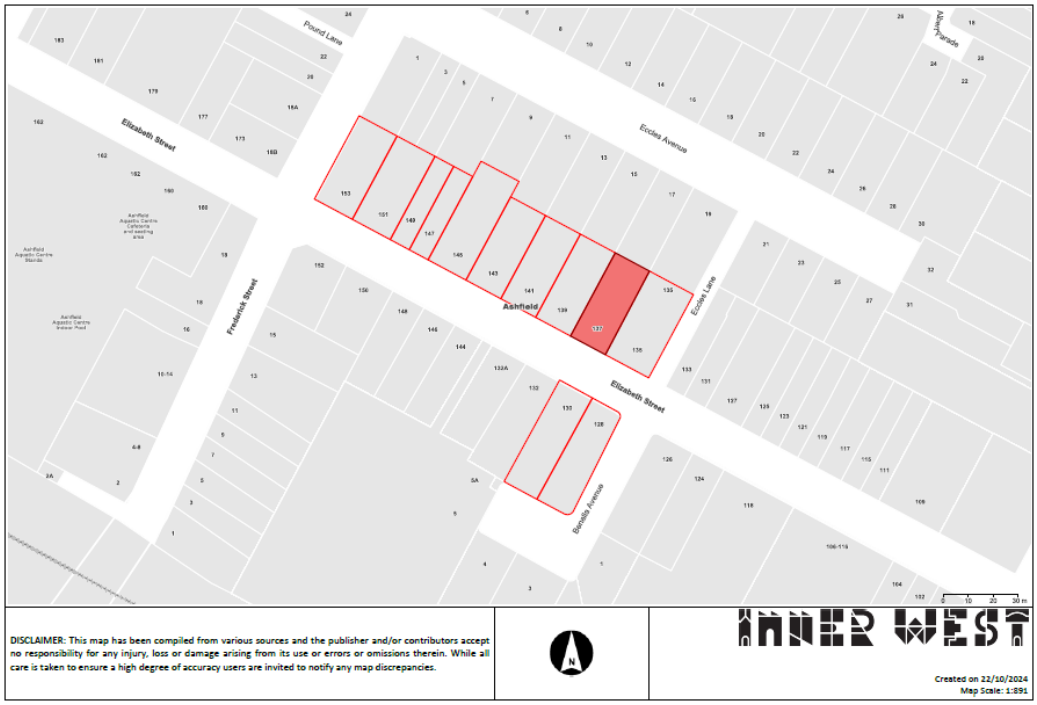


Figure 2. Map on Consultation Area. -Elizabeth Street (Frederick Street to Eccles Avenue)

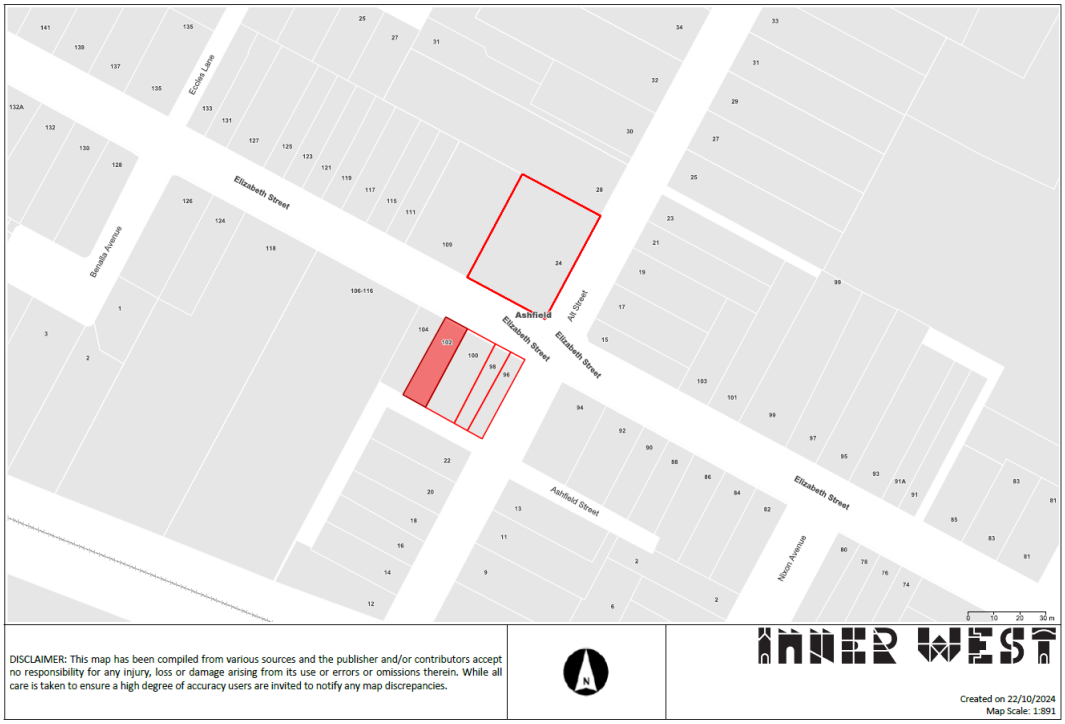


Figure 3. Map on Consultation Area. -Elizabeth Street at Alt Street.

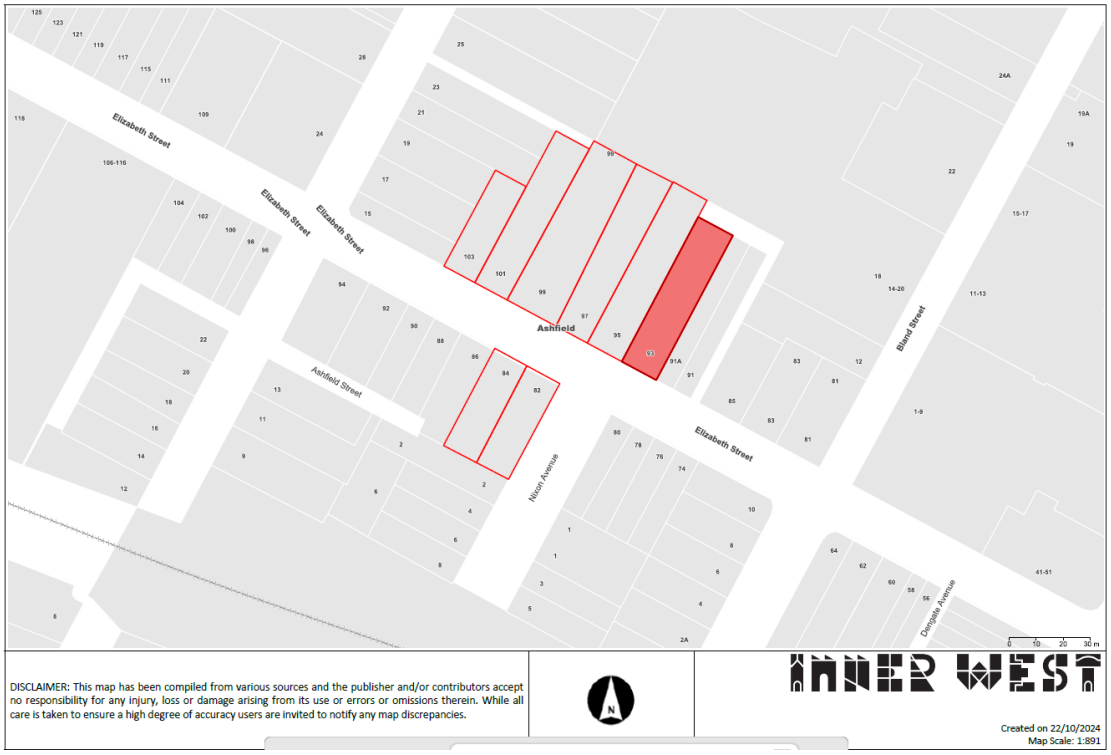


Figure 4. Map on Consultation Area. -Elizabeth Street at Nixon Avenue.

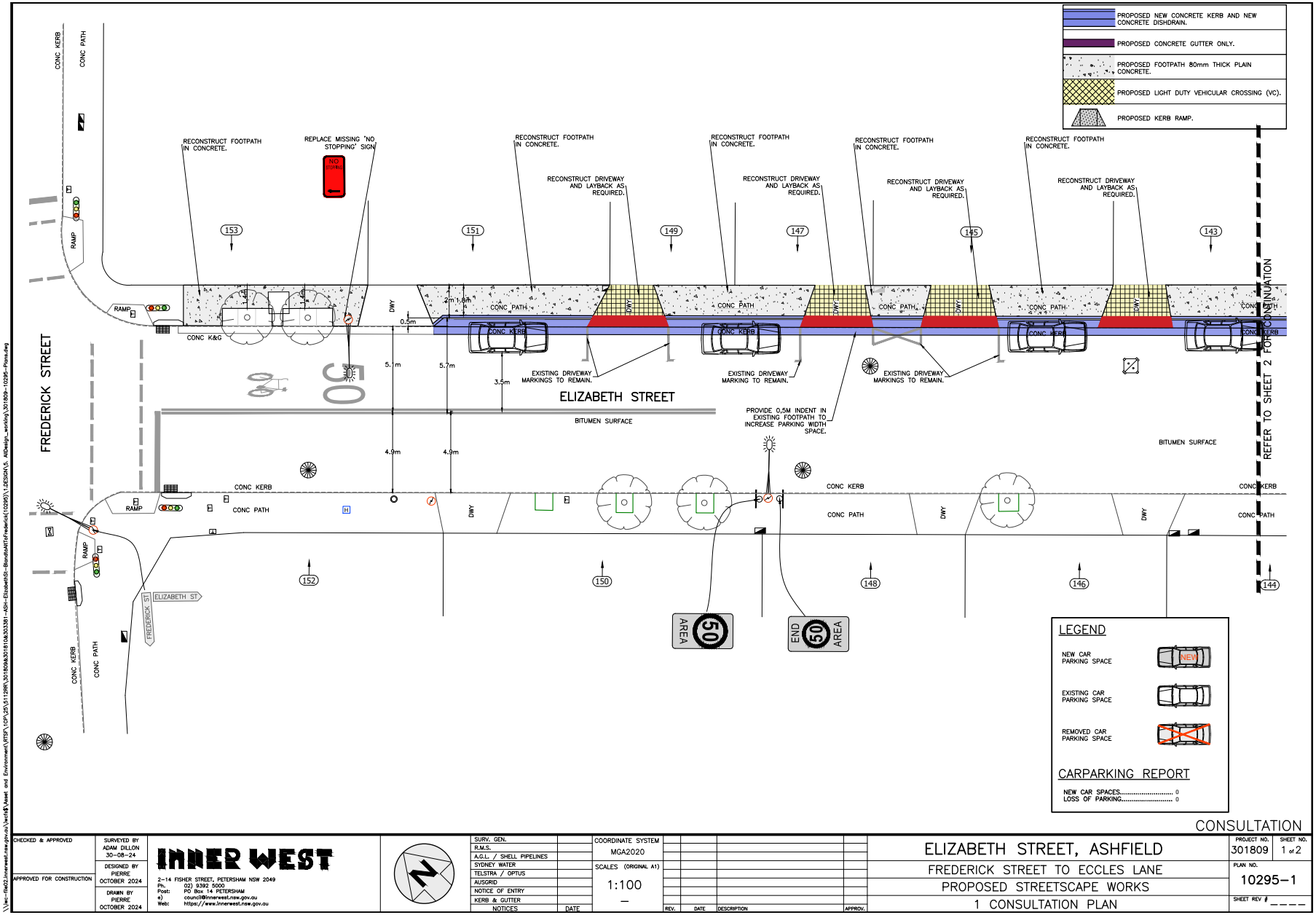
No Resident comments were received.

CONCLUSION

It is recommended that the detailed design plans (10295-1 sheets 1-2, 10295-2 & 10295-3) for proposed new kerb realignment, kerb extension and kerb blister islands with in-built kerb ramps, with associated signs and line marking in Elizabeth Street, between Frederick Street and Nixon Avenue, Ashfield, as shown in Attachments 1,2 and 3 respectively, be approved.

ATTACHMENTS

1.⇩ Plans 10295-1 sheets 1&2-Elizabeth Street (Frederick Street to Eccles Lane.)
2.⇩ Plans 10295-2, Elizabeth Street at Alt Street, Ashfield.
3.⇩ Plans 10295-3, Elizabeth Street at Nixon Avenue, Ashfield.


PROPOSED NEW CONCRETE KERB AND NEW CONCRETE DISHDRAIN.
PROPOSED CONCRETE GUTTER ONLY.
PROPOSED FOOTPATH 80mm THICK PLAIN CONCRETE.
PROPOSED LIGHT DUTY VEHICULAR CROSSING (VC).
PROPOSED KERB RAMP.
RECONSTRUCT FOOTPATH IN CONCRETE.
REPLACE MISSING 'NO STOPPING' SIGN
RECONSTRUCT DRIVEWAY AND LAYBACK AS REQUIRED.
FREDERICK STREET
ELIZABETH STREET
CONC KERB
CONC PATH
CONC K&G
RAMP
DWY
BITUMEN SURFACE
EXISTING DRIVEWAY MARKINGS TO REMAIN.
PROVIDE 0.5M INDENT IN EXISTING FOOTPATH TO INCREASE PARKING WIDTH SPACE.
REFER TO SHEET 2 FOR CONTINUATION
50 AREA
END 50 AREA
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 0
CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 30-08-24
DESIGNED BY PIERRE OCTOBER 2024
DRAWN BY PIERRE OCTOBER 2024
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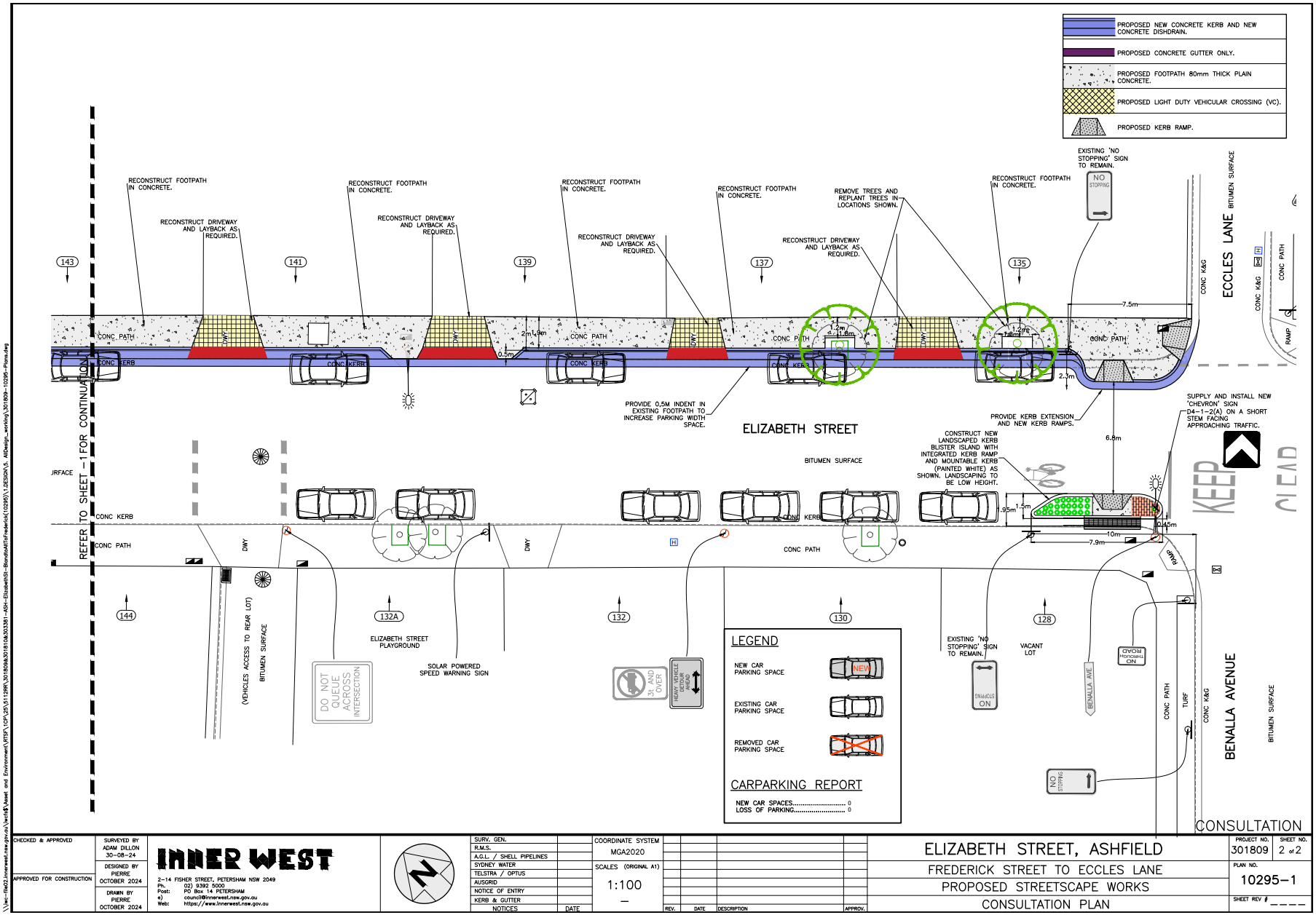
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV. DATE DESCRIPTION APPROV.
ELIZABETH STREET, ASHFIELD
FREDERICK STREET TO ECCLES LANE
PROPOSED STREETSCAPE WORKS
1 CONSULTATION PLAN
PROJECT NO. 301809
SHEET NO. 1 of 2
PLAN NO. 10295-1
SHEET REV #


PROPOSED NEW CONCRETE KERB AND NEW CONCRETE DISHDRAIN.
PROPOSED CONCRETE GUTTER ONLY.
PROPOSED FOOTPATH 80mm THICK PLAIN CONCRETE.
PROPOSED LIGHT DUTY VEHICULAR CROSSING (VC).
PROPOSED KERB RAMP.
RECONSTRUCT FOOTPATH IN CONCRETE.
RECONSTRUCT DRIVEWAY AND LAYBACK AS REQUIRED.
REMOVE TREES AND REPLANT TREES IN LOCATIONS SHOWN.
EXISTING 'NO STOPPING' SIGN TO REMAIN.
ELIZABETH STREET
ECCLES LANE
BITUMEN SURFACE
CONC K&G
CONC PATH
CONC KERB
DWY
RAMP
PROVIDE 0.5M INDENT IN EXISTING FOOTPATH TO INCREASE PARKING WIDTH SPACE.
PROVIDE KERB EXTENSION AND NEW KERB RAMPS.
SUPPLY AND INSTALL NEW 'CHEVRON' SIGN D4-1-2(A) ON A SHORT STEM FACING APPROACHING TRAFFIC.
CONSTRUCT NEW LANDSCAPED KERB BLISTER ISLAND WITH INTEGRATED KERB RAMP AND MOUNTABLE KERB (PAINTED WHITE) AS SHOWN. LANDSCAPING TO BE LOW HEIGHT.
REFER TO SHEET - 1 FOR CONTINUATION
143
141
139
137
135
144
132A
132
130
128
ELIZABETH STREET PLAYGROUND
SOLAR POWERED SPEED WARNING SIGN
DO NOT QUEUE ACROSS INTERSECTION
(VEHICLES ACCESS TO REAR LOT)
VACANT LOT
BENALLA AVE
BENALLA AVENUE
TURF
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 0
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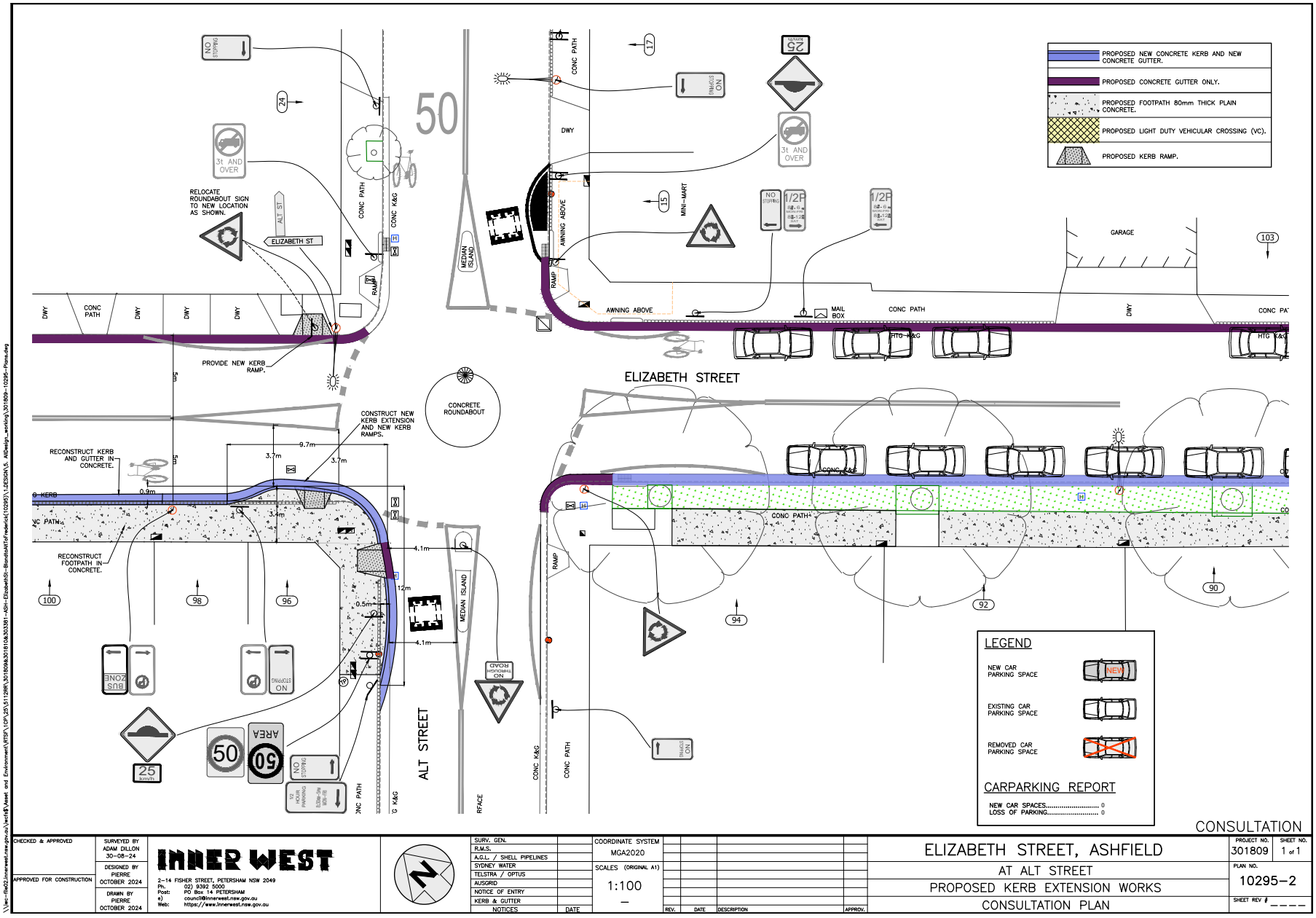
ELIZABETH STREET, ASHFIELD
FREDERICK STREET TO ECCLES LANE
PROPOSED STREETSCAPE WORKS
CONSULTATION PLAN
PROJECT NO. 301809
SHEET NO. 2 of 2
PLAN NO. 10295-1
SHEET REV #


PROPOSED NEW CONCRETE KERB AND NEW CONCRETE GUTTER.
PROPOSED CONCRETE GUTTER ONLY.
PROPOSED FOOTPATH 80mm THICK PLAIN CONCRETE.
PROPOSED LIGHT DUTY VEHICULAR CROSSING (VC).
PROPOSED KERB RAMP.
ELIZABETH STREET
ALT STREET
RELOCATE ROUNDABOUT SIGN TO NEW LOCATION AS SHOWN.
PROVIDE NEW KERB RAMP.
CONSTRUCT NEW KERB EXTENSION AND NEW KERB RAMPS.
CONCRETE ROUNDABOUT
RECONSTRUCT KERB AND GUTTER IN CONCRETE.
RECONSTRUCT FOOTPATH IN CONCRETE.
MEDIAN ISLAND
CONC PATH
DWY
AWNING ABOVE
MAIL BOX
GARAGE
MINI-MART
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 0
CONSULTATION
ELIZABETH STREET, ASHFIELD
AT ALT STREET
PROPOSED KERB EXTENSION WORKS
CONSULTATION PLAN
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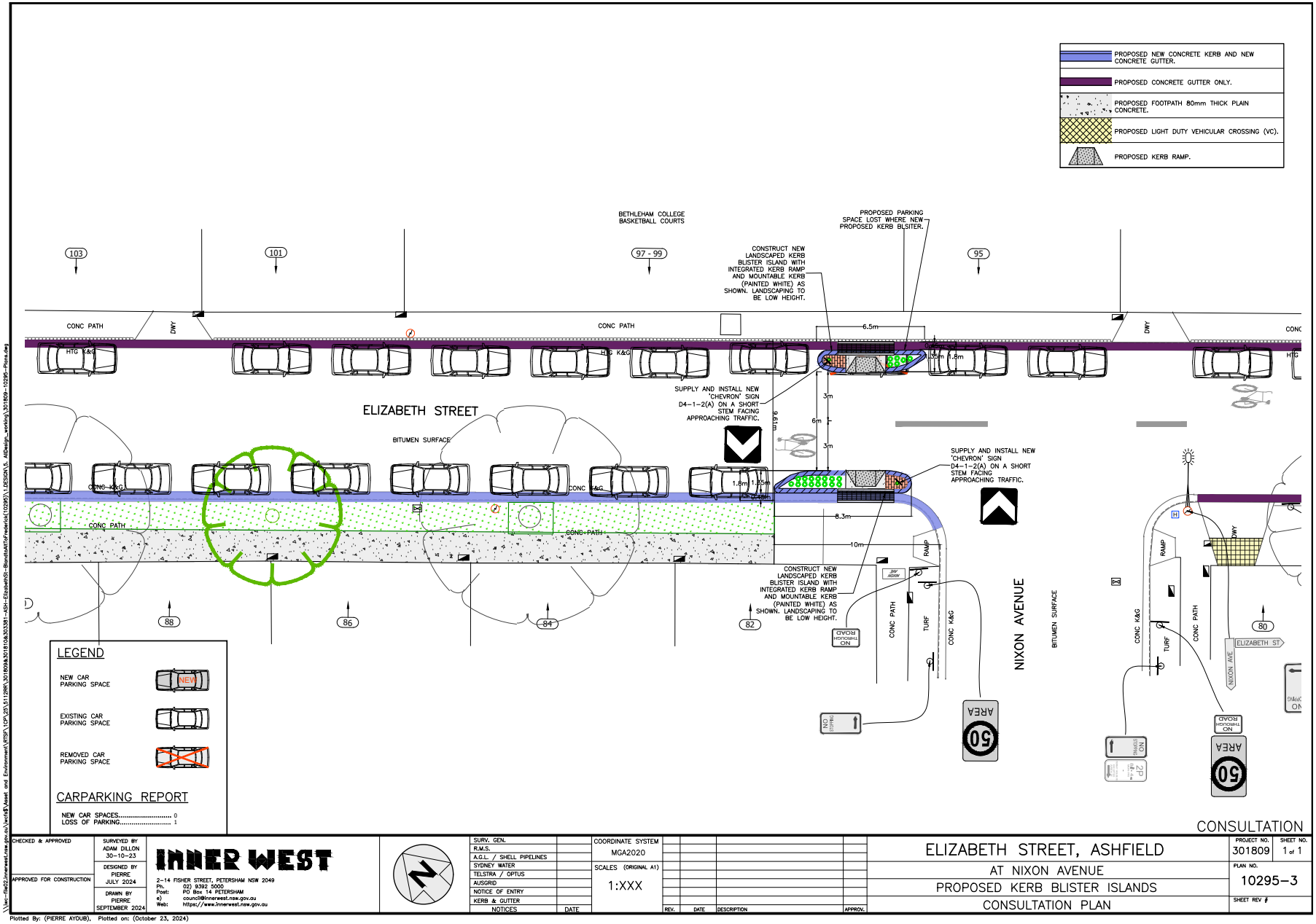
PROJECT NO. 301809
SHEET NO. 1 of 1
PLAN NO. 10295-2
SHEET REV


PROPOSED NEW CONCRETE KERB AND NEW CONCRETE GUTTER.
PROPOSED CONCRETE GUTTER ONLY.
PROPOSED FOOTPATH 80mm THICK PLAIN CONCRETE.
PROPOSED LIGHT DUTY VEHICULAR CROSSING (VC).
PROPOSED KERB RAMP.
BETHLEHAM COLLEGE BASKETBALL COURTS
PROPOSED PARKING SPACE LOST WHERE NEW PROPOSED KERB BLISTER.
CONSTRUCT NEW LANDSCAPED KERB BLISTER ISLAND WITH INTEGRATED KERB RAMP AND MOUNTABLE KERB (PAINTED WHITE) AS SHOWN. LANDSCAPING TO BE LOW HEIGHT.
SUPPLY AND INSTALL NEW 'CHEVRON' SIGN D4-1-2(A) ON A SHORT STEM FACING APPROACHING TRAFFIC.
ELIZABETH STREET
BITUMEN SURFACE
NIXON AVENUE
CONC PATH
CONC K&G
HTG K&G
DWY
RAMP
TURF
103
101
97 - 99
95
88
86
84
82
80
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 1
CONSULTATION
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 30-10-23
DESIGNED BY PIERRE JULY 2024
DRAWN BY PIERRE SEPTEMBER 2024
INNER WEST
2-14 FISHER STREET, PETERSHAM NSW 2049
Ph. 02) 9392 5000
Post: PO Box 14 PETERSHAM
e) council@innerwest.nsw.gov.au
Web: https://www.innerwest.nsw.gov.au
SURV. GEN.
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:XXX
REV.
DATE
DESCRIPTION
APPROV.
ELIZABETH STREET, ASHFIELD
AT NIXON AVENUE
PROPOSED KERB BLISTER ISLANDS
CONSULTATION PLAN
PROJECT NO. 301809
SHEET NO. 1 of 1
PLAN NO. 10295-3
SHEET REV #
Plotted By: (PIERRE AYOUB), Plotted on: (October 23, 2024)

Item 8

Item No: **LTC1224(1) Item 8**

Subject: **CLISSOLD STREET, AT HOLDEN STREET, ASHFIELD- NEW AT-GRADE (ROAD LEVEL) PEDESTRIAN (ZEBRA) CROSSING (DJARRAWUNANG-ASHFIELD WARD/SUMMER HILL ELECTORATE/BURWOOD PAC)**

Prepared By: Boris Muha - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the detailed design plan (10301) for a proposed new at-grade (road level pedestrian (zebra) crossing in Clissold Street at the intersection with Holden Street, Ashfield, with associated signs and line marking as shown in *Attachment 1* be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council at its meetings on the 18 March 2024 approved in principle, subject to detailed design, a series of proposed pedestrian (zebra) crossings and kerb extension treatments (under concept) with other auxiliary works (i.e. relocation of bus stops, inclusion of raised platform thresholds) for improved pedestrian and road safety around and near to the Cardinal Freeman (Retirement) Village, Ashfield.

This report describes the detailed design plan for the proposed treatments involving the placing of a pedestrian (zebra) crossing in Clissold Street, at the intersection of Holden Street, Ashfield.
This work is programmed and is envisaged to be constructed in the 2025/2026 financial year, subject to funding.

BACKGROUND

The Cardinal Freeman Village (currently known as Levande Cardinal Freeman) is bounded by Clissold Street to the north, Victoria Street to the east, Seaview Street to the south and Queen Street to the west.

The village caters to an independent living lifestyle however as the average age is over 82 years old there are a significant number of residents with mobility issues that hinder their ability to move around freely.

Many of the elderly residents are capable, and desire to walk to and from various destinations outside of the village, and/or take other forms of public transportation (e.g., bus and train) to travel to other parts of Sydney.

This has prompted a general request from the elderly residents to improve pedestrian safety around and near the village to enable them to walk to various desired destinations and take public transport within the area.

Other Aged care facilities such as the Ashfield Baptist Homes, Bethel Nursing Homes, Ashfield Terrace Care Community, and other community facilities are also located adjacent or near to the Cardinal Freeman Village.

The proposed treatment in this report was part of an initial concept of proposing two (2) pedestrian crossings at the intersection of Holden Street and Clissold Street. One crossing was initially proposed in Clissold Street, some 20 metres in from Holden Street so that buses turning left from Holden Street would not affect the crossing. The other was in Holden Street, just south of Clissold Street.

No strong objection were raised to the crossing being constructed in Clissold Street, with some concerns noted that it may generate noise if raised. The other crossing in Holden Street, south of Clissold Street, ended up receiving strong objections from affected residents.

As Holden Street, south of Clissold Street borders Canterbury-Bankstown Council (CBC) and Inner West Council (IWC), it was resolved that the initial proposed crossing in Holden Street, south of Clissold be separated from the overall scheme in providing safe road crossings around/near the Cardinal Freeman Village. IWC would independently investigate with CBC if it would support a crossing at this location or a location further south in Holden Street.

The proposal in this report only involves proceeding with the crossing in Clissold Street, east of Holden Street.

DISCUSSION

The following information is provided in discussion.

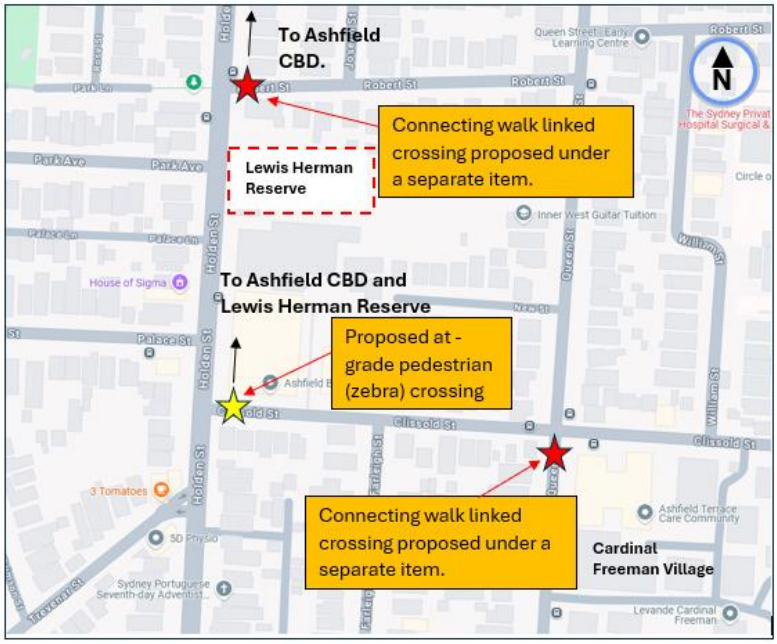


Figure 1. Locality Plan

Street Name	Clissold Street at Holden Steet
Carriageway width (m) kerb to kerb	Approx. 6.4m.
Carriageway type	Two-way, one travel lane each direction.
Classification	Local
Speed Limit km/h	50

85th percentile speed km/h	<40 leading up to the intersection.
Vehicles per day (vpd)	2100
Last available 5 years of TfNSW recorded crash history	NIL in last 5 years in Clissold Street at the intersection with Holden Street.
Parking arrangements	'No Stopping' exits to both sides of the street near to Holden Street.
Side street(nearest or along)	Holden Street.

Table 1. Road Network detail.

The Plan

The following works are proposed and are illustrated on the attached plan:

Clissold Street, Ashfield (Plan No. 10301):

- Resurface the road pavement with new asphalt and provide new pedestrian crossing markings and associated signage to formalise a new pedestrian crossing.
- Remove old kerb ramps and construct new concrete kerb ramps on either side of the new pedestrian crossing in Clissold Street at its intersection with Holden Street.
- Reconstruct some kerb and gutter with new concrete kerb & gutter (generally were shown on the plans).
- Remove some damaged concrete footpaths and construct new concrete footpaths.
- Undertake some minor returfing works in the grass verge area to match new works.
- Install new signage associated with the works.

Parking Changes

The works are fully contained within the existing No Stopping zones of Clissold Street Therefore, the proposal will not result any loss of parking.

Streetlighting

The new pedestrian crossing will require new lighting for it to meet the minimum lighting safety and compliance standards. This may involve either 1 or 2 new flood lights provided on either side each of the new raised pedestrian crossings (on either existing or new power poles). *The attached plans indicatively show the locations of the proposed new flood lights and power poles, with the final location to be confirmed during the lighting design development phase of the project by qualified electrical consultant.*

Other Information

The proposed crossing under detailed design is moved closer to the intersection to cater for all pedestrian desire path movement north, south and east of the intersection, and avoid obstruction with driveways located further in from Holden Street.

Clissold Street is a bus route with buses turning left into Clissold Street from Holden Street and right out from Clissold Street into Holden Street.

Council would normally raise pedestrian (zebra) crossings for ease of pedestrian access; however, buses require the full width of the road to negotiate safe turning in and out of Clissold Street at Holden Street, without running off a raised (crossing) platform. The existing underground drainage and utilities in the vicinity of the proposed crossing raises the concern of additional excavation works and re-adjustments which are deemed to be complex. Hence in this case an at-grade pedestrian (zebra) crossing is proposed.

Furthermore, the plan has been amended to include in line kerb ramps for narrow footpaths permitted under Australian Standards in lieu of proposed pram ramps which were shown in the original consultation plans. The footpath on either side of the ramp is transitioned down to a lower path level onto the crossing, allowing improved landing and turning in and off the crossing.

Utilities right at the corner and issues with traffic movement has resulted in the crossing being located approximately 5m from the intersection.

The proposed crossing links up with other proposed crossings to connect walking path movements to various desired destinations (e.g. Herman Lewis Reserve and Ashfield CBD). Refer to figure 1.

FINANCIAL IMPLICATIONS

The project is listed in Council's Traffic Facilities Capital Works program to be carried out in 2025/2026, subject to grant funding approval. The work is estimated to be around $65,000.

CONSULTATION

A letter outlining the proposal was mailed out to (21) properties (26 letters) in Clissold Street, between Holden Street and Queen Street, Ashfield, requesting residents' views regarding the proposal. (see also map of consultation area Figure 2).



Figure 2. Map on Consultation Area.

(1) Resident response was received with the concerns raised by the residents outlined in the table below, and officers' response provided.

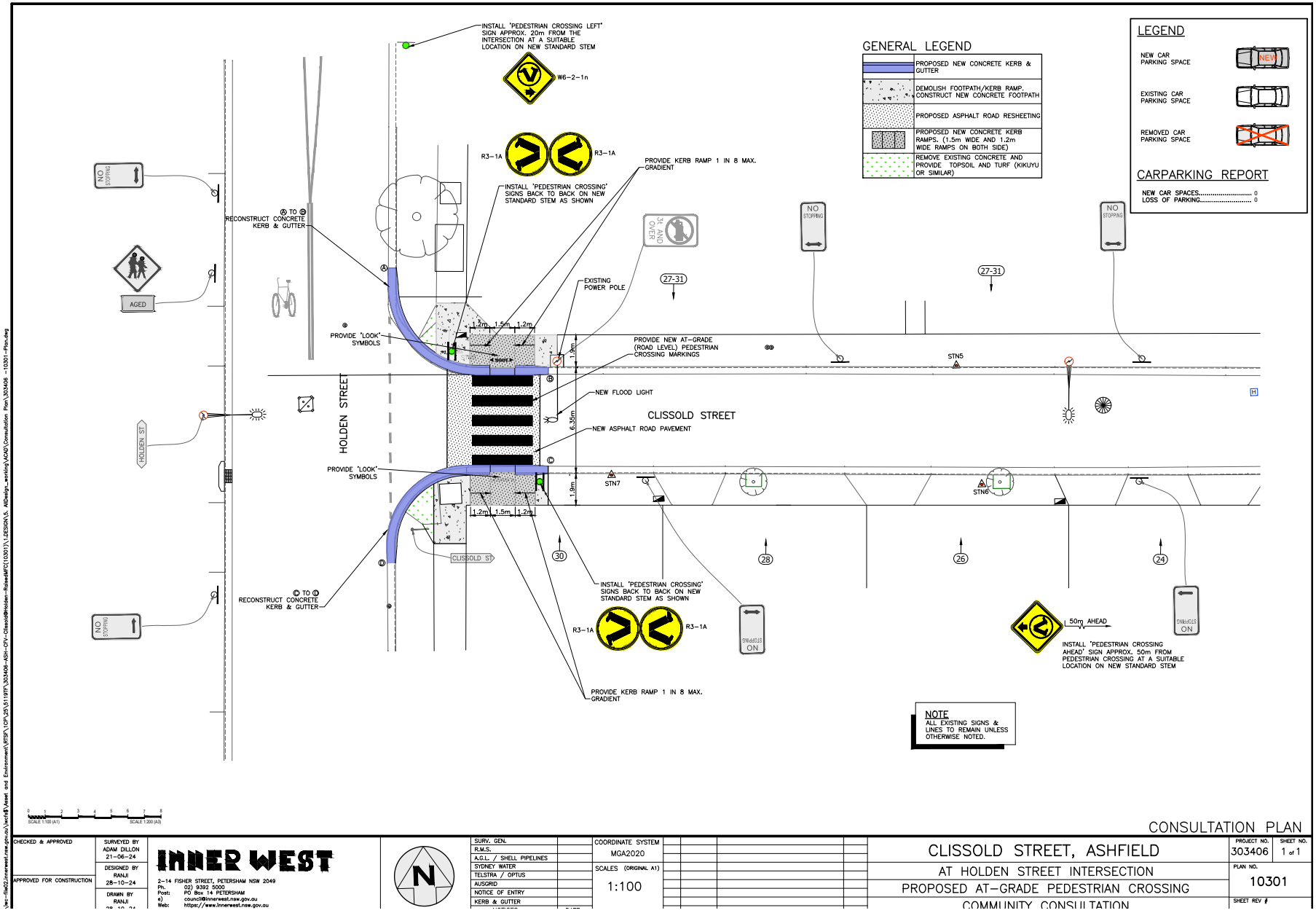
Residents Comments	Officers Response
The position of the pedestrian crossing that close to Holden St would create a number of problems. - Heavy traffic on Holden St (particularly in the school drop off and pick up time) results in traffic backing up Clissold St while cars wait for a break in traffic flow to safely make a turn. Those cars will be stopped across the proposed crossing. - Cars stopping on Clissold St before the pedestrian crossing be unable to clearly see the traffic on Holden St, which is essential to make a safe turn left or right. - Cars slow down to make a left or right turn, making a pedestrian crossing at that position unnecessary. Unaware of any pedestrian accidents occurring at this location. -Traffic making a left turn off Holden St into Clissold will be required to make a rapid stop for a pedestrian at the crossing resulting in rear end collision. - Unconvinced that a pedestrian crossing is required on this block. - Priority should be made for a pedestrian crossing on Holden St to enable people to cross the much busier street (with vehicles travelling at faster speeds) to access the cafe and shop on the corner of Holden and Trevenar Sts. - Would encourage someone from council come and observe the traffic patterns at this corner between 8.15 to 9.15 and 2.20 to 3.20 pm to understand the likely problems.	The crossing was originally proposed under concept in Clissold further in from the intersection and was examined under detail design to be bought closer to the intersection in view of all traffic, and appropriately cater for pedestrian desire path movements at the intersection. It is not uncommon for pedestrian crossings to be placed at the corner of an intersection. The crossing is set back sufficiently for a vehicle to move up to the Give way line, and not wholly obstruct the pedestrian crossing, or give-way first to a pedestrian and then move up to the Give-way line. Traffic turning left can stop at the crossing in view of rear approaching traffic which would either wait or pass by along the travel lane area of Holden Street. Irrespective of any accident history, the crossing forms part of an improved pedestrian facility to link up with other crossings in the area and provide a walking connectivity for all pedestrians to reach out to various destinations (e.g. Ashfield CBD, Herman Lewis Reserve, schools and transport.) The proposed crossing in Clissold Street near/at Holden Street is well supported by the general community. It is observed that vehicles must 'yield' i.e. give-way to opposing traffic in Clissold Street, particularly with buses needing to negotiate wide turns around the intersection in and out of Clissold Street. It is considered that the crossing will have minimal impact upon the traffic movement in the area. As Holden Street is a boundary line between Inner West Council Canterbury Bankstown Council, co-agreement has been made to investigate a crossing in Holden Street, south of Trevenar Street which would best cater for pedestrian desire path movement in all directions around the intersection.

CONCLUSION

It is recommended that the detailed design plan (10301) for a proposed new at-grade (road level pedestrian (zebra) crossing in Clissold Street at the intersection with Holden Street, Ashfield, with associated signs and line marking as shown in Attachment 1 be approved.

ATTACHMENTS

1.⇩ Amended Plan-At-grade (road level) pedestrian (zebra) crossing in Clissold Street at Holden Street, Ashfield.


INSTALL 'PEDESTRIAN CROSSING LEFT' SIGN APPROX. 20m FROM THE INTERSECTION AT A SUITABLE LOCATION ON NEW STANDARD STEM
W6-2-1n
R3-1A
R3-1A
PROVIDE KERB RAMP 1 IN 8 MAX. GRADIENT
INSTALL 'PEDESTRIAN CROSSING' SIGNS BACK TO BACK ON NEW STANDARD STEM AS SHOWN
Ⓐ TO Ⓑ RECONSTRUCT CONCRETE KERB & GUTTER
EXISTING POWER POLE
PROVIDE 'LOOK' SYMBOLS
PROVIDE NEW AT-GRADE (ROAD LEVEL) PEDESTRIAN CROSSING MARKINGS
NEW FLOOD LIGHT
NEW ASPHALT ROAD PAVEMENT
HOLDEN STREET
CLISSOLD STREET
PROVIDE 'LOOK' SYMBOLS
Ⓒ TO Ⓓ RECONSTRUCT CONCRETE KERB & GUTTER
INSTALL 'PEDESTRIAN CROSSING' SIGNS BACK TO BACK ON NEW STANDARD STEM AS SHOWN
R3-1A
R3-1A
PROVIDE KERB RAMP 1 IN 8 MAX. GRADIENT
50m AHEAD
INSTALL 'PEDESTRIAN CROSSING AHEAD' SIGN APPROX. 50m FROM PEDESTRIAN CROSSING AT A SUITABLE LOCATION ON NEW STANDARD STEM
GENERAL LEGEND
PROPOSED NEW CONCRETE KERB & GUTTER
DEMOLISH FOOTPATH/KERB RAMP. CONSTRUCT NEW CONCRETE FOOTPATH
PROPOSED ASPHALT ROAD RESHEETING
PROPOSED NEW CONCRETE KERB RAMPS. (1.5m WIDE AND 1.2m WIDE RAMPS ON BOTH SIDE)
REMOVE EXISTING CONCRETE AND PROVIDE TOPSOIL AND TURF (KIKUYU OR SIMILAR)
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 0
LOSS OF PARKING..... 0
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
CONSULTATION PLAN
CLISSOLD STREET, ASHFIELD
AT HOLDEN STREET INTERSECTION
PROPOSED AT-GRADE PEDESTRIAN CROSSING
COMMUNITY CONSULTATION
INNER WEST
2-14 FISHER STREET, PETERSHAM NSW 2049
Ph: 02) 9392 5000
Post: PO Box 14 PETERSHAM
e) council@innerwest.nsw.gov.au
Web: https://www.innerwest.nsw.gov.au
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
PROJECT NO. 303406
SHEET NO. 1 of 1
PLAN NO. 10301

Item No: **LTC1224(1) Item 9**

Subject: **QUEEN STREET, BETWEEN HILLCREST AVENUE & NEW STREET, ASHFIELD-PEDESTRIAN SAFETY & TRAFFIC IMPROVEMENT WORKS. (DJARRAWUNANG-ASHFIELD WARD/SUMMER HILL ELECTORATE/BURWOOD PAC)**

Prepared By: Boris Muha - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the detailed design plan (10303-sheets 1 to 5) for a proposed corridor treatment of new raised pedestrian (zebra) crossings, new raised platform thresholds, new kerb blister islands/extensions to intersections, bus stop relocations and associated signposting and line marking in Queen Street between Hillcrest Avenue and New Street, Ashfield, as shown in Attachment 1 be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council at its meetings on the 18 March 2024 approved in principle, subject to detailed design, a series of proposed pedestrian (zebra) crossings and kerb extension treatments (under concept) with other auxiliary works (i.e. relocation of bus stops, inclusion of raised platform thresholds) for improved pedestrian and road safety around and near to the Cardinal Freeman (Retirement) Village, Ashfield.

This report describes the detailed design plans for proposed corridor treatments along Queen Street between Hillcrest Avenue and New Street. The works involve placing in new raised platform thresholds and raised pedestrian (zebra) crossing in Queen Street, at/near the intersections with Seaview Street and Clissold Street; kerb blister island/extensions to the intersections of Queen Street at Seaview Street and Clissold Street; relocation of Bus Stops away of the proposed crossings; and removal of existing horizontal chicanes to provide additional parking in the area.

This work is programmed and is envisaged to be constructed in the 2025/2026 financial year, subject to funding.

BACKGROUND

The Cardinal Freeman Village (currently known as Levande Cardinal Freeman) is bounded by Clissold Street to the north, Victoria Street to the east, Seaview Street to the south and Queen Street to the west.

The village caters to an independent living lifestyle however as the average age is over 82 years there are a significant number of residents with mobility issues that hinder their ability to move around freely.

Many of the elderly residents are capable, and desire to walk to and from various destinations outside of the village, and/or take other forms of public transportation (e.g., bus and train) to travel to other parts of Sydney.

This has prompted a general request from the residents to improve pedestrian safety around the village to enable them to walk to various desired destinations and take public transport within the area.

Other Aged care facilities such as the Ashfield Baptist Homes, Bethel Nursing Homes, Ashfield Terrace Care Community, and other community facilities are also located adjacent or near to the Cardinal Freeman Village.

The proposed treatment in this report received a major (79-83% rate) support under a general community engagement consultation conducted through Council's 'Have Your Say' back in October 2023. The facility is viewed in benefit and supported by the community at large, and not only for the elderly of the Cardinal Freeman Village.

DISCUSSION

The following information is provided in discussion.

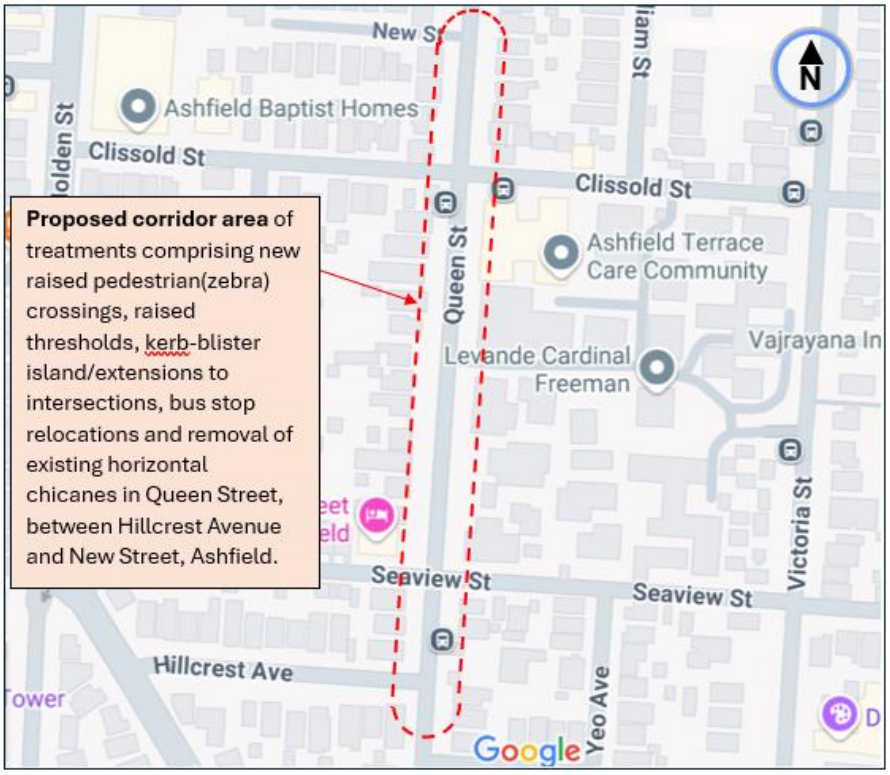


Figure 1. Locality Plan

Street Name	**Queen Street (between Hillcrest Avenue and New Street)**
Carriageway width (m) kerb to kerb	Approx. 10.5m between Hillcrest Avenue to Clissold Street, Approx, 12.8m between Clissold Street and New Street.
Carriageway type	Two-way, one travel lane each direction.
Classification	Local

Speed Limit km/h	50
85th percentile speed km/h	44.9-50
Vehicles per day (vpd)	6000
Last available 5 years of TfNSW recorded crash history	(3) in last 5 years in Queen Street, between Hillcrest Ave and New Street 2019, 1xRum 0, ped near side(Clissold St)-moderate injury. 2020, 1xRum 87, off- left/Left bend into object (Hillcrest Ave) - moderate injury. 2023, 1XRum 49, other manoeuvring (parking/U-turns) (north of Seaview Street)-minor other injury..
Parking arrangements	Parking is permitted to both sides of Queen Street..
Side street(nearest or along)	Under the corridor length- sides streets are Hillcrest Avenue, Seaview Street, Clissold Street and New Street.

Table 1. Road Network detail.

The Plan

The following works are proposed and are illustrated on the attached plans.

Queen Street (Hillcrest Avenue to New Street), Ashfield (Plan No. 10303 (sheets 1 to 5):

- *Queen St (north of Hillcrest St):*
    - construct a new raised concrete speed threshold with garden beds within the grass verge.
- *Queen St at Seaview St:*
    - construct a new landscaped kerb blister island and adjust the 'STOP' holding lines to improve sight distance for vehicles;
    - construct a new raised pedestrian crossing with landscaped kerb blister islands and heel safe gutter bridge crossings; and
    - relocate the existing bus stop (on west side) from its existing location northwards and construct a new bus boarding platform within the grass verge area. Adjust the 'Bus Zone' and 'Parking' signage to suit the new works.
- *Queen Street (outside No. 77)*
    - Remove the existing speed chicane kerb blister islands and associated line markings, reinstate on-street parking and the road pavement with asphalt.
- *Queen Street at Clissold Street*
    - construct 2 new 'at-grade' (flat) concrete median islands in Clissold Street, reconstruct the kerb returns kerb ramps for better alignment and adjust the 'STOP' holding lines to improve sight distance for vehicles;
    - construct a new raised pedestrian crossing (south of Clissold St) with landscaped kerb blister islands and heel safe gutter bridge crossings; and
    - relocate the existing bus stop (on west side) from its existing location southwards and construct a new bus boarding platform within the grass verge area. Adjust 'Bus Zone' and 'Parking' signage to suit the new works.
- *Queen Street between Clissold St & New St*

- construct a new raised concrete speed threshold with garden beds within the grass verge outside No 76A/96; and
- Remove the existing speed chicane kerb blister islands and associated line markings, reinstate on-street parking and the road pavement with asphalt.

Parking Changes

It is proposed to adjust the existing 'No Stopping', 'Bus Zones' & 'Parking' signs in Queen Street to facilitate implementation of the works. This will mean some existing parking spaces will be lost in the vicinity of the new works whilst new parking spaces will be created in new locations i.e. mainly in the vicinity of the removed speed chicanes. Overall, the proposal will result in the net gain of 9 on-street parking spaces in Queen Street between Hillcrest Street & New Street.

Streetlighting

The 2 new raised pedestrian crossing will require new lighting for them to meet the required lighting standards. This may involve up to 2 new flood lights provided on either side each of the new raised pedestrian crossings (either on existing or new power poles). *The attached plans indicatively show the locations of the proposed new flood lights and power poles, with the final location to be confirmed during the lighting design development phase of the project by qualified electrical consultant.*

Other Information

The combination of raised platform thresholds and raised pedestrian crossing east and west of the intersections of Queen Street with Seaview Street and Clissold Streets provides traffic calming on both approaches leading in the cross- street intersections. Both cross-street intersections have been prone to accidents or near miss incidences, particularly with cross-traffic movements.

The existing mid-block chicane in Queen Street between Seaview Street and Clissold Street will be removed. Raised crossings at both ends of Queen Street between Seaview Street and Clissold Street will act to calm the traffic in this section of Queen Street in place of the chicane. The removal of the chicane will allow added parking in the area and provide appropriate lead in distance towards the Bus Stop, which will be relocated south of the proposed crossing near Clissold Street.

Similarly, the existing chicane in Queen Street, just south of New Street, will be removed to provide for more parking. The proposed raised threshold, a short distance south of the chicane will act to traffic calm the area in place of the chicane.

Both bus stops, as shown on the plans, are required to be relocated to conform to current TfNSW directorate for sight view clearance of pedestrian(zebra) crossings.

The bus stop on the Seaview Street end is required to be relocated away of the crossing for appropriate sight view clearance and moved further north (outside No.99 Queen Street) to provide appropriate lead in distance for a bus to approach into the stop under the current *'State Transit Bus Infrastructure Guide'* for new and re-located bus stops. The Bus stop is to be constructed of a raised platform to attain a safe level of boarding onto the bus and cleared of any obstructions for patrons to move, circulate and board/alight from the bus essentially from the front door. This is required in accordance to the *'Guideline for promoting compliance of bus stops with the Disability Standards for Accessible Public Transport'.*

Two large trees that are marked on the plans outside 99 Queen Street are to be removed to attain the necessary Bus Stop requirements above. 2 new trees of appropriate species will be planted in the vicinity to replace the removed trees.

The plan as shown in Attachment 1 has been amended over that of the original plan (issued out to consultation) to reposition warning tactiles within the kerb blistered path just before the start of the crossing. Grass verged areas exist or are provided either side of the crossings to guide pedestrians into the path leading up to the crossing. Directional tactiles will also be requested to be added under detailed plans for construction to further assist visually impaired pedestrians from the footpath over to the crossing.

FINANCIAL IMPLICATIONS

The project is listed in Council's Traffic Facilities Capital Works program to be carried out in 2025/2026, subject to grant funding approval. The work is estimated to be around $475,000.

CONSULTATION

A letter outlining the proposal was mailed out on the 15 October 2024 to (29) properties (106 letters) in Queen Street between Hillcrest Avenue and New Street, Ashfield, requesting residents' views regarding the proposal. (see also map of consultation area Figure 2). Submissions closed on the 8 November 2024.

A copy of the letter was also sent directly to the Manager of the Cardinal Freeman Village to distribute amongst its residents inviting them to comment also.

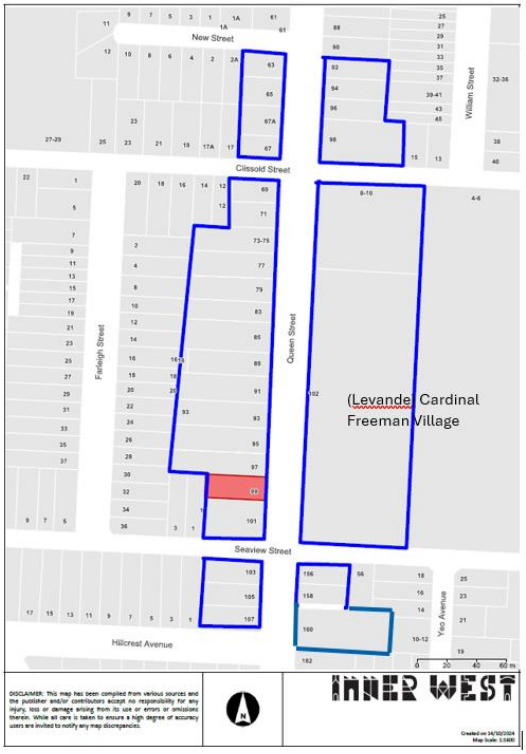


Figure 2. Map on Consultation Area.

(2) Resident response was received from the Cardinal Freeman Village. The comments are shown tabled below with officer's response.

The bicycle group representative raised concerns about car doors opening out onto bicyclists traveling along the road, and the parking of vehicles over the raised thresholds.

The Transport Systems Australia (bus operator) representative raised concerns about insufficient lead in distance to the Bus stop after the crossing, north of Seaview Street, and buses needing to disembark pedestrians from the second door onto concrete or grass verge footway and not over any driveway, in case of emergency.

The above concerns raised are tabled below with officer's response.

Residents/Traffic Committee Representative's Comments	**Officers Response**
Resident of the Cardinal Freeman Village. Request that 1-2 spaces be removed on the eastern side of Queen Street, north of the main gate No.9. of the Cardinal Freeman Village. Sight view is claimed to be inadequate whilst exiting from the driveway.	This is not part of the Scope of Works. Council did remove a car parking space north of the driveway of Gate No.9 through earlier requests. The distance in sight view clearance to the north side of the (wide) driveway is approximately 12 metres, and some 15 metres from the viewpoint of the driver exiting the driveway in the forward direction. It is considered that there is adequate sight view distance from the driveway, in length exceeding what is typically for a road intersection. It is further considered that the removal of the chicane (outside No. 77 queen Street) may improve the straight view of traffic to the north of the driveway. No intention is made to remove any further parking north of the driveway to Gate No. 9 of the Cardinal Freeman Village.
Visually impaired (with guide dog) resident of the Cardinal Freeman Village. The crossings show continuous blended flush pathways from the footpath to the raised platform of the crossing. This is not in line from a workshop meeting outcome claiming that continues blended flush pathways over crossings do not serve as safe queues for owner guide dogs to recognise before crossing. Pram ramps (as recognised by the guide dogs) should be allocated to the crossings, or the crossings be made at-grade with pram ramps and speed humps/speed cushions provided either side of the at-grade crossing.	The plans issued under consultation are detailed design concept plans identifying type and location of crossings proposed. Council typically raises new pedestrian (zebra) crossings on local roads in benefit and ease for pedestrians to transverse over the crossing. These are normally at continuous flush level. Existing road reserve constraints and design of the crossing can dictate whether there is opportunity to apply ramp slope variation over the crossing. Ramp slope variation will be looked at, if possible, with the crossings in Queen Street under the detailed design plans for construction. Otherwise tactiles and the inclusion of turfed verges to the sides of the paths leading onto the crossings have been applied under the amended detailed concept plans in Attachment 1. This is in effort to provide alternate queue and guidance for visually impaired pedestrians onto the crossing. Council's Access and Inclusion Planning Leader has suggested that directional tactiles (leading from the footpath to the warning tactiles) at the crossings be added. This will be examined for inclusion under 'detail plan design for construction' to guide visually impaired pedestrians onto the crossing. Establishing speed humps/cushions either side of

	an at-grade crossing only doubles up on raised treatments. Drivers can be inconvenienced and concentrate on mounting the speed humps and could lose focus on the crossing. Increase noise and pollution (decelerating and accelerating) is also a concern. Raised crossings are considered safer in this case, where higher traffic volumes and speeds occur, and where pedestrians can cross over at ease.
Transport Systems Australia (TSA)- (bus operator) representative I believe the location of the raised pedestrian crossing [north of Seaview Street] falling within the bus stop wouldn't meet transport regulations. Similarly, concern is raised with the Bus Stop south of Clissold Street having its rear door opening onto a driveway, which would be unsafe with passengers disembarking in case of emergency.	Discussions between Council officers and the bus operator representative were undertaken to clarify on plan, that the Bus stop with associated bus zone signage, is moved north of the crossing from Seaview Street with sufficient lead-in ('No Stopping') distance for a bus to enter the Bus Stop after the crossing. The Bus stop to the south of the crossing near Clissold Street, will be amended to move a few metres south to enable rear door access upon the grass verge footway and not upon the driveway to No.73 Queen Street. No objection was raised by TSA thereafter.
Bicycle group representative Maybe we should show the cars with open driver doors so we can see the extent of the door zone on traffic including bikes. In relation to thresholds the chamfer edge down to the gutter tilts the cars parked on a threshold. This adds to the load experienced by drivers as they open doors invariably leading to drivers flinging doors open with little care being shown to traffic, including bikes, passing by.	Car doors fully open out by 900-1000 mm. This would only be a concern if the bike path is forced closer to the shoulder or kerb lane area. However, bicyclists follow the path in line with the traffic, with the symbols marked in the travel laneway or path. No changes are made to existing conditions. Regarding camber, the added height of 75mm to the threshold would have little impact on camber changes. The cross-section (kerb side area) of Queen Street for the proposed threshold south of Seaview Street is not considered steep. The proposed threshold to the north of Clissold Street, where Queen Street widens out, has widened shoulder or kerb side area, and is edge lined with car doors not typically opening onto the travel lane. Bicyclists and traffic are not made to travel down the marked shoulder or kerb side area. The intention is to provide the opportunity to park over the threshold if the motorists desire to do so or not.

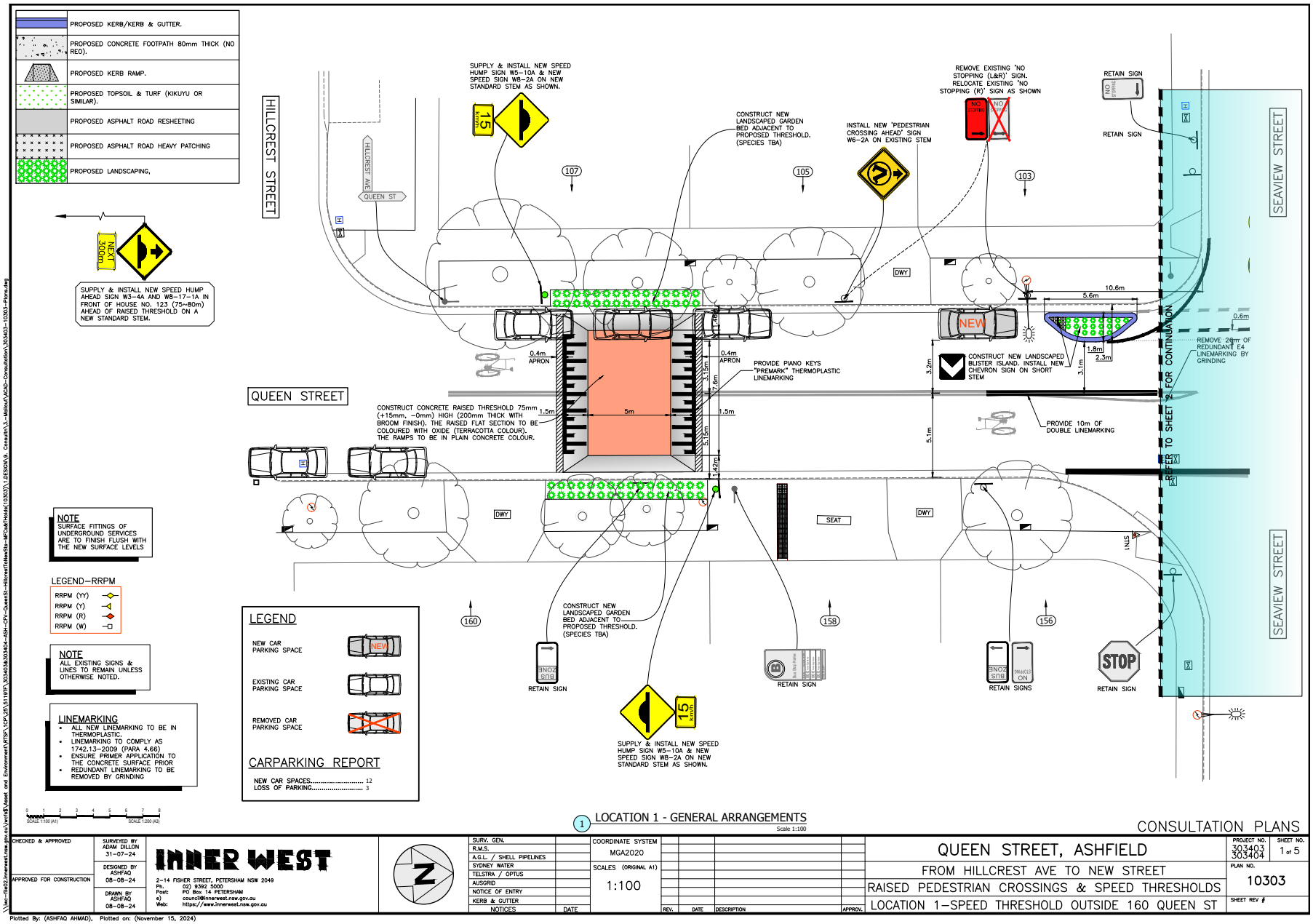
Item 9

CONCLUSION

It is recommended that the detailed design plan (10303-sheets 1 to 5) for a proposed corridor treatment comprising of new raised pedestrian (zebra) crossings, new raised platform thresholds, new kerb blister islands/extensions to intersections, bus stop relocations and associated signposting and line marking in Queen Street between Hillcrest Avenue and New Street, Ashfield, as shown in Attachment 1 be approved.

ATTACHMENTS

1.⇩ Proposed corridor treatments in Queen Street, between Hillcrest Avenue and New Street, Ashfield.


PROPOSED KERB/KERB & GUTTER.
PROPOSED CONCRETE FOOTPATH 80mm THICK (NO REO).
PROPOSED KERB RAMP.
PROPOSED TOPSOIL & TURF (KIKUYU OR SIMILAR).
PROPOSED ASPHALT ROAD RESHEETING
PROPOSED ASPHALT ROAD HEAVY PATCHING
PROPOSED LANDSCAPING,
SUPPLY & INSTALL NEW SPEED HUMP AHEAD SIGN W3-4A AND W8-17-1A IN FRONT OF HOUSE NO. 123 (75~80m) AHEAD OF RAISED THRESHOLD ON A NEW STANDARD STEM.
HILLCREST STREET
QUEEN STREET
SEAVIEW STREET
SUPPLY & INSTALL NEW SPEED HUMP SIGN W5-10A & NEW SPEED SIGN W8-2A ON NEW STANDARD STEM AS SHOWN.
CONSTRUCT NEW LANDSCAPED GARDEN BED ADJACENT TO PROPOSED THRESHOLD. (SPECIES TBA)
INSTALL NEW 'PEDESTRIAN CROSSING AHEAD' SIGN W6-2A ON EXISTING STEM
REMOVE EXISTING 'NO STOPPING (L&R)' SIGN. RELOCATE EXISTING 'NO STOPPING (R)' SIGN AS SHOWN
RETAIN SIGN
CONSTRUCT CONCRETE RAISED THRESHOLD 75mm (+15mm, -0mm) HIGH (200mm THICK WITH BROOM FINISH). THE RAISED FLAT SECTION TO BE COLOURED WITH OXIDE (TERRACOTTA COLOUR). THE RAMPS TO BE IN PLAIN CONCRETE COLOUR.
PROVIDE PIANO KEYS "PREMARK" THERMOPLASTIC LINEMARKING
CONSTRUCT NEW LANDSCAPED BLISTER ISLAND. INSTALL NEW CHEVRON SIGN ON SHORT STEM
PROVIDE 10m OF DOUBLE LINEMARKING
REMOVE 26m² OF REDUNDANT E4 LINEMARKING BY GRINDING
REFER TO SHEET 2 FOR CONTINUATION
SEAT
RETAIN SIGNS
STOP
NOTE
SURFACE FITTINGS OF UNDERGROUND SERVICES ARE TO FINISH FLUSH WITH THE NEW SURFACE LEVELS
LEGEND—RRPM
RRPM (YY)
RRPM (Y)
RRPM (R)
RRPM (W)
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
LINEMARKING
ALL NEW LINEMARKING TO BE IN THERMOPLASTIC.
LINEMARKING TO COMPLY AS 1742.13-2009 (PARA 4.66)
ENSURE PRIMER APPLICATION TO THE CONCRETE SURFACE PRIOR
REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 12
LOSS OF PARKING..... 3
1 LOCATION 1 - GENERAL ARRANGEMENTS
Scale 1:100
CONSULTATION PLANS
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 31-07-24
DESIGNED BY ASHFAQ 08-08-24
DRAWN BY ASHFAQ 08-08-24
INNER WEST
2-14 FISHER STREET, PETERSHAM NSW 2049
Ph. 02) 9392 5000
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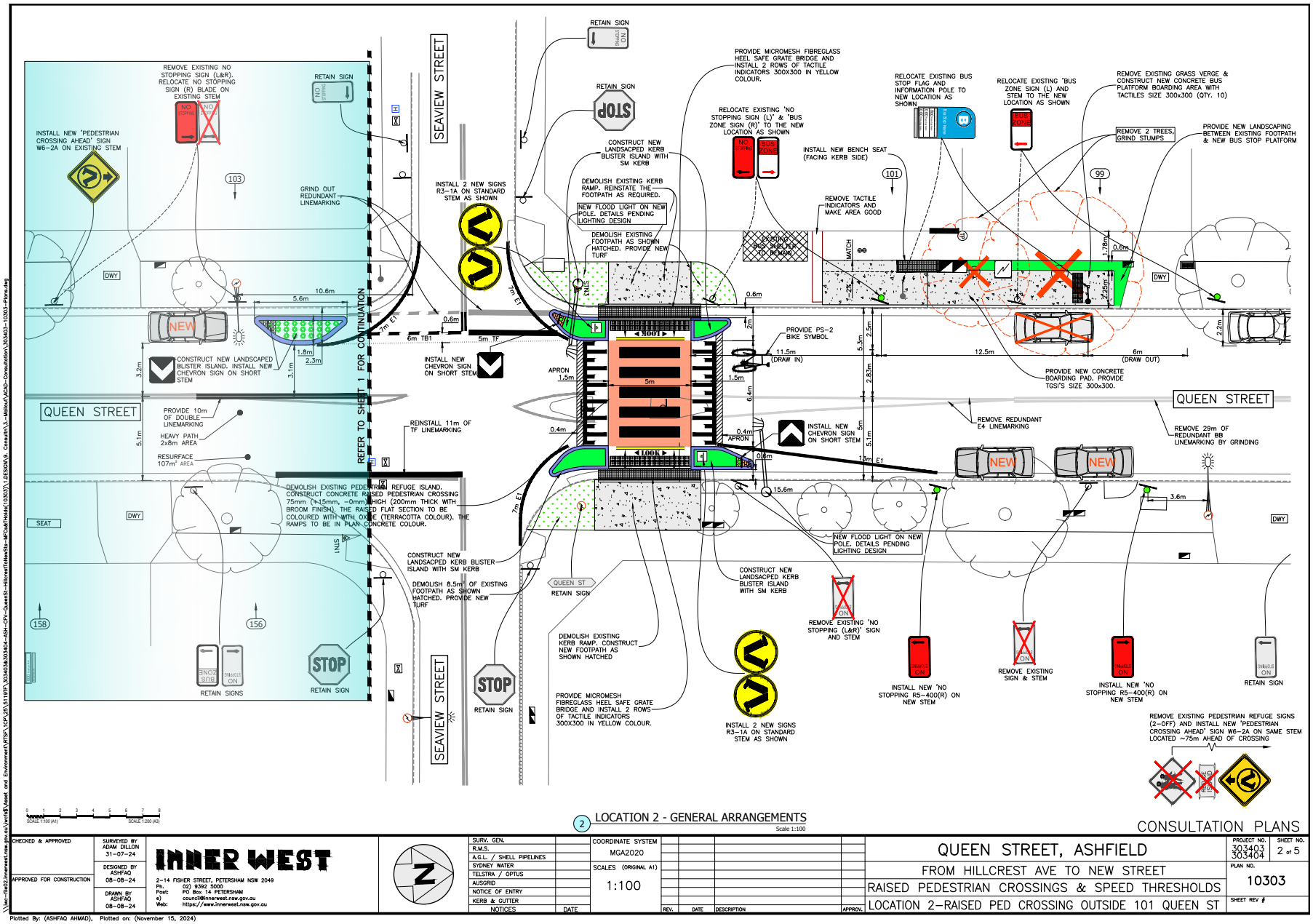
SURV. GEN.
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV. DATE DESCRIPTION APPROV.
QUEEN STREET, ASHFIELD
FROM HILLCREST AVE TO NEW STREET
RAISED PEDESTRIAN CROSSINGS & SPEED THRESHOLDS
LOCATION 1—SPEED THRESHOLD OUTSIDE 160 QUEEN ST
PROJECT NO. 303403 303404
SHEET NO. 1 of 5
PLAN NO. 10303
SHEET REV #
Plotted By: (ASHFAQ AHMAD), Plotted on: (November 15, 2024)

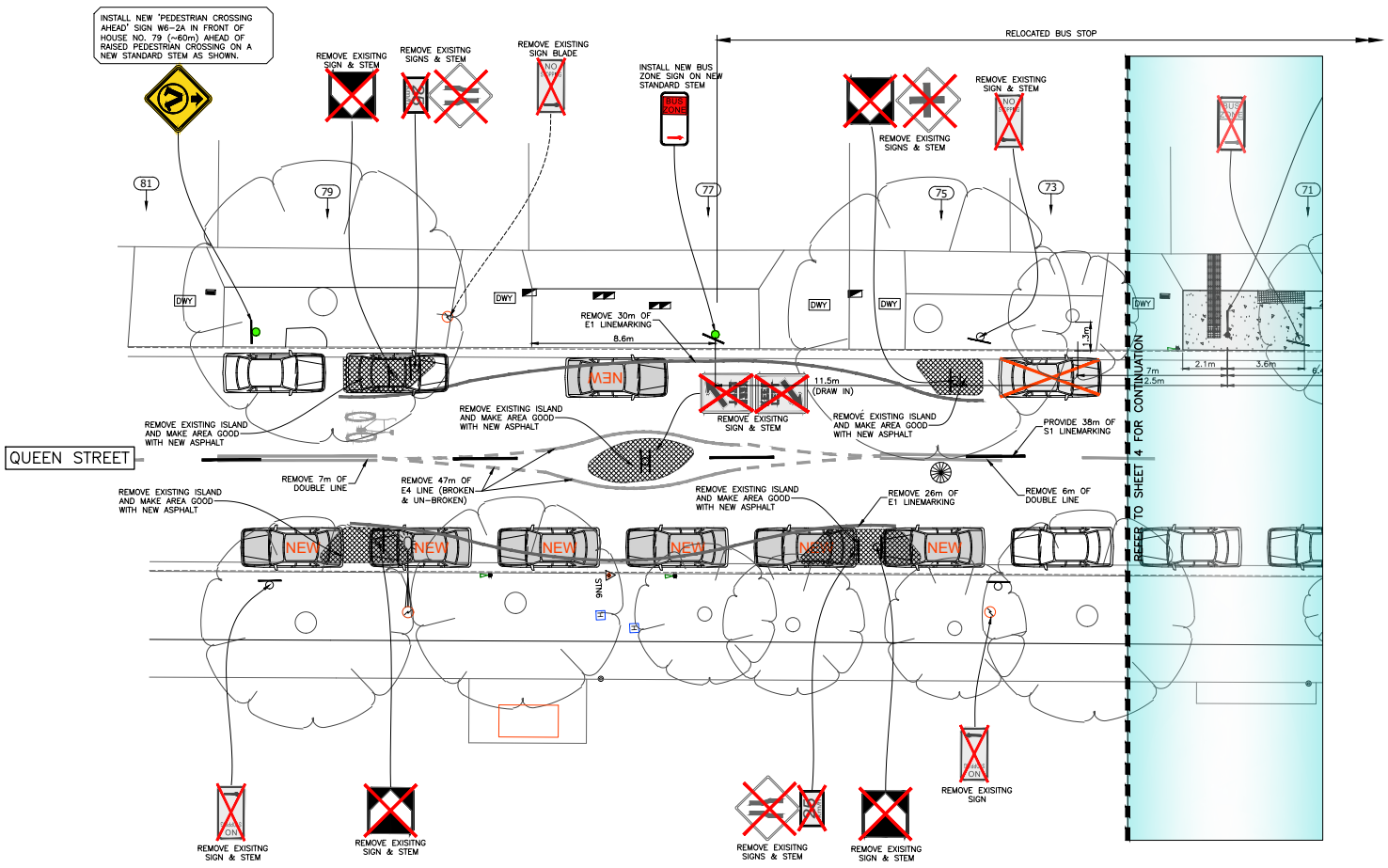


2 LOCATION 2 - GENERAL ARRANGEMENTS
Scale 1:100

CONSULTATION PLANS

CHECKED & APPROVED	SURVEYED BY ADAM DILLON 31-07-24	INNER WEST 2-14 FISHER STREET, PETERSHAM NSW 2049 Ph. 02) 9392 5000 Post: PO Box 14 PETERSHAM e) council@innerwest.nsw.gov.au Web: https://www.innerwest.nsw.gov.au	SURV. GEN.	COORDINATE SYSTEM MGA2020				QUEEN STREET, ASHFIELD	PROJECT NO. 303403 303404 SHEET NO. 2 of 5
APPROVED FOR CONSTRUCTION	DESIGNED BY ASHFAQ 08-08-24		R.M.S.					FROM HILLCREST AVE TO NEW STREET	PLAN NO. 10303
	DRAWN BY ASHFAQ 08-08-24		A.G.L. / SHELL PIPELINES	SCALES (ORIGINAL A1) 1:100				RAISED PEDESTRIAN CROSSINGS & SPEED THRESHOLDS	
			SYDNEY WATER					LOCATION 2-RAISED PED CROSSING OUTSIDE 101 QUEEN ST	SHEET REV #
			TELSTRA / OPTUS						
			AUSGRID						
			NOTICE OF ENTRY						
			KERB & GUTTER						
			NOTICES	DATE	REV.	DATE	DESCRIPTION	APPROV.	

Plotted By: (ASHFAQ AHMAD), Plotted on: (November 15, 2024)

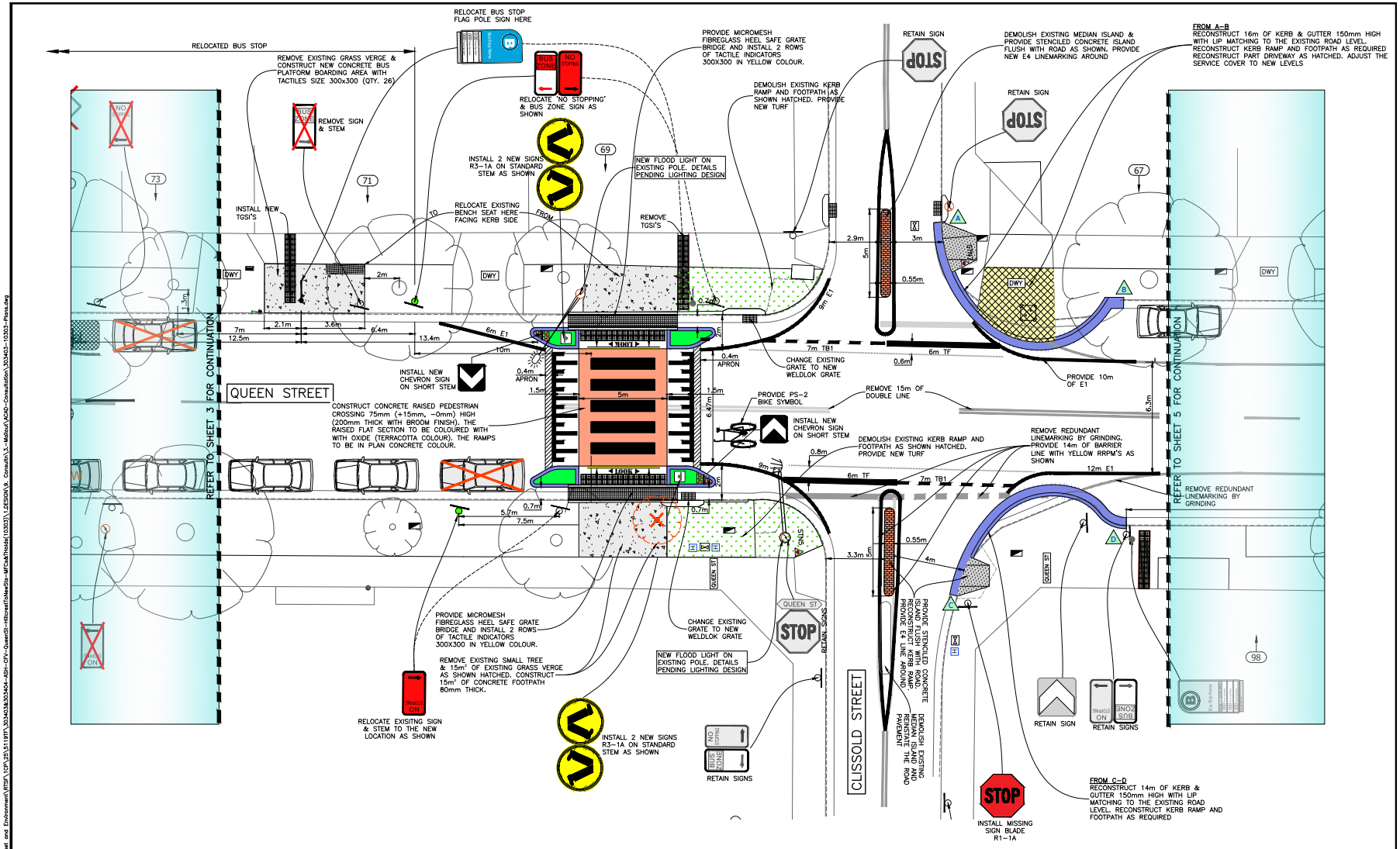


3 LOCATION 3 - GENERAL ARRANGEMENTS
Scale 1:100

CONSULTATION PLANS

CHECKED & APPROVED	SURVEYED BY ADAM DILLON 31-07-24	INNER WEST	SURV. GEN. / R.M.S. / A.G.L. / SHELL PIPELINES / SYDNEY WATER / TELSTRA / OPTUS / AUSGRID / NOTICE OF ENTRY / KERB & GUTTER	COORDINATE SYSTEM MGA2020	QUEEN STREET, ASHFIELD	PROJECT NO. 303403 303404	SHEET NO. 3 of 5
APPROVED FOR CONSTRUCTION	DESIGNED BY ASHFAQ 08-08-24	2-14 FISHER STREET, PETERSHAM NSW 2049 Ph. 02) 9392 5000 Post: PO Box 14 PETERSHAM e) council@innerwest.nsw.gov.au Web: https://www.innerwest.nsw.gov.au	NOTICES / DATE	SCALES (ORIGINAL A1) 1:100	FROM HILLCREST AVE TO NEW STREET	PLAN NO. 10303	
	DRAWN BY ASHFAQ 08-08-24				RAISED PEDESTRIAN CROSSINGS & SPEED THRESHOLDS		
					LOCATION 3–REMOVE SLOW POINT OUTSIDE 77 QUEEN ST	SHEET REV #	

Plotted By: (ASHFAQ AHMAD), Plotted on: (November 15, 2024)



4 LOCATION 4 - GENERAL ARRANGEMENTS
Scale 1:100

CONSULTATION PLANS

CHECKED & APPROVED	SURVEYED BY ADAM DILLON 31-07-24	INNER WEST 2-14 FISHER STREET, PETERSHAM NSW 2049 Ph. 02) 9392 5000 Post: PO Box 14 PETERSHAM e) council@innerwest.nsw.gov.au Web: https://www.innerwest.nsw.gov.au	SURV. GEN.	COORDINATE SYSTEM MGA2020				QUEEN STREET, ASHFIELD	PROJECT NO. 303403 303404 / SHEET NO. 4 of 5
APPROVED FOR CONSTRUCTION	DESIGNED BY ASHFAQ 08-08-24		R.M.S.					FROM HILLCREST AVE TO NEW STREET	PLAN NO. 10303
	DRAWN BY ASHFAQ 08-08-24		A.G.L. / SHELL PIPELINES	SCALES (ORIGINAL A1) 1:100				RAISED PEDESTRIAN CROSSINGS & SPEED THRESHOLDS	
			SYDNEY WATER					LOCATION 4–RAISED PED CROSSING OUTSIDE 69 QUEEN ST	SHEET REV #
			TELSTRA / OPTUS						
			AUSGRID						
			NOTICE OF ENTRY						
			KERB & GUTTER						
			NOTICES	DATE	REV.	DATE	DESCRIPTION	APPROV.	

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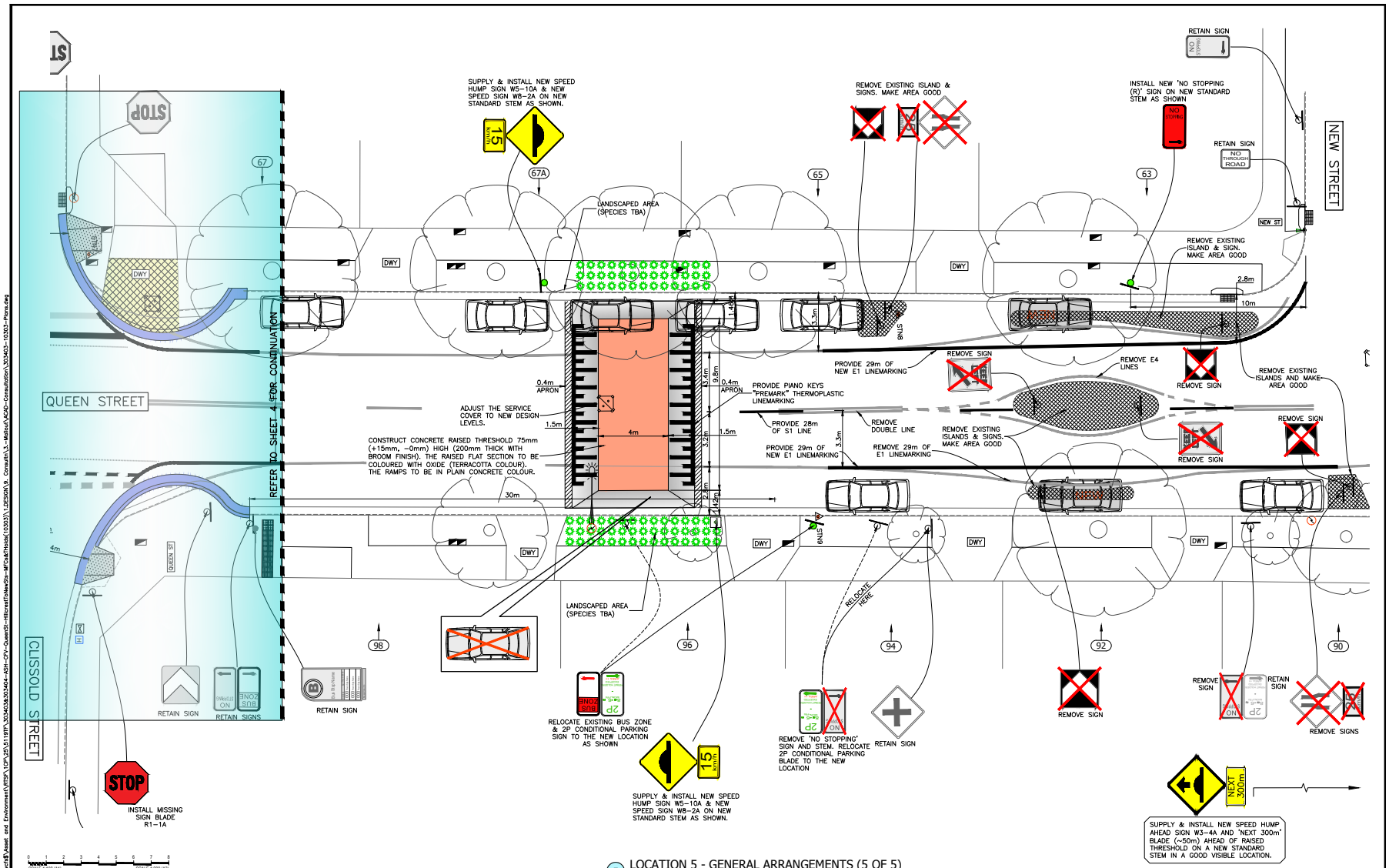
Plotted By: (ASHFAQ AHMAD), Plotted on: (November 15, 2024)


QUEEN STREET
CLISSOLD STREET
NEW STREET
REFER TO SHEET 4 FOR CONTINUATION
SUPPLY & INSTALL NEW SPEED HUMP SIGN W5-10A & NEW SPEED SIGN W8-2A ON NEW STANDARD STEM AS SHOWN.
LANDSCAPED AREA (SPECIES TBA)
REMOVE EXISTING ISLAND & SIGNS. MAKE AREA GOOD
INSTALL NEW 'NO STOPPING (R)' SIGN ON NEW STANDARD STEM AS SHOWN
RETAIN SIGN
REMOVE EXISTING ISLAND & SIGN. MAKE AREA GOOD
ADJUST THE SERVICE COVER TO NEW DESIGN LEVELS.
CONSTRUCT CONCRETE RAISED THRESHOLD 75mm (+15mm, -0mm) HIGH (200mm THICK WITH BROOM FINISH). THE RAISED FLAT SECTION TO BE COLOURED WITH OXIDE (TERRACOTTA COLOUR). THE RAMPS TO BE IN PLAIN CONCRETE COLOUR.
PROVIDE PIANO KEYS "PREMARK" THERMOPLASTIC LINEMARKING
PROVIDE 28m OF S1 LINE
REMOVE DOUBLE LINE
PROVIDE 29m OF NEW E1 LINEMARKING
REMOVE 29m OF E1 LINEMARKING
REMOVE SIGN
REMOVE E4 LINES
REMOVE EXISTING ISLANDS AND MAKE AREA GOOD
REMOVE EXISTING ISLANDS & SIGNS. MAKE AREA GOOD
RETAIN SIGNS
RELOCATE EXISTING BUS ZONE & 2P CONDITIONAL PARKING SIGN TO THE NEW LOCATION AS SHOWN
REMOVE 'NO STOPPING' SIGN AND STEM. RELOCATE 2P CONDITIONAL PARKING BLADE TO THE NEW LOCATION
RELOCATE HERE
INSTALL MISSING SIGN BLADE R1-1A
SUPPLY & INSTALL NEW SPEED HUMP SIGN W5-10A & NEW SPEED SIGN W8-2A ON NEW STANDARD STEM AS SHOWN.
SUPPLY & INSTALL NEW SPEED HUMP AHEAD SIGN W3-4A AND 'NEXT 300m' BLADE (~50m) AHEAD OF RAISED THRESHOLD ON A NEW STANDARD STEM IN A GOOD VISIBLE LOCATION.
5 LOCATION 5 - GENERAL ARRANGEMENTS (5 OF 5)
Scale 1:100
CONSULTATION PLANS
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 31-07-24
DESIGNED BY ASHFAQ 08-08-24
DRAWN BY ASHFAQ 08-08-24
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SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM MGA2020
SCALES (ORIGINAL A1) 1:100
REV. DATE DESCRIPTION APPROV.
QUEEN STREET, ASHFIELD
FROM HILLCREST AVE TO NEW STREET
RAISED PEDESTRIAN CROSSINGS & SPEED THRESHOLDS
LOCATION 5-SPEED THRESHOLD OUTSIDE 96 QUEEN ST
PROJECT NO. 303403 303404
SHEET NO. 5 of 5
PLAN NO. 10303
SHEET REV #
Plotted By: (ASHFAQ AHMAD), Plotted on: (November 15, 2024)

Item No: **LTC1224(1) Item 10**

Subject: **NORTON STREET, ASHFIELD (BETWEEN A'BECKETT AVENUE TO CARLISLE STREET) - PROPOSED IMPROVED PEDESTRIAN FACILITY AND TRAFFIC CALMING WORKS (DJARRAWUNANG-ASHFIELD WARD/ SUMMER HILL ELECTORATE/ BURWOOD PAC)**

Prepared By: Boris Muha - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the detailed design plans (10262 Sheets 1 to 4) for proposed corridor treatments comprising of raised thresholds, raised pedestrian (zebra) crossing, kerb-blister islands and pedestrian refuges and lane delineation markings with associated signposting along Norton Street between A'Beckett Avenue to Carlisle Street, and the intersections of Carlisle Street, Miller Avenue and Knox Streets, as shown in Attachment 1, be approved.**

2. **That the detailed design plans (10262 Sheets 5-8) as approved by Council at its meeting on 10 October 2023, be noted.**

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council is planning to improve pedestrian and motorist safety in Norton Street, Ashfield from A'Beckett Avenue to Carlisle Street, by constructing various traffic calming facilities including raised thresholds, raised pedestrian crossing, landscaped kerb blister islands, pedestrian refuge islands and lane delineation markings. The proposal aims to improve safety for pedestrians and motorists by better defining crossing points, reducing conflicts with traffic movements and reducing traffic speeds. This will help address concerns with pedestrian and motorist behaviour in this area, particularly during busy periods.

BACKGROUND

Norton Street, between Holden Street and Carlisle Street, Ashfield and the intersections of Carlisle Street, Miller Avenue and Knox Street, have been recognised under the Pedestrian Access Mobility Plan (PAMP) 2022 requiring improvements to pedestrian safety.

Community concerns on traffic speeding and a recent report under the InnerWest@40 study identifying a history and/or potential risk of accidents along the above section of Norton Street, has also prompted proposed traffic calming works as shown in the plans in Attachment 1.

The section of works in Holden Street, between Holden Street and A'Beckett Avenue was approved by Council at its meeting on the 10 October 2023.

DISCUSSION

The following information is provided in discussion.



Figure 1. Locality Plan

Street Name	**Norton Street (A'Beckett Avenue to Carlisle Street)**
Carriageway width (m) kerb to kerb	6.3m to 9.0m
Carriageway type	One-way westbound lane with remaining carriage way width divided and hatched off in road markings to prevent parking to the north and south side of the road.
Classification	Regional Road. By-pass through Ashfield CBD.
Speed Limit km/h	50
85th percentile speed km/h	41.0-49.9
Vehicles per day (vpd)	4700-7500
Reported crash history in last 5 years	Six (6) accidents have been recorded from TfNSW available accident statistics in the last 5 years in Norton Street between Beckett Avenue to Carlisle Street. One (1) X 2019, Norton St, east of Knox Street, RUM 83, off right/right bend into object, moderate injury. One (1) X 2019, Norton St at Knox Street, RUM 19, non-casualty (towaway), vehicle from adjacent direction right off carriageway into object in northbound direction. One (1) X 2022, Norton St at Carlisle Street, RUM 16, serious injury, left near. One (1) X 2021, Norton St at Carlisle Street, RUM

	85, non-casualty (tow-away), off right/ left bend into object in Norton Street. One (1) X 2021, Norton St at Knox Street, RUM 0, pedestrian near side. One (1) X 2019, Norton St at Knox Street, RUM 0, pedestrian near side.
Parking arrangements	Full-time 'No Stopping' and/or 'No Parking' to both sides.
Side streets	A'Beckett Avenue, Knox Street, Miller Avenue and Carlisle Street.

Table 1. Road Network detail.

The Plan

The following works are proposed and are illustrated on the attached plan.

Norton Street, Ashfield (from Carlisle Street to A'Beckett Avenue) (Plans No. 10262 sheets (1 to 4):

In Norton Street (A'Beckett Avenue to Carlisle Street)

- Near No. 80: Construct a new concrete raised threshold (100mm high, flat-top to be terracotta colour) together with landscaped kerb blister islands on either side.
- Near No. 90 – replace the existing at-grade pedestrian crossing with new concrete raised pedestrian crossing (100mm high, flat-top to be terracotta colour) with landscaped kerb blister islands on either side.
- West of Miller Avenue – construct a new concrete raised threshold (100mm high, flat-top to be terracotta colour).
- Near No. 129/131 – construct new landscaped kerb blister islands at the bend in place of the line marked non-traffic lane to calm traffic as they travel through the bend.
- Resurface the road pavement with new asphalt (generally from A'Beckett Ave to Hugh St).
- Provide new edge line marking, chevron markings and direction al arrows to delineate the traffic lane from the parking and non-parking lanes.

In Knox Avenue

- Construct a new integrated landscaped kerb extension together with a new pedestrian refuge island to improve pedestrian access and safety across the road at this location.
- Resurface the road pavement with new asphalt (final extent subject to detail design and budget allocations).

In Hugh Street

- Construct 2 new integrated landscaped kerb extensions at the intersection to improve pedestrian access and safety across the road at this location.
- Resurface the road pavement with new asphalt (final extent subject to detail design and budget allocations).

In Miller Avenue

- Construct 2 new integrated landscaped kerb extensions at the intersection to improve pedestrian access and safety across the road at this location and remove the existing narrow central median island.
- Resurface the road pavement with new asphalt (final extent subject to detail design and budget allocations)

In Carlisle Street

- Construct 2 new integrated landscaped kerb extensions at the intersection to improve pedestrian access and safety across the road at this location and remove the existing narrow central median island.

Norton Street (Holden Street to A'Beckett Avenue, including in A'Beckett Ave)-Plans No. 10262 sheets 5-8)

- The works shown on these plans within the section of Norton Street between Holden Street and A'Beckett Street have been previously approved by the Traffic Committee in September 2023 and Council in October 2023. These works will also be included in the overall scope of works when construction is undertaken.

Parking Changes

Most of the existing parking arrangements will remain unchanged. However, it is proposed to convert the existing 'No Parking' signs and zones to '2P Parking' permit holders excepted signs and zones in Norton Street (south side between No.82A and No.88). These changes will result in a gain of 8 new conditional parking spaces.

Streetlighting

The existing street lighting at the location is deemed adequate. Therefore, no changes are proposed to the existing street lighting due to the works. Please note however that Ausgrid is progressively replacing all existing streetlights throughout the Local Government area with new energy efficient and environmentally friendly LED streetlights, and this will be completed independent of this project.

Other Information

Proposed resident parking restrictions on the southern side of Norton Street (between No.82A and No.88) will read '2P 8am-6pm Mon-Fri Permit Holders Excepted Area 1'. These proposed restrictions are similar to the approved resident parking restrictions on the south side of Norton Street, between Holden Street and A'Beckett Avenue (outside premises' No.50 to 60) per plan 10262 sheet 5 and 6. The resident parking restrictions along Norton Street are similar and consistent with the existing resident parking restrictions in the adjoining streets.

Attachment 1 is an amendment to plan as originally issued out under consultation. Inclusion or changes have been made after consultation as follows:

1. All one-way signs off intersections and major driveways (i.e. Ashfield Mall exit from Norton Street) are increased in size to better identify and enforce the one -way west in Norton Street;

2. A pedestrian safety fence is provided to the back of kerb on the northern side of the proposed raised threshold east of Carlisle Street (west of Miller Avenue) to prevent pedestrians from using the threshold as a crossing. The narrow width of the footpath to the south side would not appropriately accommodate a fence. Hence no fence is placed to the south side; and

3. Centerline markings are provided in Miller Avenue and Carlisle Street at Norton Street to control and guide traffic around the intersections.

FINANCIAL IMPLICATIONS

The project is listed in Council's Traffic Facilities Capital Works program to be carried out in 2025/2026 and is funded under the NSW 2024/25 - 2026/27 Towards Zero Safer Roads Program up to the amount of $840,000.

CONSULTATION

A letter outlining the proposal was mailed out to (32) properties (98 letters) in Norton Street, between A'Beckett Street and Carlisle Street, and in Miller Avenue and Carlisle Street at the intersection with Norton Street, requesting the residents' views regarding the proposal (see map of consultation area Figure 2). Letters were sent out on 17/10/2024 with closure of submission on 8/11/2024.

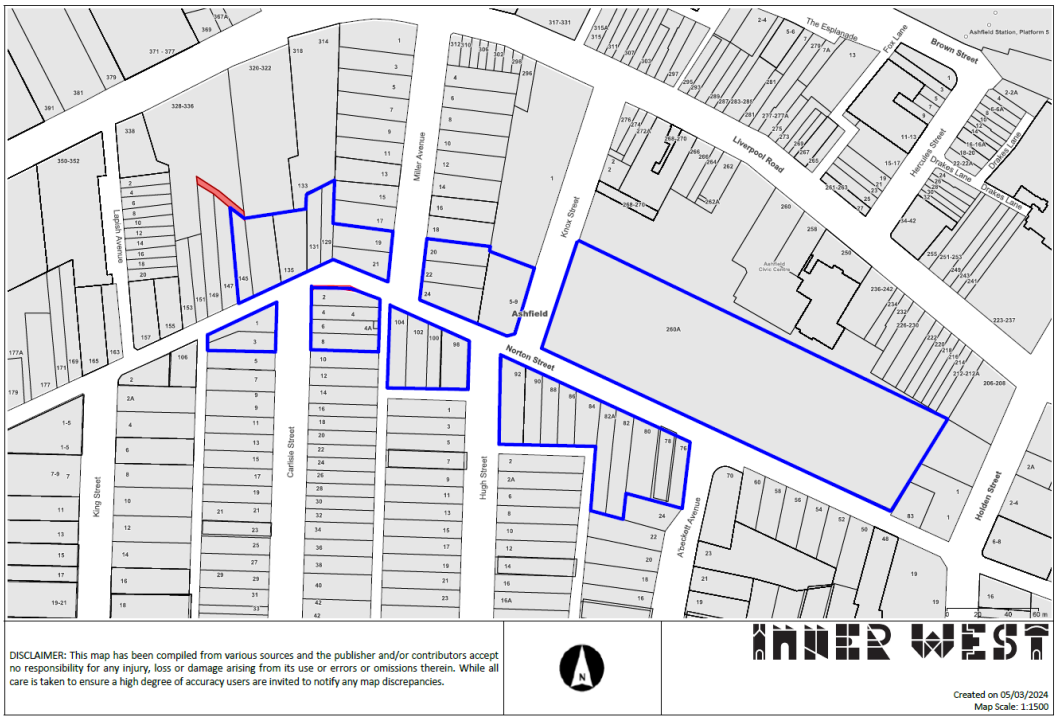


Figure 2. Map on Consultation Area.

Resident responses received with the concerns raised by the residents are outlined in the table below with officer's responses provided.

A petition signed by (26) residents from (18) households requesting the retention of a convex mirror located opposite Carlisle Street in Norton Street to view west bound traffic coming around the bend in Norton Street from Carlisle Street.

Residents Comments	Officers Response
Resident 1:	
Issues in Norton Street.	
• Ashfield Baptist Church Traffic Management (adjacent to 48 Norton Street)-consideration needs to be given for traffic entering and leaving the church carpark and community facility. Increase community use of this facility is expected in the future.	• The proposal will not affect the existing traffic movements/management for the church near to Holden Street.
• Further consideration needs to be given to re-align the curve at the bend outside 129/131 Norton Street due to an adverse camber resulting in past accidents.	• This is not in the Scope of Works. Existing constraints on the road reserve prevents any correction to the road alignment (e.g. major utilities and drainage re-adjustments, and land acquisition, all of which may not be feasible, and cost prohibitive. The proposal involves the use of raised threshold (speed hump) and kerb blister islands to physically narrow the travel path and reduce the speeds. It is expected the traffic calming at this location will adequately control the traffic movement and reduce traffic speeds down to acceptable levels and improve safety for road users in the area.
• Some allowance also need to be made for future traffic emerging from the unit blocks currently under construction on the sites of 133/135 Norton street, which as I understand it will also add considerable traffic movements to this immediate area.	• The development is not considered to be an issue which would prevent the proposal from being implemented or warrant any additional measures at this location regarding the development.
• The current post-mounted mirror facing Carlisle Street must not be removed (as per your plan). The nature of the curve on Norton Street means that any traffic aiming to turn left on to Norton Street westwards simply cannot see other traffic approaching along Norton Street. To remove this mirror would be inviting accidents to happen. A petition has in turn been signed by (26) residents from (18) households and received by Council requesting the retention of the convex mirror to view west bound traffic coming around the bend in Norton Street from Carlisle Street.	• **Convex mirrors on public roadway/footpath distort the reflected image and impact on a motorist's ability to accurately judge speed and distance and pedestrian movement. They can be damaged and rotated rendering ineffective. They can pose a hazard as a reliant motorist will leave a side street on the assumption that the road is clear. NSW Police, Transport for New South Wales (TfNSW) and Council's no longer favour these devices and stopped recommending them within public roadways. The above proposed traffic measures to slow vehicle speeds down and reduce the safe sight distance for viewing aims to phase the mirror out. A road safety audit will be carried out to assess the effect of the works once implemented.
Issues in Knox Steet	
• The movements of goods vehicles to and from the Ashfield Mall loading bays and car parks should be accounted for. An exit into Norton Street that is too restrictive for goods vehicles will simply add to congestion elsewhere in the vicinity.	• The proposal has been checked and will not affect any existing movements of goods vehicles into or out of Ashfield Mall. All major goods deliveries to loading docks are to the north of Knox Street with trucks coming in and out of Liverpool Road. No comments were received from the Ashfield Mall.
• The landscaped kerb on the western side could be shaped in a such a way as to favour traffic turning right into Knox Street from Norton Street and to deter motorists who may attempt to 'short-cut' the intersection from Hugh Street by illegally cutting across the westbound traffic on Norton Street into Know Street northbound.	• The change requested cannot be made as it will adversely impact on the required traffic movements into and out of the street. One-way arrow (west) road marking are proposed and larger size one-way signs are placed opposite Hugh Street to deter illegal wrong way movement from Hugh Street into Knox Street.

Issues in Hugh Street • The landscaped kerb on the west side could be shaped to 'direct' traffic to turn left (see above). Also there could be a shaped medians trip to line of Norton Street for the same purpose, and clear 'left -turn' arrows stencilled on the street surface at this point.	• This cannot be accommodated due to the existing tree positioned on the wester corner. Any change to the island as suggested would cause a constriction for traffic movements past this tree. The kerb is extended out to better view and provide safe pedestrian movement across Hugh Street over a shorter distance. A median strip or island in Hugh Street may constrict larger vehicle (garbage truck) from turning left in from Norton Street. A centreline is marked to guide and direct traffic. Larger one -way signs and one-way arrow markings in Norton Street direct vehicles to turn left from Hugh Street into Norton Street.
Issues in Miller Avenue • Traffic moving south bound through Miller Avenue either deliberately or through ignorance attempts to turn left into Norton Street against the one-way traffic flow. As previously, shaping of the kerbs, better signage and stencilled arrows in Miller Avenue (in this case 'turn right only') would help make this intersection safer. • Make sure the access from Norton Street is wide enough for emergency vehicles transferring from Norton Street to Liverpool Road through Miller Avenue. • Stencilled left turn signs on the road surface approaching the Norton Street intersection form the south … most importantly, re-instatement of the mirror to provide motorists on Carlisle Street with a view of whatever may be approaching from their right through what is very much a blind corner at that point.	• The reshaping of the islands as suggested cannot be accommodated without adversely affecting required traffic movements into and out of the street. A larger One- Way sign will be provided (in place of the existing) to help reinforce this restriction to vehicles coming out of Miller Avenue. • The central median island in Miller Avenue is removed and replaced a with a painted centreline. Emergency vehicles can cut over the centreline to negotiate the turns or go to the wrong side of the road. • The proposed one -way arrow road markings, and larger one-way signs are considered sufficient. A centre line is marked in Carlisle Street to guide traffic to turn left. However, this can be reviewed after the proposal is implemented to ascertain any need for additional road markings. See above point with double Asterix ** regarding the mirror.
Resident 2: • Consideration should be given to closing Carlisle Street at the intersection with of Norton Street for safety reasons, due to a bend in Norton Street. Lack of indicators turning into Carlisle Street-comes upon drivers on Norton Street too quickly. Unit development of 314 Liverpool Road with access off Norton Street will have issues with drivers turning onto Norton Street from Carlisle Street. Drivers cannot see traffic coming along Norton Street. Drivers are required to stop and wait for pedestrians including elderly leading to traffic issues. Bin collection from the development will lead to congestion. • Agree to the raising of the crossing in Norton Street at Knox Street.	• This is not in the Scope of works. There is no intention under any current traffic management program to close off Carlisle Street, any road closure would divert traffic to other streets and limit access for the residents in the street and so must be considered in a LATM study. • Noted.

	• The existing kerb & gutter and footpath assets are in quite good condition and the reconstruction of these assets in order to form a wider footpath is not warranted at this time., giver the costs involved and the limited budget available.
• Consideration should be made to widen the footpaths-introduction of trees has severely limited the pedestrian access. Instead of green space, provide extended footpath between Carlisle Street to Knox Street to encourage resident and visitors to walk.	• It should be noted the integration of landscaping and green space is a priority for Council when new works are being implemented across the Local Government Area. These locations will be added to Councils existing maintenance programs for periodic maintenance according to Council's existing service standards.
• Council neglects to maintaining its green space-should be used for footpath instead.	
• Design does not take into account the new development 314 Liverpool Road. Bin collection of red green and yellow bins will lead to congestion.-more reason to request closure of Carlisle Street for safety reasons for traffic turning into Norton Street from Carlisle Street and the driveway into and out of the development.	• The development 314 Liverpool Road has an approved waste management plan where bins are stored in an internal area at the rear of the site at Norton Street and wheeled out directly to an awaiting waste collection vehicle on street or within the property, and wheeled back directly into the holding area, minimising any impact or conflict/obstruction to pedestrian and traffic activity in the area. It is considered this proposal will not impact the ability for these services to be provided. The design does not interfere with the vehicular access to the driveway of the development.
• Severely disagree to the removal of the mirror on Norton Street at Carlisle Street, due to safety reasons. If Carlisle Street is closed to a cul-de sac, then mirror is not required.	• See above point with double Asterix ** regarding the mirror.
• Consideration should be made to naming the laneways in-between Hugh and Carlisle Streets and Carlisle and King Streets, as the majority of lanes in the Inner West are named.	• Naming of lanes is not a design or traffic related matter and is therefore outside scope of this current project. Residents can write separately regarding this request to Council's Engineering Services Manager.
• Painted arrows on roadway, too many vehicles observed going the wrong way in Norton Street, especially between Holden Street and Hugh Streets.	• The plans will be amended to replace all existing One- Way signs (opposite Carlisle Street, Miller Street, Hugh Street & Knox Street) with new and larger signs to reinforce this restriction. The proposed painted arrows on the road pavement, as shown on plan, are considered appropriate and therefore no additional painted arrows are proposed at this stage.

Item 10

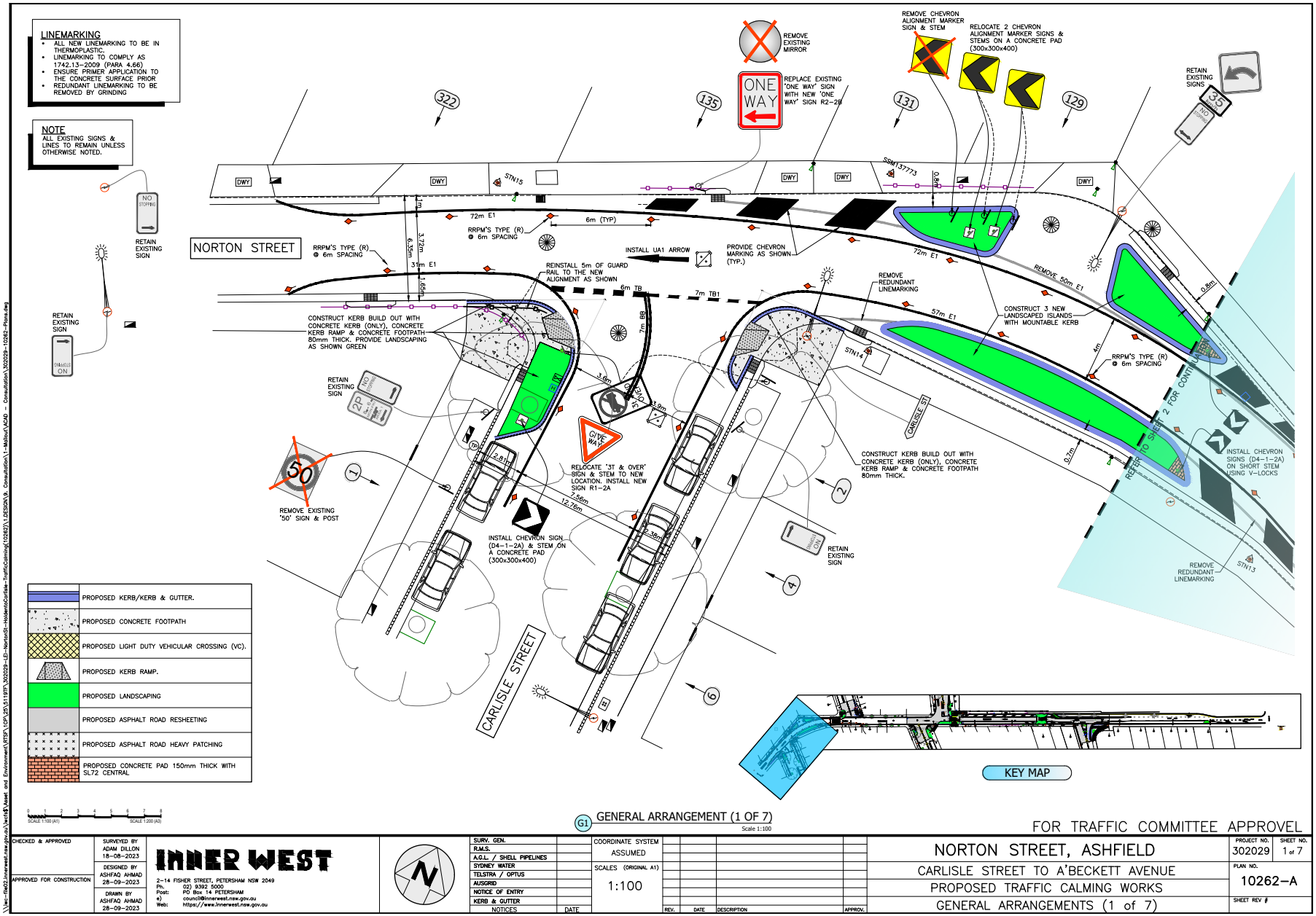
CONCLUSION

It is recommended that the detailed design plans (10262 Sheets 1 to 4) for proposed corridor treatments comprising of raised thresholds, raised pedestrian (zebra) crossing, kerb-blister islands and pedestrian refuges and lane delineation markings with associated signposting along Norton Street between A'Beckett Avenue to Carlisle Street, and the intersections of Carlisle Street, Miller Avenue and Knox Streets, as shown in Attachment 1, be approved.

It should be further noted that the detailed design plans (10262 Sheets 5-8) were approved by Council at its meeting on 10 October 2023.

ATTACHMENTS

1.⇩ Proposed plans- pedestrian facility improvements and traffic calming works in Norton Street, Ashfield.


LINEMARKING
ALL NEW LINEMARKING TO BE IN THERMOPLASTIC.
LINEMARKING TO COMPLY AS 1742.13-2009 (PARA 4.66)
ENSURE PRIMER APPLICATION TO THE CONCRETE SURFACE PRIOR
REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
NORTON STREET
CARLISLE STREET
REMOVE EXISTING MIRROR
REPLACE EXISTING 'ONE WAY' SIGN WITH NEW 'ONE WAY' SIGN R2-2B
REMOVE CHEVRON ALIGNMENT MARKER SIGN & STEM
RELOCATE 2 CHEVRON ALIGNMENT MARKER SIGNS & STEMS ON A CONCRETE PAD (300x300x400)
RETAIN EXISTING SIGNS
RETAIN EXISTING SIGN
RRPM'S TYPE (R) @ 6m SPACING
INSTALL UA1 ARROW
PROVIDE CHEVRON MARKING AS SHOWN (TYP.)
REINSTALL 5m OF GUARD RAIL TO THE NEW ALIGNMENT AS SHOWN
REMOVE REDUNDANT LINEMARKING
CONSTRUCT 3 NEW LANDSCAPED ISLANDS WITH MOUNTABLE KERB
CONSTRUCT KERB BUILD OUT WITH CONCRETE KERB (ONLY), CONCRETE KERB RAMP & CONCRETE FOOTPATH 80mm THICK. PROVIDE LANDSCAPING AS SHOWN GREEN
RELOCATE '3T & OVER' SIGN & STEM TO NEW LOCATION. INSTALL NEW SIGN R1-2A
REMOVE EXISTING '50' SIGN & POST
INSTALL CHEVRON SIGN (D4-1-2A) & STEM ON A CONCRETE PAD (300x300x400)
INSTALL CHEVRON SIGNS (D4-1-2A) ON SHORT STEM USING V-LOCKS
KEY MAP
PROPOSED KERB/KERB & GUTTER.
PROPOSED CONCRETE FOOTPATH
PROPOSED LIGHT DUTY VEHICULAR CROSSING (VC).
PROPOSED KERB RAMP.
PROPOSED LANDSCAPING
PROPOSED ASPHALT ROAD RESHEETING
PROPOSED ASPHALT ROAD HEAVY PATCHING
PROPOSED CONCRETE PAD 150mm THICK WITH SL72 CENTRAL
G1 GENERAL ARRANGEMENT (1 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVAL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
DRAWN BY ASHFAQ AHMAD 28-09-2023
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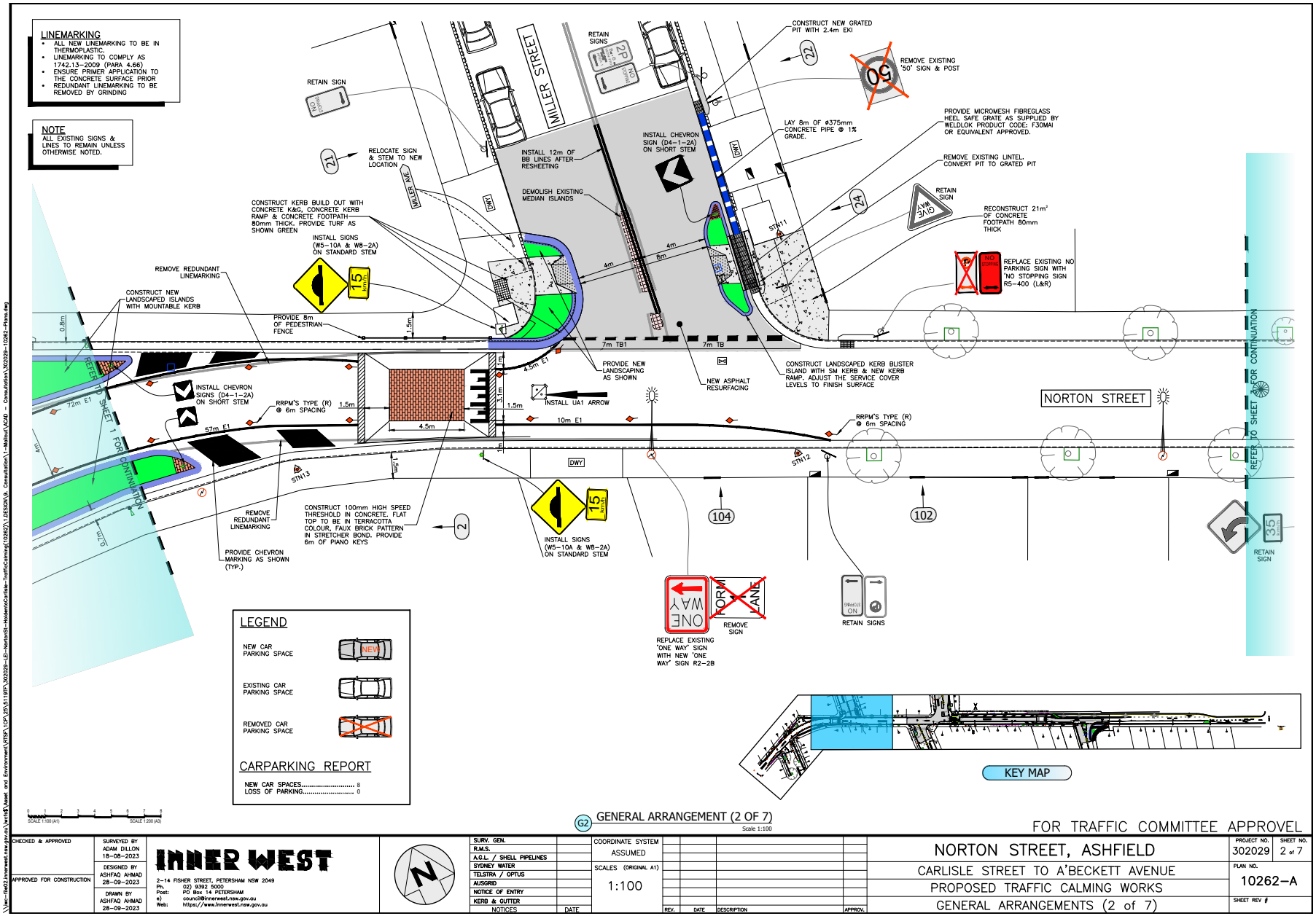
SURV. GEN.
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (1 of 7)
PROJECT NO. 302029
SHEET NO. 1 of 7
PLAN NO. 10262-A
SHEET REV #


LINEMARKING
ALL NEW LINEMARKING TO BE IN THERMOPLASTIC.
LINEMARKING TO COMPLY AS 1742.13-2009 (PARA 4.66)
ENSURE PRIMER APPLICATION TO THE CONCRETE SURFACE PRIOR
REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
MILLER STREET
NORTON STREET
RETAIN SIGN
RETAIN SIGNS
RELOCATE SIGN & STEM TO NEW LOCATION
CONSTRUCT NEW GRATED PIT WITH 2.4m EKI
REMOVE EXISTING '50' SIGN & POST
INSTALL 12m OF BB LINES AFTER RESHEETING
INSTALL CHEVRON SIGN (D4-1-2A) ON SHORT STEM
LAY 8m OF ø375mm CONCRETE PIPE @ 1% GRADE.
PROVIDE MICROMESH FIBREGLASS HEEL SAFE GRATE AS SUPPLIED BY WELDLOK PRODUCT CODE: F30MAI OR EQUIVALENT APPROVED.
REMOVE EXISTING LINTEL, CONVERT PIT TO GRATED PIT
DEMOLISH EXISTING MEDIAN ISLANDS
CONSTRUCT KERB BUILD OUT WITH CONCRETE K&G, CONCRETE KERB RAMP & CONCRETE FOOTPATH 80mm THICK. PROVIDE TURF AS SHOWN GREEN
INSTALL SIGNS (W5-10A & W8-2A) ON STANDARD STEM
RETAIN SIGN
RECONSTRUCT 21m² OF CONCRETE FOOTPATH 80mm THICK
REPLACE EXISTING NO PARKING SIGN WITH 'NO STOPPING SIGN R5-400 (L&R)
REMOVE REDUNDANT LINEMARKING
CONSTRUCT NEW LANDSCAPED ISLANDS WITH MOUNTABLE KERB
PROVIDE 8m OF PEDESTRIAN FENCE
PROVIDE NEW LANDSCAPING AS SHOWN
NEW ASPHALT RESURFACING
CONSTRUCT LANDSCAPED KERB BLISTER ISLAND WITH SM KERB & NEW KERB RAMP. ADJUST THE SERVICE COVER LEVELS TO FINISH SURFACE
INSTALL CHEVRON SIGNS (D4-1-2A) ON SHORT STEM
RRPM'S TYPE (R) @ 6m SPACING
INSTALL U4 ARROW
REFER TO SHEET 1 FOR CONTINUATION
REFER TO SHEET 3 FOR CONTINUATION
REMOVE REDUNDANT LINEMARKING
CONSTRUCT 100mm HIGH SPEED THRESHOLD IN CONCRETE. FLAT TOP TO BE IN TERRACOTTA COLOUR, FAUX BRICK PATTERN IN STRETCHER BOND. PROVIDE 6m OF PIANO KEYS
INSTALL SIGNS (W5-10A & W8-2A) ON STANDARD STEM
PROVIDE CHEVRON MARKING AS SHOWN (TYP.)
REPLACE EXISTING 'ONE WAY' SIGN WITH NEW 'ONE WAY' SIGN R2-2B
REMOVE SIGN
RETAIN SIGNS
RETAIN SIGN
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 8
LOSS OF PARKING..... 0
KEY MAP
G2 GENERAL ARRANGEMENT (2 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVAL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
DRAWN BY ASHFAQ AHMAD 28-09-2023
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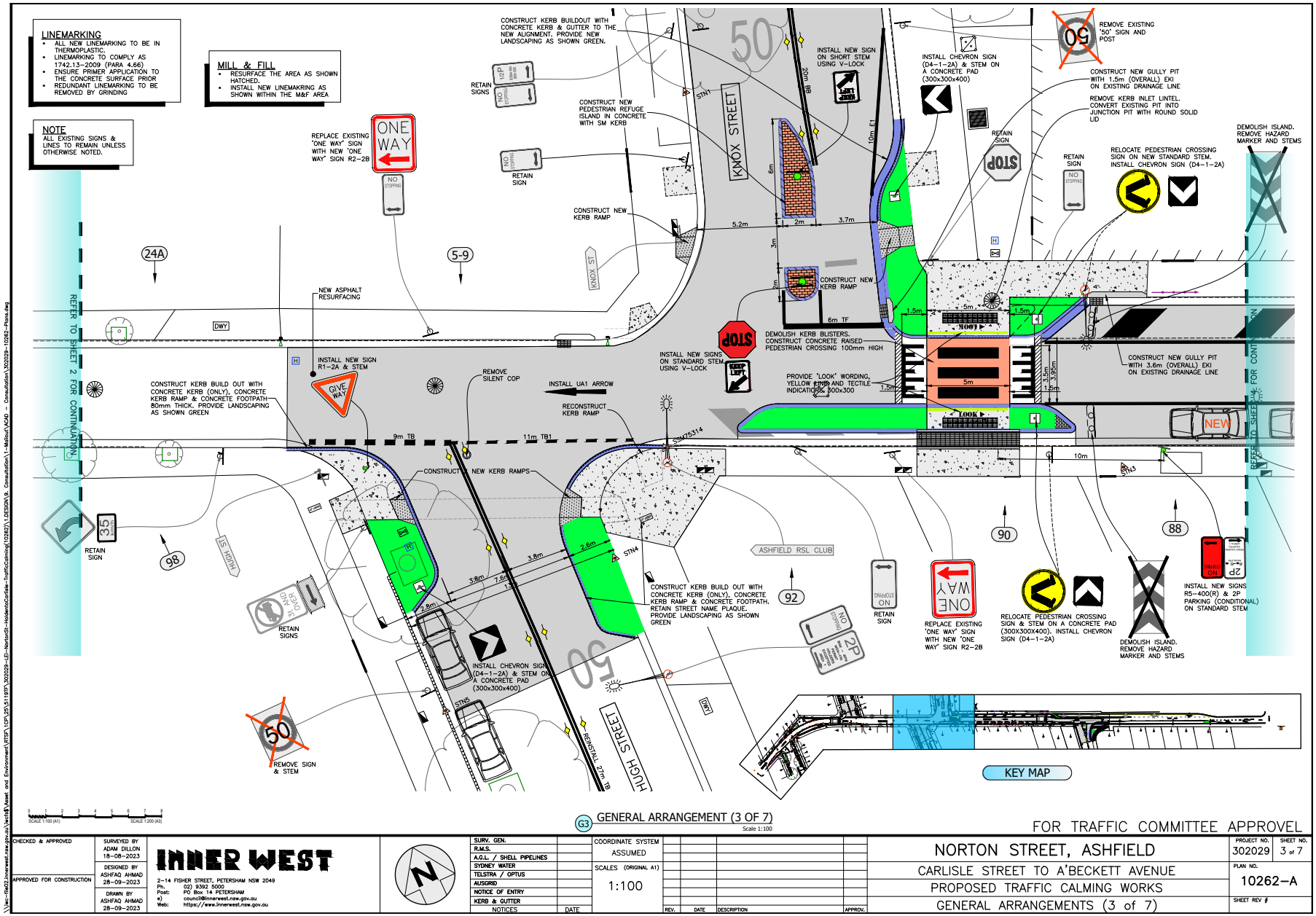
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (2 of 7)
PROJECT NO. 302029
SHEET NO. 2 of 7
PLAN NO. 10262-A
SHEET REV #


LINEMARKING
ALL NEW LINEMARKING TO BE IN THERMOPLASTIC.
LINEMARKING TO COMPLY AS 1742.13-2009 (PARA 4.66)
ENSURE PRIMER APPLICATION TO THE CONCRETE SURFACE PRIOR
REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING
MILL & FILL
RESURFACE THE AREA AS SHOWN HATCHED.
INSTALL NEW LINEMAKRING AS SHOWN WITHIN THE M&F AREA
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
KNOX STREET
HUGH STREET
ASHFIELD RSL CLUB
CONSTRUCT KERB BUILDOUT WITH CONCRETE KERB & GUTTER TO THE NEW ALIGNMENT. PROVIDE NEW LANDSCAPING AS SHOWN GREEN.
CONSTRUCT NEW PEDESTRIAN REFUGE ISLAND IN CONCRETE WITH SM KERB
CONSTRUCT NEW KERB RAMP
CONSTRUCT NEW KERB RAMPS
NEW ASPHALT RESURFACING
RECONSTRUCT KERB RAMP
REMOVE SILENT COP
INSTALL UA1 ARROW
INSTALL NEW SIGN R1-2A & STEM
INSTALL NEW SIGNS ON STANDARD STEM USING V-LOCK
INSTALL NEW SIGN ON SHORT STEM USING V-LOCK
INSTALL CHEVRON SIGN (D4-1-2A) & STEM ON A CONCRETE PAD (300x300x400)
REMOVE EXISTING '50' SIGN AND POST
CONSTRUCT NEW GULLY PIT WITH 1.5m (OVERALL) EKI ON EXISTING DRAINAGE LINE
REMOVE KERB INLET LINTEL. CONVERT EXISTING PIT INTO JUNCTION PIT WITH ROUND SOLID LID
CONSTRUCT NEW GULLY PIT WITH 3.6m (OVERALL) EKI ON EXISTING DRAINAGE LINE
RELOCATE PEDESTRIAN CROSSING SIGN ON NEW STANDARD STEM. INSTALL CHEVRON SIGN (D4-1-2A)
DEMOLISH ISLAND. REMOVE HAZARD MARKER AND STEMS
DEMOLISH KERB BLISTERS. CONSTRUCT CONCRETE RAISED PEDESTRIAN CROSSING 100mm HIGH
PROVIDE 'LOOK' WORDING, YELLOW FINS AND TECTILE INDICATORS. 300x300
CONSTRUCT KERB BUILD OUT WITH CONCRETE KERB (ONLY), CONCRETE KERB RAMP & CONCRETE FOOTPATH 80mm THICK. PROVIDE LANDSCAPING AS SHOWN GREEN
CONSTRUCT KERB BUILD OUT WITH CONCRETE KERB (ONLY), CONCRETE KERB RAMP & CONCRETE FOOTPATH. RETAIN STREET NAME PLAQUE. PROVIDE LANDSCAPING AS SHOWN GREEN
REPLACE EXISTING 'ONE WAY' SIGN WITH NEW 'ONE WAY' SIGN R2-2B
RELOCATE PEDESTRIAN CROSSING SIGN & STEM ON A CONCRETE PAD (300X300X400). INSTALL CHEVRON SIGN (D4-1-2A)
INSTALL NEW SIGNS R5-400(R) & 2P PARKING (CONDITIONAL) ON STANDARD STEM
RETAIN SIGNS
RETAIN SIGN
REMOVE SIGN & STEM
REMOVE SILENT COP
REFER TO SHEET 2 FOR CONTINUATION
KEY MAP
G3 GENERAL ARRANGEMENT (3 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVAL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
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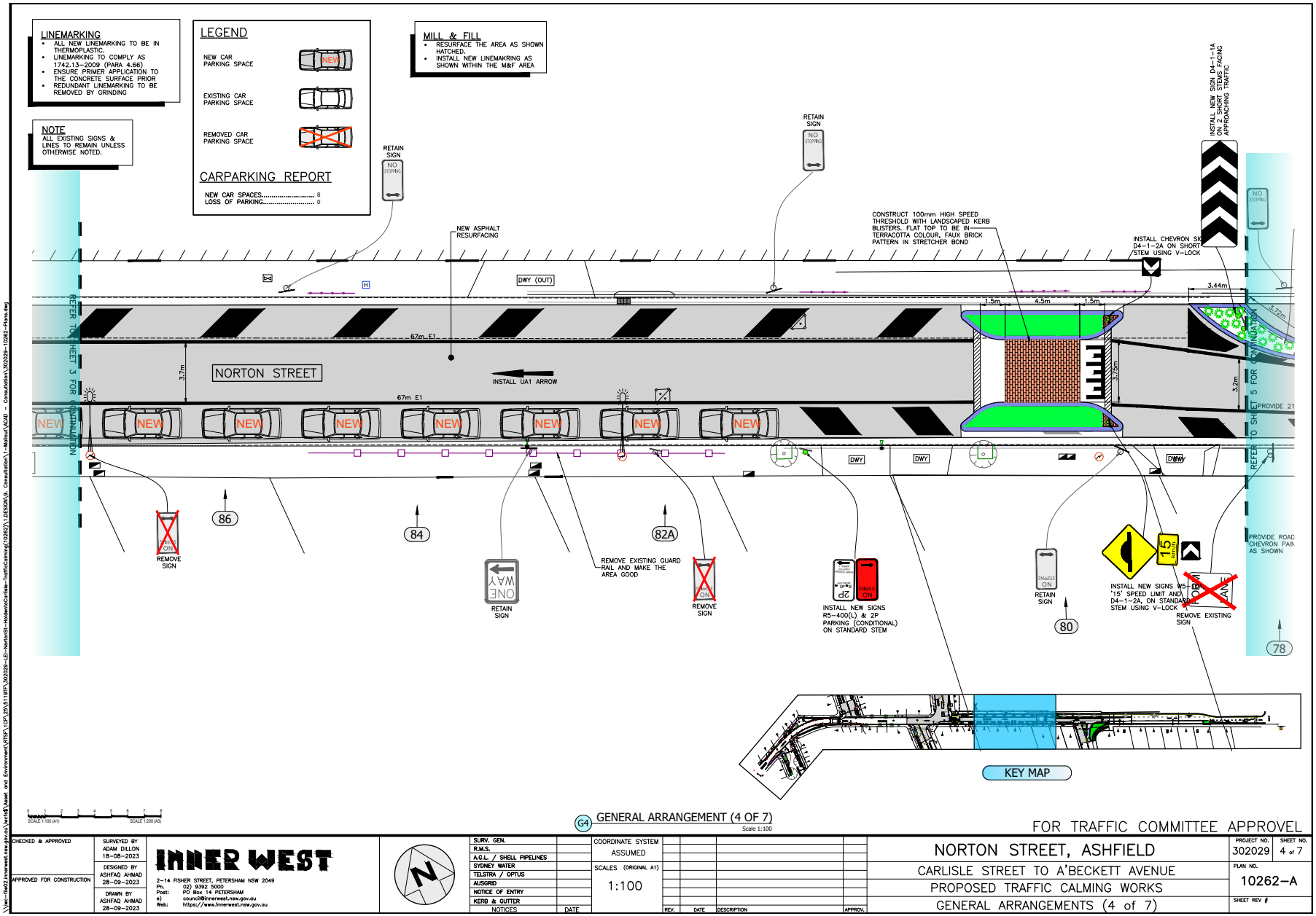
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (3 of 7)
PROJECT NO. 302029
SHEET NO. 3 of 7
PLAN NO. 10262-A
SHEET REV #


LINEMARKING
ALL NEW LINEMARKING TO BE IN THERMOPLASTIC.
LINEMARKING TO COMPLY AS 1742.13–2009 (PARA 4.66)
ENSURE PRIMER APPLICATION TO THE CONCRETE SURFACE PRIOR
REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING
NOTE
ALL EXISTING SIGNS & LINES TO REMAIN UNLESS OTHERWISE NOTED.
LEGEND
NEW CAR PARKING SPACE
EXISTING CAR PARKING SPACE
REMOVED CAR PARKING SPACE
CARPARKING REPORT
NEW CAR SPACES..... 8
LOSS OF PARKING..... 0
MILL & FILL
RESURFACE THE AREA AS SHOWN HATCHED.
INSTALL NEW LINEMAKRING AS SHOWN WITHIN THE M&F AREA
RETAIN SIGN
NEW ASPHALT RESURFACING
CONSTRUCT 100mm HIGH SPEED THRESHOLD WITH LANDSCAPED KERB BLISTERS. FLAT TOP TO BE IN-TERRACOTTA COLOUR, FAUX BRICK PATTERN IN STRETCHER BOND
INSTALL CHEVRON SIGN D4-1-2A ON SHORT STEM USING V-LOCK
INSTALL NEW SIGN D4-1-1A ON 2 SHORT STEMS FACING APPROACHING TRAFFIC
DWY (OUT)
NORTON STREET
INSTALL UA1 ARROW
REFER TO SHEET 3 FOR CONTINUATION
REFER TO SHEET 5 FOR CONTINUATION
REMOVE SIGN
REMOVE EXISTING GUARD RAIL AND MAKE THE AREA GOOD
INSTALL NEW SIGNS R5-400(L) & 2P PARKING (CONDITIONAL) ON STANDARD STEM
INSTALL NEW SIGNS W5-[illegible] '15' SPEED LIMIT AND D4-1-2A, ON STANDARD STEM USING V-LOCK
REMOVE EXISTING SIGN
PROVIDE ROAD CHEVRON PAINT AS SHOWN
KEY MAP
G4 GENERAL ARRANGEMENT (4 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVAL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
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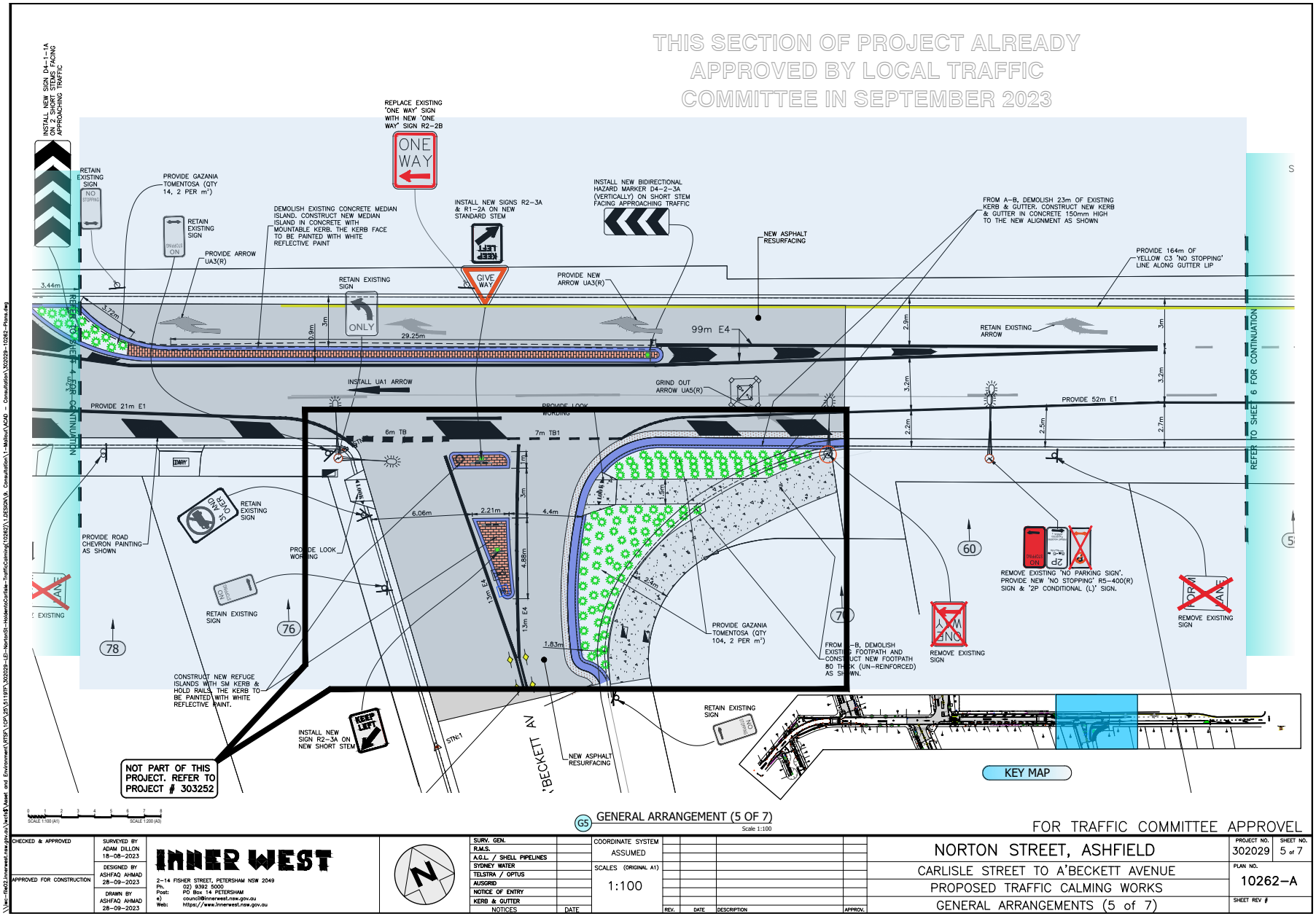
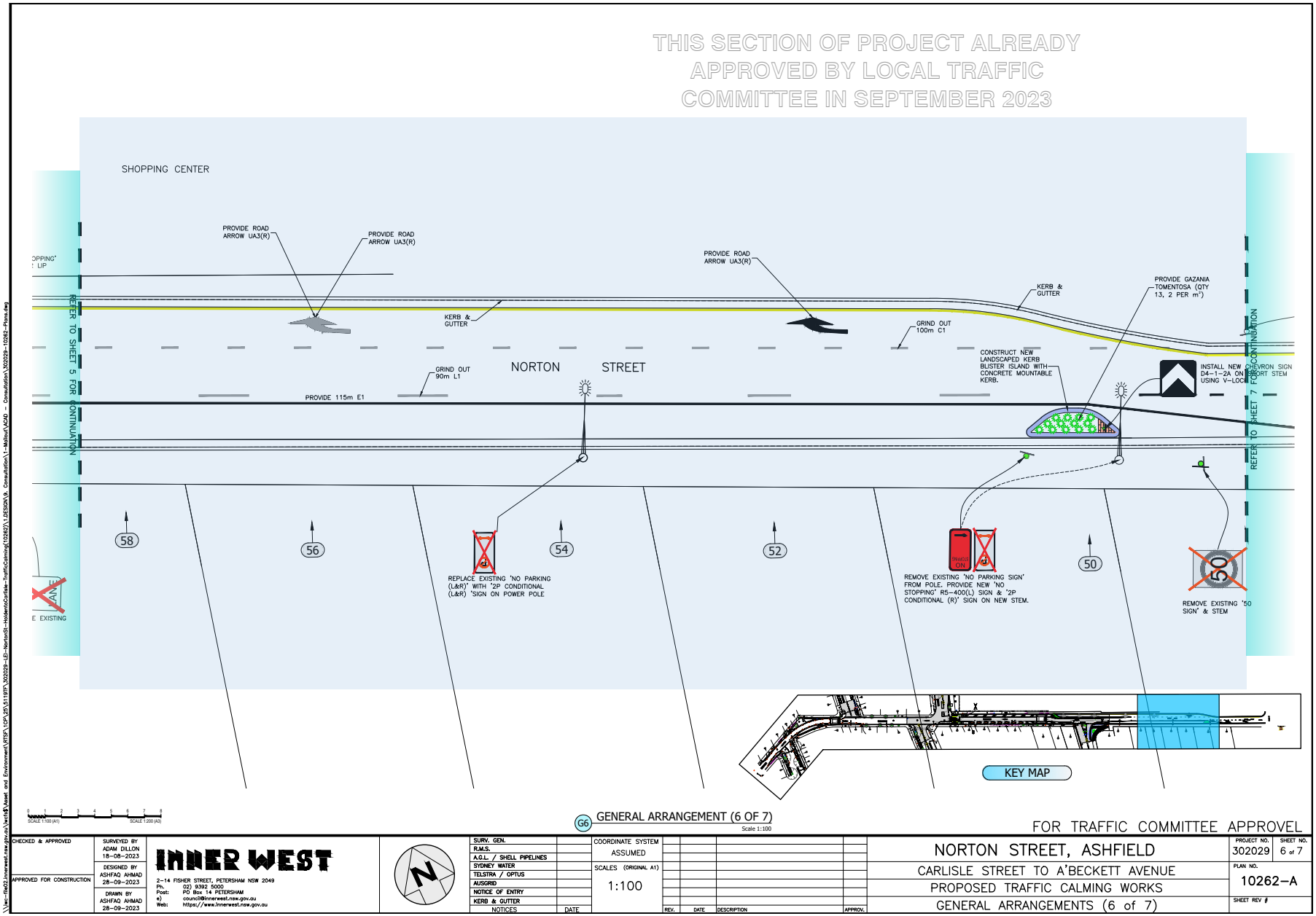
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (4 of 7)
PROJECT NO. 302029
SHEET NO. 4 of 7
PLAN NO. 10262–A
SHEET REV #


THIS SECTION OF PROJECT ALREADY APPROVED BY LOCAL TRAFFIC COMMITTEE IN SEPTEMBER 2023
INSTALL NEW SIGN D4-1-1A ON NEW SHORT STEM FACING APPROACHING TRAFFIC
RETAIN EXISTING SIGN
PROVIDE GAZANIA TOMENTOSA (QTY 14, 2 PER m²)
RETAIN EXISTING SIGN
PROVIDE ARROW UA3(R)
DEMOLISH EXISTING CONCRETE MEDIAN ISLAND, CONSTRUCT NEW MEDIAN ISLAND IN CONCRETE WITH MOUNTABLE KERB. THE KERB FACE TO BE PAINTED WITH WHITE REFLECTIVE PAINT
REPLACE EXISTING 'ONE WAY' SIGN WITH NEW 'ONE WAY' SIGN R2-2B
INSTALL NEW SIGNS R2-3A & R1-2A ON NEW STANDARD STEM
INSTALL NEW BIDIRECTIONAL HAZARD MARKER D4-2-3A (VERTICALLY) ON SHORT STEM FACING APPROACHING TRAFFIC
NEW ASPHALT RESURFACING
FROM A–B, DEMOLISH 23m OF EXISTING KERB & GUTTER. CONSTRUCT NEW KERB & GUTTER IN CONCRETE 150mm HIGH TO THE NEW ALIGNMENT AS SHOWN
PROVIDE 164m OF YELLOW C3 'NO STOPPING' LINE ALONG GUTTER LIP
RETAIN EXISTING SIGN
PROVIDE NEW ARROW UA3(R)
RETAIN EXISTING ARROW
INSTALL UA1 ARROW
GRIND OUT ARROW UA5(R)
PROVIDE 21m E1
PROVIDE 52m E1
PROVIDE LOOK WORKING
6m TB
7m TB1
PROVIDE ROAD CHEVRON PAINTING AS SHOWN
RETAIN EXISTING SIGN
PROVIDE LOOK WORKING
RETAIN EXISTING SIGN
PROVIDE GAZANIA TOMENTOSA (QTY 104, 2 PER m²)
REMOVE EXISTING 'NO PARKING SIGN'. PROVIDE NEW 'NO STOPPING' R5-400(R) SIGN & '2P CONDITIONAL (L)' SIGN.
REMOVE EXISTING SIGN
REMOVE EXISTING SIGN
CONSTRUCT NEW REFUGE ISLANDS WITH SM KERB & HOLD RAILS. THE KERB TO BE PAINTED WITH WHITE REFLECTIVE PAINT.
INSTALL NEW SIGN R2-3A ON NEW SHORT STEM
RETAIN EXISTING SIGN
NEW ASPHALT RESURFACING
NOT PART OF THIS PROJECT. REFER TO PROJECT # 303252
KEY MAP
REFER TO SHEET 6 FOR CONTINUATION
G5 GENERAL ARRANGEMENT (5 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVEL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
DRAWN BY ASHFAQ AHMAD 28-09-2023
INNER WEST
2-14 FISHER STREET, PETERSHAM NSW 2049
Ph. 02) 9392 5000
Post: PO Box 14 PETERSHAM
e) council@innerwest.nsw.gov.au
Web: https://www.innerwest.nsw.gov.au
SURV. GEN.
R.M.S.
A.G.L. / SHELL PIPELINES
SYDNEY WATER
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (5 of 7)
PROJECT NO. 302029
SHEET NO. 5 of 7
PLAN NO. 10262–A
SHEET REV #


THIS SECTION OF PROJECT ALREADY
APPROVED BY LOCAL TRAFFIC
COMMITTEE IN SEPTEMBER 2023
SHOPPING CENTER
PROVIDE ROAD ARROW UA3(R)
PROVIDE ROAD ARROW UA3(R)
PROVIDE ROAD ARROW UA3(R)
KERB & GUTTER
KERB & GUTTER
GRIND OUT 90m L1
GRIND OUT 100m C1
NORTON STREET
PROVIDE 115m E1
CONSTRUCT NEW LANDSCAPED KERB BUSTER ISLAND WITH CONCRETE MOUNTABLE KERB.
PROVIDE GAZANIA TOMENTOSA (QTY 13, 2 PER m²)
INSTALL NEW CHEVRON SIGN D4-1-2A ON SHORT STEM USING V-LOCK
REFER TO SHEET 5 FOR CONTINUATION
REFER TO SHEET 7 FOR CONTINUATION
58
56
54
52
50
REPLACE EXISTING 'NO PARKING (L&R)' WITH '2P CONDITIONAL (L&R) 'SIGN ON POWER POLE
REMOVE EXISTING 'NO PARKING SIGN' FROM POLE, PROVIDE NEW 'NO STOPPING' R5-400(L) SIGN & '2P CONDITIONAL (R)' SIGN ON NEW STEM.
REMOVE EXISTING '50 SIGN' & STEM
KEY MAP
G6 GENERAL ARRANGEMENT (6 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVEL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
DRAWN BY ASHFAQ AHMAD 28-09-2023
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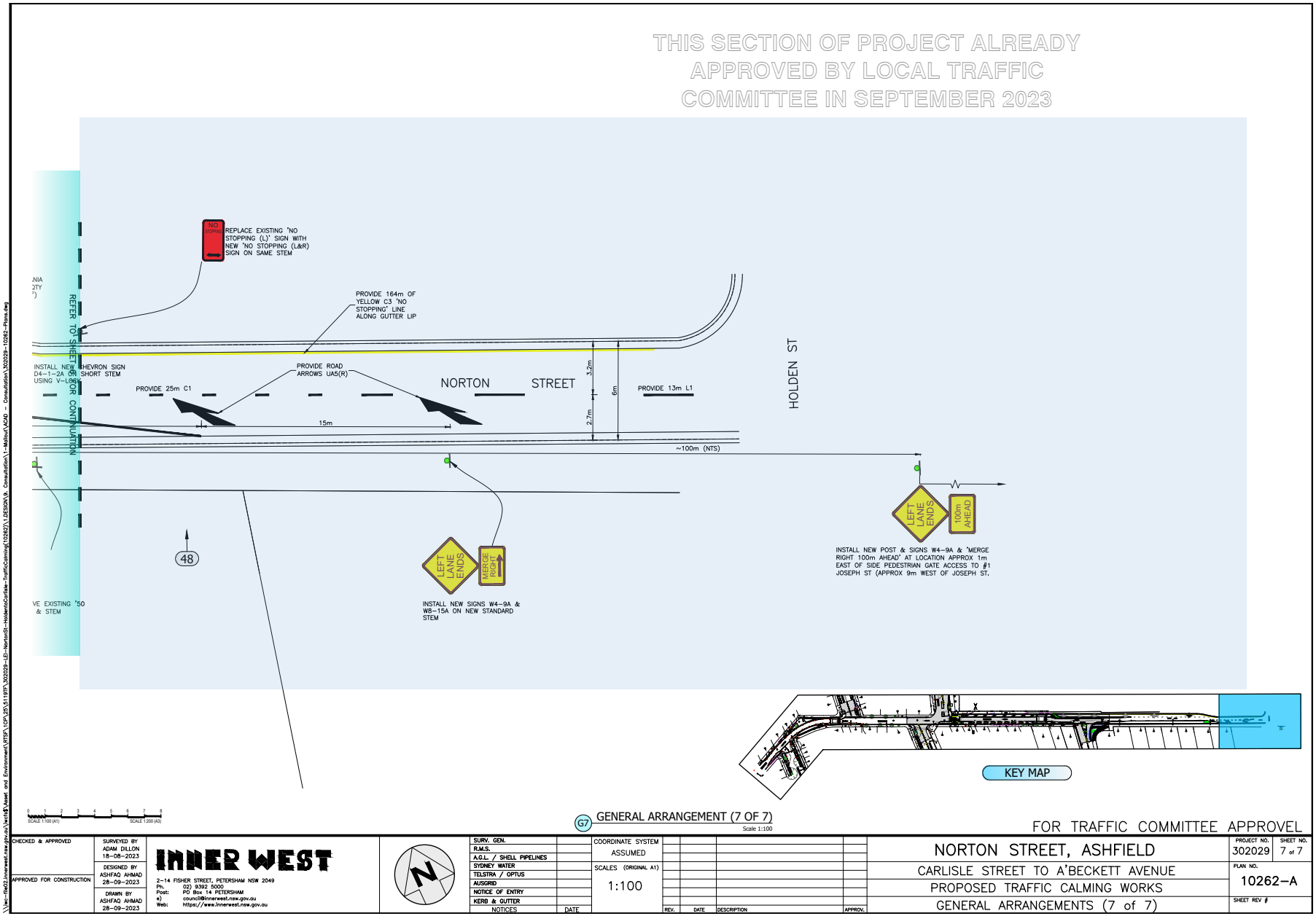
TELSTRA / OPTUS
AUSGRID
NOTICE OF ENTRY
KERB & GUTTER
NOTICES
DATE
COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1)
1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (6 of 7)
PROJECT NO. 302029
SHEET NO. 6 of 7
PLAN NO. 10262-A
SHEET REV #


THIS SECTION OF PROJECT ALREADY
APPROVED BY LOCAL TRAFFIC
COMMITTEE IN SEPTEMBER 2023
REPLACE EXISTING 'NO STOPPING (L)' SIGN WITH NEW 'NO STOPPING (L&R)' SIGN ON SAME STEM
PROVIDE 164m OF YELLOW C3 'NO STOPPING' LINE ALONG GUTTER LIP
REFER TO SHEET 2 FOR CONTINUATION
INSTALL NEW CHEVRON SIGN D4-1-2A ON SHORT STEM USING V-LOC
PROVIDE 25m C1
PROVIDE ROAD ARROWS UA5(R)
NORTON STREET
HOLDEN ST
3.2m
2.7m
6m
15m
PROVIDE 13m L1
~100m (NTS)
48
LEFT LANE ENDS
MERGE RIGHT
INSTALL NEW SIGNS W4-9A & W8-15A ON NEW STANDARD STEM
LEFT LANE ENDS
100m AHEAD
INSTALL NEW POST & SIGNS W4-9A & 'MERGE RIGHT 100m AHEAD' AT LOCATION APPROX 1m EAST OF SIDE PEDESTRIAN GATE ACCESS TO #1 JOSEPH ST (APPROX 9m WEST OF JOSEPH ST.
KEY MAP
G7 GENERAL ARRANGEMENT (7 OF 7)
Scale 1:100
FOR TRAFFIC COMMITTEE APPROVEL
CHECKED & APPROVED
APPROVED FOR CONSTRUCTION
SURVEYED BY ADAM DILLON 18-08-2023
DESIGNED BY ASHFAQ AHMAD 28-09-2023
DRAWN BY ASHFAQ AHMAD 28-09-2023
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NOTICE OF ENTRY
KERB & GUTTER
NOTICES
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COORDINATE SYSTEM ASSUMED
SCALES (ORIGINAL A1) 1:100
REV.
DATE
DESCRIPTION
APPROV.
NORTON STREET, ASHFIELD
CARLISLE STREET TO A'BECKETT AVENUE
PROPOSED TRAFFIC CALMING WORKS
GENERAL ARRANGEMENTS (7 of 7)
PROJECT NO. 302029
SHEET NO. 7 of 7
PLAN NO. 10262-A
SHEET REV #

Item 11

Item No: **LTC1224(1) Item 11**

Subject: **BURROWS AVENUE AND RAILWAY ROAD, SYDENHAM - PROPOSED BUS LAYOVER AND PARKING CHANGES (MIDJUBURI - MARRICKVILLE WARD / HEFRON ELECTORATE / INNER WEST PAC)**

Prepared By: George Tsaprounis - Coordinator Traffic Engineering Services (south)

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the detail design drawing for the on-road changes associated with the proposed construction of a bus layover area in Burrows Avenue, west of Gleeson Avenue, Sydenham (as per attached drawing "Sydenham Station Bus Layover Burrows Avenue and Railway Road Signs and line marking plan" by Aurecon, dated 4/7/24, drawing no. 520212-AURC-038-RW-DRG-002001, sheet 10 of 41) be approved, subject to the following conditions:

a) TfNSW monitor the interaction between buses and vehicles along Railway Road (one way) and Burrows Road over the next 12 months and implement further traffic control measures should they be required.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report follows a previous report to an Extraordinary Local Traffic Committee Meeting on Monday 3 June 2024 in which the proposed bus layover and parking changes along Burrows Avenue and Railway Road, Sydenham were detailed. At the meeting the Transport for NSW representative requested this item be deferred on the basis that the proposed layover will be going to a Review of Environmental Factors (REF) process and once the REF had been determined, Transport for New South Wales (TfNSW) would again request that this matter be brought back to the LTC for consideration. The Traffic Committee therefore recommended that "the Burrows Avenue and Railway Road, Sydenham - Proposed Bus layover and parking changes, be deferred".

Transport for New South Wales (TfNSW) has approached Council with regards to a proposal for the construction of a bus layover area in Burrows Avenue, west of Gleeson Avenue, Sydenham. The designated bus layover area is required at Sydenham Station to cater for the growing number of bus services in this area. Prior to picking up passengers, buses currently park along Burrows Avenue which creates congestion and safety issues for pedestrians and drivers. The bus layover area will store up to 6 buses. The existing unrestricted parking spaces (approximately 11 spaces) on the south side of Burrows Avenue (adjacent to the vacant property) and six (6) 90-degree angle parking spaces on the north side of Burrows Avenue will be lost as a result of the proposal. In response to this loss of parking it is proposed to convert the parallel parking on the east side of Railway Road to 45-degree rear to kerb parking to lessen the impact from the loss of parking because of this proposal.

Community engagement was initially undertaken on Friday 24 November to Friday 8 December 2023. Community notifications, letterbox dropped, and nearby properties door knocked on Railway Road, Burrows Avenue and Wright Street were part of the consultation process. Results of this community engagement process and related parking study (Parking Data Report) were table in the report that was presented to the Extraordinary Local Traffic

Committee Meeting on Monday 3 June 2024. Subsequently a Review of Environmental Factors (REF) report was completed in July 2024, and this has been provided to address issues arising because of both operational and construction matters from this project (refer to attachment 1 - Sydenham Bus Layover - Review of Environmental Factors July 2024).

It is recommended that Council approve the signs and line marking plan (drawing no. 520212-AURC-038-RW-DRG-002001, sheet 10 of 41 dated 4 July 2024)

BACKGROUND

Sydenham Station is an important junction with the Bankstown Railway Line (T3), Illawarra and Eastern Suburbs line (T4) and Airport and South line (T8) and interchange with east-west bus routes. It continues to be a logical bus terminus for passengers interchanging with rail services from Sydney's Inner East and Inner West. This interchange function is expected to intensify in coming years with:

- The opening of the City & Southwest Metro between Chatswood and Bankstown. Increased Illawarra Line services
- Increased bus service levels and patronage to and from Sydenham Station. Population growth in surrounding precincts
- Sydenham being identified as the terminus for future new bus routes under the *Greater Sydney Bus Network Strategy.*

Given the importance of Sydenham Station as a multimodal transport interchange, buses servicing this major hub don't have enough room to terminate and layover between services. This creates congestion on Railway Road, Burrows Avenue and Gleeson Avenue (a freight corridor to the Airport and Port Botany). The limited bus layover options in the area results in buses idling in these streets, causing obstruction to pedestrians and cars, in active bus zones and surrounding streets. Transport for NSW representatives have advised of safety issues, delays to passengers and bus services which are currently being experienced as a result. To resolve this issue, Transport for NSW is proposing to construct a bus layover facility at the corner of Railway Road and Burrows Avenue in Sydenham (refer to figure 1 below)

BURROWS AVENUE AND RAILWAY ROAD



Figure 1 – Locality Plan

DISCUSSION

Transport for New South Wales (TfNSW) is proposing a new bus layover facility at the corner of Railway Road and Burrows Avenue as part of the Bus Priority Infrastructure Program (BPIP) to improve the reliability and efficiency of bus services. Prior to picking up passengers, buses currently park along Burrows Avenue which creates congestion and safety issues for pedestrians and drivers.

The proposed bus layover would give bus drivers a place to park safely between services and improve bus travel times and service frequencies, increasing reliability for passengers. Sydenham requires a bus layover area to cater to the growing number of bus services in this area. At present, prior to picking up passengers, buses park along Burrows Avenue and Railway Road creating congestion and impacting bus operations.

The proposed bus layover facility at the corner of Railway Road and Burrows Avenue in Sydenham will include the following changes (refer to figure 2):

- Six 16m-long angle bus parking spaces on the southern side of Burrows Avenue with manoeuvring space at the northern end of Railway Parade for egress, replacing a total of 11 parallel parking spaces.
- A dedicated drivers amenity block with a lunchroom and toilets.
- The 8 parallel parking spaces along the eastern side of Railway Road converted into 13 45-degree angle car parking spaces.
- A reduction in 90-degree angle car parking spaces along the northern side of Burrows Avenue from 12 to 6.
- Create a path for pedestrians, passengers, and the community to safely walk to and from Railway Road to Gleeson Avenue.
- Build a noise wall to separate the nearby homes from the new bus layover facility and minimise noise impacts from the bus layover facility.
- Install driveways for buses to enter from Railway Road and leave through Burrows Avenue.

Item 11

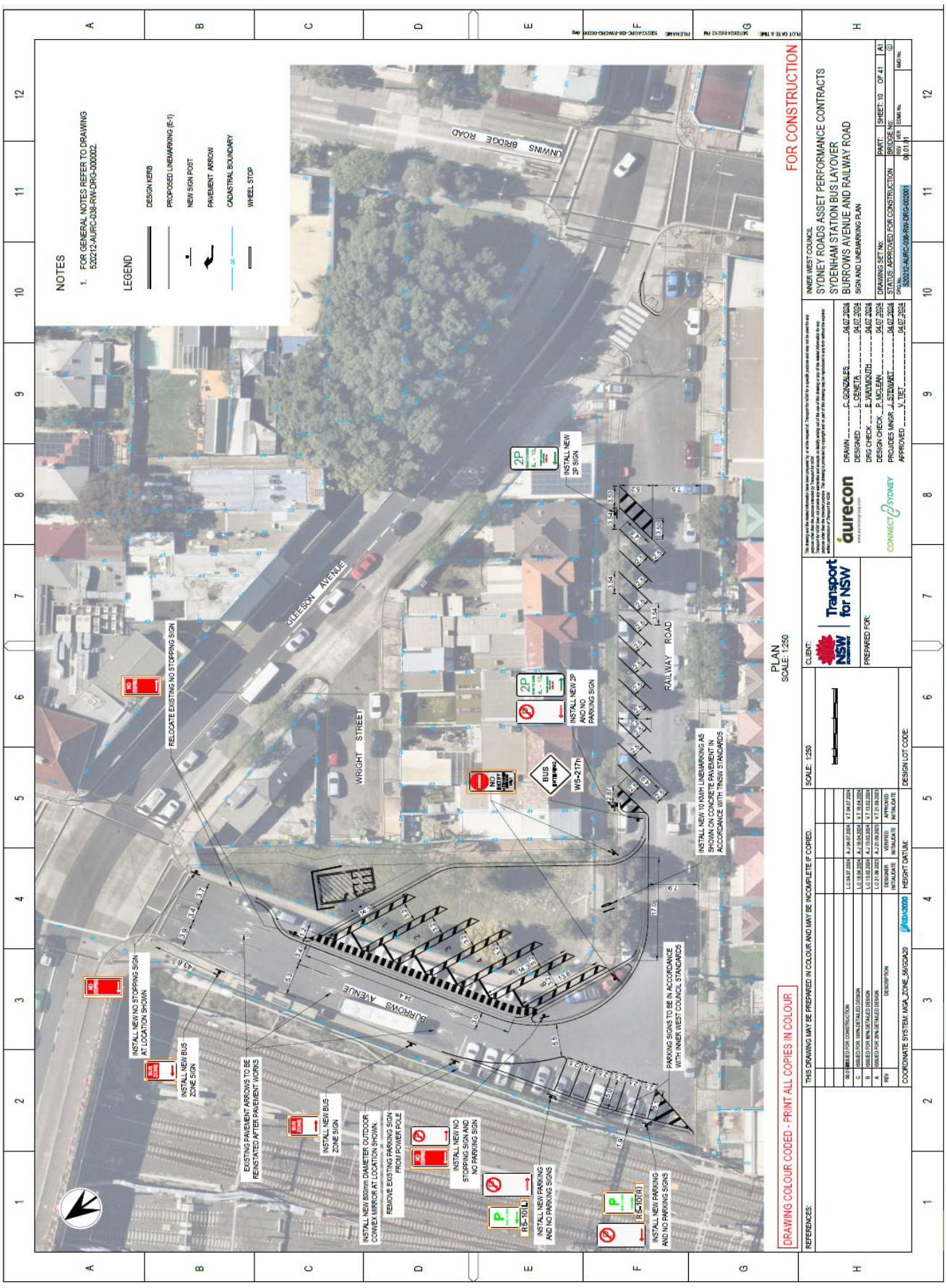

Figure 2 – Bus layover proposal

The above changes result in a net loss of 17 unrestricted parking spaces across the two streets. The impacts of the proposed changes to the current parking arrangements along Burrows Avenue and Railway Road are provided in table 1 below.

Road Name	Parking Restrictions	Parking supply	Impact	Justification
Burrows Avenue – East *	Unrestricted	11	- 11	Required for the buses to exit from the new layover into Burrows Avenue
Burrows Avenue – West	Unrestricted	12	- 6	Required for buses to safe turning movements
Railway Rd -East	2 P	10	+5	Changing to angle parking
Railway Rd -West	1P, 2P	23	zero	No change

Table 1 – Proposed changes to parking

Given the loss of parking Council requested that parking data be collected by TfNSW to determine the impact of the proposed loss. The objective of the parking investigation was to provide TfNSW and Council with data, its analysis including assessment and recommendations on parking restriction changes and identify the parking impacts of the proposed layover area at the corner of Railway Road and Burrows Avenue ('Proposal Footprint') and on alternative parking areas within a 400m radius of the proposal area ('Side Streets). This information was detailed in the Parking Data Report attached to the previous report (Extraordinary Local Traffic Committee Meeting on Monday 3 June 2024).

A site inspection was undertaken by the traffic consultant on Tuesday, 5 September 2023 between 12:30pm and 1:30pm to gain an understanding of the current parking conditions and constraints. Some of the key conclusions are listed below.

- Surplus parking in addition to the parking supply was observed in Buckley Street, Railway Parade, Railway Road (one-way), Hogan Avenue and George Street.

- The occupancy results show that there was some surplus parking in Burrows Avenue, Buckley Street and Hogan Avenue.

- The duration of stay results showed that on the peak weekdays and weekend days:
    - Most vehicles stayed for one hour and only four to six vehicles parked during the whole 13-hour surveys.
    - The average vehicle stays were six hours in Burrows Avenue and 3 to 3.5 hours in Railway Road (one-way).

- A total of 131 properties in Railway Road, George Street, Swain Street, Gleeson Avenue, Park Road and Yelverton Street were identified as not having onsite parking capacity. Of the 21 properties within the proposal footprint (all in Railway Road and none in Burrows Avenue), only seven had onsite parking.

- Under TfNSW's proposal, there is mostly insufficient parking across Burrows Avenue and Railway Road between Monday and Friday. The occupancy across all streets ranges between 55% and 80% and therefore there is still sufficient parking in surrounding streets.

To address the shortfall in parking, TfNSW have proposed that the current parking spaces along the eastern side of Railway Road be converted from 2P parallel parking spaces to 2P 45-degree, (rear to kerb) parking spaces. It has been calculated that this will result in a net gain of 5 timed parking spaces. It should be noted that the majority of the spaces lost as a result of the proposed works will be unrestricted spaces and adjacent to railway land. From the data analysis, it does seem that spare capacity does exist within a 400m radius to cope with the transfer of these spaces. It should also be noted that most residential streets within close proximity to Sydenham Station have been treated with 2P resident parking restrictions.

COMMUNITY ENGAGEMENT

Initial community engagement on the proposal occurred from Friday 24 November to Friday 8 December 2023, with community notifications letterbox dropped and nearby properties doorknocked on Railway Road, Burrows Avenue and Wright Street. Feedback was invited in person, on the phone, via email and through the Sydenham bus layover project web page, the Transport Your Say website, and the NSW Government Have Your Say portal. (Refer to the attached Community Engagement Report). At the end of the engagement period, feedback was received from 18 individuals. The local community supported the proposed bus layover in principle but had concerns around parking and the proposed location.–This feedback was included in the Community Engagement report attached as part of the previous report to the Extraordinary Local Traffic Committee Meeting on Monday 3 June 2024. Issues arising from community engagement were also addressed within the same report.

Discussed below is a summary of the outcomes of community engagement as a result of the REF process.

The Sydenham Bus Layover REF was publicly displayed between Monday 12 August 2024 and Monday 9 September 2024 on the Transport for NSW project website (https://www.transport.nsw.gov.au/projects/current-projects/sydenham-bus-layover).

The REF was also displayed on the NSW Government have your say portal (https://www.nsw.gov.au/have-your-say) and the Inner West Portal at https://caportal.com.au/tfnsw/inner-west/news-and-updates.

In addition to the public display, a letterbox drop notification was provided to nearby residents inviting their comment on the REF. An email notification was also sent directly to those community members who subscribed during initial community engagement undertaken in November 2023.

Three (3) submissions were received – one in support and the other two offered no position. The submissions received have not resulted in any changes to design or construction methodology as the submissions either sought clarifications or provided suggestions received which already comprise part of the proposal.

A summary of issues raised during the REF engagement process and responses from TfNSW is provided below.

	Issue raised	TfNSW response
Parking	• Will the six currently unmetered 90-degree parking spaces on Burrows Avenue remain unmetered? Will the parallel parking spots on Railway Road become unmetered too?	The parking on local road is managed by Inner West Council. Transport for NSW do not propose to change current parking time restrictions as part of the proposal. The six 90-degree spaces on Burrows Avenue

		would remain unmetered. The angled parking on Railway Road which would replace the existing two-hour parking (2P) parallel parking along the northern kerb would have the same 2P restrictions. The existing 2P parking restrictions along the southern kerb of Railway Road would be maintained.
Traffic and Transport	The right-hand turning lane on Burrows Avenue is not needed as there is already a multi-turning lane.	Changing the configuration of lanes on Burrows Avenue is not part of the proposal, however this feedback was forwarded to the relevant team within Transport for NSW for consideration.
Accessibility	Will there be public information systems at the bus bays? Will the bus bays have level boarding?	Sydenham bus layover is intended to provide a place to rest for bus drivers between services and would not be used to pick up passengers. As there would not be public use of the layover, no public information systems or level boarding provisions are proposed.
Noise wall	What is the proposed height of the noise wall? What will the noise wall be made of? The top half should be transparent to ensure afternoon sunlight is not blocked out ?	The proposed noise wall is 3.5 metres high, with the top section made from transparent acrylic panelling to allow light to pass through while still providing noise mitigation. The transparent panels would make up the top one metre of the noise wall for most of its length, however, the transparent panels would be reduced to the top 0.5 metres of the noise wall when adjacent to the driver amenities building. This helps ensure views into neighbouring residences are blocked for privacy.

CONCLUSION

The new bus layover facility project will benefit Sydenham Station as a multimodal transport interchange and support public transport infrastructure within the Inner West area. However, this will come at a cost to the adjoining residents with possible noise and exhaust impacts from the additional buses laying over and loss of overall parking. The creation of 45-degree angle parking will help ease the burden for resident as the additional spaces will be posted as 2P

RPS area. It would also seem like the loss in unrestricted parking spaces can be accommodated in the adjacent street network. Issues of additional buses along Railway Road and their impacts are addressed within the REF. However, given the increase in buses, the interaction of buses and vehicles should be monitored over a period of time and that TfNSW be responsible implementing further traffic control measures should they be required in future.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

ATTACHMENTS

1.⇩ Sydenham Bus Layover - Review of Environmental Factors July 2024
2.⇩ Sydney Roads Asset Performance Contracts Sydenham Station Bus Layover

Transport for NSW

Sydenham Bus Layover

Review of Environmental Factors

July 2024



NSW GOVERNMENT

transport.nsw.gov.au

Acknowledgement of Country

Transport for NSW acknowledges the Gadigal people, the traditional custodians of the land on which the Sydenham Bus Layover is proposed.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.



Executive summary

The proposal

Transport for NSW proposes to construct a bus layover at the corner of Railway Road and Burrows Avenue in Sydenham. Key features of the proposal include:

- a bus layover with:
  - six bus parking spaces
  - a dedicated drivers' amenity block with a lunchroom and toilets
  - a bus driveway entrance from Railway Road and a driveway exit onto Burrows Avenue
- a 3.5-metre-high noise wall between residential properties and the layover facility
- walkway for pedestrians and the community to walk to and from Railway Road to Gleeson Avenue
- installation of new stormwater drainage infrastructure (stormwater pipes and pits) within the new bus layover facility, and modifications to the existing stormwater drainage infrastructure within site
- conversion of car parking spaces on the northern side of Railway Road from parallel to angled parking.

Subject to approval, construction is expected to commence in late 2024 and take around seven months to complete, weather permitting. A separate compound site location on Burrows Avenue would be required for construction of the proposal.

Need for the proposal

Sydenham Station on the north-south Illawarra Railway Line is an important junction with the Bankstown (T3) and Illawarra (T4) Railway Lines and interchange with east-west bus routes. It continues to be a logical bus terminus for passengers interchanging with rail services from Sydney's Inner East and Inner West. This interchange function is expected to intensify in coming years with:

- the opening of the Sydney Metro City & Southwest between Chatswood and Bankstown
- increased Illawarra Line services
- increased bus service levels and patronage to and from Sydenham Station
- population growth in surrounding precincts
- Sydenham being identified as the terminus for future new bus routes under the Greater Sydney Bus Network Strategy.

Currently, buses idle or circle along Burrows Avenue and Railway Road (between Gleeson Avenue and Burrows Avenue) due to a lack of available bus layover areas, particularly during rail shutdowns when rail replacement buses also use these streets. This creates problems by blocking in-service buses from entering or leaving stops and causes confusion and delays for customers.

Demand for bus services to and from Sydenham Station is expected to increase in coming years to access the Sydney Metro services at Sydenham Station currently under construction. This increase would see additional Local, Frequent and Rapid bus routes being introduced at Sydenham, subject to demand levels and detailed investigations. It is anticipated that in addition to the proposed layover facility, all other existing on-street bus layover spaces around Sydenham Station will need to be retained to accommodate future service levels beyond 2026.

With the anticipated growth of bus services in the area, this problem would likely be exacerbated in the future and may lead to additional congestion and traffic delays in Railway Road and Burrows Avenue. Therefore, the provision of an adequate layover and amenities building is integral to meet the growing demands of the area.

The proposed bus layover and amenities building have been designed to:

- future-proof and cater to the growing demand for public transport
- mitigate existing impacts from the informal layover of buses in the area
- improve efficiency in the provision of bus services around Sydenham train station
- integrate with surrounding projects and land uses and support of urban objectives.

The NSW Government released its roadmap to deliver the state's future transport network, the *Future Transport Strategy 2056*, in 2018. The Bus Priority Infrastructure Program supports this vision by delivering infrastructure that make bus services faster and more reliable, such as bus lanes, bus priority at intersections or more efficient bus stop placement. The proposed bus layover would support achieving the objectives of the Bus Priority Infrastructure Program and the latest *Future Transport Strategy*.

Proposal objectives

The objectives of the proposal are to:

- reduce buses idling and circling on streets between services
- improve bus on time running and reliability
- improve safety and connectivity for pedestrians, commuters and drivers
- provide bus operators with a facility for rest, ablutions and meals.

Options considered

Site Selection

Sites for the proposal were considered and selected to be immediately adjacent to, or no more than two minutes' travel time from the start or end of a route. This proximity would minimise the time, emissions, and costs of running empty buses between the bus stands and layover. This proximity would also increase the service delivery efficiency of bus services. Adequate space would also need to be available for toilets and meal break facilities adjacent to or in close walking distance of bus layover areas.

Transport owns land in areas neighbouring the proposal including an existing bus depot in Tempe and land being developed by Sydney Metro on Sydney Steel Road, however, these sites were found to be too far from the Sydenham Station bus terminuses, requiring more than five minutes of travel time for a one-way trip. On this basis, these sites were not pursued further.

The proposal site was identified as suitable for a potential off-street bus layover when divestment of the NSW Government owned site was proposed by Transport Asset Holding Entity of New South Wales (TAHE) in 2020 given that it was no longer required for Railway or Metro purposes. The proposal site on Burrows Avenue is immediately adjacent to one of the main departure bus stands at Sydenham Station where there has been a long-term shortage of bus layover space for terminating buses to wait between trips. Given traffic congestion and the limited amount of on-street parking available for residents, an off-street layover facility at this location was considered suitable to minimise ongoing parking impacts on existing residents. This site also has space to facilitate construction of an amenities building.

Options Analysis

An options assessment for the proposal site was undertaken in early 2023 during concept design development to determine the preferred layout for the bus layover facility. The options assessment considered two options in addition to the 'Do Nothing' option and was completed in 2023. Due to the selected site, the design options for the proposal are limited primarily by space constraints and surrounding land use types. Option 3 is the preferred option and is described below.

Option 1 'Do Nothing'

The 'Do Nothing' option would involve not providing for any additional bus layover capacity in the vicinity of Sydenham Train Station.

The existing traffic congestion and, buses idling on streets would continue.

With the anticipated growth of bus services in the area, this problem would likely be exacerbated in the future and may lead to additional congestion and traffic delays in Railway Road and Burrows Avenue.

Not constructing the bus layover in this location may also affect the future service delivery efficiency of bus services. Without a bus layover within less than two minutes of a major transport hub such as Sydenham Station has the potential to increase the time, emissions, and costs of running empty buses between the bus stands and existing layovers.

Option 2

This option provides a bus layover for five buses within the designated parcel of land that is owned by Transport for NSW and would avoid encroachment into the road corridor. The proposed bus layover would be a one-way drive through facility with five off-street parking bays. Entry would be via Railway Road and exiting onto Burrows Avenue. The kerb along Burrows Avenue and Railway Road would be retained as existing with the adjacent footpath to be removed to create more space for the layover. The proposal would provide dedicated driver amenities, and an adjacent footpath on the eastern side of the layover with a pedestrian fence.

Option 2 would result in removal of 11 on-street parking spaces. A compliant entrance driveway design was not able to be achieved in this option and therefore this option was not further pursued.

Option 3 (the preferred proposal)

Similar to Option 2, Option 3 provides a bus layover within the designated parcel of land that is owned by Transport for NSW. Entry would be via Railway Road and buses would exit out onto Burrows Avenue. The pedestrian path on the eastern end of Burrows Avenue would also be relocated.

The key differences with Option 3 and Option 2 is that it would encroach into the existing roadway and involve removal of six additional on-street parking spaces. This option would widen into the existing dedicated right turn lane along Burrows Avenue and a strip approximately 3.5m wide of existing pavement along Railway Road. This additional area adjacent to 117 Railway Road would provide sufficient space for the amenities building and would facilitate six off-street parking bays within the layover.

Statutory and planning framework

The proposal is for a bus layover and is to be carried out on behalf of Transport for NSW and can therefore be assessed under Division 5.1 of the *Environmental Planning and Assessment Act 1979 (NSW)*. Development consent from council is not required.

A referral to Australian Government Department of Climate Change, Energy, the Environment and Water under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is not required.

Community and stakeholder consultation

Consultation activities conducted for the proposal and the outcomes of these are documented in the *Sydenham Bus Layover Community Engagement Report* (TfNSW, 2024). The community engagement report is provided in Appendix C and outlines the consultation approach carried out, a summary of the matters raised by the community, Transport's response to the matters raised, and the next steps to be carried out by Transport, such as further engagement and engagement outcomes.

Consultation with community and key stakeholders was undertaken to:

- raise awareness of the Sydenham Bus Layover proposal
- build preparedness and strategic readiness for changes in traffic and parking arrangements to the local area and seek comment, feedback, ideas, and suggestions on the proposal
- build a database of interested community members with whom we can continue to engage during the proposal's development and delivery
- engage with relevant councils, businesses and other community groups
- inform the community, businesses and other stakeholders on the proposal.

A summary of consultation undertaken to date is provided in Chapter 5 of this REF. Transport for NSW will continue to consult with the community and relevant stakeholders during the detailed design and construction of the proposal.

Environmental impacts

The main environmental impacts of the proposal are:

- soils, contamination and water
- traffic and transport
- noise and vibration
- visual

Soils, contamination and water

Contaminated land

Waste classification testing as part of the Preliminary Site Investigation (PSI) identified the presence of asbestos contamination in shallow fill material on site.

Contaminated material could potentially have the following impacts:

- migration via earthworks – spreading impacts to other areas.
- effects on human health –potential risk to on-site and offsite workers through earthworks exposure, and materials handling and transport
- increase in waste volumes from excavated (potentially contaminated) materials and increase in clean fill volumes to replace contaminated soil. Depth of earthwork excavations are anticipated to be up to two metres though this may increase if the underlying material is found to be unsuitable.

It is considered that these potential impacts can be adequately managed by the implementation of the mitigation measures presented below.

Traffic and transport

Road network and traffic

Minor impacts on the road network and local traffic are anticipated during construction of the proposal. Approximately 15 light vehicles (including utility vans), as well as approximately 30 heavy vehicles per day, will be used during construction to support the delivery of the proposal. Construction traffic would be associated with a number of work activities, including:

- delivery of construction materials
- material removal
- delivery of construction plant and equipment
- movement of construction personnel, including contractors, site labour force and other work force members.

Construction vehicles would cause some impact to the local road network and traffic; however, impacts are anticipated to be minor. The quantity of vehicles required for the proposal represents a negligible increase to existing traffic counts on Gleeson Avenue. Construction traffic movements would occur outside of peak periods where possible and are predicted to have a minor impact on the surrounding road network and public transport services. Traffic impacts to Railway Road, Burrows Avenue and Wright Street would be managed via the implementation of standard mitigation measures, including the scheduling of deliveries during non-peak periods and minimising queuing.

Minor positive impacts on the road network and traffic are anticipated from operation of the bus layover facility. Buses currently use Railway Road and Burrows Avenue to layover and therefore the provision of the new off-street bus layover would mean that buses would not park on Railway Road and Burrows Avenue. Currently during short term shutdown periods, parking along these streets is temporarily removed to accommodate buses. The proposal would divert a large proportion of these buses from on-street areas to a dedicated off-street layover, which is considered to be a positive outcome when compared to the informal

parking of buses in these streets. Operational volumes of buses are expected to be similar to current scenarios.

Parking

Construction impacts to parking would be experienced on both Railway Road and Burrows Avenue. During construction it is anticipated that approximately 26 car spots would be impacted, however, impacts to all 27 spots are not expected to occur simultaneously. Parking removal would be staged as construction progresses to ensure that impacts are reduced as far as practicable. The largest impacts are expected during asphalting and paving works on Burrows Avenue and Railway Road, although these would be short-term. Residents impacted by any parking changes would be notified in advance of any impacts occurring. There is the potential for cumulative parking impacts as a result of neighbouring projects, specifically the Sydney Metro Sydenham to Bankstown project (Metro Project) which is due to commence construction by October 2024. The Metro Project involves the use of rail replacement buses to service commuters that would otherwise use the T3 line. The Metro Project has indicated that parking removal is likely to occur in a discrete section of Burrows Avenue for the purpose of allowing buses to temporarily park, however, these areas broadly overlap with the construction and operational parking removal impacts as a result of the proposal. The Metro Project is likely to occupy these spaces following completion of the proposal for about a 12 month period.

Operational impacts result from the removal and adjustment of existing parking in Railway Road and Burrows Avenue. The proposal would see the permanent removal of four parking spaces along Railway Road, and 16 spaces along Burrows Avenue (five 90-degree parking spaces on the west side and 11 informal parallel parking spaces on the east side). Six car parking spaces on the northern side of Railway Road will be converted into 13 angled car parking spaces, thus resulting in a net loss of 13 car parking spaces. A parking study shows that the operational impact to parking in Burrows Avenue and Railway Road can be accommodated given the side streets surrounding the proposal have sufficient parking capacity to cater for the remaining demand.

Noise and Vibration

The construction of the proposal would result in noise and vibration impacts to surrounding receivers during construction. The recommended mitigation measures are identified in Section 6.4.5.

An operational noise and vibration assessment concludes that operational noise impacts would occur as a result of the proposal (refer Section 6.4). A noise wall 3.5 metres in height has been proposed along the eastern boundary of 117 Railway Road to mitigate the proposal's operational noise impacts. Additional noise mitigation measures are described in Section 6.4 to maintain noise at acceptable levels.

There are no operational vibration impacts expected for the proposal. Potential vibration impacts during construction would be managed by the safeguards described in Section 6.4.

Visual

Temporary visual impacts as a result of the proposal are expected to road and footpath users, businesses along Burrows Avenue and Railway Road, and to residents living in Railway Road and Burrows Avenue. The visual impacts to these groups are likely to stem from construction plant and equipment, ancillary facilities, material storage/stockpiling, temporary safety barriers and temporary traffic control equipment and signage.

Operational impacts as a result of the proposal are expected. These impacts are primarily due to the removal of trees and the erection of the noise wall and amenities building. The noise wall design went through an iterative process to limit the impacts as far as practical such as the inclusion of transparent acrylic panelling and urban design treatments. Urban design treatments have been incorporated into the façade of the amenities building. Artwork will be developed in consultation with the Inner West Council and the community and added to the western side of the noise wall.

Justification and conclusion

The proposal is consistent with several government strategic plans including the *Future Transport Strategy, the Greater Sydney Services and Infrastructure Plan, South East Sydney Transport Strategy*, and the *Bus Priority Infrastructure Program*. The proposal has been developed to:

- reduce buses idling and circling on streets between services
- improve bus on time running and reliability
- improve safety and connectivity for pedestrians, commuters and drivers
- provide bus operators with a facility for rest, ablutions and meals.

The proposal would result in several environmental impacts which have been assessed and identified in this REF including, traffic and transport, soils and contamination, noise and vibration and visual impacts. The implementation of the safeguards and management measures within this REF would mitigate these impacts and ensure the benefits of the project outweigh any adverse impacts.

The benefits of the proposal are considered to outweigh the mostly temporary adverse impacts and risks associated with the proposal.

Display of the review of environmental factors

This REF is on display for comment between 12 August 2024 and 8 September 2024. You can access the documents in the following ways:

Internet

The documents are available as pdf files on the Transport for NSW website at https://www.transport.nsw.gov.au/projects/current-projects/sydenham-bus-layover

Copies by request

Printed and electronic copies may be available by contacting projects@transport.nsw.gov.au.

How can I make a submission?

To make a submission about this proposal, please send your written comments to:

Submission for REF – Sydenham Bus Layover Project
Level 7, 12 Darcy Street Parramatta NSW 2150
Parramatta, NSW 2124

Email projects@transport.nsw.gov.au with 'Submission for the Sydenham Bus Layover project' in the subject line.

Submissions must be received by 8 September 2024, inclusive. Submissions will be managed in accordance with the *Transport for NSW Privacy Statement*. A copy can be made available upon request.

What happens next?

Transport will collate and consider the submissions received during public display of the REF.

After this consideration, Transport will determine whether or not the proposal should proceed as proposed and will inform the community and stakeholders of this decision.

If the proposal is determined to proceed, Transport will continue to consult with the community and stakeholders prior to and during construction.

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1. Introduction

This chapter introduces the proposal and provides context for the environmental assessment. In introducing the proposal, the objectives and project development history are detailed and the purpose of the report provided.

1.1 Proposal identification

Transport for NSW (Transport) proposes to construct a bus layover on Burrows Avenue and Railway Road in Sydenham.

Currently, buses idle or circle along Burrows Avenue and Railway Road (between Gleeson Avenue and Burrows Avenue) due to a lack of available bus layover areas, particularly during short term rail shutdowns when rail replacement buses also use these streets. This creates problems by blocking in-service buses from entering or leaving stops and causes confusion and delays for customers.

With the anticipated growth of bus services in the area, this problem would likely be exacerbated in the future and may lead to additional congestion and traffic delays in Railway Road and Burrows Avenue. Therefore, the provision of an adequate layover and amenities building is integral to meet the growing demands of the area.

The proposed Sydenham bus layover is located within the Inner West Council local government area and the suburb of Sydenham, about six kilometres southwest of the Sydney CBD. The layover sits predominantly within 117 Railway Road, Sydenham. 117 Railway Road was remediated in 2014 and has since been used periodically for construction purposes. The proposed bus layover would give bus drivers a place to park safely between services and improve bus travel times and service frequencies, increasing reliability for passengers. Key features of the proposal include:

- a bus layover with:
  - six bus parking spaces
  - a dedicated drivers' amenity block with a lunchroom and toilets
  - a bus driveway entrance from Railway Road and a driveway exit onto Burrows Avenue
- a 3.5-metre-high noise wall between eastern residential properties and the layover facility, featuring a painted mural
- pathway for pedestrians and the community to walk to and from Railway Road to Gleeson Avenue
- Installation of new stormwater drainage infrastructure (stormwater pipes and pits) within the new bus layover facility, and modifications to the existing stormwater drainage infrastructure within site
- conversion of car parking spaces on the northern side of Railway Road from parallel to angled parking.

The location of the proposal is shown in Figure 1-1 and an overview of the proposal is provided in Figure 1-2. Chapter 3 describes the proposal in more detail.

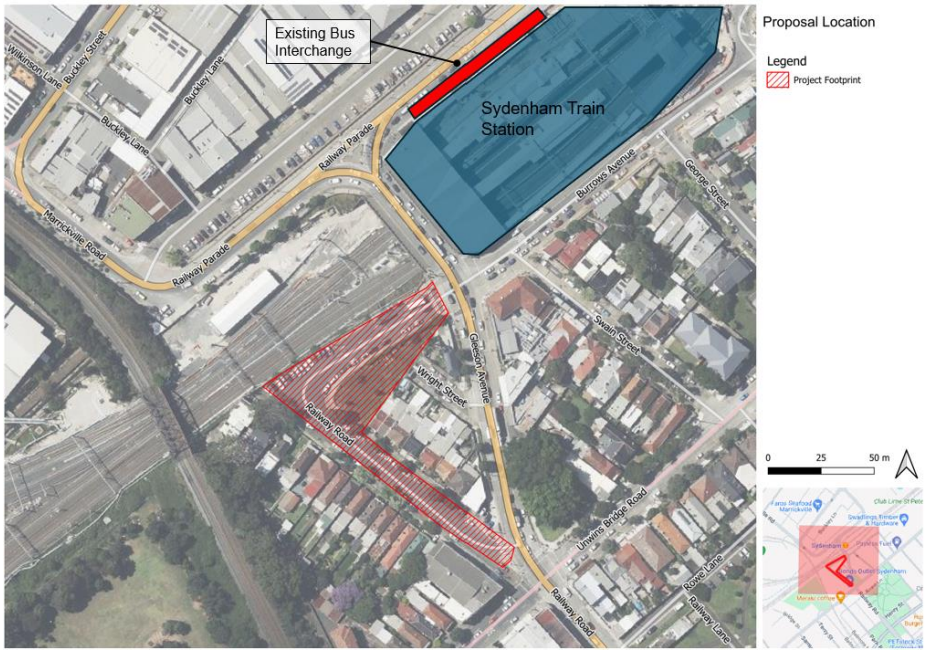


Figure 1-1: Location of the proposal and proposal's construction footprint

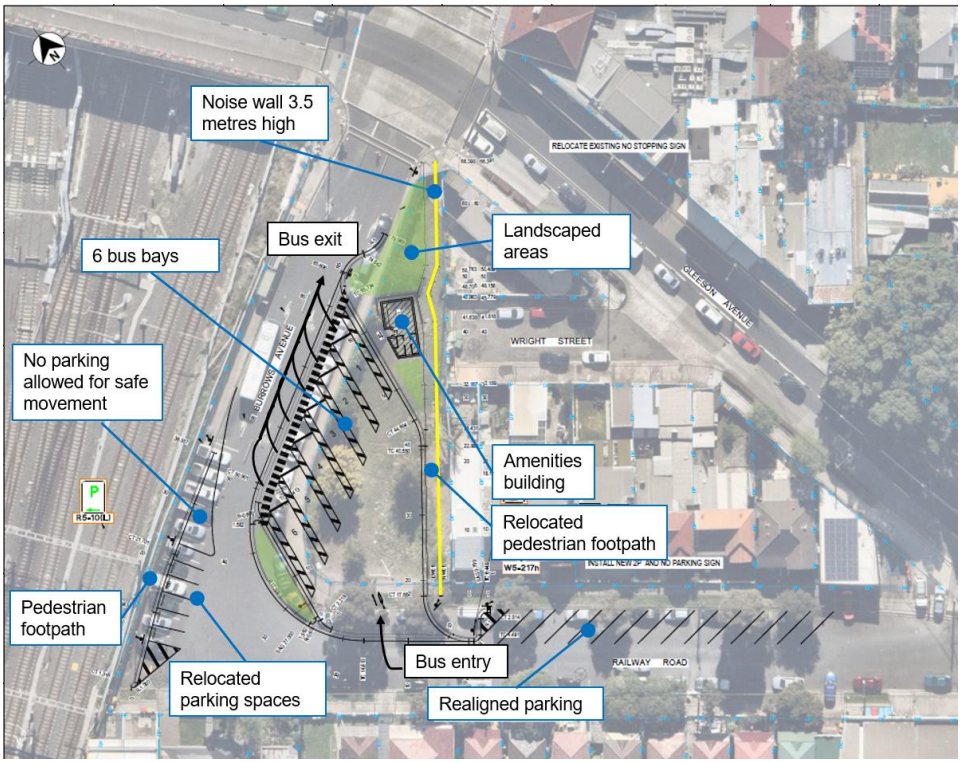


Figure 1-2: Key features of the proposal

1.2 Purpose of the report

This review of environmental factors (REF) has been prepared by Hutchison Weller Pty Ltd on behalf of Transport. For the purposes of these works, Transport is the proponent and determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act).

The purpose of the REF is to describe the proposal, to document the likely impacts of the proposal on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed work and assessment of associated environmental impacts has been undertaken in the context of Section 171 of the Environmental Planning and Assessment Regulation 2021, the factors in *Guidelines for Division 5.1 assessments, (DPE 2022)*, *Roads and Related Facilities EIS Guideline* (DUAP 1996), the *Biodiversity Conservation Act, 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of:

- Section 5.5 of the EP&A Act including that Transport examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval sought from the Minister for Planning under Division 5.2 of the EP&A Act.

- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The significance of any impact on nationally-listed biodiversity matters under the https://www.awe.gov.au/environment/epbcEPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and if offsets are required and able to be secured.

The potential for the proposal to significantly impact any other matters of national environmental significance or Commonwealth land and the need, subject to the EPBC Act strategic assessment approval, to make a referral to the Australian Department of Climate Change, Energy, the Environment and Water for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2. Need and options considered

This chapter describes the need for the proposal in terms of its strategic setting and operational need. It identifies the various options considered and the selection of the preferred option for the proposal.

2.1 Strategic need for the proposal

The bus terminus on Burrows Avenue, adjacent to Sydenham Station, has experienced long-term shortage of bus layover space for terminating buses to wait between trips, and for bus drivers to take necessary breaks.

Provision of short-term bus parking (layover space) at bus terminus locations is an operational requirement for the delivery of scheduled route bus services to the public. Layover spaces allow buses to wait between trips until the next scheduled departure time and usually incorporate "recovery" time to help buses return to schedule if previous trips have been running late. Layovers incorporate varying types of necessary rest breaks for bus drivers included as part of their employment conditions including access to toilets and prescribed rest breaks and meal breaks. These employment conditions also align with the *Heavy Vehicle National Law* (HVNL) which regulates maximum driving hours and required rest periods for truck and bus drivers. Crew scheduling undertaken by bus operators relies on the provision of layover facilities to ensure these industrial and regulatory requirements are complied with.

Sydenham Station on the north-south Illawarra Railway Line is an important junction with the Bankstown (T3) and Illawarra (T4) Railway Line and interchange with east-west bus routes. It continues to be a logical bus terminus for passengers interchanging with rail services from Sydney's Inner East and Inner West. This interchange function is expected to intensify in coming years with:

- the opening of the Sydney Metro City & Southwest between Chatswood and Bankstown
- increased Illawarra Line services
- increased bus service levels and patronage to and from Sydenham Station
- population growth in surrounding precincts
- Sydenham being identified as the terminus for future new bus routes under the Greater Sydney Services and Infrastructure Plan.

Currently, buses idle or circle along Burrows Avenue and Railway Road (between Gleeson Avenue and Burrows Avenue) due to a lack of available bus layover areas, particularly during short term rail shutdowns when rail replacement buses also use these streets. This creates problems by blocking in-service buses from entering or leaving stops and causes confusion and delays for customers.

Demand for bus services to and from Sydenham Station is expected to increase in coming years to access the Sydney Metro services at Sydenham Station currently under construction. This increase would see additional Local, Frequent and Rapid bus routes being introduced at Sydenham, subject to demand levels and detailed investigations. It is anticipated that in addition to the proposed layover facility, all other existing on-street bus layover spaces around Sydenham Station will need to be retained to accommodate future service levels beyond 2026.

With the anticipated growth of bus services in the area, this problem would likely be exacerbated in the future and may lead to additional congestion and traffic delays in Railway Road and Burrows Avenue. Therefore, the provision of an adequate layover and amenities building is integral to meet the growing demands of the area.

The NSW Government released its updated roadmap to deliver the state's future transport network, the *Future Transport Strategy*, in 2022. The *Bus Priority Infrastructure Program* supports this vision by delivering infrastructure that make bus services faster and more reliable, such as bus lanes, bus priority at intersections or more efficient bus stop placement. The proposed bus layover would support the achievement of the objectives laid out within the *Bus Priority Infrastructure Program,* the *Greater Sydney Services and Infrastructure Plan, South East Sydney Transport Strategy* and the *Future Transport Strategy*.

The proposal's alignment with strategic plans and policy documents is outlined in the following sections.

Future Transport Strategy

The *NSW Future Transport Strategy* (Transport for NSW) outlines a clear framework to address transport challenges in NSW and is an update of the *NSW Future Transport Strategy 2056* released in 2018. It integrates planning for roads, freight and all other modes of transport and sets out initiatives, solutions and actions to meet NSW transport challenges.

Future Transport outlines six state-wide outcomes to guide investment, policy and reform and service provision. They provide a framework for planning and investment aimed at harnessing rapid change and innovation to support a modern, innovative transport network.

The proposal would directly support the following two outcomes:

- successful places – The liveability, amenity and economic success of communities and places are enhanced by transport – The proposal supports this outcome by integrating with surrounding development by improving the efficiency of public transport
- safety and performance – Every customer should enjoy safe travel across a high performing, efficient network – the proposal supports this outcome by improving the safety and efficiency of public transport and caters for future growth in the network.

The proposal also supports fast and convenient interchanging, which is an identified transport customer outcome for Greater Sydney.

Greater Sydney Services and Infrastructure Plan

The *Greater Sydney Services and Infrastructure Plan* (GSSIP) is a 40-year plan for transport in Sydney. It is designed to support the land use vision for Sydney. Building on the state-wide transport outcomes identified in the *Future Transport Strategy*, the Plan establishes the specific outcomes transport customers in Greater Sydney can expect and identifies the policy, service and infrastructure initiatives to achieve these. A key initiative within the GSSIP is the creation of a *Bus Priority Infrastructure Program*.

The proposed bus layover supports the GSSIP by improving the reliability and efficiency of bus services.

Bus Priority Infrastructure Program

The *Bus Priority Infrastructure Program* (BPIP) is working towards modernising and addressing bus pinch points across the Sydney network. BPIP is a 10-year rolling program of targeted initiatives that will invest in bus priority infrastructure in key transport corridors through this program, delivered by Transport for NSW and initially identified in the GSSIP. BPIP is a NSW Government initiative, which aims to address congestion on the Sydney metropolitan road network, primarily by enhancing the efficiency and effectiveness of existing roads and traffic systems.

The proposed bus layover supports the objectives of the BPIP in that it improves bus service reliability, improves road safety, and supports future growth in bus service demand within this key corridor and urban centre.

South East Sydney Transport Strategy

The *South East Sydney Transport Strategy* (SESTS) identifies the preferred future transport network for South East Sydney, along with providing a series of initiatives to realise the vision. The government plans to invest significantly in public transport and to change travel behaviour to reduce the use of the private cars in the area. The strategy will ensure our current and future customers have more sustainable travel options.

The Sydenham Bus Layover supports the delivery of the SESTS by enhancing the efficiency and reliability of bus services in the South East Sydney area.

2.2 Limitations of existing infrastructure

Limitations of existing infrastructure at the proposal site include:

- insufficient bus stand capacity at or around Sydenham train station
- informal bus layover practice due to lack of dedicated layover spaces
- lack of bus driver facilities in the area.

2.3 Proposal objectives and development criteria

2.3.1 Proposal objectives

The objectives of the proposal are to:

- reduce buses idling and circling on streets between services
- improve bus on time running and reliability
- improve safety and connectivity for pedestrians, commuters and drivers
- provide bus operators with a facility for rest, ablutions and meals.

2.3.2 Development criteria

The development criteria for the proposal include:

- minimise land use and community impacts
- minimise utility relocation and service impacts
- minimise the scope of earthworks
- minimise environmental impacts.

2.3.3 Urban design objectives

The urban design objectives for the proposal have been developed in accordance with the *Noise Wall Design Guideline* (Transport for NSW, 2021a) and *Urban Design Policy – Beyond the Pavement* (Transport for NSW, 2020f).

To urban design objectives of the proposal, including the noise wall are to:

- ensure high-quality urban design outcomes which are appropriate to the surrounding urban environment
- be structurally sound, safe and practical to maintain
- contributes positively to the urban environment
- be visually integrated where possible through native plantings.

These objectives were considered during development of the urban design strategy for the proposal.

2.4 Alternatives and options considered

2.4.1 Methodology for selection of preferred option

The site for the proposed bus layover was selected due to its proximity to Sydenham Station. Currently there is insufficient bus layover capacity in the vicinity of Sydenham Station and bus services in the area are forecast to grow. The land at 117 Railway Road is under the ownership of Transport for NSW and has sat largely unused since remediation of the site in 2014. Buses are currently parking on Railway Road and Burrows Avenue, creating problems by blocking in service buses and creating confusion and delays for customers.

Following the determination of a suitable site, three options were assessed and reviewed against the proposal objectives and development criteria. Based on this assessment, a preferred option was identified and is presented in the following sections.

2.4.2 Site selection

Generally, bus layovers are installed immediately adjacent to, or no more than two minutes' travel time from the start or end of a route. This proximity minimises the time, emissions, and costs of running empty buses between the bus stands and layover. This proximity also increases service delivery efficiency and reliability in terms of matching peak capacities with demand, interworking routes and improving on-time running. For this

proposal, the bus route start and end points are the bus terminuses for Sydenham Station on Burrows Avenue and Railway Parade.

As part of the site selection, toilets and meal break facilities for drivers must be provided or in close walking distance of bus layover areas.

Bus layover spaces may be provided on-street or off-street. Discussion of these options is provided below.

On-street bus layover spaces

On-street bus layovers may be provided as timed or permanent allocations of on-street parking to buses. Such layovers typically involve the removal of on-street parking for the public. In and nearby the proposal area, on-street bus layovers are provided as temporary reallocations for bus parking during rail shutdowns to support rail replacement buses. An example of this is shown in Figure 2-1. On-street bus layover spaces typically involve parallel parking which is less spatially efficient than angled parking for buses given the draw in and draw out lengths required for buses. One parallel on-street bus layover space should be at least 30 metres in length in accordance with *Guidelines for the Planning of Bus Layover Parking* (Transport, 2018). This would equate to about four parallel +car parking spaces removed per bus layover space provided.

In the area surrounding Sydenham Station, on-street car parking for residents and commuters is highly valued and protected by residents and Inner West Council, precluding extensive allocation of kerb space to buses.

Given these constraints, off-street bus layover sites were investigated for the proposal.



Figure 2-1 Signage showing temporary parking changes for rail replacement bus use (photo taken in September 2023)

Off-street bus layover spaces

Transport owns land in areas neighbouring the proposal including an existing bus depot in Tempe and land being developed by Sydney Metro on Sydney Steel Road, however, these sites were found to be too far from the Sydenham Station bus terminuses, requiring more than five minutes of travel time for a one-way trip. On this basis, these sites were not pursued further.

The proposal site was identified as suitable for a potential off-street bus layover when divestment of the NSW Government owned site was proposed by Transport Asset Holding Entity of New South Wales (TAHE) in 2020 given that it was no longer required for Railway or Metro purposes. The proposal site on Burrows Avenue is

immediately adjacent to one of the main departure bus stands at Sydenham Station where there has been a long-term shortage of bus layover space for terminating buses to wait between trips. Given traffic congestion and the limited amount of on-street parking available for residents, an off-street layover facility at this location was considered suitable to minimise ongoing parking impacts on existing residents. This site also has space to facilitate construction of an amenities building.

2.4.3 Identified options

Option 1 'Do Nothing'

The 'Do Nothing' option would involve not providing for any additional bus layover capacity in the vicinity of Sydenham Train Station. At present buses do not have sufficient space to layover in the area and are often occupying on-street parking spaces along Railway Road and Burrows Avenue. With the anticipated growth of bus services in the area, this problem would likely be exacerbated in the future and may lead to additional congestion and traffic delays in Railway Road and Burrows Avenue.

Not constructing the bus layover in this location may also effect the future service delivery efficiency of bus services. Without a bus layover within less than two minutes of a major transport hub such as Sydenham Station has the potential to increase the time, emissions, and costs of running empty buses between the bus stands and existing layovers,

Option 2

This option provides a bus layover for five buses within the designated parcel of land that is owned by Transport for NSW and would avoid encroachment into the road corridor. The proposed bus layover would be a one-way drive through facility with five off-street parking bays. Entry would be via Railway Road and exiting onto Burrows Avenue. The kerb along Burrows Avenue and Railway Road would be retained as existing with the adjacent footpath to be removed to create more space for the layover. The proposal would provide dedicated driver amenities, and an adjacent footpath on the eastern side of the layover with a pedestrian fence.

Option 2 would result in removal of 11 on-street parking spaces. A compliant entrance driveway design was not able to be achieved as 3D modelling of the entrance driveway showed that the existing crossfalls along Railway Road and the existing grade of Burrows Avenue produced a dip in the entrance too great for buses to overcome. This dip indicated potential conflict zones that would be outside the requirements specific under the relevant design criteria and therefore this Option was not progressed further.

An overview of Option 2 is shown in Figure 2-2.

Option 3 (the proposal)

Similar to Option 2, Option 3 would provide a bus layover within the designated parcel of land that is owned by Transport for NSW. Entry would be via Railway Road and buses would exit out onto Burrows Avenue. The pedestrian path on the eastern end of Burrows Avenue would also be relocated. This option would encroach into the existing roadway, utilising the existing dedicated right turn lane along Burrows Avenue and a strip approximately 3.5m wide of existing pavement along Railway Road. This additional area adjacent to 117 Railway Road would provide sufficient space for the dedicated driver amenities building and would facilitate six off-street parking bays within the layover.

Option 3 would result in removal of 17 on-street parking spaces.

An overview of Option 3 is shown in Figure 2-3

Summary and comparison of options

The three options are summarised and compared in Table 2-1.



Figure 2-2 Option 2 provides a bus layover for five buses, however was not able to be designed to have a compliant entrance driveway and therefore discounted before the dedicated drivers amenity building was designed, and therefore is not shown in this figure.

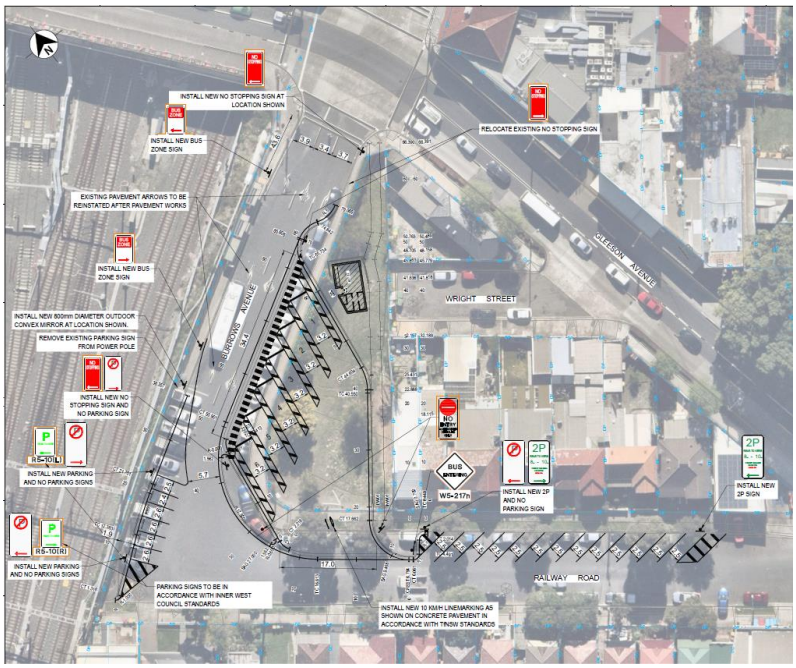


Figure 2-3 Option 3 (preferred option)

Table 2-1 Summary and comparison of options

Key feature or impact	Option 1 'Do nothing'	Option 2	Option 3 (the proposal)
Off-street bus parking bays		5	6
Amenities building		✓	✓
Noise wall		✓	✓
Encroachment into road corridor		✓	✓
Net loss of parking		11 on-street parking spaces removed	17 on-street parking spaces removed

2.4.4 Analysis of options

The options identified above were assessed against the proposal objectives, as shown in Table 2-2.

Table 2-2 Analysis of options against proposal objectives

	Option 1 'Do Nothing'	Option 2	Option 3
Objective 1: To reduce buses idling and circling on streets between services	☒ This option does not address this objective.	☒ Option 2 is unable to achieve a compliant entrance design and therefore would not meet this objective.	☑ Option 3 provides a dedicated layover with compliant entrance design to reduce buses idling and circling on streets between services
Objective 2: To improve bus on time running and reliability	☒ This option would not allow an improvement in bus service running times and reliability.	☒ Option 2 is unable to achieve a compliant entrance design and therefore would not meet this objective.	☑ By providing a dedicated layover, Option 3 would facilitate an improvement in bus reliability around Sydenham Station.
Objective 3: To improve safety and connectivity for pedestrians, commuters and drivers	☒ This option would not improve safety/connectivity for pedestrians, commuter and drivers.	☒ Option 2 is unable to achieve a compliant entrance design and therefore would not meet this objective.	☑ This option would remove more buses from Burrows Avenue and Railway Road than Option 2 and therefore further improve safety and connectivity for these groups.
Objective 4: To provide bus operators a facility for rest, ablutions and meals	☒ Option 1 does not provide a driver's facility.	☒ Option 2 is unable to achieve a compliant entrance design and therefore would not meet this objective.	☑ Option 3 provides a dedicated driver's facility for bus operators.

Further analysis was undertaken for all options against the development criteria, as shown in Table 2-3.

Table 2-3 Analysis of options against the development criteria

	Option 1	Option 2	Option 3
Criteria 1: To minimise land use and community impacts	☑ This option would minimise land use and community impacts in the short term. In the long term, however, community impacts from buses parking in Railway Road and Burrows Avenue would worsen.	☒ Option 2 would result in land use and community impacts due to conversion of 117 Railway Road into a layover with noise wall. The proposal would not address the existing issue of buses standing in the roadway and blocking in-service buses on Burrows Avenue and Railway Road.	☒/☑ Option 3 would result in land use and community impacts due to conversion of 117 Railway Road and a portion of the public roadway into a layover with noise wall. The proposal would address the existing issue of buses standing in the roadway and blocking in-service buses on Burrows Avenue and Railway Road.
Criteria 2: To minimise utility relocation and service impacts	☑ The 'do nothing' scenario would minimise these impacts.	☑ This option would minimise utility relocation impacts, however, the site would always require a level of utility works to enable the construction of the layover.	☑ Option 3 has minimised utility relocations, however, the realigned kerb and layover area will require some adjustments and relocations to occur.
Criteria 3: To minimise the scope of earthworks	☑ The 'do nothing' scenario would minimise these impacts.	☒ Option 2 would involve extensive earthworks in order to achieve a conforming gradient at the layover entrance.	☑ This option has minimised the scope of earthworks by following the existing landform of the area to reduce cut and fill activities.
Criteria 4: To minimise environmental impacts	☑ The 'do nothing' scenario would minimise these impacts.	☑ Option 2 was designed to minimise environmental impacts.	☑ This option has been designed to ensure environmental impacts during construction and operation are minimised. Potential noise impacts are being managed through the installation of the noise wall and proposed at-property noise treatments. A small number of car parking spaces (net loss of 13 spaces) are proposed to be removed to facilitate the bus layover however, the layover would alleviate the informal bus parking on Railway Road and Burrows Avenue.

2.5 Preferred option

Option 1 did not achieve the proposal objectives and alternative options were therefore explored.

Option 2 was pursued as it would avoid encroaching into the road reserve. This design was progressed until a point where it was deemed unfeasible given a workable design could not be achieved:

- 3D modelling of the entrance driveway showed that the existing crossfalls along Railway Road and the existing grade of Burrows Avenue produced a dip in the entrance too great for the buses to overcome.
- auto-turn vertical simulation indicated conflict zones which cause buses to hit the ground. This is unable to be designed out as the existing crossfall of the kerbside lane near the proposed entrance is seven to ten per cent.

Option 3 best satisfied the development criteria and proposal objectives and was therefore selected from the workshops with key stakeholders as the preferred option and progressed by the project team.

Option 3 was chosen for the following reasons:

- meets all project objectives
- achieves a compliant entrance driveway
- minimises extensive earthworks
- minimises potential environmental and community impacts including operational noise impacts and operational impacts
- minimises utility impacts wherever possible
- minimises community impacts through addressing the existing issue of buses standing in the roadway and blocking in-service buses on Burrows Avenue and Railway Road.
- minimises land-use impacts through proposing the bus layover on an under-utilised area of public land.

2.6 Design refinements

The noise wall design was refined during detailed design to meet acoustic performance objectives and to minimise visual impact to receivers. The refinements included:

- noise wall dimensions
- dimensions of transparent acrylic panelling
- alignment of noise wall to avoid existing drainage infrastructure, increase offset from adjacent properties and to mitigate overshadowing to neighbouring private outdoor spaces.

Refinements were informed by:

- an acoustic barrier analysis to determine the appropriate height of the wall
- overshadowing considerations, including a sun path analysis to determine how the proposed noise wall might impact solar access to adjoining properties. The analysis concluded that overshadowing impacts can be mitigated through increasing the offset from adjacent properties and the inclusion of discrete sections of transparent acrylic panelling in the noise wall.
- consideration of urban design objectives.

A detailed description of the noise wall design including the refinements described is in Section 3.2.3.

3. Description of the proposal

This chapter describes the proposal and provides descriptions of existing conditions, the design parameters including major design features, the construction method and associated infrastructure and activities.

3.1 The proposal

Transport proposes to construct a bus layover in Sydenham.

The Sydenham Bus Layover site is located within the Inner West Council local government area and the suburb of Sydenham, about six kilometres southwest of the Sydney CBD. The proposed layover sits predominantly within 117 Railway Road, Sydenham.

The bus interchange located on Railway Parade has insufficeint capacity to cater to the buses that currently operate in the area, which leads to buses parking and idling in Burrows Avenue and Railway Road. The proposed bus layover would give bus drivers a place to park safely between services and improve bus travel times and service frequencies, increasing reliability for passengers.

Key features of the proposal include:

- a bus layover with:
  - six bus parking spaces
  - a dedicated drivers amenities building with a lunchroom and toilets
  - buses entering from Railway Road and exiting onto Burrows Avenue
- a 3.5-metre-high noise wall between eastern residential properties and the layover facility comprising a mix of transparent acrylic and precast panelling, and featuring a painted mural
- pathway for pedestrians and the community to walk to and from Railway Road to Gleeson Avenue
- installation of new stormwater drainage infrastructure (stormwater pipes and pits) within the new bus layover facility, and modifications to the existing stormwater drainage infrastructure within site
- Parking removal and adjustments:
  - removal of 20 car parking spaces on Burrows Avenue and Railway Road
  - six car parking spaces will be retained on the western side of Burrows Avenue
  - conversion of six car parking spaces on the northern side of Railway Road from parallel to angled parking, resulting in the creation 13 angled parking spaces
  - the above changes result in a net loss of 13 car parking spaces.

The location of the proposal is shown in Figure 1-1 and an overview of the proposal is provided in Figure 1-2. The sections below describe the proposal in more detail.

3.2 Design

3.2.1 Design criteria

Design guides and policies used during the development of the proposal are dependent upon the scope of works. The guides and policies are described in the relevant subsections below.

Civil design

Civil design for the Sydenham Bus Layover includes kerb updates, installation of bus and car parking bays, grading of the bus layover area and a new footpath on the edge of the property. Guides and policies used to develop the civil design included:

- Austroads Guide to Road Design Part 3: Geometric Design
- TfNSW Specifications: R0300 Kerb and Channel Series
- Australian Standard AS 2890.1 Parking Facilities Part 1: Off-street Parking
- Australian Standard AS 2890.1 Parking Facilities Part 2: Off-street Commercial Vehicle Facilities
- Australian Standard AS 2890.5 Parking Facilities Part 5: On-street Parking

Civil design criteria are contained within Table 3-1.

Table 3-1 Design criteria - civil design

Design Aspect	Design value/criteria
Design speed and Design Vehicle	
Posted speed limit	50km/h
Design speed	50km/h
Design vehicle (general traffic)	5.2m passenger vehicle
Design vehicle (bus interchange)	12.5m single unit truck/bus
Design vehicle (check vehicle)	14.5m bus
Sight distance	
Burrows Avenue	51m
Road Cross Sections – Burrows Avenue	
Existing left turn lane width	4.86m
Existing through lane width	2.55m
Existing right turn lane width	3.75m
Lane crossfalls	Crossfall varies
Existing footpath width	2.30m
Existing footpath crossfalls	Crossfall varies
Car parking	5.4m long; 2.5m wide
Road Cross Sections – Railway Road	
Existing left lane width	5.90m
Existing right lane width	5.95m
Lane crossfalls	Crossfall varies
Existing footpath width	1.80m
Existing footpath crossfalls	Crossfall varies
Angled car parking	4.8m long; 2.50m wide; 45-degree angle

Design Aspect	Design value/criteria
Road Cross Sections – Bus layover area	
Bus parking	15.6m long; 3.2m wide
Proposed footpath width	1.7m min; 1.8m max
Proposed footpath crossfalls	2.5%
Dished crossing	SB type
Kerb and gutter	SA type

Drainage design

Guides and policies used to develop the drainage design included:

- Inner West Council Design Specifications
  - Marrickville Development Control Plan (DCP) 2011
  - Council Standard Drawings
- Transport for New South Wales (TfNSW) Design Specifications
  - QA Spec R11, R23, R44
  - TfNSW Standard Drawings
- *Austroads Guide to Road Design Guidelines* 2023 (AGRD), Part 5 and 5A

Design criteria for the drainage design are contained in Table 3-2.

Table 3-2 Design criteria - drainage

Criteria	Value	Clause
Adverse Impact	Development shall not cause adverse impact on any other properties. This includes preserving surface flow paths & not increase water levels	Marrickville DCP 2011 Part 2.25 Clause 2.25.3.2
OSD	Site discharges restricted to pre-development discharges using On-site detention	Marrickville DCP 2011 Part 2.25 Clause 2.25.3.2
	Requirement for OSD for paving works shall be subjected to Council's assessment on the details of the development	Marrickville DCP 2011 Part 2.25 Clause 2.25.2
Runoff From Adjoining Properties	Surface runoff from adjoining properties onto development site shall be catered for within the development	Marrickville DCP 2011 Part 2.25 Clause 2.25.3.6
Pipe Design ARI	Residential High Density – 20 years Commercial/Industrial – 20 years	Marrickville DCP 2011 Part 2.25 Clause 2.25.3.9
Pipe Size	Under road or public land - min. 375mm	Marrickville Council Stormwater and OSD Code 1999, Clause 4.9
Pipe Grade	Min. 0.5%	Typical
Tailwater Level	100 year – Grate level 20 year – 150mm below grate	Typical
Pit Blockage	20% on-grade pits 50% sag pits	Typical
Flow Width	Residential Street: Min. one lane width should be trafficable during 5y ARI or to Local Council Standards On-street parking and car parks: Flow width should be restricted to 2.0 m for the two year ARI.	AGRD 5A Table 5.1

Criteria	Value	Clause
Kerb Discharge	Maximum Kerb Discharge – 25L/s	Marrickville Council Stormwater and OSD Code 1999, Clause 4.9
Water Quality	For development with construction of 10 or more additional uncovered car spaces: TSS – 85% TP – 60% TN – 45%	Marrickville DCP 2011 Part 2.17 Table 1

Pavement Design

Guides and policies used to develop the pavement design included:

- *Austroads Guide to Pavement Technology Part 2: Pavement Structural Design* Edition 4.2, 2019 (AGPT-02)
- *TfNSW Supplement to Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design*, Version 3.0, August 2018
- *Benefits Assessment – To acquire bus layover facility on Burrows Avenue at Sydenham Station Report*, TK Business Group, Final Version, April 2023

Design criteria for the pavement design are contained in Table 3-3.

Table 3-3 Design criteria - pavements

Road	AADT (NB and SB)	Design Life (years)	HV%	Growth (%)	ESA/HVAG	NDT	DESA
Flexible Pavement	176	20	100	1.0	1.00	2.83E+06	2.83E+06
Rigid Pavement (Bus layover)	176	40	100	1.0	1.00	6.28E+06	6.28E+06

Structural Design

Noise Wall

Guides and policies used to develop the noise wall design included:

- TfNSW – *Noise Wall Design Guideline*
- TfNSW Specification B349 – *Precast Concrete Noise Wall Members (Not Pretensioned)*
- TfNSW Specification B59 – *Bored Cast in Place RC Piles*
- AS 4678:2002 – *Earth Retaining Structures*
- AS 3600:2018 – *Concrete Structures*
- AS 4100:2020 – *Steel Structures*
- AS 5100.3:2017 – *Foundation and Soil Supporting Structures*
- AS 1170.2:2021 – *Wind Actions*
- AS 2159:2009 – *Pile Footings and Design Installation*
- *Noise Barrier Review – Sydenham Station Bus Layover*, Hutchison Weller, 2024

The design criteria for the noise wall are included in Table 3-4.

Table 3-4 Design criteria - noise wall

Design Aspect	Design value/criteria
Structures Importance Level	2
Height	3.5m
Design working life	50 years
Regional Wind Spee (ULS)	500-year return period
Panel maximum diplacement	Height/125
Panel maximum deflection	Panel Span/150

Lighting Design

Guides and policies used to develop the lighting design included:

AS/NZS 1158.3.1:2020 Lighting for roads and public spaces

AS/NZS 4282:2023 Control of the obtrusive effects of outdoor lighting

The design criteria for the lighting design are included in Table 3-5.

Table 3-5 Design criteria - lighting

Design Aspect	Design value/criteria
Lighting subcategory – Bus layover	PC3
Lighting subcategory – Pedestrian footpath	PP1

Typical cross sections

Typical cross sections for the proposal are shown in Figure 3-1 and Figure 3-2.

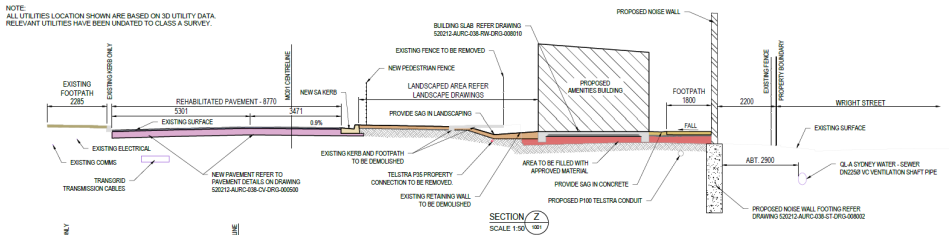


Figure 3-1 Typical cross section at chainage 173 Burrows Ave

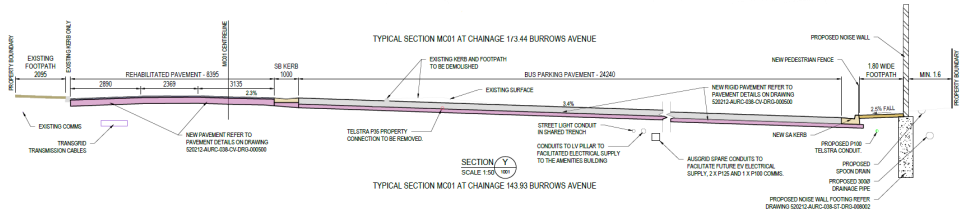


Figure 3-2 Typical cross-section at chainage 143 Burrows Avenue

3.2.2 Engineering constraints

The proposal has several engineering-related constraints as detailed below:

- need to maximise the available space within the site
- close proximity of sensitive receivers to the site
- structural piles for the noise wall are located immediately adjacent to an easement and in close proximity to neighbouring properties
- onsite stormwater detention may be required by Council which may be difficult to provide due to space constraints

close proximity to high voltage power at low point corner of the site.

3.2.3 Major design features

Bus layover

The major design features of the bus layover include the following:

- a bus layover with:
  - six bus parking spaces
  - a dedicated drivers' amenity block with a lunchroom and toilets for the drivers to take short meal breaks and use the restrooms
  - buses layover entry from Railway Road and exit onto Burrows Avenue
- a 3.5-metre-high noise wall between eastern residential properties and the layover facility (further detailed below)
- pathway for pedestrians and the community to walk to and from Railway Road to Gleeson Avenue. A pedestrian safety fence would be installed to separate pedestrians from the bus layover
- conversion of car parking spaces on the northern side of Railway Road from parallel to angled parking
- mill and re-sheeting of Railway Road and Burrows Avenue Road pavement. This would include some minor level corrections along Railway Road to ensure smooth transition to the new pavement, existing kerbs and footpaths.
- utility and stormwater relocation, removal of redundant utilities and installation new utilities.

The general arrangement of all the key design features is included in Figure 3-3.

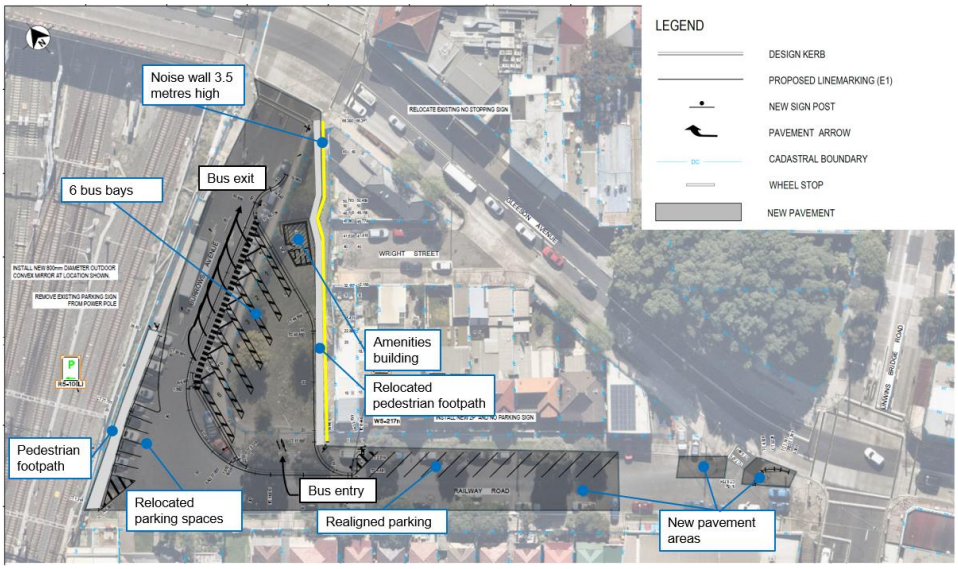


Figure 3-3 Major design features of the proposed bus layover

Noise Wall

A 3.5 metre high and 60 metre long noise wall will be installed along the eastern extent of the site to mitigate noise attributable to the proposal. The noise wall will be comprised of a combination of precast concrete and transparent acrylic panels, as shown in Figure 3-4. The noise wall is shown in Figure 1-2 as the solid red line and the general design arrangement is shown in Figure 3-4. Artistic renders of the detailed noise wall are shown in Figure 3-5 to Figure 3-7. These images show the composition of the wall and alignment in relation to surrounding properties. The artwork shown on the artistic renders are indicative only and would be subject to consultation with relevant stakeholders.

Table 3-6: Noise wall design details

Aspect	Detail
Height	3.5 metres
Length	60 metres
Construction type	• Traditional post and wall panel type construction • Wall panels would be attached to steel section posts (310UB intermediate and 300PFC ends) • Posts spaced at every four metres to centre
Material type	The wall would be comprised of a mix of precast concrete and transparent acrylic panels: • 150mm-thick precast panels • transparent acrylic panels Painted artwork would be applied to the non-acrylic sections of the noise wall facing Burrows Avenue. Anti-graffiti treatment would be applied to both sides of the noise wall.

The detailed design of the noise wall, including the panelling arrangement, are shown in the 3D renders in Figure 3-5 to Figure 3-7.



Figure 3-4 Artist's impression of layover, dedicated driver amenities building and noise wall looking southeast – indicative only



Figure 3-5 Artist's impression of layover, dedicated driver amenities building and noise wall looking south – indicative only



Figure 3-6 Artist's impression of layover, dedicated driver amenities building and noise wall looking northeast – indicative only



Figure 3-7 Artist's impression of layover, dedicated driver amenities building and noise wall looking north – indicative only

Conversion of parallel parking to angled parking

Changes are proposed along Railway Parade and Burrows Avenue to the existing parking arrangements, as shown in Figure 3-3. These changes include the conversion of parallel parking on the northern side of Railway Road into angled parking. The proposal would result in the conversion of six parallel car parking spaces into 13 angled car parking spaces.

Bus layover

The bus layover includes six bus parking spaces, with buses entering via a driveway on Railway Road and existing via a driveway on Burrows Avenue. The driveways and layover pavement would be built in accordance with the design standards and specifications outlined within Section 3.2.1.

Pedestrian pathways

The proposal will involve the realignment of the existing pathway which currently sits on the western side of Burrows Avenue. The realigned pathway will run adjacent to the noise wall and provides a connection from Railway Road up to the intersection of Burrows Avenue and Gleeson Avenue. A pedestrian fence will be installed to separate the bus layover from the pedestrian path for safety reasons. The alignment of the pathway is shown in Figure 3-3 and an indicative artist impression of the path and fence is shown in Figure 3-8.

A new section of pathway will be added to the existing pathway on the eastern side of Burrows Avenue. The alignment of the pathway is shown in Figure 3-3.

Milling and resheeting

To accommodate the other design features of the proposal, the existing asphalt on Burrows Avenue and Railway Road will need to be partially replaced. The upper layer of the existing asphalt will be milled down, with a fresh layer of asphalt then installed to the required levels. The areas subject to milling and resheeting are shown in Figure 3-3.

Utilities and stormwater

Utility and stormwater relocation, removal of redundant utilities and installation new utilities is required as part of the proposal. The following utilities and stormwater works are required:

- Ausgrid
  - installation of spare conduits to enable EV charging station at a later date
  - conduits and connections for amenities building, noise wall and proposed lighting
- Sydney Water
  - installation of new Stormwater pits and pipes in Railway Road and 117 Railway Road
  - sewer and water connections to amenities building
- Telstra
  - P35 and P50 property connection along Railway Road and Burrows Avenue are impacted by the proposed kerb realignment and would be relocated
  - installation of new conduit and connection to amenities building

The proposed utility and stormwater components of the proposal are shown in Figure 3-10.

Dedicated Driver Amenities Building

A dedicated drivers amenities building is proposed in the northern extent of the site. The amenities building provides a space for driver's utilising the layover to ablute and take meals. The amenities building will be single level with a footprint approximately 7 metres by 3 metres. Architectural treatment will be incorporated into the final design of the amenities building during detailed design development. An artist impression of the amenities building, including indicative architectural treatments is shown in Figure 3-8.



Figure 3-8 Dedicated driver amenities building artist impression - indicative only

3.3 Construction activities

3.3.1 Work methodology

In order to establish the new bus layover facility, the following works would be required:

- excavation and relatively minor earthworks to establish a level footprint for the proposed bus layover facility
- removal of two trees
- utility and stormwater relocations
- construction of drivers amenity block
- piling and erection of posts and panels for the noise wall
- pavement, kerb and gutter and footpath works
- landscaping works
- installation of new stormwater drainage infrastructure (stormwater pipes and pits) within the new bus layover facility, and modifications to the existing stormwater drainage infrastructure within site
- signage changes and line marking.

The general sequence of construction activities is shown in Table 3-7. This methodology is indicative and is subject to refinement following the engagement of a construction contractor.

Table 3-7. Indicative construction staging and methodology

Construction Phase	Construction Activity	
Site establishment (Demolish existing retaining wall, and remove fencing)	1a	Set up traffic control. • Light vehicles and labourers installing temporary signage on a daily basis • Traffic control set up will be semi-permanent as the site allows railway Road and Burrows Avenue to remain open at all times,

Construction Phase	Construction Activity	
		with the exception of road crossing and asphalt/paving works which will require stop-go traffic management.
	1b	Establish ATF fence around perimeter of site, including access gates and the southern and western sides of the proposal. • Light flatbed trucks delivering fence panels • Installation by labourers. • Panels securely attached with clamps or equivalent.
	1c	Site investigations such as: • Geotechnical and detailed site investigations may require small ute mounted drill rigs to drill a number of investigation bore holes. • Pavement coring may be required. • Non-destructive excavation to positively identify existing utilities before work commences.
	1d	Demolish old kerb and retaining wall • Jack-hammers, concrete saws and excavators would be required to demolish old kerb and gutters and retaining walls. • All material that is not suitable for onsite reuse would be disposed of at an appropriately licenced facility. • All sandstone kerbing and retaining wall blocks will be salvaged and re-used in either landscaping or replacement kerbing. Where these sandstone blocks cannot be reused, the local council will be offered these blocks for reuse in other areas within the LGA.
Clearing of trees	2	Remove shrubs and trees • Chainsaws and/or handsaws will be used to cut trees and shrubs at the stumps before a small excavator would remove the stumps and root balls. • Vegetation would be mulched either on-site or taken to an offsite facility to be mulched.
Bulk earthworks	3	Strip topsoil, cut, fill, compaction, subgrade trimming • Small excavator will be utilised to carefully strip top layer of material and separate clean topsoil for future reuse on site. • Excavators, graders, rollers and 8-10 wheel trucks would be used to carry out earthworks activities and the import of material and export of waste.
Stormwater pit and pipe installation	4a	Excavation / Pipe placement / Pit installation • Excavation, pipe placement and pit installation would be carried out by excavators and specialist stormwater installation operators.
	4b	Backfilling with suitable material • Import of material would be carried out using 8-10 wheel trucks. • Imported material would be used to backfill areas as required.
	5a	Water pressure excavation after temporary connection

Construction Phase	Construction Activity	
Utility investigations and relocation		• Non-destructive excavation would be used to complete this activity. This includes the use of vacuum trucks and hand digging.
	5b	Relocation of utilities • Non-destructive excavation to positively identify existing utilities before work commences. This includes the use of vacuum trucks and hand digging. • Excavators, hand-held compactors, hand tools and labourers will install these utilities by trenching and placement of backfill over the relevant utility/asset that is to be installed. • Cable pulling and/or charging of water or sewer lines will be conducted following installation of the relevant utility.
Pavement works	6a	Subgrade preparation • Excavators, graders and rollers would be used to carry out subgrade preparation activities and if the subgrade is unsuitable for reuse after preparation works the import and export of material.
	6b	Installation of DGB layers • Excavators, graders, rollers and 8-10 wheel trucks would be used to carry out DGB activities and the import of material and export of waste. • This will be completed by progressively installing various pavement layer types.
	6c	Concrete pour • Labourers, hand tools and materials would be used to construct formwork and install reinforcement. • Concrete agitator trucks, concrete pumps, concrete vibrators, hand tools and labourers would be required to complete all concrete works. • Protection works for curing over a 48 hours period.
Construction of dedicated driver amenities building (foundation and structure)	7a	Utility installation (D/F) • Non-destructive excavation to positively identify utilities the building would be connected to before work commences. • Excavators, hand-held compactors, hand tools and specialist trades would be required to install and connect utilities.
	7b	Pouring of foundation (D/F) • Labourers, hand tools and materials would be used to construct formwork and install reinforcement. • Concrete agitator trucks, concrete pumps, concrete vibrators, hand tools and labourers would be required to complete all concrete works. • Protection works for curing over about a 48 hour period.
	7c	Construction of building (D/F) • Specialist trades, hand tools and materials would be used to construct amenities building. This includes but is not limited to brick laying, soffit, roofing, glazing, façade installation, panelling, door fitting and other activities.
	7d	Fit-out of building (D/F)

Construction Phase	Construction Activity	
		• Labourers and specialist trades (e.g. plumbers, tilers, electricians, cabinet makers), hand tools and materials would be used to fit-out amenities building
Construction of noise wall	8a	Construction of noise wall piles • Preparation of pile platform with excavator and rollers utilising imported material. • Bored piling rig would be required to bore the pile holes. • Installation and placement of reinforcement within piles. • Concrete agitator trucks, concrete pumps, concrete vibrators, hand tools and labourers would be required to complete all concrete works associated with the piles.
	8b	Installation of posts and panels (including concrete and transparent acrylic panels). • A mobile crane (franna crane) would be required to lift the posts and panels into place. • Posts and panels will be securely propped temporarily while permanent fixtures and clamping is undertaken.
	8c	Sealing between panels and architectural treatment (including artwork) • Hand tools and labourers would be required to seal between the panels and complete any architectural treatments.
Landscaping	9	Mulching and planting • A small excavator, hand tools and labourers would be required to complete mulching and planting for landscaping works. • Larger planting would involve space proofing for the root ball with the use of an excavator or hand tools.
Sign posting	10	Sign posting • Hand tools and labourers would be required to bore the post hole and to install all sign posts
Milling and Re-sheeting	11a	Milling (evening/night only) • Profiler and 8-10 wheel trucks would be required to complete the milling of the road. • Directional lighting towers and traffic control would be required to complete the milling.
	11b	Re-sheeting • Paving machines, rollers and 8-10 wheel trucks would be required to complete the asphalting of the road. • Directional lighting towers and traffic control would be required to complete the asphalting.
Line marking / pedestrian fencing	12	Line marking • A line marking truck and directional lighting towers would be required to complete the line marking.
Kerb reshaping **(Railway Road / Gleeson Avenue)**	13a	Demolition of existing kerb (evening /night only) • Jack-hammers, concrete saws and excavators would be required to demolish old kerb and gutters and retaining walls. All noisy activities would cease prior to midnight.

Construction Phase	Construction Activity	
		• All material that is not suitable for onsite reuse would be disposed of at an appropriately licenced facility. • All sandstone kerbing and retaining wall blocks will be salvaged and re-used in either landscaping or replacement kerbing. Where these sandstone blocks cannot be reused, the local council will be offered these blocks for reuse in other areas within the LGA.
	13b	Concrete pour of new kerbs (evening /night only) • Kerb extruders, labourers, hand tools and materials would be used to construct formwork and install reinforcement. • Concrete agitators, hand tools and labourers would be required to complete all concrete works.
	13c	Line marking (evening /night only) • A line marking truck and directional lighting towers would be required to complete the line marking.
Construction of dedicated driver amenities building (building and fit-out)	14a	Construction of building (D/F) • Labourers, hand tools and materials would be used to construct amenities building
	14b	Fit-out of building (D/F) • Labourers, hand tools and materials would be used to fit-out amenities building

3.3.2 Construction workforce

Construction of the proposal is expected to require up to 20 workers during peak construction times. Workers would be distributed between the worksite and the site compounds depending on the activities occurring and the time of day.

3.3.3 Construction hours and duration

Subject to approval, construction is anticipated to commence in late 2024 and take about seven months to complete, weather permitting.

Construction work would primarily be carried out during standard hours, where possible:

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sunday: No work
- Public holidays: No work

To minimise disruption to traffic for works within the roadway, some work would need to be carried out outside standard hours. These hours would be in accordance with a Traffic Management Plan (TMP) and, where applicable, a Road Occupancy Licence (ROL). Out of hours work would be undertaken up to five consecutive nights a week as follows:

- evening / night work– Sunday to Thursday
- no works on public holidays

Approval from Transport would be required for out of hours works and the affected community would be engaged regarding the proposed construction hours at least five working days prior to works commencing in accordance with the *Construction Noise and Vibration Guideline* (TfNSW, 2023) and EPA's *Interim Construction Noise Guideline* (ICNG) (NSW DECC, 2009). The community would be kept informed of proposed upcoming work and contact information. For further details refer to Section 6.4 of this REF.

3.3.4 Plant and equipment

Plant and equipment to be used for construction would be confirmed during the construction planning process, but an indicative list of equipment expected to be used on site during construction of the proposal includes:

- 5kVA Generators, lighting towers
- temporary fencing and barriers
- post Holders (truck)
- 60t Piling Rig
- mobile crane (Franna crane)
- 50-100t Crane
- up to 18t Excavators with multiple attachments (incl breaker)
- up to 24t tipper trucks
- oversize & Over mass delivery trucks
- concrete saw
- jack hammer
- minor powered hand tools
- non-Destructive Digging / suction truck
- pad foot roller (18t)
- steel Drum Roller (18t)
- grader – 14H (20t)
- concrete Agi truck
- EWP
- truck Hiab crane (12t)
- asphalt Paver
- asphalt Profiler
- multi-Roller (18t).

3.3.5 Earthworks

Earthworks would generally involve excavation for drainage, new road pavements and structural foundations. The estimated quantities of materials associated with earthworks are provided in Table 3-8.

Table 3-8 Indicative earthworks quantities

Proposal element	Approximate quantity (m^3)
Cut volume (excluding topsoil stripping)	760
Fill (excluding topsoil)	760
Topsoil	90

3.3.6 Source and quantity of materials

The proposal would require concrete and other select materials. The quantities of material required would not result in a regional or local supply shortage, and none are likely to be in short supply in the foreseeable future. Materials would be sourced from local commercial suppliers where available.

Non-renewable resources such as petroleum fuels would not be used in large quantities.

3.3.7 Traffic management and access

The proposal is expected to generate up to 30 heavy and 15 light construction vehicle movements per day at the peak of construction activity, mainly associated with:

- movement of construction workers
- delivery of construction materials
- spoil and waste removal
- delivery and removal of construction equipment and machinery.

Access to the proposal footprint would initially occur via Wright Street. Following site establishment access will be directly from Railway Road or Burrows Avenue.

Lane closures and traffic switches would be generally as described in Section 0 These would occur in accordance with a Traffic Management Plan (TMP) and, where applicable, a Road Occupancy Licence (ROL).

Standard traffic management measures would be used to minimise the short-term traffic impacts during construction. These measures would be identified in TMP for the proposal and would be developed in accordance with the Traffic Control at Works Sites Technical Manual (Transport for NSW, 2021) and Transport for NSW Specification G10 – Control of Traffic.

Pedestrian and cyclist routes would be managed daily to suit construction activities.

Details of potential traffic and transport impacts are outlined in Section 0.

3.4 Ancillary facilities

Compound and stockpiling uses would be accommodated within the proposal footprint, as shown in Figure 3-9. These areas would be used for the following during construction:

- site offices
- worker amenities
- equipment and materials storage
- stockpiling.

Access to the ancillary facilities would be via Railway Road and Burrows Avenue.

Several car parking spaces will be available within the proposed site compound for a small number of workers. Work vehicles will at times be able to park on-site. Any deficit in worker parking will be required to park in legal parking locations in surrounding streets. Workers will also be encouraged to catch public transport to work each day.



Figure 3-9 Ancillary facilities shown in the green hashed area within the proposed construction footprint

3.5 Public utility adjustment

Utility investigations were undertaken to determine the services and associated asset owners within the extents of the proposal location to identify which utilities would require relocation / protection to accommodate the proposal. This included a desktop study based on 'Dial Before You Dig' (DBYD), topographical surveys and potholing.

Initial consultation with utility owners has been carried out and on-going consultation would be carried out throughout the detailed design phase and also during construction.

The following utility works are required:

- Ausgrid
  - installation of spare conduits to enable EV charging station at a later date
  - conduits and connections for amenities building, noise wall and proposed lighting
- Sydney Water
  - installation of new Stormwater pits and pipes in Railway Road and 117 Railway Road
  - sewer and water connections to amenities building
- Telstra
  - P35 and P50 property connection along Railway Road and Burrows Avenue are impacted by the proposed kerb realignment and would be relocated
  - installation of new conduit and connection to amenities building.

Figure 3-10 shows the proposed utility works as part of the bus layover.



Figure 3-10 Proposed utility works

3.6 Property acquisition

The proposed bus layover is located on land at 117 Railway Road, Sydenham (Lot 1 in Deposited Plan 1039552) with an area of 926.4 square metres. The land is owned by TAHE.

The land will be transferred from TAHE to Transport in accordance with the *Transport Administration Act 1988* which grants the Secretary of Transport power to direct the transfer of assets (in this case land) between agencies. The transfer was completed in June 2023.

4. Statutory and planning framework

This chapter provides the statutory and planning framework for the proposal and considers the provisions of relevant state environmental planning policies, local environmental plans and other legislation.

4.1 Environmental Planning and Assessment Act 1979

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the State.

Section 2.109 of SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposal is for a road infrastructure facility and is to be carried out on behalf of Transport, it can be assessed under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (NSW). Development consent from council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Resilience and Hazards) 2021, State Environmental Planning Policy (Planning Systems) 2021 or State Environmental Planning Policy (Precincts – Eastern Harbour City).

Section 2.10 to 2.15 of SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by SEPP (Transport and Infrastructure) (where applicable), is discussed in chapter 5 of this REF.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

Section 2.7(1) of this SEPP states that an authority to clear vegetation under this policy is not required if it is a clearing authorised under s60(O) of the Local Land Services Act 2013. Section 60(O) provides an exemption for clearing under Part 5 of the EP&A Act and therefore consent is not required under the SEPP (Biodiversity and Conservation).

4.1.2 Local Environmental Plans

Inner West Local Environmental Plan 2021

The proposal is located within the Inner West Local Government Area and the land zoning surrounding the proposal area is shown in Figure 4-1. The provisions within the Inner West Local Environment Plan (Inner West LEP) have been considered within this REF. Table 4-1 identifies the objetives for each of the affected zones under the Inner West LEP and considers the consistency of the proposl with those objectives.

Table 4-1 Consistency with zone objectives - Inner West LEP

Zone	Objective	Comment
R3	• To provide for the housing needs of the community within a medium density residential environment. • To provide a variety of housing types within a medium density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents. • To encourage residential development that results in appropriate amenity for a medium density residential area.	This is the current zoning of 117 Railway Road. The proposed bus layover enables other land uses nearby to provide facilities or services to meet the day to day need of residents.



Figure 4-1 Land zoning

Development for the purposes of road infrastructure facilities is permitted with development consent in the above zones per the Transport and Infrastructure SEPP as noted in Section 4.1.1.

4.2 Other relevant NSW legislation

4.2.1 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act* 2016 (BC Act) seeks to conserve biological diversity and promote ecologically sustainable development; to prevent extinction and promote recovery of threatened species, populations and ecological communities; and to protect areas of outstanding biodiversity value.

The BC Act provides a listing of threatened species, populations and ecological communities, areas of outstanding biodiversity value, and key threatening processes.

Part 7 of the BC Act requires that the significance of the impact on threatened species, populations and endangered ecological communities listed under the BC Act or *Fisheries Management Act* 1994, are assessed using a five-part test. Where a significant impact is likely to occur, a Species Impact Statement or Biodiversity Development Assessment Report (BDAR) must be prepared. An assessment of the potential impact on biodiversity is provided in Section 6.1.

4.2.2 Biosecurity Act 2015

Under the *Biosecurity Act* 2015, which came into effect on 1 July 2017 and repealed the Noxious Weeds Act 1993, 'all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable'.

The proposed works would not impact upon biosecurity.

4.2.3 Contaminated Land Management Act 1997

The object of the *Contaminated Land Management Act 1977* (CLM Act) is generally to establish a process for investigating and where appropriate, remediating land that the EPA consider to be contaminated significantly enough to require regulation under Division 2 Part 3.

The proposed works are not anticipated to impact contaminated land. In accordance with the CLM Act, the proponent will report to the EPA if contaminated land is encountered during the works that meets the duty to report contamination requirements under Section 60 of this Act.

4.2.4 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) provides protection for items of state heritage significance that are listed on the State Heritage Register. Under Section 57(1) of the Heritage Act, the approval of the Heritage Council of NSW is generally required for development within a site included on the State Heritage Register, including works to the grounds or structures. The proposal would not affect a State Heritage Register listed item.

An excavation permit is required to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. A permit is also required to disturb or excavate any land on which the person has discovered or exposed a relic. Relics are not expected to be affected by the proposal. Refer to Section 6.7 for further details.

4.2.5 National Parks and Wildlife Act 1974

The harming or desecrating of Aboriginal objects or places is an offence under Section 86 of the *National Parks and Wildlife Act 1979*. Under Section 90, an Aboriginal Heritage Impact Permit (AHIP) may be issued in relation to a specified Aboriginal object, Aboriginal place, land, activity or person or specified types or classes of Aboriginal objects, Aboriginal places, land, activities or persons.

Aboriginal objects are not likely to be affected by the proposal. Refer to Section 6.7 for further details.

4.2.6 Protection of the Environment Operations Act 1997

Part 3.2 of the *Protection of the Environment Operations Act 1997* (POEO Act) requires an environmental protection licence for scheduled development work and the carrying out of scheduled activities (as set out in Schedule 1 of the POEO Act), which includes road construction. The proposal does not trigger these requirements.

Section 148 of the POEO Act requires immediate notification of pollution incidents causing or threatening material harm to the environment to each relevant authority. Incident reporting and notification processes will be documented in the CEMP in accordance with the Transport for NSW *Environmental Incident Procedure*.

4.2.7 Roads Act 1993

The *Roads Act 1993* (The Roads Act) provides guidance on the use and access of public roads, including procedures regarding the opening and closure of public roads. The Act also classifies roads and identifies the functions of road authorities.

Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of work in, on or over a public road. However, clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require consent for work on unclassified roads.

The proposal would involve work on Railway Road and Burrows Avenue which are local roads under the control of Inner West Council.

Road Occupancy Licence/s would be obtained from the relevant roads authority for road works and any temporary road closures where required (see Section 7.3 for more information).

4.2.8 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) seeks to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. The WARR Act also ensure that resource management options are considered against a hierarchy in the following order: avoidance and reduction of waste; re-use of waste; recycling, processing or reprocessing waste, recovery of energy, and disposal.

ConnectSydney would carry out the proposal having regard to the requirements of the WARR Act.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environmental Protection and Biodiversity Conservation Act* 1999 (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land. These are considered in Section 6.1 of the REF and Appendix H Biodiversity Assessment Report (refer Appendix H).

A referral is not required for proposed road activities that may affect nationally-listed threatened species, endangered ecological communities and migratory species. This is because requirements for considering impacts to these biodiversity matters are the subject of a strategic assessment approval granted under the EPBC Act by the Australian Government in September 2015.

Potential impacts to these biodiversity matters are also considered as part of Appendix H Biodiversity Assessment Report and Section 6.1 of the REF.

Findings - matters of national environmental significance

The assessment of the proposal's impact, on matters of national environmental significance and the environment of Commonwealth land, found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land. Accordingly, the proposal has not been referred to the Australian Government Department of Climate Change, Energy, the Environment and Water under the EPBC Act.

4.3.2 Native Title Act 1993

The *Native Title Act 1993* recognises and protects native title. The Act covers actions affecting native title and the processes for determining whether native title exists and compensation for actions affective native title. It establishes the Native Title Registrar, the National Native Title Tribunal, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements, and the National Native Title Register. Under the Act, a future act includes proposed public infrastructure on land or waters that affects native title rights or interest.

A search of the Native Title Tribunal Native Title Vision website was undertaken on 6 December 2023, with no Native Title holders/claimants identified.

4.4 Confirmation of statutory position

The proposal is categorised as development for the purpose of a road infrastructure facility and is being carried out by or on behalf of a public authority. Under Section 2.109 of SEPP (Transport and Infrastructure) the proposal is permissible without consent. The proposal is not State significant infrastructure or State significant development. The proposal can be assessed under Division 5.1 of the EP&A Act.

Transport for NSW is the determining authority for the proposal. This REF fulfils Transport's obligation under Section 5.5 of the EP&A Act including to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

5. Consultation

This chapter discusses the consultation undertaken to date for the proposal and the consultation proposed for the future.

5.1 Consultation strategy

Consultation activities conducted for the proposal to date and the outcomes of these are documented in the *Sydenham Bus Layover Community Engagement Report* (TfNSW, 2024). The community engagement report is provided in Appendix C and outlines the engagement carried out, a summary of the matters raised by the community, Transport's response to the matters raised, and the next steps to be carried out by Transport, such as further engagement and engagement outcomes.

Engagement was undertaken with community and key stakeholders to:

- Raise awareness of the Sydenham Bus Layover proposal
- Build preparedness and strategic readiness for changes in traffic and parking arrangements to the local area and seek comment, feedback, ideas, and suggestions on the proposal
- Build a database of interested community members with whom we can continue to engage during the proposal's development and delivery
- Engage with relevant councils, businesses and other community groups
- Inform the community, businesses and other stakeholders on the proposal.

Transport will undertake further consultation with the community and stakeholders through display of this REF. This display will provide the opportunity for individuals and stakeholders to review the proposal developments since the initial consultation and respond via formal submissions. A Submissions Report would then be prepared to provide responses to key community concerns and questions, and provide further information or clarification if required.

The engagement summary undertaken to date is provided in Section 5.1 to Section 5.5. Transport for NSW will continue to engage the community and relevant stakeholders during the detailed design and construction of the proposal.

5.2 Community involvement

Community engagement occurred from Friday 24 November to Friday 8 December 2023.

Community members were invited to provide their feedback through the Transport project website, Your Say Transport website, the NSW Government Have Your Say portal, as well as via face-to-face conversations, email correspondence, doorknocks, and phone conversations via the project info line. The engagement activities are outlined in Table 5-1.

Table 5-1: Community engagement activities

Channel	Description
Have your say community notification	• 170 print notifications were letterbox dropped to residents and businesses across the proposal area. • Email notifications to emergency services and local schools. • Notifications and engagement with disability peak bodies through the Accessible Transport Advisory Committee.
Transport project web page	• www.transport.nsw.gov.au/projects/currentprojects/sydenham-bus-layover • 122 unique visitors accessed the project page
Your say Transport website	• yoursay.transport.nsw.gov.au/sydenham-bus-layover • 132 unique visitors accessed the Your say page

Channel	Description
NSW Government Have Your Say portal	• www.nsw.gov.au/have-your-say/sydenham-bus-layover
Inner West Community Forum	• The Sydenham Bus Layover proposal was featured in the Inner West December livestream on Wednesday 6 December, reminding community members to have their say
Doorknocks	• On Thursday 23 and Friday 24 November, 24 properties were doorknocked along Railway Road and Wright Street. Direct face to face engagement was carried out with 15 residents at their residential properties. Two businesses were informed and engaged along Railway Road.
Key stakeholder briefings	• Inner West Council briefed 7 June and 24 November 2023 • Rail, Tram and Bus Union, and Transport Workers' Union of NSW briefed 19 October 2023

Transport received feedback from 18 residents and local businesses regarding the proposal.

Feedback provided that is not related to this proposal has been passed on to the relevant agency for their consideration. Comments in relation to public transport improvements and bus services have been passed on to the relevant team within Transport. Table 5-2 below summarises the engagement report prepared by Transport for NSW in response to the feedback on the proposal.

Table 5-2: Summary of issues raised by the community (source: Transport for NSW)

Issue category	Issue raised	Response / where addressed in REF
Access	• Access to the rail corridor from Burrows Avenue must be maintained	• Sydney Trains requires access to their assets at all times for maintenance. Transport has reviewed the design to maintain access to the rail corridor from Burrows Avenue. A 'No Parking' sign will be installed in front of the railway gate on Burrows Avenue/Railway Road and a chevroned area will be marked at the access gate.
Alternative layover location	• Transport should consider alternative layover locations, including Railway Parade, as well as the lower part of Railway Parade between Marrickville Road and Sydenham Road, which was the preferred option in 2018 as part of the Metro upgrade for Sydenham	• Transport appreciates the community's feedback on alternative locations for a bus layover facility. Other bus layover locations were investigated as described in Section 2.4.2. The alternative location on the lower part of Railway Parade between Marrickville Road and Sydenham Road, noted in the 2018 Planning Approval Consistency Assessment Form, relates to traffic changes as part of Sydney Metro's proposed projects. As this project is being delivered under the Bus Priority Infrastructure Program, the project objectives are separate to Sydney Metro. Consequently, the 2018 Planning Approval Consistency Assessment Form does not apply to this project. A bus layover requires adequate space to accommodate bus parking as well as entry and exit manoeuvres. There is insufficient space to locate a bus layover on lower Railway Parade. The proposed bus layover will provide a valuable operational asset to support assured delivery and increase efficiency of existing and future bus services at this intermodal node between the Sydney Trains,

Issue category	Issue raised	Response / where addressed in REF
		Metro, Inner-West and Inner-East bus networks. This project along with other layover projects align with the *Future Transport*, the *Greater Sydney Integrated Network Plan* and the *Greater Sydney Bus Network Strategy*. Overall, Transport expects the project to benefit the community and wider bus network. The proposed bus layover is expected to improve local traffic flows, road safety, and on-time running by reducing congestion, delays, and reduce instances of buses double parking on Railway Road and Burrows Avenue. Refer to Section 2.4 for a discussion on project alternatives.
Amenity	• The proposed layover and noise wall will be an eyesore that will attract graffiti and reduce property value	• Transport will carry out a visual impact assessment (VIA) to evaluate the landscape character and visual impact of the bus layover facility, including the building and noise wall and assess how it fits into the surrounding environment. The visual impact assessment and mitigation measures are detailed in Section 6.5. • The final design will look at solutions for the surface of the noise wall as part of graffiti prevention. The project team will work with Transport's maintenance teams to ensure appropriate maintenance for the bus layover, including the noise wall.
	• Will there be street lighting for the new footpath	Yes, lighting will be provided within the bus layover which will light the footpath. The lighting assessment for the bus layover has been performed in accordance with the *Australian Standards, Lighting for Roads and Public Spaces* (AS/NZS 1158.3.1.)
	• Lighting for the new footpath needs to be directed away from residential properties	• Transport understands residents' concerns regarding potential light spillage from the construction of the proposed bus layover. This consideration has been included in the lighting assessment of the bus layover. Properties on the eastern boundary of the bus layover will be shielded from light spillage by the noise wall.
Bus services	• What hours will the buses use the layover?	• The bus layover would be operational 24 hours a day, seven hours a week, however, actual usage is expected to be in line with bus timetables.
	• Bus drivers need to turn off their engines when at the layover	• Transit Systems will be the entity managing the buses and layover operation. Transit Systems instructs drivers not to idle engines when parked as part of operational training for drivers.
	• Noise from the layover	• To manage operational noise from the bus layover, Transport has taken a proactive approach and incorporated a noise wall in the design. The noise wall will be located between the layover and the adjacent

Issue category	Issue raised	Response / where addressed in REF
		properties to provide noise shielding from the layover. As part of the Review of Environmental Factors assessment for the project, a noise assessment of the operation of the layover will be undertaken. The results of the noise assessment will inform the height of the noise wall panels. Transport seeks to minimise noise impacts from the layover operation and along with the noise wall, will consider other safeguards and management measures identified in the assessment. Results of the noise assessment and associated measures will be included in the Review of Environmental Factors report which will be placed on Public Exhibition in mid-2024. Refer to Section 6.4 which contains the construction and operational noise and vibration assessments.
Construction	• Noise impact on local residents during construction	• Transport understands residents' concerns regarding any noise produced during the construction of the proposed bus layover construction. As part of the Review of Environmental Factors assessment for the project, a noise assessment of the construction of the layover will be undertaken. This will include an assessment of construction hours, construction activities and predicted noise impacts. Safeguards and management measures will be identified to minimise noise impacts. Transport will update the community on the measures to be implemented in the Review of Environmental Factors report which will be placed on Public Exhibition in mid-2024. Refer to Section 6.4 which contains the construction noise and vibration assessment.
Consultation	• Two weeks of consultation is not sufficient	• A two-week period is the standard timeframe to get feedback on projects of this scale. To ensure that residents and other stakeholders on Railway Road were reached, doorknocks were carried out on 23 and 24 November, resulting in direct face to face engagement with 15 residents and two businesses. Additionally, the project team accepted all feedback received after the closing date for submissions. We received feedback from 18 individuals in total. • In addition, the Project REF will be placed on Public Exhibition in mid-2024, where further feedback can be provided.
	• Why doesn't Transport post directly to local groups, such as Tempe 2020, on social media?	• Transport is unable to post directly to community groups on social media as most group pages (like Tempe 2020) are set to private and not accessible by non-members.
Environment	• Alternatives to tree removal should be considered	• During the concept development phase, Transport sought to avoid or minimise tree removal by investigating alternative designs. Unfortunately, as the project site is constrained due to the limited available

Issue category	Issue raised	Response / where addressed in REF
		space, two mature trees located at the proposed layover entry point need to be removed. The two trees proposed to be removed as part of the project will be replaced with four trees, to be planted within the Inner West local government area (subject to Council approval). Additionally, the project has allocated space within the northern section of the site for a landscaped area. Any trees removed as part of the proposal will be replaced in accordance with the TfNSW *Tree and Hollow Replacement Guideline*. Refer to the safeguards in Section 6.1.4.
	• Why was the DA for removal of two Melaleucas (paper barks) not advertised?	• The approval process for removal of the paperbark trees did not involve a development application (DA). Transport has consulted with Inner West Council and our environmental team, and the trees will be removed in accordance with Transport guidelines, which include offsetting the removal on a two for one basis.
	• Native Vegetation should be used for this project	• Transport prefers to use native vegetation for landscaping on projects, particularly when it is endemic to the area. More details on the species of trees to be planted as part of the proposed bus layover will be released in the Review of Environmental Factors report.
	• More trees should be planted as part of the proposal	• Transport will be offsetting the removal of trees on a two for one basis. The two trees proposed to be removed as part of the project will be replaced with four trees, to be planted within the Inner West Council local government area (subject to Council approval.) The Inner West Council will manage the tree planting locations. Any trees removed as part of the proposal will be replaced in accordance with the TfNSW *Tree and Hollow Replacement Guideline*. Refer to the safeguards in Section 6.1.4.
Noise wall	• How high would the proposed noise wall be?	• The results of the noise assessment for the proposed bus layover facility has informed the height of the noise wall along with the visual impact assessment. The height of the noise wall has been determined to be about 3.5 metres. Refer to Section 6.4 which contains the operational noise and vibration assessment and details about the noise wall.
	• What would be the impact on light to adjoining properties from the noise wall?	• To address residents' concerns regarding the impact on natural lighting, Transport will perform a lighting assessment of the bus layover. This will be completed once the proposed design for the noise wall has been developed and will form part of Inner West Council's lighting review to assess the impact to natural lighting from the bus layover project. The results will be included

Issue category	Issue raised	Response / where addressed in REF
		in the Review of Environmental Factors report which will be placed on Public Exhibition in mid-2024.
	• The noise wall will not do enough to mitigate noise from the layover	• As part of the Review of Environmental Factors assessment for the project, a noise assessment of the operation of the bus layover will be undertaken. The results of the noise assessment will inform the noise wall panel height. Transport seeks to minimise noise impacts from the layover operation and along with the noise wall, will consider other safeguards and management measures identified in the assessment. Results of the noise assessment and associated measures will be included in the Review of Environmental Factors report which will be placed on Public Exhibition in mid-2024. Refer to Section 6.4 which contains the operational noise and vibration assessment and details about mitigation measures.
Angled parking	• Railway Road is used for parking buses for rail replacement services, would a permanent layover replace this practice?	• The proposed bus layover is a permanent facility and will be used by regular bus services as well as by rail replacement services. The layover is expected to improve local traffic flows, road safety, and on-time running by reducing congestion, delays, and instances of buses 'double parking' on Railway Road and Burrows Avenue. We do not expect to exceed six buses at the layover at any given time.
	• There is not enough parking in the street and angled parking does not provide enough spaces to offset the loss of spaces, negatively impacting residents and businesses	• Transport has undertaken a parking assessment and has worked to optimise the parking spaces in Railway Road and Burrows Avenue. The introduction of angled parking provides an additional five spaces to the existing eight spaces in the section along Railway Road between 105 and 117 Railway Road. Transport has also carried out a review of the Sydenham residential parking permit scheme and available parking spaces post- project delivery. There are sufficient available parking spaces within the project scope area (including Wright Street) to accommodate the permit allocation available for properties along Railway Road.
	• Angled parking looks the wrong way	• The proposed angled parking is in accordance with *Australian Standard 2890 Parking Facilities*.
	• Angled parking would narrow the road and increase the risk of crashes	• The introduction of angled parking has historically been shown to reduce vehicle speeds which creates a safer road environment. Angled parking will also not adversely affect traffic flows along Railway Road.
	• Will parking on the southern side of Railway Road be modified or removed?	• Parking spaces on the southern side of Railway Road will not be modified or removed as part of this project scope. The

Issue category	Issue raised	Response / where addressed in REF
		parking changes are on the northern side of Railway Road and on Burrows Avenue.
	• Why is angled parking on the right side of Railway Road and not the left?	• The angled parking is proposed for the northern side of Railway Road to accommodate bus turning manoeuvres into the layover.
	• What is the net change in parking spaces?	• The parking changes to accommodate the bus layover will result in a net reduction of 12 parking spaces. • For Railway Road on the southern side, there is no change to the existing 23 parking spaces. On the northern side there are currently eight parking spaces which will increase to 13 parking spaces with the introduction of angled parking. • On the western side of Burrows Avenue, 12 parking spaces will be reduced to six. The 11 informal parking opportunities in the right turn pocket on the eastern side of Burrows Avenue will be removed as that area forms the layover exit for the buses. • Transport has undertaken a parking assessment to optimise parking spaces. Transport has also carried out an assessment of the Sydenham residential parking permit scheme and available parking spaces post-project delivery. The results of the assessments indicate that there are sufficient available parking spaces within the project scope area (including Wright Street) to accommodate the permit allocation available for properties along Railway Road. Refer to Section 0 which discussed impacts to parking.
Pedestrian access	• Will the pedestrian walkway next to the layover integrate with small Wright Street?	• The proposed footpath will be located between the noise wall and the proposed bus layover facility, noting the walkway will be separated from the layover with a pedestrian fence. This means that Wright Street will not be accessible from the footpath due to the proposed noise wall. This is to ensure privacy and effective noise mitigation for adjacent properties on the eastern boundary.
	• The intersection of Gleeson and Burrows Avenue should have pedestrian priority	• The current traffic signal phasing of Gleeson Avenue and Burrows Avenue has been reviewed as part of project development and Transport has determined that no changes are required.
	• Footpath on Burrows Avenue should be widened	• Transport has assessed the existing pedestrian infrastructure and determined there is sufficient existing pedestrian infrastructure on the western side of Burrows Avenue (including footpath width) to enable safe pedestrian movements to the Burrows Avenue bus stop (Stop ID: 204421) and Sydenham Station. • The footpath on the eastern side of Burrows Avenue on the boundary of the bus layover

Issue category	Issue raised	Response / where addressed in REF
		will be permanently removed to enable safe and efficient bus exit from the layover. The new walkway will provide pedestrian a safe route between Gleeson Avenue and Railway Road.
	• The proposed walkway will create noise next to properties	• Transport has updated the design, the proposed walkway will now be located between the noise wall and the proposed bus layover, noting the walkway will be separated from the layover with a pedestrian fence. The noise wall will provide noise shielding to adjacent properties from pedestrian traffic.
	• Commuters should not need to cross Gleeson Avenue to get to the Burrows Avenue bus stop	• There is sufficient existing pedestrian infrastructure to facilitate safe pedestrian movements between Sydenham Station and Burrows Avenue bus stop (Stop ID: 204421). There are existing signalised pedestrian crossings across Burrows Avenue and Gleeson Avenue. Transport does not have any plan to move bus stops within and outside the proposal area.
	• The proposed walkway will make travel to the bus stop on Burrows Avenue from Railway Road longer	• The footpath on the eastern side of Burrows Avenue on the boundary of the bus layover will be permanently removed to enable safe and efficient bus exit from the layover. Pedestrians would be able to use a new walkway between Gleeson Avenue and Railway Road. Along with the existing footpath to Burrows Avenue along Railway Road, the new walkway will provide an alternative safe option for pedestrians.
Proposed layover	• This area was previously proposed as part of the Metro but did not go ahead, what changed?	• The 2018 Planning Approval Consistency Assessment Form relates to traffic changes as part of Sydney Metro's proposed projects. The proposed bus layover facility is associated with the Transport's Bus Priority Infrastructure Program which supports the overall Future Transport Strategy.
	• Why build the layover now when the area is expected to be rezoned and redeveloped after the Bankstown Line Closure?	• The proposed bus layover will provide a valuable operational asset to increase efficiency of existing and future bus services at this intermodal node between the Sydney Trains, Metro, Inner-West and Inner-East bus networks in alignment with Future Transport, the Greater Sydney Integrated Network Plan and the Greater Sydney Bus Network Strategy.
	• The cost outweighs the benefits	• Transport has performed a benefits assessment as part of the proposal. The bus layover will provide bus drivers a place to park safely between services, improve operating efficiencies and increase reliability for passengers, leading to reduced operating costs. The assessment concluded over the lifetime of the project, the benefits provided by the layover are expected to exceed the project capital cost.

Issue category	Issue raised	Response / where addressed in REF
	• Existing stormwater pipe at the location of the proposed layover has caused flooding to adjacent properties	• Transport will liaise with Sydney Water and Inner West Council to manage storm water drainage at the proposed site.
	• Why not build a toilet inside the station instead of at the layover	• Sydenham Station already has toilet facilities with wheelchair accessibility and baby change tables. The purpose of the amenity block at the layover is to enable bus drivers to access amenities between shifts as efficiently as possible without the need to walk to Sydenham Station.
Safety	• Will drivers reverse into and out of the facility?	• The bus layover has been designed to allow buses to enter and exit the facility in forward motion. Buses will enter the layover from Railway Road and exit onto Burrows Avenue.
	• Bus drivers would need to cross the road from the bus stop to use the amenity block	• Bus operators laying over in Burrows Avenue will need to cross Burrows Avenue to access toilet and meal room facilities at the bus layover.
	• How will buses enter and exit the layover facility safely?	• The bus layover has been designed with the safety of pedestrians, road users and passengers as the priority. All buses will enter and exit the layover in a forward motion. A new pedestrian walkway between Gleeson Avenue and Railway Road and the existing walkway on the north side of Burrows Avenue will separate pedestrians from bus movements.
Traffic	• The layover will create more traffic on Railway Road and Burrows Avenue, creating congestion and noise	• Transport expects the project to benefit the community and wider bus network. The proposed bus layover facility is expected to improve local traffic flows, road safety, and bus timetable reliability by reducing congestion, delays, and reducing instances of buses 'double parking' on Railway Road and Burrows Avenue. • To manage noise to adjacent properties, the proposal includes the construction of a noise wall. The noise wall will run along the eastern boundary of the bus layover and will provide significant noise shielding.
	• Will the configuration of lanes at the Intersection of Gleeson Avenue and Burrows Avenue change as part of this proposal?	• The configuration of lanes at the Gleeson Avenue and Burrows Avenue intersection will not change as part of this project.
Not included as part of this proposal	• Introduce a right hand turn signal phase from Gleeson Avenue into Unwins Bridge Road	• The Gleeson Avenue and Unwins Bridge Road intersection is outside the scope of the proposed bus layover facility. Transport has shared this feedback with the relevant team for investigation.
	• The pedestrian zebra crossing on Burrows Avenue, adjacent to the train station, needs to be raised into a wombat crossing	• The Burrows Avenue zebra crossing to Sydenham Station is outside the scope of this proposal. Transport has shared feedback with the relevant team for investigation.

Issue category	Issue raised	Response / where addressed in REF
	• Transport should build a commuter carpark next to Sydenham Station	• Commuter car parks are delivered under Transport's Safer and Accessible Transport Program. At present there are no plans to build parking facilities near Sydenham Station. Due to the location of the station, particularly its proximity to the Sydney CBD, commuters are not expected to drive to the station by car.

5.3 Aboriginal community involvement

The proposal has been considered against the requirements of the *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI) (RMS, 2011).

Table 5-3: Summary of Transport's Procedure for Aboriginal Cultural Heritage Consultation and Investigation

Stage	Description
Stage 1	Initial assessment by Transport.
Stage 2	Site survey and further assessment.
Stage 3	Formal consultation and preparation of a cultural heritage assessment report.
Stage 4	Implement environmental impact assessment recommendations.

A Stage 1 PACHCI assessment was completed for the proposal by Transport's Aboriginal Cultural Heritage Advisor – Greater Sydney Region (refer to Appendix J).

The Stage 1 PACHCI assessment is based on the following considerations:

- the project is unlikely to harm known Aboriginal objects or places
- the AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area
- the study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage's Due diligence Code of Practice for the Protection of Aboriginal objects in NSW and the Roads and Maritime Services' procedure
- the cultural heritage potential of the study area appears to be reduced due to past disturbance
- there is an absence of sandstone rock outcrops likely to contain Aboriginal art.

The proposal is considered unlikely to have an impact on Aboriginal cultural heritage and can proceed without proceeding to Stage 2 of the PACHCI process. As such, no consultation with the Aboriginal community was required.

Further information on Aboriginal heritage is provided in Section 6.7.

5.4 SEPP (Transport and Infrastructure) consultation

Inner West Council was consulted on 11 March 2024 about the proposal as per the requirements of clause 2.10 of SEPP (Transport and Infrastructure). Appendix B contains a SEPP (Transport and Infrastructure) consultation checklist that documents how SEPP (Transport and Infrastructure) consultation requirements have been considered.

No response was received from Inner West Council.

5.5 Government agency and stakeholder involvement

Ongoing consultation is being undertaken with various government agencies and stakeholders about the proposal, including:

- Inner West Council
- bus operators
- utility providers (including electricity, gas, water and telecommunications)
- Transport Workers Union
- Rail, Tram and Bus Union
- Minister's Office.

Issues raised during the above consultation are summarised in Table 5-4.

Table 5-4 Issues raised during government agency and stakeholder consultation

Agency	Issue raised	Response / where addressed in REF
Inner West Council	• Has a parking assessment been prepared?	• A parking impact assessment prepared for the proposal is provided in Appendix G and summarised in Section 6.3.1 of this REF.
Bus operators	• The footprint of the amenities building needs to be increased based on the potential numbers of users	• The footprint unfortunately cannot be increased as the amenities building footprint has already been maximised. The building cannot further north into the proposed landscape areas as this would not conform with Council's setback requirements for buildings.
	• Only 12.5m buses are used in servicing all routes along this area (i.e. no bendy buses). Should bendy buses be used, the design of the bus layover may need to account for the larger buses.	• Due to the constrained nature of the site, the design can only accommodate 12.5m buses comfortably and 14.5m buses with extreme driver care. This layover is not designed for nor suited for articulated (bendy) buses. An articulated bus may be able to use this layover if the layover is otherwise empty. If articulated buses become operational in future in this area, the facility could be re-linemarked in future to cater for them. However, the outcomes would accommodate fewer buses (e.g. three or four compared to the six currently proposed).
	• Visibility for bus drivers will be impacted by the angled parking arrangement. The design needs to consider measures to provide bus drivers and general traffic adequate sight distances for buses exiting the layover whilst positioned directly adjacent to the road space.	• Transport is investigating sight lines as a part of this design and where sight lines are insufficient will incorporate controls into the design of the proposal such as staggered bays and convex mirrors. • Bus drivers would need to nose out into road before complete commitment to turning out of the layover to provide the most visibility. • Transport will also implement as part of the design static signage or Variable Message Signs (VMS) to warn drivers turning the corner from Railway Road to Burrows Avenue driver that buses may be exiting. • It is expected that the layover spaces closest to Railway Road would be most utilised by buses as they are closest to the layover entry. These spaces would also offer the most sight distance. Analysis of bus service volumes suggests that occupation of the bus layover by four or more buses would occur infrequently.
Transport Workers Union	• Where are the savings from the Bus Priority Infrastructure Program (BPIP) invested?	• The program's funding, including savings from individual BPIP projects, is used to deliver projects that make bus services faster, reliable and accessible. • The program includes works to enable and improve the performance of the All Day Frequent Network

Agency	Issue raised	Response / where addressed in REF
		(identified in the GSBNS including the new Rapid and Frequent bus corridors). • BPIP work includes bus stop optimisation, installation or improvement of bus layovers, establishment or improvement of local routes and enabling of precinct plans.
Rail, Tram and Bus Union	• The male and female toilets should be separated from the meal room	• Abided by the requirements provided to us in the design brief for the design of the amenities building. • Two unisex ambulant toilets are provided with separate access. Air lock signage has been accommodated.

The outcomes of the consultation to date have been described in this chapter and earlier sections of this REF. Consultation remains on-going with all the stakeholders noted above as the design progresses and would continue prior to and during construction.

5.6 Ongoing or future consultation

This REF will be on display to give members of the public further opportunity to respond to the proposal. Exhibition would occur for four weeks from 12 August 2024 to 8 September 2024 and would consist of publishing the REF and supporting assessments online. All submissions to the proposal would be formally considered and responses provided in a Submissions Report, which would be made available to the public.

Transport for NSW would notify nearby residents prior to the commencement of any construction, and Transport would continue to inform surrounding residents and stakeholders of the ongoing development of the proposal and before construction occurs. This would be carried out using methods such as the distribution of community updates, emails to the stakeholder database, updates on the Transport project webpage and variable message signs advising motorists of the changed traffic conditions. Transport would also continue to consult with Inner West Council and other stakeholders as the proposal develops and during construction.

6. Environmental assessment

This section of the REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environment, potentially impacted upon by the proposal, are considered. This includes consideration of:

- Potential impacts on matters of national environmental significance under the EPBC Act.
- The factors specified in the Guideline for Division 5.1 assessments (DPE 2022) and as required under section 171 of the Environmental Planning and Assessment Regulation 2021 and the Roads and Related Facilities EIS Guideline (DUAP 1996). The factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021 are also considered in Appendix A.
- Site-specific safeguards and management measures are provided to mitigate the identified potential impacts.

6.1 Biodiversity

6.1.1 Methodology

East Coast Ecology Pty Ltd prepared a Biodiversity Assessment Report (BAR) for the proposed activity (see Appendix H *Biodiversity assessment report for REF – Sydenham Bus Layover*) in February 2024. The BAR, including 5-Part Test and Assessment of Significance, was prepared to evaluate the ecological values that occur within the proposal area and identify how the proposed activity satisfies the relevant planning framework. The BAR determines the likelihood of occurrence of any threatened entities (i.e. ecological communities and species) listed under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proceeding sections summarise the findings of the BAR which is contained in Appendix H Biodiversity Assessment Report.

Background research

A thorough literature review of local information relevant to the proposal area was undertaken. Searches using NSW Wildlife Atlas (BioNet) (NSW DCCEEW, 2024a) and the Commonwealth Protected Matters Search Tool (PMST) (DCCEEW, 2024) were conducted to identify all current threatened flora and fauna, as well as migratory fauna records, within a 5km radius of the proposal area. These data sets were used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent to the proposal area and helped inform what to look for during the site assessment.

Soil landscape and geological mapping, as well as existing vegetation mapping, was examined to assist in determining whether any threatened flora or ecological communities could be present. The following technical resources were used in the preparation of the BAR:

State and Commonwealth datasets:

- BAM Important Habitat Maps
- Commonwealth Atlas of Groundwater Dependent Ecosystems (BOM, 2024b)
- EPBC Protected Matters Search Tool (DCCEEW, 2024)
- Key Fish Habitats – Sydney Metro (DPI, 2024)
- NSW BioNet. The website of the Atlas of NSW Wildlife (NSW DCCEEW, 2024a)
- NSW BioNet. Threatened Biodiversity Data Collection (NSW DCCEEW, 2024b)
- NSW BioNet. Vegetation Classification System (NSW DCCEEW, 2024c)
- NSW Government Spatial Services: Search and Discovery - Historical, Aerial and Satellite Imagery (Spatial Services, 2024a)
- NSW Government Spatial Services: Six Maps Clip & Ship (Spatial Services, 2024b)
- BAM Important Habitat Maps
- National Flying Fox Monitoring-viewer (DCCEEW, 2024).

Vegetation and soil mapping:

- The NSW State Vegetation Type Map (NSW DCCEEW, 2024f)
- eSPADE v2.2.0 (DPIE, 2024).

NSW State guidelines:

- Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPE, 2020b)
- Threatened Species Survey and Assessment: Guidelines for developments and activities. Working Draft (DEC, 2004b).

Species from both the BioNet and PMST online searches were combined to produce a list of threatened species, populations and communities that may occur within the proposal area.

Vegetation Assessment

Vegetation mapping

A review of the State Vegetation Type Map (NSW DCCEEW, 2024f) was used to assist in the identification of Plant Community Types (PCTs) within and surrounding the proposal area. The PCT of 'best-fit' was determined based on the floristic descriptions within the Vegetation Classification System database (BioNet) (NSW DCCEEW, 2024c) and the vegetation integrity plot data collected from field surveys. The extent of native vegetation within the proposal area was determined through a field assessment with the aid of a GPS-enabled tablet. Native vegetation assigned to a PCT was then stratified into vegetation zones based on its condition and structure.

Vegetation survey and classification

A systematic floristic vegetation survey was undertaken in accordance with BAM subsection 4.2.1.

Patch size

A patch is defined by the BAM (DPE, 2020a) as an area of native vegetation that occurs on the proposal area and includes native vegetation that has a gap of less than 100m from the next area of native vegetation (or ≤ 30m for non-woody ecosystems). A patch may extend onto adjoining land. For each vegetation zone, the assessor must determine the patch size in hectares and assign it to one of the following classes:

- <5ha
- 5–<25ha
- 25–<100ha, and
- >100ha.

The patch size class is used to assess habitat suitability on the proposal area for threatened species. The assessor may assign more than one patch size class to the vegetation zone if both of the following apply:

- a vegetation zone comprises two or more discontinuous areas of native vegetation, and

the areas of discontinuous native vegetation have more than one patch size class. The patch size class of the vegetation in the proposal area is listed in

- Table 6-1.

Native vegetation cover

Native vegetation cover and connectivity have been assessed in accordance with Sections 3.1.3 and 3.2 of the BAM (DPE, 2020a). The native vegetation cover was used to assess the habitat suitability of the proposal area for threatened species. Areas of connectivity determined the extent of habitat that may facilitate the movement of threatened species across their range. A 1,500m buffer around the boundary of the proposal area was assessed to determine the extent of native vegetation and habitat connectivity. Areas of native vegetation were confirmed using information collected during the site assessment, as well as aerial imagery and Google Street View. Areas not included as native vegetation included waterbodies, pine plantations, built areas and exposed soil.

Table 6-1 Native vegetation cover in the assessment area

Native vegetation	
Assessment area (ha)	718.39
Total area of native vegetation cover (ha)	5.82
Percentage of native vegetation cover (%)	1
Class (0-10, <10-30, <30-70 or <70%)	0-10

Threatened species assessment

Habitat suitability assessment

Threatened species with potential to occur within the proposal area and immediate surrounds were identified following review of BioNet using a 10km x 10km search area centred on the proposal area. Soil mapping (DPIE, 2024), historical aerial imagery and topography (Google Earth) were also used to provide further context on habitat constraints for threatened species.

A field survey was undertaken to identify any habitat constraints (e.g. waterbodies, rocky areas, tree hollows), including microhabitat, present within the proposal area and immediate surrounds. Potential habitat constraints within the broader area (1,500m buffer) were assessed using Google Earth, historical aerial imagery, soil landscape mapping (DPIE, 2024) and recent vegetation mapping (NSW DCCEEW, 2024f).

Targeted flora surveys

To determine whether any suitable habitat for threatened flora species was present, a survey was undertaken using parallel field traverses in accordance with the '*Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method*' (DPE, 2020b).

Flora surveys were undertaken on 21st December 2023. Any tentative threatened flora specimens were photographed and specimens taken for identification against formal keys, or sent to the National Herbarium for expert identification.

Targeted fauna surveys

Threatened fauna were surveyed opportunistically however, their habitats were targeted during the parallel field traverses. Habitat of all fauna (particularly threatened fauna) including:

- Habitat Trees including hollow-bearing trees, decorticating bark, existing nest boxes and bird nests (that could provide habitat for birds, frogs, reptiles, small mammals and microbats)
- caves, crevices and culverts (habitat for frogs, reptiles, small mammals and microbats)
- fauna burrows and warrens
- termite mounds (habitat for reptiles and birds)
- soaks and moist areas (habitat for frogs)
- wetlands, dams and drainage lines (habitat for fish, frogs and water birds)
- trees and shrubs supporting nest structures (habitat for birds and arboreal mammals)
- locations of any suitable threatened fauna habitat
- any other habitat features that may support fauna species.

After carrying out a field assessment of the habitat constraints and microhabitats on the proposal area, it was determined that the habitat is substantially degraded such that the species are unlikely to utilise the area (as per Section 6.4.1.17 of the BAM; DPE, 2020a).

Aquatic surveys

Waterways and aquatic habitats were absent within the proposal area.

Limitations

Not all flora and fauna species could be directly surveyed for during the site assessment. These species include nocturnal fauna and cryptic flora with flowering times outside of the survey period. The presence of nocturnal and cryptic species was assessed based on habitat constraints and historical records.

In addition, as no aquatic threatened species, populations or ecological communities under listed under the FM Act occur within the proposal area, aquatic surveys were not required.

6.1.2 Existing environment

The proposal area occurs within the 'Cumberland' Interim Biogeographic Regionalisation for Australia (IBRA) Subregion, which is part of the 'Sydney Basin' IBRA Bioregion (Figure 6-1).

NSW (Mitchell) Landscapes (Mitchell, 2002) groups ecosystems into meso-ecosystems representing larger natural entities based on topography and geology. The naming of ecosystems and meso-ecosystems was standardised so that each name provided location information and a meaningful descriptive landscape term. The proposal area occurs within the 'Port Jackson Basin' Mitchell Landscape Ecosystem (Figure 6-1). This landscape is described as deep elongated harbour with steep cliffed margins on horizontal Triassic quartz sandstone. Small pocket beaches and more extensive Quaternary estuary fill of muddy sand at the head of most tributary streams. General elevation 0 to 80m, local relief 10 to 50m. Sandstone slopes and cliffs have patches of uniform or gradational sandy soil on narrow benches and within joint crevices that support forest and woodland of Sydney Peppermint (*Eucalyptus piperita*), Smooth-barked Apple (*Angophora costata*), Red Bloodwood (*Corymbia gummifera*) and Blackbutt (*Eucalyptus pilularis*). Sheltered gullies contain some Turpentine (*Syncarpia glomulifera*), Coachwood (*Ceratopetalum apetalum*) and Water Gum (*Tristaniopsis laurina*). Estuarine sands were originally dominated by saltmarsh but have been taken over by Grey Mangrove (*Avicennia marina*) in the past century.

The proposal area is mapped as occurring on the Birrong soil landscape (DPIE, 2024). The Birrong soil landscape is characterised by level to gently undulating alluvial floodplain draining Wianamatta Group shales. Local relief to 5 m, slopes <3%. Broad valley flats. Extensively cleared tall open-forest and woodland. The proposal area occurs on a mostly flat landscape, gently rising from 7m above sea level (ASL) in the southern elevation to 10m ASL in the northern elevation (Google Earth). The proposal area did not contain any areas of geological significance, such as karsts, caves, cliffs or crevices. There are no areas of geological significance within the 1,500m buffer area.



Figure 6-1 Proposal and existing environmental context

Plant community types and vegetation zones

The State Vegetation Type Map (NSW DCCEEW, 2023f) indicated the presence of two Plant Community Types (PCT) within 1,500m of the proposal area:

- PCT 3963: Estuarine Reedland, and
- PCT 4028: Estuarine Swamp Oak Twig-rush Forest

Historical Imagery (Spatial Services, 2024a) indicated that the proposal area was cleared of vegetation prior to 1943. This is supported by the absence of large trees within the proposal area.

Native species within the proposal area were comprised of two *Casuarina glauca*, two *Acacia longifolia* and two *Melaleuca quinquenervia*. Both *Melaleuca quinquenervia* were planted on Railway Road in 1986 (Spatial Services, 2024a), and the *Casuarina glauca* and *Acacia longifolia* have self-sown or been planted within the proposal area in 2019 (NearMap, 2019).

These species are unlikely to reflect the original vegetation that would naturally occupy the proposal area and are commonly planted and/or display a semi-invasive habit in disturbed sites. On this basis, the vegetation within the proposal area was assigned to two novel community types:

- Urban Exotic/ Native, and
- Exotic Grassland.

This vegetation is displayed in Figure 6-2. Although vegetation within the proposal area could not be assigned to a PCT, this alone does not diminish the value of this vegetation as a resource for protected and threatened species occurring within the locality.

Table 6-2 Plant community types and vegetation zones including patch size and vegetation integrity (VI) score

Plant community type (PCT)	Threatened ecological community	Area (ha) proposal area	Patch size class
Urban Exotic/Native	Not listed	0.02	<5 ha
Exotic Grassland	Not listed	0.06	<5 ha



Figure 6-2 Plant community types and vegetation zones

Threatened ecological communities

No Threatened Ecological Communities (TEC) were identified within the proposal area.

Groundwater dependent ecosystems

Assessment of the potential for the proposal area to support groundwater dependent ecosystems was carried out using the Commonwealth's Bureau of Meteorology Groundwater Dependent Ecosystems Atlas (BOM, 2024a). No vegetation within or directly adjoining the proposal area has been mapped as a Groundwater Dependent Ecosystem.

Threatened species

Threatened flora

Database searches revealed 10 threatened flora have potential to occur within a 5km radius of the proposal area (Table 6-3; Figure 6-3). Species were assessed for their potential to occur within the proposal area.

Table 6-3 Threatened flora with potential to occur within the proposal area

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
Acacia bynoeana	Bynoe's Wattle	E	V	2
Acacia pubescens	Downy Wattle	V	V	5
Acacia terminalis subsp. Eastern Sydney	Sunshine wattle	E	E	9
Caladenia tessellata	Thick Lip Spider Orchid	E	V	2
Melaleuca deanei	Deane's Paperbark	V	V	10
Persoonia hirsuta	Hairy Geebung	E	E	2
Pimelea curviflora var. curviflora	-	V	V	1
Syzygium paniculatum	Magenta Lilly Pilly	E	V	26
Tetratheca juncea	Black-eyed Susan	V	V	14
Wilsonia backhousei	Narrow-leafed Wilsonia	V	-	1

V – Vulnerable; E – Endangered; EP – Endangered Population; CE – Critically Endangered

Within 1,500m of the proposal area, no threatened flora have been recorded within the previous 100 years. As the proposal area has been heavily modified and severely disturbed, it is considered highly unlikely that habitat for any of these species would persist, nor were any identified during a site inspection.

Threatened fauna

Database searches revealed 45 threatened fauna occur, or have potential to occur, within a 5km radius of the proposal area (Table 6-4; Figure 6-3). Species were assessed for their potential to occur within the proposal area.

Table 6-4. Threatened fauna with potential to occur within the proposal area

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
Crinia tinnula	Wallum Froglet	V	-	1
Litoria aurea	Green and Golden Bell Frog	E	V	677
Anthochaera phrygia	Regent Honeyeater	E	CE	1
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	5

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
Botaurus poiciloptilus	Australasian Bittern	E	E	1
Burhinus grallarius	Bush Stone-curlew	E	-	5
Calidris alba	Sanderling	V	-	3
Calidris canutus	Red Knot	P	E	11
Calidris ferruginea	Curlew Sandpiper	E	CE	161
Calidris tenuirostris	Great Knot	V	CE	12
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	1
Charadrius leschenaultii	Greater Sand-plover	V	V	4
Charadrius mongolus	Lesser Sand-plover	V	E	4
Glossopsitta pusilla	Little Lorikeet	V	-	1
Grantiella picta	Painted Honeyeater	V	V	1
Haematopus fuliginosus	Sooty Oystercatcher	V	-	1
Haematopus longirostris	Pied Oystercatcher	E	-	8
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	-	4
Hieraaetus morphnoides	Little Eagle	V	-	1
Hirundapus caudacutus	White-throated Needletail	-	V	5
Ixobrychus flavicollis	Black Bittern	V	-	2
Limicola falcinellus	Broad-billed Sandpiper	V	-	2
Limosa limosa	Black-tailed Godwit	V	-	8
Lophoictinia isura	Square-tailed Kite	V	-	1
Neophema pulchella	Turquoise Parrot	V	-	1
Ninox strenua	Powerful Owl	V	-	45
Numenius madagascariensis	Eastern Curlew	-	CE	1
Petroica boodang	Scarlet Robin	V	-	3
Petroica phoenicea	Flame Robin	V	-	1
Ptilinopus regina	Rose-crowned Fruit-Dove	V	-	1
Ptilinopus superbus	Superb Fruit-Dove	V	-	6
Stagonopleura guttata	Diamond Firetail	V	-	1
Sternula albifrons	Little Tern	E	-	50
Xenus cinereus	Terek Sandpiper	V	-	5
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	1
Dasyurus maculatus	Spotted-tailed Quoll	V	E	1
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	5

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-	1
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	34
Myotis macropus	Southern Myotis	V	-	10
Perameles nasuta	Long-nosed Bandicoot population in inner western Sydney	E	-	24
Phascolarctos cinereus	Koala	E	E	7
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	1860
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	9
Hoplocephalus bitorquatus	Pale-headed Snake	V	-	1

V – Vulnerable; E – Endangered; EP – Endangered Population; CE – Critically Endangered

No threatened fauna species were identified within the proposal area however, this does not rule out the potential for threatened species to still exist within the proposal area, particularly highly mobile species. Based on the lack of habitat constraints (foraging and breeding habitats), historical records and/or the level of human-made disturbance within and directly adjoining the proposal area, it was determined that the proposed works are not likely to significantly impact upon any threatened fauna.

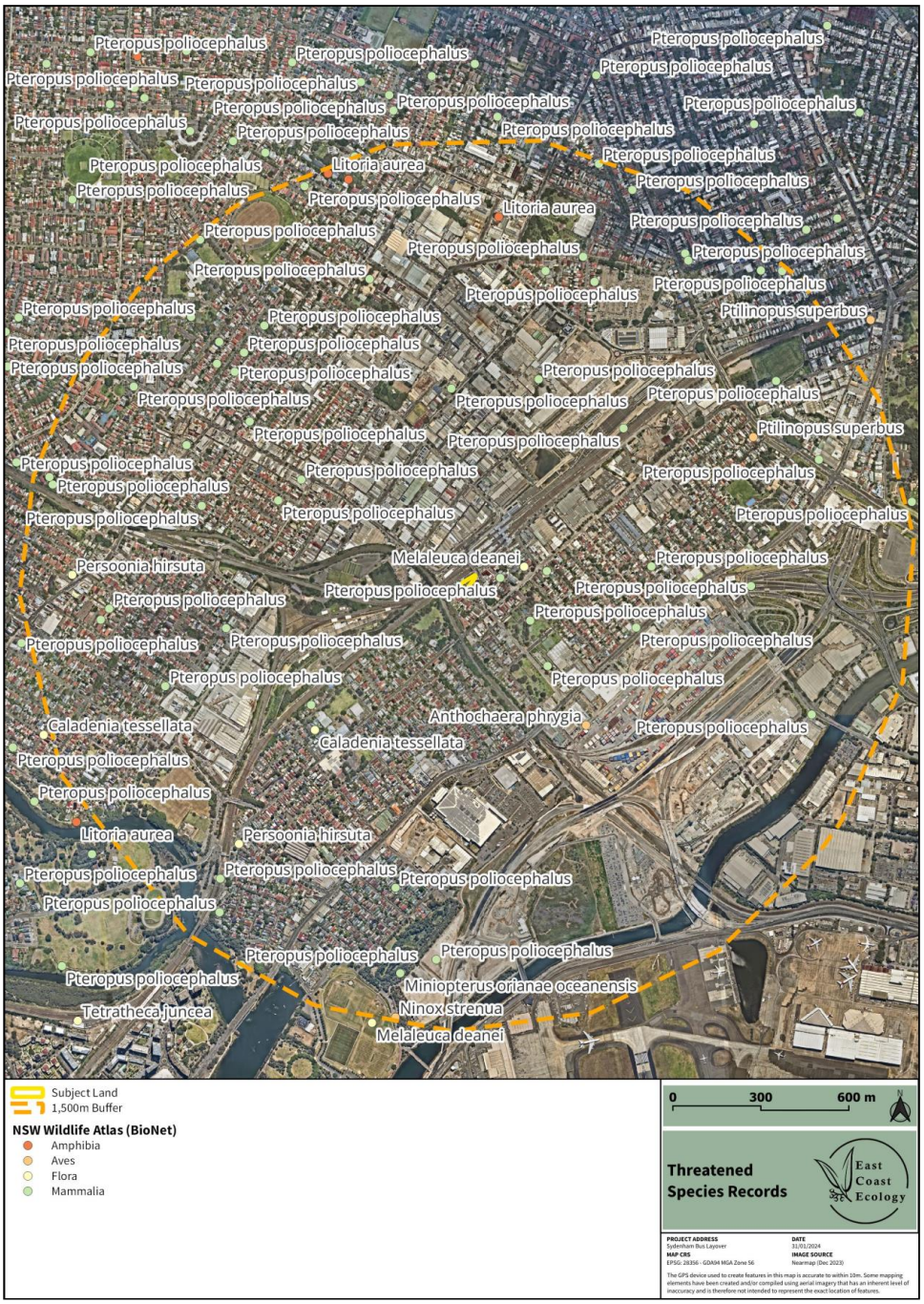


Figure 6-3 Recorded threatened species

Areas of outstanding biodiversity value

No Areas of Outstanding Biodiversity Value (AOBV) occur on the proposal area or surrounding 1,500m buffer area. The closest AOBV, the Little penguin population in Sydney's North Harbour, occurs >15km north of the proposal area.

Wildlife connectivity corridors

Terrestrial habitat connectivity to the proposal area is limited, provided only by planted street trees throughout the surrounding streetscape likely to be used only by highly mobile species.

Matters of national environmental significance

Under the EPBC Act, a proponent must not take an action if that action will have, or is likely to have, a significant impact on matters protected under the EPBC Act, referred to as Matters of National Environmental Significance (MNES). The EPBC Act identifies eight MNES:

- World Heritage properties
- National Heritage places
- Wetlands of international importance (those listed under the Ramsar Convention)
- Listed threatened species and communities
- Migratory species listed under international agreements
- Great Barrier Reef Marine Park
- Commonwealth marine areas
- Nuclear actions.

The Protected Matters Search Tool identified the following as potentially occurring within the proposal area (or within the area):

- 8 Threatened Ecological Communities
- 49 threatened species
- 18 Migratory species.

No MNES were identified within or adjoining the proposal area.

6.1.3 Potential impacts

Construction

The proposal will require the removal of approximately 0.08ha of degraded vegetation. No threatened ecological communities or threatened flora will be impacted by the activity. The vegetation within the proposal area is in poor condition, fragmented, and located within a disturbed landscape that makes potential use by threatened fauna species unlikely.

The following potential threatened species habitats will be impacted:

- foraging habitats
  - two *Melaleuca quinquenervia*
  - two *Casuarina glauca*
  - two *Acacia longifolia*
  - marginal exotic grassland foraging habitats.
- Grey-headed Flying-fox (*Pteropus poliocephalus*) has been observed in the locality but not in the immediate area of the Proposal.

No impacts to breeding habitats, aquatic habitats or GDEs will result from the proposed activity.

Safeguards to minimise any potential impacts to fauna and their habitats are detailed in Section 6.1.4. A likelihood of occurrence table for threatened flora and fauna species within the proposal area is contained within the BAR.

Operation

Impacts to adjacent vegetation in the proposal area can be minimised through the implementation of safeguards during operation such as ongoing monitoring and maintenance programs such as tree trimming to ensure vegetation is not damaged by buses using Railway Road or the bus layover.

Assessments of significance

Assessments of significance (BC Act and EPBC Act) are required for each threatened species, population or ecological community that have been recorded in the proposal area or are assumed present as they have a high likelihood of occurrence. Assessments of significance were prepared with consideration of the guidelines (OEH, 2018 & DoE, 2013) and are provided in Appendix H, with the results summarised below in Table 6-5 and Table 6-6.

Table 6-5 Summary of BC Act significance assessments findings

Significance assessment question *(per Section 7.2 of the BC Act and Threatened Species Test of Significance Guidelines (OEH 2018))*						
Threatened species, or communities	a	b	c	d	e	Likely significant impact?
Pteropus poliocephalus (Grey-headed Flying-fox)	N	X	N	N	N	No

***Y** = Yes (negative impact), **N** = No (no or positive impact), **X** = Yes/No answer not applicable, **?** = unknown impact.*

Table 6-6 Summary of EPBC Act significance assessments findings

Threatened species, or communities	Important population *(per Significant Impact Guidelines 1.1 (DoE 2013))*	Likely significant impact?
Pteropus poliocephalus (Grey-headed Flying-fox)	N	N

***Y** = Yes (negative impact), **N** = No (no or positive impact), **X** = Yes/No answer not applicable, **?** = unknown impact.*

Conclusion on significance of impacts

The proposal is not likely to significantly impact threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act, 2016* or *Fisheries Management Act 1994* and therefore a *Species Impact Statement* or Biodiversity Development Assessment Report is not required.

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

6.1.4 Safeguards and management measures

Table 6-7 Biodiversity safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Biodiversity	Flora and Fauna management measures will be included in the CEMP in accordance with Transport for NSW's *Biodiversity Guidelines: Protecting and Managing Biodiversity on Projects* (RMS, 2011) and implemented as part of the CEMP. It will include, but not be limited to: • plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas.	Contractor	Detailed design / pre-construction	Section 4.8 of QA G36 Environment Protection

Impact	Environmental safeguards	Responsibility	Timing	Reference
	• requirements set out in the *Landscape Guideline* (RMS, 2008). • pre-clearing survey requirements. • procedures for unexpected threatened species finds and fauna handling. • Procedures addressing relevant matters specified in the DPI *Policy and guidelines for fish habitat conservation and management* (2013). • protocols to manage weeds and pathogens.			
Flora and fauna	Native vegetation removal will be minimised through detailed design.	Contractor	Detailed design	Additional measure
	Pre-clearing surveys will be undertaken in accordance with *Guide 1: Pre-clearing process* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	Prior to construction	Additional measure
	Vegetation removal will be undertaken in accordance with *Guide 4: Clearing of vegetation and removal of bushrock* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
	The unexpected species find procedure is to be followed under *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site.	Contractor	During construction	Additional measure
Removal of threatened fauna habitat	Fauna will be managed in accordance with *Guide 9: Fauna handling* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
	Habitat removal will be undertaken in accordance with *Guide 4: Clearing of vegetation and removal of bushrock* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
Injury and mortality of fauna	Fauna will be managed in accordance with *Guide 9: Fauna* handling of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
Invasion and spread of weeds	Weed species will be managed in accordance *with Guide 6: Weed management* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
Invasion and spread of pests	Pest species will be managed within the proposal site.	Contractor	During construction	Additional measure
Invasion and spread of pathogens and disease	Pathogens will be managed in accordance with *Guide 2: Exclusion zones* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
Retained vegetation	Tree protection fencing must be established around trees to be retained in accordance with Australia Standard 4970-2009 - *Protection of trees on development sites*. Existing fencing and site hoarding may be used as tree protection fencing.	Contractor	During construction	Additional measure
Tree replacement	Trees will be replaced in accordance with Transport's *Tree and Hollow Replacement Guideline*.	Contractor	During construction	Additional measure

6.1.5 Biodiversity offsets

Trees removed by the proposal would be replaced in line with Transport's Biodiversity Policy (2022). The proposal is expected to partially meet the replacement requirements through landscaping and revegetation. The proposal would satisfy the balance of its replacement requirements via contribution into the Transport Conservation Fund.

6.2 Soils, contamination and water

6.2.1 Methodology

A Preliminary Site Investigation (PSI) was prepared for the proposal in early 2024. The PSI was undertaken to assess the qualitative risk (with respect to contamination) associated with potential historical and current contaminating activities and/or operations undertaken on or adjacent to the proposal site. The objectives of the PSI were:

- to identify and document the potential for surface water, groundwater, or soil contamination that could impact upon the proposal, based on a review of current and historical information detailing activities undertaken within and/or adjoining the site
- to provide preliminary comment on the suitability of the site (with respect to contamination) for the proposal
- to assess the need for further investigations.

The PSI included the following scope of works in order to address the objectives:

- a desktop review of information (where available) from the following sources:
  - historical aerial photographs
  - published geological, topographic, soil and acid sulphate soil maps
  - available hydrogeological information including a search for groundwater bores along the proposed alignment
  - search of the NSW EPA contaminated land database for notices and records pertaining to licensed activities or investigation and/or remediation orders
  - other information pertaining to potential contamination as detailed in the Environmental Risk and Planning Reports (Lotsearch LS051184 EP, December 2023).

- observations from a site inspection to assess potential contaminating activities undertaken within and/or adjacent to the site.
- preparation of a report presenting the results of the desktop assessment and the site inspection, detailing the potential contamination risks (if any) to human health and environmental receptors, and a description and appraisal of mitigation and monitoring measures required (if any).

The Preliminary Site Investigation conducted is included as Appendix I of this REF.

6.2.2 Existing environment

Soils

A review of Atlas of Australian Soils Mapping (Lotsearch, 2023) indicated that the proposal is underlain by the Kurosol (Pb12) geological unit. The Kurosol soils are generally characterised by hard acidic read soils with hard neutral and acidic yellow mottled soils. Reference to the Penrith 1:100,000 Sheet indicates the proposal is situated within the Birrong Soil Landscape, which is made up of deep yellow podzolic soils, yellow solodic soils on older alluvial terraces, deep solodic soils and yellow solonetz on current floodplain.

A review of the available drilling logs for existing bores in the area indicated that the regional geology of the area is generally characterised by clay and sand fill overlaying grey sandy clay.

No naturally occurring asbestos is mapped for the proposal area.

Acid sulfate soils

Acid sulfate soils (ASS) are the common name given to naturally occurring sediments and soils containing iron sulfides (principally iron sulfide or iron disulfide or their precursors). The exposure of the sulfide in these soils to oxygen by drainage or excavation can lead to the generation of sulfuric acid. Areas of ASS can typically be found in low lying and flat locations which are often swampy or prone to flooding.

Review of Lotsearch (2023) Acid Sulfate Soils Mapping indicates that the southwest portion of the proposal is classified as soil Class 2 under the Inner West Local Environmental Plan 2022. ASS Class 2 is defined for areas where works below the natural ground surface and works by which the water table is likely to be lowered present an environmental risk. The northeast section of the proposal is mapped as ASS Class 5, defined as areas where ASS is not typically found.

Groundwater

A total of 6 registered groundwater bores are located within 500 metres of the proposal site. A high-level review of registered bores identified within 500 metres of the site indicated that groundwater has been encountered at 4 meters below ground level.

The site is situated above the Botany Sands aquifer. The Botany Sands aquifer is a layer of sand comprising a system of interconnected unconfined and semi-confined aquifers covering an area of about 18,300 hectares. The Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 provides restrictions on accessing groundwater within the area (Prohibition Area No. 2) due to known groundwater contamination.

Water quality

The existing drainage system within the vicinity of the project consists of private property kerb outlets and a road drainage pit and pipe network. The main existing drainage line consists of a pipe running from southeast to northwest direction along Railway Road. A 375mm drainage crossing (Burrows Avenue) exists at the western corner of the project which connects into the 600mm pipe as mentioned and discharges westerly towards the rail tracks. This pipe crosses the rail tracks and connects into the existing drainage network on the other side of Sydenham Station at the intersection of Marrickville Road and Railway Parade.

The quality of water entering the local drainage system is influenced by potential contaminants on roads and stormwater discharges from activities in adjacent areas. Typical road runoff can include pollutants such as litter, sediment and suspended solids, toxic organics, heavy metals, hydrocarbons and nutrients.

Contamination

A Preliminary Conceptual Site Model (PCSM) for the proposal site was developed and is based on:

- the information obtained during the desktop review
- a site inspection
- an understanding of the site setting
- potential contamination associated with known historical and current Site uses
- potential receptors to contamination.

The PCSM provides a contamination risk rating for previous onsite activities and is included below as Table 6-8.

Table 6-8 PCSM (RARE 2024)

Activity	Contaminants of concern	Risk rating
Construction and demolition of historical structures onsite	Heavy metals, asbestos, TRH, BTEXN, PAH, PCBs.	**Low** – Historical buildings are known to have been present on-site and demolished prior to its current use. Considering when the building was demolished (i.e. Between 2011 and 2016), it is possible that the building could have been demolished in accordance with appropriate codes of practice. Surficial contamination (if present) would have been exposed during excavation of surface materials and remediation of the site in 2014.
Uncontrolled filling/dumping of material onsite	Heavy metals, asbestos, TRH, BTEXN, PAH, PCBs.	**Medium** – Surficial contamination (namely asbestos) would be exposed during excavation of surface materials. Excavation works undertaken in the southwest portion have risk of exposing ACM.
Acid sulfate soils	Sulfide, sulfate	**Low** – Excavation works undertaken in the southwest portion of the proposal have risk of exposing ASS in natural soils.
Onsite sub-surface building foundations/structures	Heavy metals, TRH, OCP.	**Low** – no structures were present on site during the investigation.
Historical widespread groundwater contamination within Sydenham area	Heavy metals, TRH, PFAS, BTEXN, cyanide, nutrients.	**Medium** – Groundwater sampling undertaken north of the proposal in Sydenham (Lang O'Rourke, 2017), identified elevated concentrations of ammonia, cyanide, copper and zinc. Groundwater (and contamination if present) may be exposed during construction. Model needs updating with final design.

Notes: TRH: Total recoverable hydrocarbons; BTEXN: benzene, toluene, ethylbenzene, xylenes & naphthalene, PAH: polycyclic aromatic hydrocarbons, OCP: organochlorine pesticides, PCB: polychlorinated biphenyls. PFAS: Per-and polyfluoroalkyl substances, VOCs: Volatile organic compounds.

6.2.3 Potential impacts

Construction

The potential impacts on soils would primarily result from erosion of exposed soils during earthwork activities during the construction phase as well as associated potential sedimentation of surrounding land and stormwater infrastructure.

Construction of the proposal would involve disturbance to the ground surface and subsurface. Soil stockpiles and other exposed areas would be created during construction. Earthworks would be required for the construction of the bus layover pavement; installation of the noise wall footings; drainage and other utility works.

Fill would be required at various locations across the proposal. Current estimates are that approximately 760 cubic metres of cut would be generated from the proposal and 760 cubic metres of fill would be required.

Erosion and sedimentation

Earthworks and excavations are required across the proposal area. The majority of excavations are expected to be less than two metres in depth, with the exception of the noise wall footings.

The potential impacts on soils would be mainly due to erosion of soils exposed during the earthwork activities and stockpiling. Erosion hazard is directly related to factors such as disturbance area; slope length and gradient; soil properties; climatic factors and management practices including surface condition and cover.

If not adequately managed, earthworks, stockpiling and transportation of spoil could potentially have the following impacts:

- alteration to the existing and natural surface slope and topography
- erosion of exposed soil and stockpiled materials, with potential for off-site movement
- generation of sediment laden run-off that may enter waterways and receiving stormwater systems
- tracking of soil off-site by construction vehicles
- dust generation from excavation and vehicle movement over exposed soils.

It is considered that these potential impacts can be adequately managed by the implementation of safeguards and management measures contained in Section 6.2.4.

Contaminated land

Waste classification testing as part of the PSI identified the presence of asbestos contamination in demolition waste at the surface of the site. An Asbestos Management Plan (AMP) is necessary to address asbestos containing materials (ACM) presence, outline safety protocols, air monitoring, and clearance procedures.

Contaminated material could potentially have the following impacts:

- migration via earthworks – spreading impacts to other areas
- effects on human health –potential risk to on-site and offsite workers through earthworks exposure, and materials handling and transport
- increase in waste volumes from excavated (potentially contaminated) materials and increase in clean fill volumes to replace contaminated soil. Depth of earthwork excavations are anticipated to be up to two metres though this may increase if the underlying material is found to be unsuitable.

It is considered that these potential impacts can be adequately managed by the implementation of the mitigation measures presented below.

Groundwater

The majority of earthworks for the proposal are not expected to be at a depth where groundwater interception would occur. Groundwater may be encountered during the installation of the footings for the noise wall, however, this would be confirmed during detailed design. If groundwater is encountered during constriction, the implementation of the safeguards contained in Section 6.2.4 would ensure that impacts are managed.

Acid sulfate soils

Earthworks are required in areas mapped as Class 2 acid sulfate soils (ASS), however, it is unlikely that ASS will be encountered as the depth of excavation required in the Class 2 area is shallow and within previously disturbed soils.

Operation

The operation of the proposal would be unlikely to impact soils, contamination or water. The risk of soil erosion during operation would be minimal as all areas impacted during construction would be stabilised with landscaping or turf. The dedicated driver amenities building would include provision for spill response kits to address risk of vehicle spill incidents on site.

6.2.4 Safeguards and management measures

Table 6-9 Soils, contamination and water safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Soil and water	Soil and water management measures will be included as part of the CEMP in accordance with the requirements of TfNSW contract specification G38 prior to the commencement of construction. The measures will address the following: • Transport for NSW *Code of Practice for Water Management* • *The Blue Book- Managing Urban Stormwater: Soils and Construction, Volume 1 and 2* • Transport for NSW Technical Guideline – *Temporary Stormwater Drainage for Road Construction.*	Contractor	Detailed design / pre-construction	Section 4.2 of QA *G36 Environment Protection*
Soil and water	A site-specific Erosion and Sediment Control Plan/s will be prepared and implemented as part of the CEMP. The Plan will include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.	Contractor	Detailed design / pre-construction	Section 4.2 of QA *G36 Environment Protection*
Soil and water	All stockpiles would be designed, established, operated and decommissioned in accordance with the Transport for NSW Stockpile Management Procedures.	Contractor	Construction	Additional measure
Soil and water	Controls would be implemented at construction zones exit points to minimise the tracking of material onto the road.	Contractor	Construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
Groundwater	Should the final design include exposure to groundwater or dewatering, a groundwater investigation undertaken to assess potential groundwater contamination. Should dewatering be required, a Dewatering Management Plan (DMP) is prepared that outlines monitoring procedures regarding the periodic measurements of estimated groundwater levels, flow and discharge volume, as well as the required measures to minimise risks of contamination, or other interference of the local aquifer system. The DMP will provide management procedures that will ensure any pumped-out groundwater discharged from site will be of an acceptable quality and complies with the requirements of the *Protection of the Environment Operations Act* 1997 (POEO 1997)	Transport for NSW	Detailed design	Additional measure
Contaminated land	A Detailed Site Investigation (DSI) will be prepared to assess site suitability based on the proposed land use. The investigation should include a groundwater assessment should the proposed construction extent intercept the groundwater table.	Transport for NSW	Construction	Additional measure
Contaminated land	If recommended by the DSI, a Remediation Action Plan (RAP) will be prepared to outline the remediation required to make the site suitable for the proposed end use.	Transport for NSW	Detailed design	Additional measure
Contaminated land	If recommended by the DSI, an Asbestos Management Plan (AMP) is prepared that outlines the location of asbestos, safe work procedures and control measures, persons responsible, and safety representatives. The AMP will include procedures for the management, reporting and removal of asbestos when found on site. The AMP would be prepared in accordance with relevant EPA and SafeWork NSW guidelines	Contractor	Construction	Additional measure
Contaminated land	If unexpected contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport for NSW Senior Manager Environment and Sustainability and/or EPA.	Contractor	[Detailed design / Pre-construction]	Section 4.2 of QA *G36 Environment Protection*

Impact	Environmental safeguards	Responsibility	Timing	Reference
Accidental spill	A site-specific emergency spill plan will be developed and include spill-management measures in accordance with the Transport *Code of Practice for Water Management* (RTA, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Transport EPA officers).	Contractor	[Detailed design / Pre-construction]	Section 4.3 of QA *G36 Environment Protection*

6.3 Traffic and transport

6.3.1 Methodology

A desktop review of traffic and transport impacts was undertaken for the proposal to determine:

- study area
- existing environment: existing road network, road safety and transport data. Data was collated using publicly available information
- construction impacts and operational impacts to the proposed locations. Where feasible, management measures were identified to manage potential impacts.

No traffic modelling was undertaken as part of this assessment as the road infrastructure would remain largely unchanged during the operational phase.

A parking study *Sydenham Bus Layover Parking Data Report* (Bitzios Consulting, March 2024) was undertaken to assess the potential parking impacts of the proposal (refer Appendix G). The parking study area included the proposal footprint as well as side streets within walking distance (around 400 metres). The parking study included parking inventory and occupancy surveys conducted along each road section between Wednesday, 26 July and Tuesday, 1 August 2023 between 6:00am and 7:00pm daily. A duration of stay survey was also undertaken along Burrows Avenue and Railway Road (one-way) over the same period. A vehicle traversed these streets and digitally captured data for parking occupancy and duration of stay, both of which were recorded every hour. The parking study included the following objectives:

- summarising the parking surveys undertaken in terms of days, time and type
- summarising the occupancy and duration of stay for each section on weekdays and weekends
- preparing maps displaying the parking inventory, restrictions and type (retail, commuter, staff or residential)
- reviewing the study area, including extents, corridor length, existing lane restrictions, lane configuration, speed limits, business centre locations, and key locations of legal and illegal parking
- undertaking a parking assessment on the parking impacts from the proposed bus layover
- identify any business or residents that do not have onsite parking capacity
- identify any business loading areas occurring on the section of road.

6.3.2 Existing environment

Road Network

The key characteristics of key roads near the Sydenham Bus Layover are provided below:

- Wright Street – Wright Street is an unclassified local road. It is a two-way no through road which provide access to the driveways attached to residential properties. Parking is available and is predominantly unrestricted vehicle parking. There is no posted speed limit. There is a footpath on both sides of the road.
- Railway Road – Railway Road is an unclassified local road. It is a one-way road which takes vehicles from Gleeson Avenue toward Burrows Avenue. Parking is available and is predominantly 2P. The posted speed limit is 50 kilometres per hour. There is a footpath on both sides of the road.
- Burrows Avenue – Burrows Avenue south of Gleeson Avenue, is an unclassified local road. It is a one-way road that takes vehicles toward Gleeson Avenue. Parking is available and is comprised of a mix of bus parking and unrestricted vehicle parking. The posted speed limit is 50 kilometres per hour. There is a footpath on both sides of the road.
- Gleeson Avenue – Gleeson Avenue is a classified state road. It is a dual carriageway and serves as a key route in the area. The posted speed limit is 60 kilometres an hour. There is a footpath on both sides of the road. Parking is available for up to six vehicles and limited to 1P between the hours of 9am to 3pm and untimed between the hours of 6:30pm and 6am. No parking is allowed during all other times.

A review of traffic count data available in the public domain was undertaken and is presented in Table 6-10.

Table 6-10 Traffic count data (*source: Transport for NSW Sydney Metro Chatswood to Sydenham MOD4 Repor, 2017t)*

Road	Total count (24 hours)	Light	Heavy	Heavy vehicle (%)
Gleeson Avenue	62,200	57,000	5,400	8.7

A broader view of the road classification surrounding the proposal site is shown in Figure 6-4.

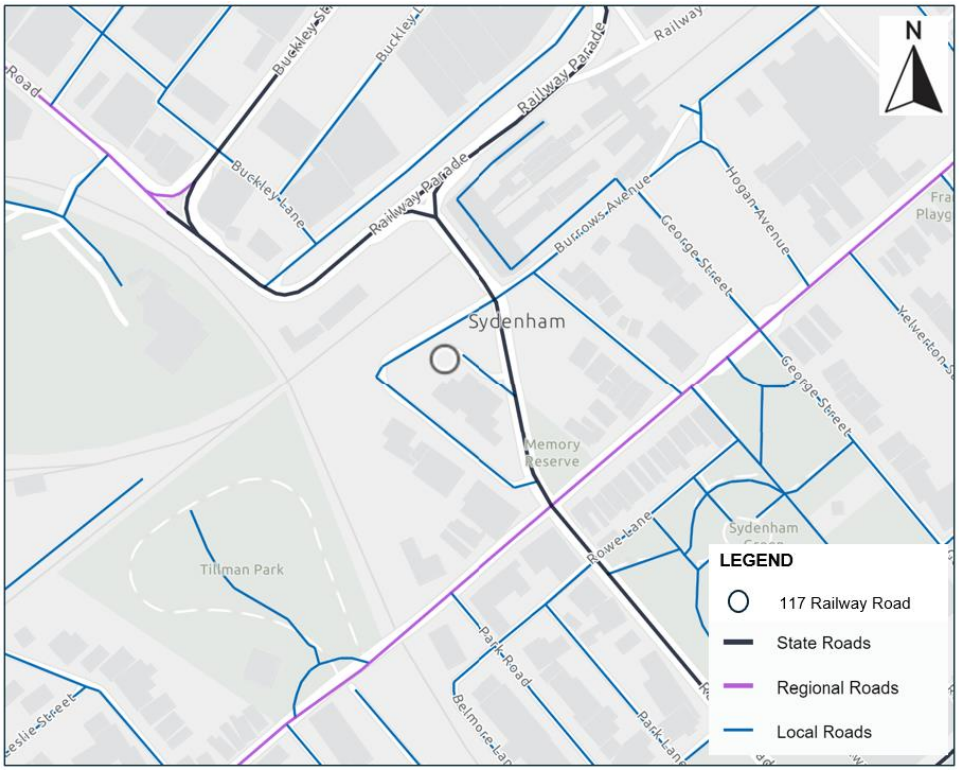


Figure 6-4 Road classification surrounding Sydenham Railway Station

Pedestrian Facilities

Whilst Sydenham Station is a heavily pedestrianised and trafficked area, the local roads near the project are less utilised by pedestrians. A footpath exists on either side of Railway Road. A footpath exists on the eastern side of Burrows Avenue, with a partial footpath path on the western side that services the bus stops. The existing footpaths on both Burrows Avenue and Railway Road would predominantly cater to business and residential foot traffic. These facilities are shown visually in Figure 6-5.

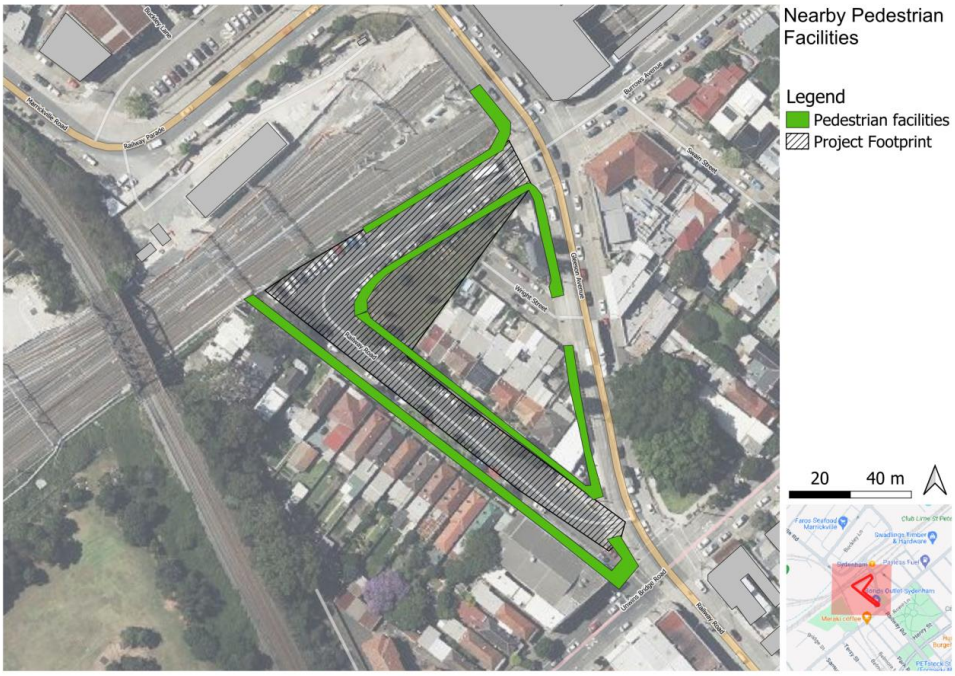


Figure 6-5 Pedestrian facilities surrounding the proposal

Buses

There is one bus stop on Burrows Avenue (Sydenham Station Stand A) which services M30, 418 and 425 for northbound journeys, also providing direct access to Sydenham Station. Bus passengers interchanging with Sydenham Station from this stop cross at a signalised crossing at the intersection of Gleeson Avenue and Burrows Avenue in order to access the station. A large bus stop on Railway Parade on the western side of Sydenham Station which services the 358, 33T8, 425, 10T3, and 33T3 bus services. This bus stop is also the primary location where rail replacement buses stop during rail shutdowns. Bus stops within the vicinity of the Proposal are shown in Figure 6-6.

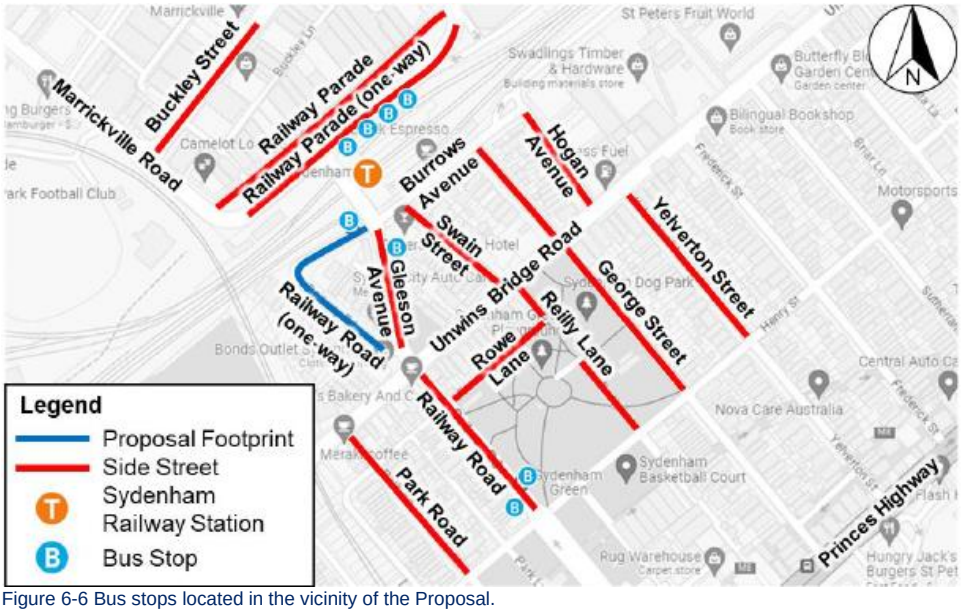


Figure 6-6 Bus stops located in the vicinity of the Proposal.

Parking

The parking study identified the current parking conditions and constraints surrounding the proposal area. An overview of the available parking surrounding the proposal site is presented in Figure 6-7.

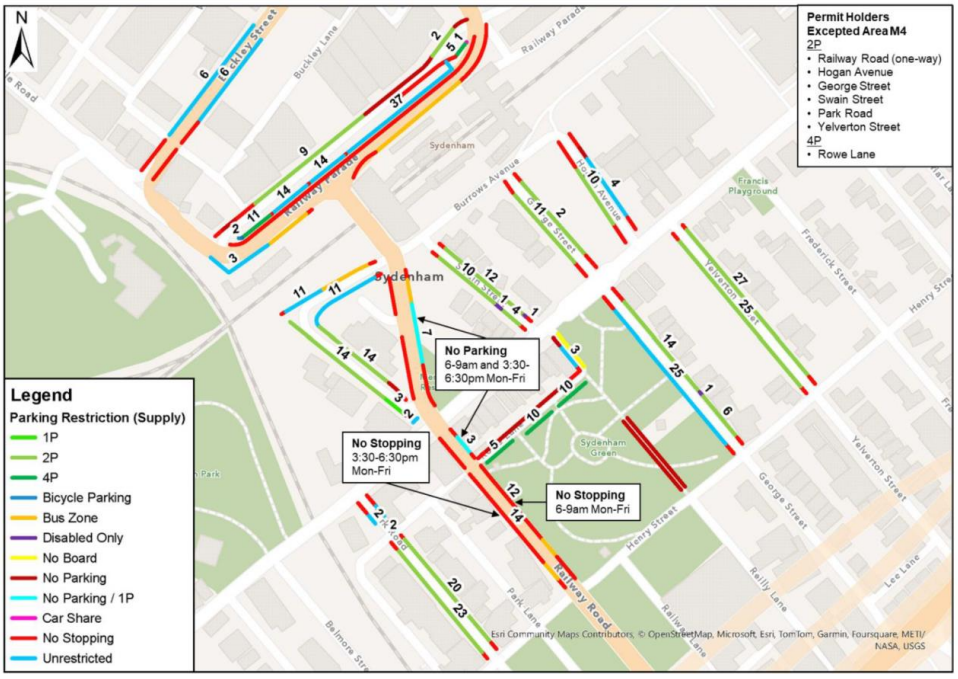


Figure 6-7 Existing parking restrictions and supply

The existing parking inventory in each road section is summarised in Table 6-11. There are no lane restrictions (i.e. clearways, transit lanes or bus lanes) or loading, taxi or mail zones in these areas.

Table 6-11 Existing parking inventory

Road Name	Section	Parking Restrictions	Parking Supply Breakdown	Parking Supply Total
Proposal Footprint				
Burrows Avenue	Railway Road to Gleeson Avenue	Bus Zone, No Stopping, Unrestricted	22 - unrestricted	22
Railway Road (one-way)	Gleeson Avenue to Burrows Avenue	1P, 2P, No Parking, No Stopping, Unrestricted	28 – 2P 3 – 1P 2 - unrestricted	33
Side Streets				
Buckley Street	Marrickville Road to No. 21-25 and 26-28	No Stopping, Unrestricted	12 – unrestricted	12
Railway Parade	All	2P, 4P, Bicycle Parking, No Parking, Car Share, No Stopping, Unrestricted	11 – 2P 16 – 4P 65 – unrestricted 1 – car share 2 – bicycle parking	95
Railway Parade (one-way)	All	Bus Zone, No Stopping, Unrestricted	3 – unrestricted	3
Hogan Avenue	All	2P, No Parking, No Stopping, Unrestricted	4 – unrestricted 10 – 2P	14
George Street	Burrows Avenue to Henry Street	2P, Disabled Only, No Stopping, Unrestricted	33 – 2P 1 – disabled 25 – unrestricted	59
Swain Street	All	2P, Disabled Only, No Stopping	26 – 2P 2 - disabled	28
Gleeson Avenue	All	Bus Zone, No Parking, No Stopping, 1P	7 – 1P	7
Park Road	Unwins Bridge Road to Henry Street	2P, No Stopping, Unrestricted	4 – unrestricted 43 – 2P	47
Railway Road	Unwins Bridge Road to Henry Street	Bus Zone, No Parking, No Stopping, 1P	26 – no stopping 3 – 1P	29
Rowe Lane	Railway Road to Reilly Lane	4P, No Parking, No Stopping	25 – 4P	25
Reilly Lane	Unwins Bridge Road to Henry Street	No Parking, No Stopping, Unrestricted	3 – unrestricted	3
Yelverton Street	Unwins Bridge Road to Henry Street	2P, No Stopping	52 – 2P	52

The parking study included occupancy surveys along each road section between Wednesday, 26 July and Tuesday, 1 August 2023 between 6:00am and 7:00pm daily. Figure 6-8 contains the results of the occupancy survey for Burrows Avenue, with total occupancy on the y axis and the time of day on the x axis. The different coloured lines represent the occupancy results from different days of the week, with the horizontal line demonstrating what the proposed parking supply would be in Burrows Avenue during operation.

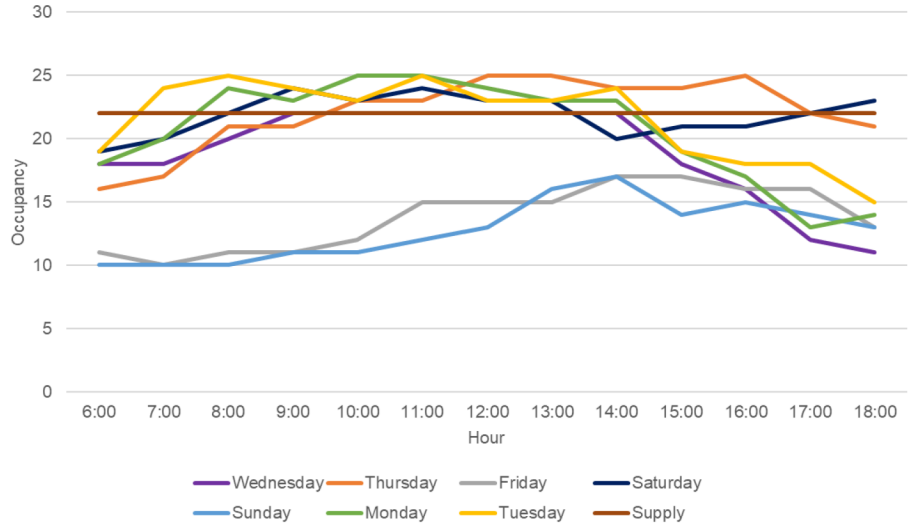


Figure 6-8 Parking occupancy Burrows Avenue on an hourly basis throughout each day.

Figure 6-9 contains the results of the occupancy survey for Railway Road with total occupancy on the y axis and the time of day on the x axis. The different coloured lines represent the occupancy results from different days of the week, with the horizontal line demonstrating what the proposed parking supply would be in Railway Road during operation. The full set of results is contained in the parking study in Appendix G of this REF.

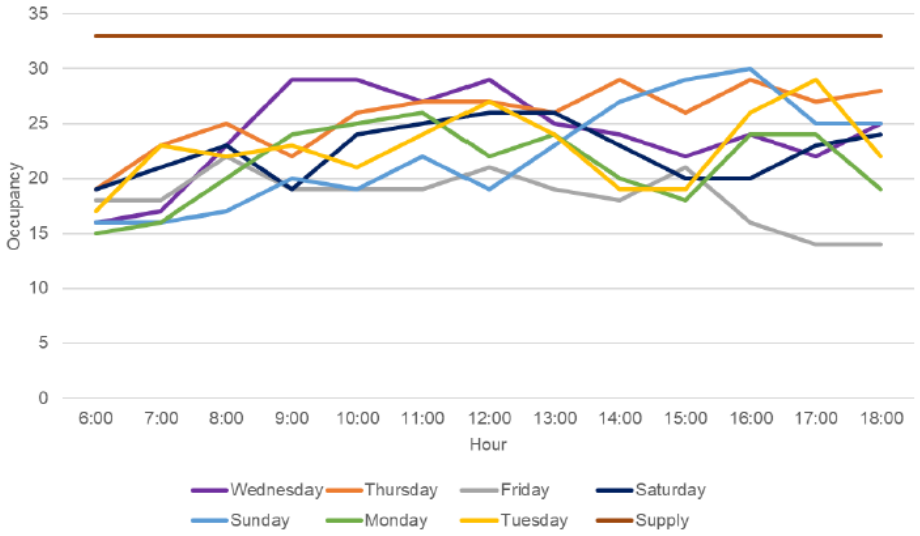


Figure 6-9 Parking occupancy Railway Road on an hourly basis throughout each day.

Parking occupancy across all streets (included in Table 6-11) in the study area is shown in Figure 6-10. The study found that the occupancy in the study area was varied, with the highest occupancy at 80 per cent and the lowest occupancy at 55 per cent.

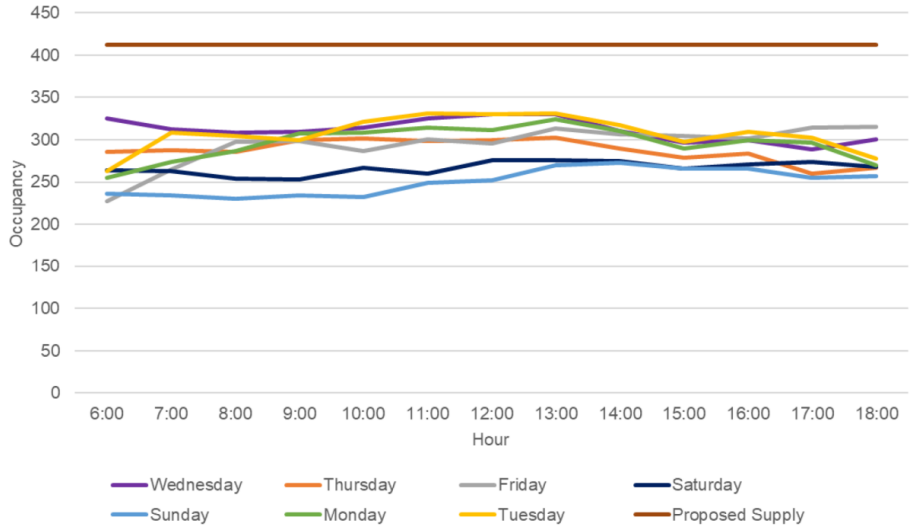


Figure 6-10 Cumulative parking occupancy in all streets on an hourly basis throughout each day.

Duration of stay surveys were conducted for Burrows Avenue and Railway Road, with results presented in Table 6-12 and Table 6-13 respectively. Key observations for Burrows Avenue include:

- most vehicles stayed for one hour on both day: Thursday twelve (26%) and Saturday nine (19%)
- four vehicles were parked during the whole Thursday survey (9%) and six vehicles were parked during the Saturday (13%) survey
- the average vehicle stays were 6 hours 6 minutes on Thursday and 5 hours 56 mins on Saturday.

Table 6-12 Peak duration of stay – Burrows Avenue

Hour	Duration of stay (hours)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Thursday													
6:00	-	1	1	1	-	-	1	1	2	1	3	1	4
7:00	-	-	-	-	-	-	-	1	-	-	-	-	-
8:00	-	1	-	-	-	-	-	-	1	-	3	-	-
9:00	-	-	-	-	-	-	-	-	-	1	-	-	-
10:00	-	-	-	-	-	-	1	2	1	-	-	-	-
11:00	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00	-	-	-	-	1	1	-	-	-	-	-	-	-
13:00	-	-	-	-	-	1	-	-	-	-	-	-	-
14:00	-	-	-	-	-	-	-	-	-	-	-	-	-
15:00	1	-	-	2	-	-	-	-	-	-	-	-	-
16:00	2	-	1	-	-	-	-	-	-	-	-	-	-
17:00	3	2	-	-	-	-	-	-	-	-	-	-	-
18:00	6	-	-	-	-	-	-	-	-	-	-	-	-
Total	12	4	2	3	1	2	2	4	4	2	6	1	4
Saturday													
6:00	1	-	-	1	-	-		3	3	2	1	2	6
7:00	-	-	-	-	1	-	1	-	-	-	-	-	-
8:00	-	-	-	1		-	-	-	-	-	1	-	-
9:00	1	-	-	-	1	-	-	-	-	-	-	-	-
10:00	-	-	-	-	-	-	-	-	1	-	-	-	-
11:00	-	-	-	1	-	-	-	-	-	-	-	-	-

Hour	Duration of stay (hours)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
12:00	-	-	-	1	-	-	-	-	-	-	-	-	-
13:00	-	-	-	-	-	-	-	-	-	-	-	-	-
14:00	-	2	-	-	-	-	-	-	-	-	-	-	-
15:00	-	-	1	4	-	-	-	-	-	-	-	-	-
16:00	-	1	4	-	-	-	-	-	-	-	-	-	-
17:00	1	1	-	-	-	-	-	-	-	-	-	-	-
18:00	6	-	-	-	-	-	-	-	-	-	-	-	-
Total	9	4	5	8	2	-	1	3	4	2	2	2	6

The key observations for Railway Road include:

- most vehicles stayed for one hour on both days. Tuesday 44 (44%) and Saturday (33%)
- four vehicles were parked during the whole Tuesday survey (4%) and five vehicles were parked during the Saturday survey (6%)
- the average vehicle stays were 2 hours 57 minutes on Tuesday and 3 hours 24 mins on Saturday.

Table 6-13 Peak duration of stay – Railway Road

Hour	Duration of stay (hours)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Tuesday													
6:00	-	5	4	1	-	1	2	-	-	-	-	-	4
7:00	1	2	-	-	2	-	-	1	-	-	-	-	-
8:00	2	-	1	-	-	-	-	-	2	-	-	-	-
9:00	2	1	3	-	-	-	1	-	-	2	-	-	-
10:00	1	-	-	-	-	-	-	-	-	-	-	-	-
11:00	3	1	-	1	-	-	-	1	-	-	-	-	-
12:00	4	6	1	-	-	-	1	-	-	-	-	-	-
13:00	4	-	-	-	-	-	-	-	-	-	-	-	-
14:00	2	1	-	-	2	-	-	-	-	-	-	-	-
15:00	4	-	-	1	-	-	-	-	-	-	-	-	-
16:00	7	3	3	-	-	-	-	-	-	-	-	-	-
17:00	9	3	-	-	-	-	-	-	-	-	-	-	-
18:00	5	-	-	-	-	-	-	-	-	-	-	-	-
Total	44	22	12	3	4	1	4	2	2	2	-	-	4
Saturday													
6:00	1	2	4	1	-	-	-	2	2	1	-	1	5
7:00	-	1	1	-	-	-	-	1	-	-	-	-	-
8:00	2	1	1	-	-	-	-	-	-	-	-	-	-
9:00	2	-	-	-	-	-	-	-	1	-	-	-	-
10:00	4	1	2	2	-	-	-	-	1	-	-	-	-
11:00	-	4	-	2	-	-	-	-	-	-	-	-	-
12:00	1	1	-	-	-	-	-	-	-	-	-	-	-
13:00	7	-	-	-	-	-	-	-	-	-	-	-	-
14:00	1	6	-	1	1	-	-	-	-	-	-	-	-
15:00	-	-	2	1	-	-	-	-	-	-	-	-	-
16:00	1	4	2	-	-	-	-	-	-	-	-	-	-
17:00	-	4	-	-	-	-	-	-	-	-	-	-	-
18:00	9	-	-	-	-	-	-	-	-	-	-	-	-
Total	28	24	12	7	1	-	-	3	3	2	-	1	5

The parking inventory included a review of properties near the proposal without onsite parking (i.e. properties that do not have a driveway or means to park off-street). The results of this review are shown in Figure 6-11.



Figure 6-11 Properties without onsite parking

6.3.3 Potential impacts

Construction

Road network and traffic

Minor impacts on the road network and local traffic are anticipated during construction of the proposal. Approximately 15 light vehicles (including utility vans), as well as approximately 30 heavy vehicles, per day will be used during construction to support the delivery of the proposal. Construction traffic would be associated with a number of work activities, including:

- delivery of construction materials
- material removal
- delivery of construction plant and equipment
- movement of construction personnel, including contractors, site labour force and other work force members.

Construction vehicles would enter site via Railway Road or Burrows Avenue and exit onto Burrows Avenue. During early phases of construction, Wright Street may be used by a small quantity of light and heavy vehicles to complete site establishment activities.

The construction workforce would vary depending on the phase of construction and associated activities. A typical on-site workforce of around 10 to 15 people is estimated during the construction period, with a maximum of 20 workers per day during peak construction periods. It is expected that construction staff accessing the construction site would use a combination of public transport and personal light vehicles.

Construction vehicles would cause some impact to the local road network and traffic; however, impacts are anticipated to be minor. The quantity of vehicles required for the proposal represents a negligible increase to existing traffic counts on Gleeson Avenue. Construction traffic movements would occur outside of peak periods where possible and are predicted to have a minor impact on the surrounding road network and public transport services. Short term closures to Railway Road and Burrows Avenue may occur during activities including asphalting and milling.

Traffic impacts to Railway Road, Burrows Avenue and Wright Street would be managed via the implementation of standard mitigation measures, including the scheduling of deliveries during non-peak periods and minimising queuing.

Oversize vehicles may be required for prefabricated / precast elements such as noise wall components and would require specific permits and advance route planning (i.e. identifying a suitable route with sufficient geometric capacity / turning circles for the vehicle). Oversize deliveries may require short term closures of Railway Road and Burrows Avenue whilst the delivery is occurring.

Haulage routes for the transport of material to and from the site, along with any necessary plant and equipment is limited by the one-way nature of Railway Road and Burrows Avenue. A swept path analysis formed part of the design process and shows heavy vehicles are able to safely enter eastbound into Railway Road and continue toward Burrows Avenue and the work site. Light and heavy vehicles exiting the site would use Burrows Avenue to travel northbound toward Gleeson Ave. Vehicles would then utilise Gleeson Avenue northbound or southbound to travel to their next destination.

Parking

Construction impacts to parking would be experienced on both Railway Road and Burrows Avenue. During construction, it is anticipated that about 27 car spots would be impacted, however, impacts to all 27 spots are not expected to occur simultaneously. Figure 3-9 shows the temporary parking removal required for the ancillary facility during construction. Some of these parking spaces would be permanently removed as an outcome of the proposal. Any additional parking removal would be staged as construction progresses to ensure that impacts are minimised. The largest impacts are expected during asphalting and paving works on Burrows Avenue and Railway Road, although these would be short-term. Residents impacted by any temporary parking changes would be notified in advance of any impacts occurring.

Pedestrian and cycling facilities

Access to the pedestrian footpath on the eastern side of Burrows Avenue will be impacted during construction. Pedestrians travelling from Railway Road to Gleeson Avenue via Burrows Avenue would be rerouted to utilise existing pathways along Gleeson Ave. This is expected to have a minor impact as alternative routes will be short in length and are nearby existing facilities. These routes and other temporary access arrangements would be confirmed during detailed design and suitable measures to mitigate impacts included within a Traffic Management Plan.

Buses

The bus stop on Burrows Avenue (Sydenham Station Stand A) which services M30, 418 and 425 would be maintained throughout construction. This bus currently accesses the site via Railway Road (one-way) and then travels onto Burrows Avenue to service Sydenham Station Stand A. Access through these roads would be maintained during construction. Buses that currently utilise Burrows Avenue or Railway Road for layover purposes will be impacted during construction and will be managed through traffic control. Drivers will also be informed that limited layover space is available during construction and to avoid this area during construction. This impact is expected to be minor as the bus thoroughfare will be maintained throughout construction. Space would continue to be retained for buses to layover on Burrows Avenue.

Property Access

It is not expected that access to any properties would be impacted during construction of the proposal. If impacts are identified during detailed design or construction, alternative access would be arranged in direct consultation with the property owner.

Operation

Road network and traffic

Minor impacts on the road network and traffic are anticipated from operation of the bus layover facility. Buses currently use Railway Road and Burrows Avenue to layover and there is not expected to be a large increase in the number of buses in the area. Currently during short term shutdown periods, parking along these streets is temporarily removed to accommodate buses. The proposal would divert these buses from on-street areas to a dedicated off-street layover, which will be a positive outcome. Operational volumes are expected to be similar to current scenarios.

Parking

The proposal would see the permanent removal of four parking space along Railway Road, and sixteen spaces along Burrows Avenue (five 90-degree parking spaces on the west side and eleven parallel parking spaces on the east side). The parking removal on Railway Road and Burrows Avenue is shown in Figure 6-12. Six car parking spaces on the northern side of Railway Road will be converted into 13 angled car parking spaces, thus

resulting in a net loss of 13 car parking spaces. Figure 1-2 shows the configuration of the Proposed bus layover and the car parking spaces that will be available during the operation.

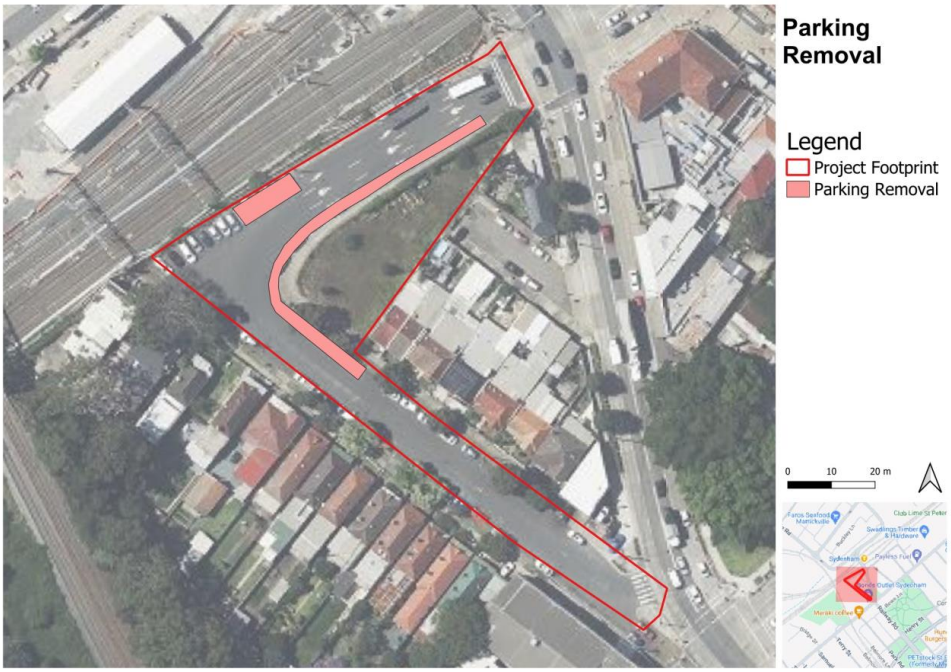


Figure 6-12 Proposed parking removal on Railway Road and Burrows Avenue.

The parking study included an assessment of the operational impact from the removal of these spaces. Parking occupancy data collected during the study period were compared to the total parking supply in:

- Burrows Street and Railway Road
- all streets surveyed during the study.

Figure 6-13 contains the results of the occupancy survey for Railway Road and Burrows Avenue combined, with total occupancy on the y axis and the time of day on the x axis. The different coloured lines represent the occupancy results from different days of the week, with the horizontal line demonstrating what the proposed parking supply would be in both Railway Road and Burrows Avenue during operation. The proposed supply line shows that with the parking removal there is insufficient space on Railway Road and Burrows Avenue for current demand on all days except for Friday. The daily trend shows that occupancy generally grows as the day progresses, and the duration of stay results in Table 6-12 and Table 6-13 show that most vehicles are not staying for an extended period of time.

Figure 6-14 shows the collective occupancy results and proposed parking supply over the parking study area. It is clear that within the broader study area, the side streets have sufficient parking capacity to cater for the remaining demand.

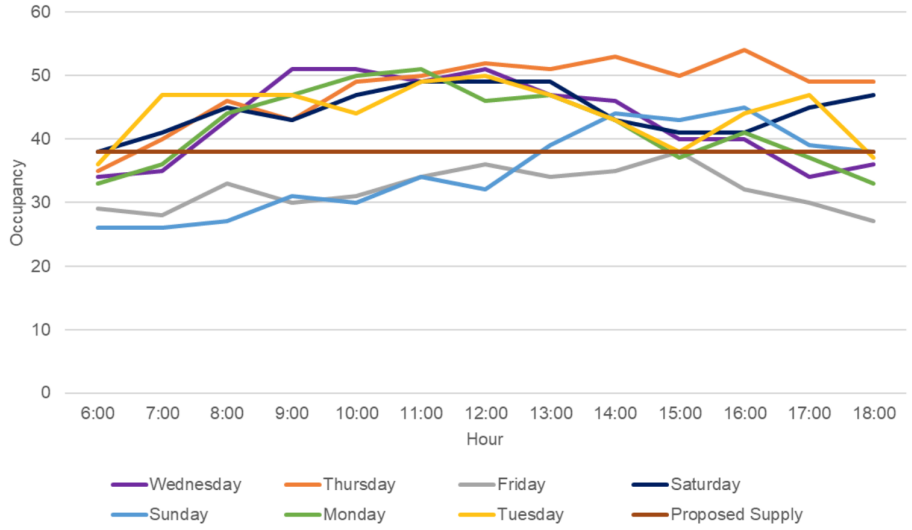


Figure 6-13 Cumulative parking occupancy in Burrows Avenue / Railway Road - with proposal

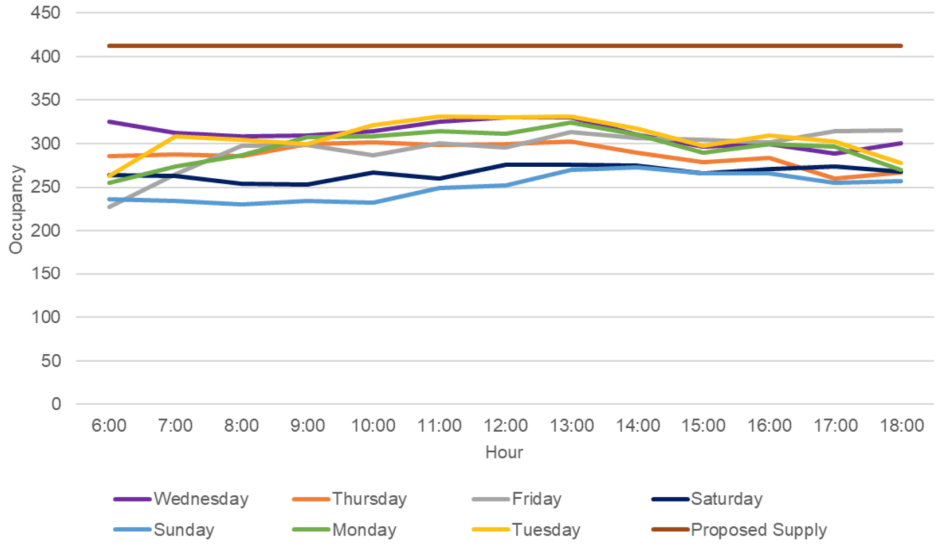


Figure 6-14 Cumulative parking occupancy in all streets - with proposal

The inclusion of angled parking spaces along Railway Road during the operational phase of the project partially compensates for a portion of the parking removal. The establishment of a residential parking scheme within Burrows Avenue and Railway Road would minimise the impact from the loss of currently unmetered parking spaces to properties on these streets without off-street parking. A resident parking scheme would be discussed with Inner West Council, as they would be responsible in administering the resident parking scheme. Further information on the parking impacts during operation can be found in the parking study, presented as Appendix G of this REF.

Pedestrian and cycling facilities

The current footpath along the eastern side of Burrows Avenue would be relocated further east, however, the connection would remain during operation. This impact is negligible as the pedestrian and cycling facilities currently in use will remain largely the same following completion of the proposal. The location of the proposed footpath on the eastern side of the bus layover is shown in Figure 3-3.

Buses

The provision of the bus layover facility would allow buses servicing Sydenham Station and surrounds to divert to the layover to wait for the commencement of their service. This layover would have a positive impact on operational bus routes, services and drivers, whilst also removing the informal bus parking/layover on Railway Road and Burrows Avenue. The proposed bus layover provides a place for buses to park safely between services in an area close to where these services begin, enabling operating efficiencies. The proposal would improve bus travel times and service frequencies, increasing reliability for passengers.

6.3.4 Safeguards and management measures

Table 6-14 Traffic and transport safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Traffic and transport	Traffic Management Plan (TMP) must be developed prior to the commencement of construction. TheTMP will be in accordance with the Transport *Traffic Control at Work Sites Manual* (RTA, 2010) and *QA Specification G10 Control of Traffic* (Transport for NSW, 2008). The measures will include: • confirmation of haulage routes • measures to maintain access to local roads and properties • site-specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads. • a response plan for any construction traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms.	Contractor	Detailed design / Pre-construction	Section 4.8 of QA *G36 Environment Protection*
Traffic and transport	Requirements for any changes to existing access arrangements shall be confirmed in consultation with the local road authority and any affected landowners.	Transport for NSW	Pre-construction/ Construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
Traffic and transport	Heavy vehicle traffic generated through construction shall be constrained to the arterial road network (other than Railway Road and Burrows Avenue) to minimise impacts on local roads.	Contractor	Construction	Additional measure
Traffic and transport	Property access will be maintained including access to residences and commercial premises. Where property access will be impacted during construction: • property owners will be notified at least five business days prior to the access impact • alternative access will be provided if available • access impacts will be minimised and access will be returned to the property owners as soon as possible	Contractor	Pre-construction/ Construction	Additional measure

6.4 Noise and vibration

6.4.1 Methodology

Construction and operational noise and vibration impacts were assessed for the proposal in general accordance with the following guidelines:

Construction:

- NSW Department of Environment and Climate Change (DECC) *Interim Construction Noise Guidelines (ICNG) 2009*
- Transport for NSW *Construction Noise and Vibration Guidelines - Roads (CNVG-R 2023*

Operation:

- EPA *Noise Policy for Industry* (NPfI) 2017
- NSW Department of Environment, Climate Change and Water (DECCW) *Road Noise Policy* (RNP) 2011

Noise modelling

SoundPlan noise modelling software was used to calculate construction and operational noise impacts in accordance with the ISO9613 prediction method at all identified noise-sensitive receivers. Predictions include geometric spreading, air and ground absorptions as well as topographical and structural screening and reflection. The model included:

- topography – 1 metre DEM based on LPI Lidar data
- individual buildings for façade calculations and to account for shielding and reflections. Building heights are also taken from Lidar data
- individual sensitive receivers – façade noise levels calculated for each residential dwelling located 1.5 metres above most affected floor level (e.g. level 2) at 1 metre from each facade
- noise sources
  - construction noise sources – with scenarios per Table 6-26
  - operation noise sources – with scenarios per Table 6-15 and sound power levels as listed in Table 6-16.

- meteorology –worst-case conditions: gentle breeze (3-5 m/s) source to receiver and stable conditions (conducive of temperature inversion).

Further to the above, the operational model also included:

- operational noise sources modelled at 1 metre above the ground representing the approximate position of the bus engine plus 3 metres representing the exhaust
- total bus sound power divided equally between engine bays and exhaust
- all noise sources modelled within the footprint of the proposed Sydenham Bus Interchange. No noise sources modelled on public roads.
- a 3.5m noise wall / acoustic barrier modelled along the eastern boundary of the site.

Operational noise inputs

Bus noise

A typical bus make and model was assumed in the operational noise model to use the facility, which would be similar to a Volvo B12 BLE. This is a widely used bus across Sydney and is a suitable representation of the buses that may use the layover.

Operational scenarios between 4.30am and 2am, 7 days a week would be subject to meeting the requirements of the NPfI during the day, evening, and night periods. The assumptions listed in Table 6-15 were provided by TfNSW and have been adopted for this assessment.

Table 6-15 Bus noise assumptions

Parameter	Assumption
Number of bus bays	6 occupied concurrently (i.e. full utilisation)
Movements	Per bay, buses would arrive and depart on 5-minute intervals
Stationary mode	Each bus would idle for 2 minutes, switching the engine off for 3 minutes
Moving mode	On arrival and departure, each bus would be moving for 30 seconds

Sound power levels of the Volvo B12 BLE were supplied by TfNSW for moving and stationary scenarios. Noise measurements were made in accordance with Australian Design Rules 28 – Annex A Methods and instruments for measuring the noise made by motor vehicles (ADR 28 Annex A). Refer to ADR 28 Annex A for details on the measurement methodology.

Measured noise levels and calculated sound power levels are presented in Table 6-16.

Table 6-16 Bus noise emissions

Noise generating equipment	Measured sound pressure level, SPL dBA (ADR 28)	Estimated sound power level, SWL dBA
Volvo B12BLE drive by noise	77.9[1]	103
Volvo B12BLE stationary noise	85[2]	87
Note 1: measured 7.5 away from the noise source in accordance with ADR 28 Annex A Note 2: measured 0.5 away from the noise source in accordance with ADR 28 Annex A		

Operational Noise Barrier

TfNSW carried out a barrier analysis report and determined that a 3.5 metre high noise barrier along the eastern boundary of the site to ameliorate operational noise at the nearest receivers was appropriate and considered to be an optimal height when balancing the noise impacts to neighbouring properties, the visual impact and the environmental impacts of constructing the wall. The position of the barrier is illustrated in Figure 6-17.

6.4.2 Existing environment

Figure 6-15 illustrates the location of the project and the location of the unattended noise monitoring location to identify the background noise levels (further details included in Section 6.4.2. The proposal is bounded by residential properties to the east and south, a railway corridor to the north (Sydenham station), and commercial/ industrial properties located at further setback distances.

Existing environmental noise is generally influenced by the railway line and the surrounding road network.

Receivers potentially sensitive to noise and vibration can be categorised as residential dwellings, commercial/industrial buildings (including small businesses), or other sensitive land uses which include child care centres, and active/passive recreation.

Land uses surrounding the site comprise the following (illustrated in Figure 6-16):

- residential receivers to the east and south of Railway Road
  - the nearest residents to the east are immediately adjacent to the proposal
  - the nearest resident to the south is 14 metres away
- public transport infrastructure (Sydenham Station) to the north
- industrial buildings to the north
- commercial buildings to the east along Gleeson Avenue, and to the south along Unwins Bridge Road; and
- OSR (Childcare) to the southwest, along Unwins Bridge Road.

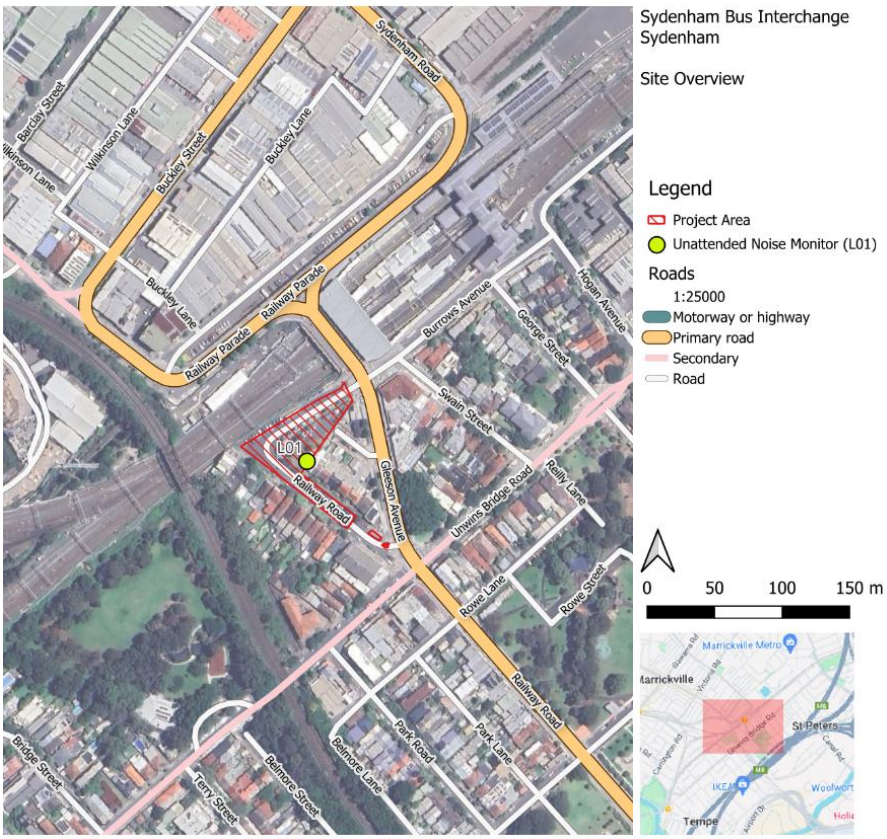


Figure 6-15 Location of unattended noise monitoring location in relation to the proposal location

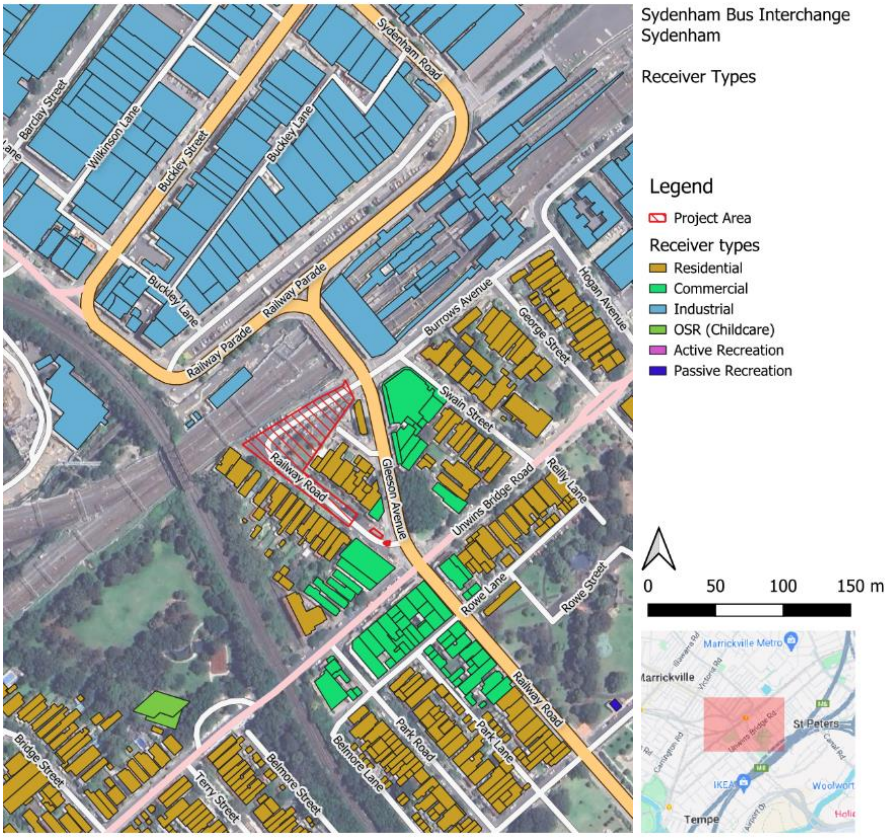


Figure 6-16 Receiver types

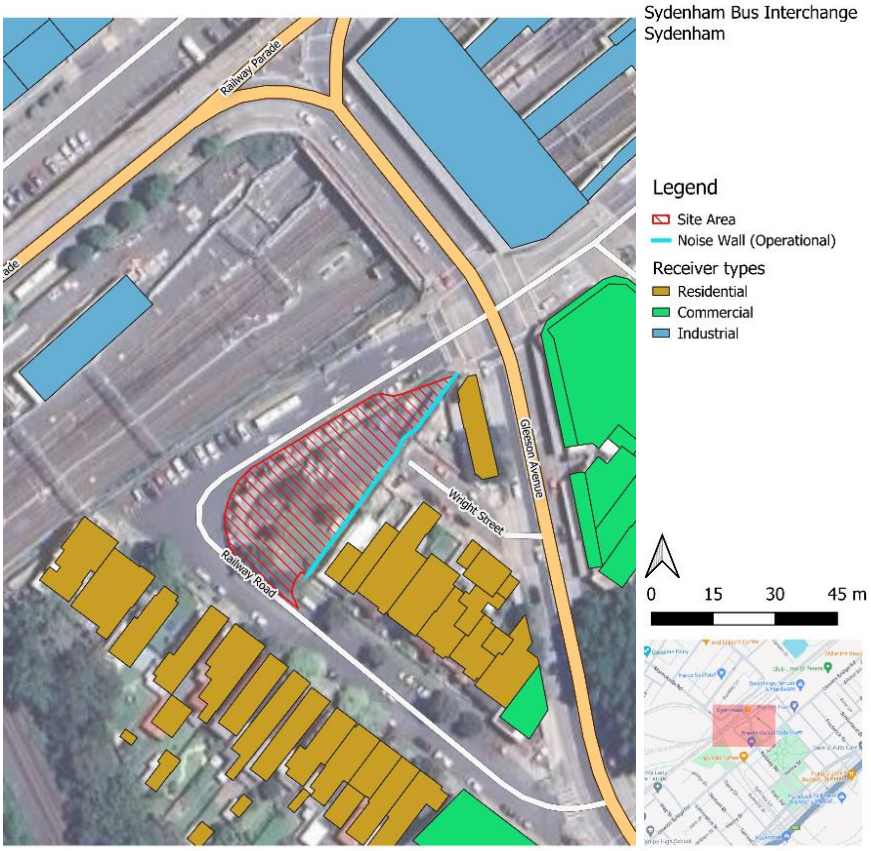


Figure 6-17 Noise wall relative to residential receivers and bus layover

Background Noise Levels

Unattended background noise monitoring was completed on the proposal-site to understand the background acoustic characteristics of the proposal area. Noise monitoring was completed using an ARL NGARA Class 1 Noise Logger between 29 November and 8 December 2023. The noise logger was positioned to represent free-field conditions and was located in the southern end of 177 Railway Road, Sydenham. The monitoring position is presented in Figure 6-15.

The noise logger (serial no. 8781A8, calibration date 18 March 2022) was set to A-weighted, fast response, 15-minute continuous monitoring and was field-calibrated prior to and post monitoring with no significant drift observed.

The baseline information was used to establish the Rating Background Level (RBL), which presents the average minimum background noise level for each measurement period, averaged over the measurement days. No adverse weather conditions were observed during the monitoring period. Therefore, no weather affected noise data has been removed. Noise levels resulting from extraneous sources have been excluded from the analysis. The background noise levels are presented in Table 6-17.

Noise monitoring plots are presented in Appendix K Background Noise Monitoring Plots.

Table 6-17 Background Noise Levels

Monitoring Location	Background Noise Level (RBL) dBA		
	Day (7am to 6pm)	Evening (6pm to 10pm)	Night (10pm to 7am)
L01	47	46	37

6.4.3 Assessment criteria

Construction Noise Criteria

Interim Construction Noise Guideline 2009

In NSW, noise impacts arising from construction activities are managed in accordance with the ICNG. The guideline has been developed to assist with the management of noise impacts, rather than to present strict numeric noise criteria for construction activities. The ICNG recommends establishing Noise Management Levels (NMLs) at receiver locations adjacent to the works, using information from the existing background noise levels. Where the NML may be exceeded and there is potential for adverse noise impacts to occur, appropriate management measures would be implemented.

Table 6-18 details the method for determining NMLs for residential receivers only, during standard and nonstandard working hours. While there are separate criteria for non-residential receivers, residential dwelling, transport infrastructure, commercial/industrial properties, and other sensitive receivers (OSR) Childcare centre were identified for the proposal.

Table 6-18 Construction noise management levels – residential receivers (ICNG, DECC 2009)

Hours	Noise Management Level (NML)	Description
Recommended standard hours: Monday to Friday 7am– 6pm Saturday 8am– 1pm No work on Sundays or public holidays)	Noise affected RBL +10 dB(A)	The noise affected level represents the point above, which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of work to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for work near schools, or mid-morning or mid- afternoon for work near residences). 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours ('out-of- hours' work)	Noise affected RBL +5 dB(A)	A strong justification would typically be required for work outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should then undertake negotiations with the community.

Construction Noise Management Levels

Using the background noise data from Table 6-17

Table 6-17 and the ICNG requirements for residential receivers in Table 6-18, NMLs have been determined for the specified construction periods and are presented in Table 6-19. NMLs for non-residential sensitive receivers are also shown in the table. All NMLs apply externally and only when in use for non-residential receivers.

Table 6-19 Construction NMLs

Receiver	Construction noise management level, L_{Aeq}(15min)					
	Standard recommended hours		Outside of standard recommended hours			
	Noise affected	Highly noise affected	Day	Evening	Night	Sleep disturbance
Residential receivers	57	75	52	51	42	65
OSR (Childcare Centre)	50	-	-	-	-	-
Passive recreation	60	-	-	-	-	-
Active recreation	65	-	-	-	-	-
Commercial	70	-	-	-	-	-
Industrial	75	-	-	-	-	-
Transport Infrastructure	75	-	-	-	-	-

Sleep Disturbance (Construction)

The ICNG recommends where works are likely to occur over more than two consecutive nights, maximum noise levels should be analysed in terms of the extent and number of times the maximum noise exceeds the RBL. Additionally, the DECCW (2011) *Road Noise Policy* discusses a guideline aimed at limiting the level of sleep disturbance due to environmental noise: a LA1, 1 minute or LAmax level of any noise should not exceed the ambient LA90 noise level by more than 15 dB(A).

The *Road Noise Policy* also suggests maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this guidance, a sleep awakening criterion of 55 dB(A) (internal) has been adopted for the works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of 65 dB(A) (external) has been applied to residential bedroom façades.

Hence, a screening criterion for sleep disturbance of RBL + 15 dB(A) and an awakening criterion of 65 dB(A), measured as LA1, 1 minute or LAmax, will be applied in this assessment. Exceedance of the screening criterion should trigger additional consideration of the nature and frequency of disturbances whilst the awakening criterion should act as a maximum noise goal not to be exceeded on more than a couple of occasions.

Construction Vibration Criteria

Human Comfort

When assessing human exposure to construction-related vibration, the CNVG requires vibration goals to be established using *Environmental Noise Management Assessing Vibration: A Technical Guideline* (DECC 2006), which provides criteria for the assessment of vibration impacts on humans.

Construction activities typically generate vibration of an intermittent nature, which is assessed using a Vibration Dose Value (VDV). Acceptable values of vibration doses are presented in Table 6-20 for sensitive receivers. Where these are exceeded, the method for assessing eVDV in DECC 2006 should be implemented to allow for consideration of vibration duration and dominant frequency.

Table 6-20 VDV Vibration Criteria

Receiver type	Peak particle velocity

	Preferred (mm/s)	Maximum (mm/s)
Residential buildings – 15 hour day (7am to 10pm)[1]	0.20	0.40
Residential buildings – 9 hour night (10pm to 7am)[1]	0.13	0.26
Note 1: Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am.		

Building Damage

Potential building damage from construction vibration requires the application of values in BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2. These values are presented in Table 6-21 and relate to transient vibration which does not give rise to resonant responses in structures, and to low-rise buildings.

Table 6-21 Guideline values for vibration velocity for the effects of short-term vibration on structures (BS 7385).

Type of building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial and heavy commercial buildings	50	
Unreinforced or light framed structures Residential or light commercial type buildings	15 at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz to 50 mm/s at 40 Hz and above

Where vibration may give rise to magnification due to resonance, especially at lower frequencies where lower guide values apply, the guide values may be reduced by 50%. The CNVG describes rock breaking/hammering and sheet piling activities as having potential to cause dynamic loading in some structures (e.g. residences).

For activity involving rock breakers, piling rigs, vibratory rollers, excavators, vibration predominantly occurs at frequencies in the 10 Hz to 100 Hz range. On this basis, a conservative vibration damage screening level is:

- reinforced or framed structures: 25.0 mm/s
- unreinforced or light framed structures: 7.5 mm/s

Heritage

Heritage buildings and structures would be assessed under a conservative cosmetic damage objectives of 2.5 mm/s peak component particle velocity (from DIN 4150). Where vibration levels at heritage items are identified as exceeding this screening level, structural assessment would be completed by the Project team to confirm the structure's sensitivity to vibration. If a heritage building or structure is found to be structurally unsound (following inspection) the conservative criterion would stand. Where the structure is suitably sound, the guideline values from Table 6-21 would be applicable.

Operational Noise Criteria

Noise Policy for Industry 2017

In NSW, noise impacts associated with operational impacts of a facility such as bus layover facility are managed by the EPA NSW *Noise Policy for Industry* 2017 (the policy).

The purpose of the policy is to "ensure noise impacts associated with industrial developments are evaluated and managed in a consistent and transparent manner. It provides noise levels for assessing the potential impact of noise from industry and includes a framework for considering feasible and reasonable noise mitigation measures."

The policy describes establishing Project Noise Trigger Levels (PNTL) at receiver locations adjacent to the works, using information from the existing background noise levels.

The project noise trigger level provides a benchmark or objective for assessing a proposal or site. It is not intended for use as a mandatory requirement. The project noise trigger level is a level that, if exceeded, would indicate a potential noise impact on the community, and so 'trigger' a management response; for example, further investigation of mitigation measures.

The project noise trigger level, feasible and reasonable mitigation, and consideration of residual noise impacts are used together to assess noise impact and manage the noise from a proposal or site.

The project noise trigger level is the lower (that is, the more stringent) value of the project intrusiveness noise level and project amenity noise level.

The project intrusiveness noise level aims to protect against significant changes in noise levels, whilst the project amenity noise level seeks to protect against cumulative noise impacts from industry and maintain amenity for particular land uses. Applying the most stringent requirement as the project noise trigger level ensures that both intrusive noise is limited, and amenity is protected and that no single industry can unacceptably change the noise level of an area.

Project Intrusiveness noise level

The intrusiveness noise level seeks to limit the degree of change a new noise source introduces to an existing environment. The intrusiveness of an industrial noise source may generally be considered acceptable if the level of noise from the source (represented by the LAeq descriptor), measured over a 15-minute period, does not exceed the background noise level by more than 5 dB when beyond minimum threshold (i.e. 30 dBA).

Table 6-22 presents the project intrusiveness noise levels, which are determined as follows:

- LAeq, 15min = rating background noise level plus 5 dB

Table 6-22 Project intrusive noise levels (Residential receivers)

Period	Measured RBL, dB(A)	Intrusive noise level, dB(A)
Day (7am to 6pm)	47	52
Evening (6pm to 10pm)	46	51
Night (10pm to 7am)	37	42

Project Amenity noise level

.Residences near the project are defined as residential ('Urban'), in Table 2.2 of the policy and amenity levels for this land use are presented in Table 6-23. 'Urban' is defined as an acoustical environment that:

- is dominated by 'urban hum' or industrial source noise, where urban hum means the aggregate sound of many unidentifiable, mostly traffic and/or industrial related sound sources
- has through-traffic with characteristically heavy and continuous traffic flows during peak periods
- is near commercial districts or industrial districts; or
- has any combination of the above.

Table 6-23 Project Amenity noise levels

Receiver	Noise Amenity area	Time of day	Amenity noise level, dB(A)
Residential	Urban	Day (7am to 6pm)	60
		Evening (6pm to 10pm)	50
		Night (10pm to 7am)	45

Project-noise trigger level

The project noise trigger levels (PNTL) are the most stringent of the intrusive and project amenity noise levels and are presented in Table 6-24. To ensure the industrial noise remains within the recommended amenity noise level for an area, a project amenity noise level applies, which is defined as the recommended amenity noise level minus 5 dBA. In addition, to standardise the time periods for the LAeq 15 minute intrusiveness and LAeq period amenity noise levels, a +3 dB correction is applied to the Project amenity noise level. The corrections are only applicable to residential receivers.

Table 6-24 Project noise trigger levels - Residential receivers

Receiver	Period	Intrusive noise level dB(A)	Amenity noise level, dB(A)	PNTL dB(A)
Residential	Day (7am to 6pm)	52	58	52

Receiver	Period	Intrusive noise level dB(A)	Amenity noise level, dB(A)	PNTL dB(A)
	Evening (6pm to 10pm)	51	48	48
	Night (10pm to 7am)	42	43	42

Non-residential receivers surrounding the Project comprise commercial premises, industrial premises, other sensitive receivers (OSR) active and passive recreation, and OSR Childcare. The associated project amenity noise levels described in the Policy are presented in Table 6-24.

Table 6-25 Project Amenity noise levels

Non-residential receivers			
Childcare centre	All	When in use	45*
Passive Recreation	All	When in use	50
Active Recreation	All	When in use	55
Commercial premises	All	When in use	65
Industrial premises	All	When in use	70
*10dB external criteria correction (assumed open window) applied to School classroom – Internal 35 dBA			

Sleep Disturbance (Operational)

The proposal will operate 24/7. The potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

Where the subject development/premises night-time noise levels at a residential location exceed:

- LAeq,15min 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- LAFmax 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,

a detailed maximum noise level event assessment should be undertaken.

The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

The adopted sleep disturbance noise limits are:

- LAeq,15min 42 dB(A); and/or
- LAFmax 52 dB(A)

6.4.4 Potential Impacts

Construction

Construction plant and equipment

The proposed construction activities and equipment needed for the works are summarised in Table 6-26. Anticipated overall $L_{Aeq\ 15\ minute}$ sound power levels from equipment working during each activity are presented in the table, providing worst case emission estimates for the identified activities. Usage factors have been applied to the sound power levels to account for the expected proportion of 'on time' of each item of equipment over the assessment period.

Activities and equipment were included in the noise model as area sources across the project, assumed to be present at any point within the project boundary.

Assumed sound power levels and the ultimate predicted noise levels will depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. For this assessment, equipment was assumed to be working at the closest location relative to each receiver and represents a worst-case assessment. Where activity moves away from each receiver, or less equipment is operating, predicted levels will decrease accordingly.

Predicted noise levels

Standard hours

Predicted noise levels and exceedances of the NML for standard hours are summarised in Table 6-27. Subgrade preparation is the activity with the most predicted receivers to be highly noise affected (>75dB(A)). Table 6-28 contains the receivers that are predicted to be highly noise affected during the subgrade preparation works. Detailed predictions are provided in Appendix E.

The closest sensitive receivers to the project footprint are between 5 metres and 20 metres of the works. Predictions indicate these nearest receivers would experience high levels of noise when works are at or close to the boundary.

For many activities a handful of receivers would be highly noise affected (noise levels above 75 dBA).

Also, several construction activities present a moderate to high risk of impact at 4 to 5 receivers, with the NML for standard hours likely to be exceeded by 20 dB or more.

Minor impacts are predicted during construction activities 1a, 1b, 8c, 9, 10, 12 and 14b.

No non-residential receivers are expected to exceed the respective NML's.

Noise contours for the worst-case construction scenario is presented in Figure 6-18.

Table 6-26 Construction plant and equipment

Construction Phase	Construction Activity		Construction Equipment	SWL dBA	Activity SWL dBA
Site establishment (Demolish existing retaining wall, and remove fencing)	1a	Set up traffic control.	Traffic control utes	81	81
	1b	Establish ATF fence along perimeter	Flat deck truck	88	88
	1c	Site investigations	Vacuum truck	109	109
			Truck-mounted auger	95	
	1d	Demolish old kerb and retaining wall	18t excavator	101	102
			Tipper trucks	94	
Clearing of trees	2	Remove shrubs and trees	Excavator	105	107
			Mulcher / chipper	103	
			Chipper truck	95	
Bulk earthworks	3	Strip topsoil, cut, fill, compaction, subgrade trimming	18t excavator	101	110
			Dumper	95	
			Pad foot roller	107	
			Grader	104	
			Small watercart	96	
Stormwater pit and pipe installation	4a	Excavation / Pipe placement / Pit installation	Backhoe	92	92
	4b	Backfilling with suitable material	Backhoe	92	96
			Jumping jack compaction	93	
Utility investigations and relocation	5a	Water pressure excavation after temporary connection	Suction truck	109	109
	5b	Relocation of utilities	3.5t excavator	88	96
			Small work truck	95	
Pavement works	6a	Subgrade preparation	Pad foot roller (18t)	107	109
			12H grader	104	
	6b	Installation of DGB layers	Steel drum roller 18t	101	102
			Small work truck	95	

Construction Phase	Construction Activity		Construction Equipment	SWL dBA	Activity SWL dBA
	6c	Fix from and Pour concrete layers of pavements	Agi truck	98	100
			Small work truck	95	
Construction of amenities building (foundation)	7a	Utility Installation (D/F)	3.5t excavator	88	96
			Small work truck	95	
	7b	Pouring foundation (D/F)	Agi truck	98	98
Construction of noise wall	8a	Piling	Small Piling Rig	103	104
			Truck Hiab	96	
	8b	Installation of posts and panels	Hand tools	87	89
			EWP	84	
	8c	Sealing between panels	Hand tools	87	87
Landscaping	9	Mulching and planting	Hand tools	81	81
Sign posting	10	Sign posting	Hand tools	87	87
Milling and Re-sheeting	11a	Milling (evening/night only)	Profiler	112	113
			Dump truck	105	
	11b	Re-sheeting	Steel drum roller 18t*	101	101
Line marking / pedestrian fencing	12	Line marking cart	Line marking cart	89	89
Kerb reshaping (Railway Road / Gleeson Avenue)	13a	Demolition of existing kerb (evening /night only)	18t excavator	101	102
			Tipper trucks	94	
	13b	Concrete pour of new kerbs (evening /night only)	Concrete pump	98	98
	13c	Line marking (evening /night only)	Line marking cart	89	89
Construction of amenities building (building)	14a	Construction of a building (D/F)	Hand tools	87	98
			Delivery trucks	98	
	14b	Fitting out the buildings (D/F)	Hand tools	87	88
			Light vehicles	81	

*denotes equipment that has an added 5dB penalty to account for 'annoying' characteristics in line with the ICNG.

Table 6-27 Predicted construction noise levels and exceedances for standard hours

Construction Phase	Construction Activity		Maximum LAeq,15-minute noise level at receiver		Predicted no. receivers with exceedance of the NML			
			Residential receivers	No. highly noise affected (>75 dBA)	0-10	10-20	20+	30+
Site establishment (Demolish existing retaining wall, and remove fencing)	1a	Set Up Traffic Control.	66	0	2	0	0	0
	1b	ATF Fence Perimeter.	72	0	1	2	0	0
	1c	Site investigations	97	6	5	14	2	2
	1d	Demolish old kerb and retaining wall	87	3	12	2	2	0
Clearing of trees	2	Removal of shrubs and trees	97	4	15	4	1	2

Construction Phase	Construction Activity		Maximum LAeq,15-minute noise level at receiver		Predicted no. receivers with exceedance of the NML			
			Residential receivers	No. highly noise affected (>75 dBA)	0-10	10-20	20+	30+
Bulk earthworks	3	Strip topsoil, cut, fill, compaction, subgrade trimming	83	3	12	8	2	0
Stormwater pit and pipe installation	4a	Excavation / Pipe placement / Pit installation	77	1	2	2	0	0
	4b	Backfilling with suitable material	80	2	4	2	1	0
Utility investigations and relocation	5a	Water pressure excavating after temp connection	97	6	5	14	2	2
	5b	Relocation of utilities	84	1	9	2	1	0
Pavement works	6a	Subgrade preparation	98	7	11	9	2	3
	6b	DGB Layers of installation	91	4	14	5	2	1
	6c	Fix from and pour concrete layers of pavements	89	3	14	2	2	1
Construction of amenities building (foundation)	7a	Utility Installation	81	2	5	2	2	0
	7b	Pouring foundation	84	2	8	2	2	0
Construction of noise wall	8a	Piling	73	0	5	2	0	0
	8b	Installation of posts and panels	58	0	1	0	0	0
	8c	Sealing between panels	56	0	0	0	0	0
Landscaping	9	Mulching and planting	71	0	1	1	0	0
Sign posting	10	Sign posting	66	0	3	0	0	0
Milling and re-sheeting	11a*	Milling	-	-	-	-	-	-
	11b	Re-sheeting	80	2	9	2	1	0
Line marking / pedestrian fencing	12	Line marking cart	68	0	20	1	0	0
Kerb reshaping (Railway Road / Gleeson Ave)	13a*	Demolition	-	-	-	-	-	-
	13b*	Concreting	-	-	-	-	-	-
	13c*	Line marking	-	-	-	-	-	-
Construction of amenities (building)	14a	Construction of a building	84	2	8	2	2	0
	14b	Fitting out the buildings	74	0	2	2	0	0

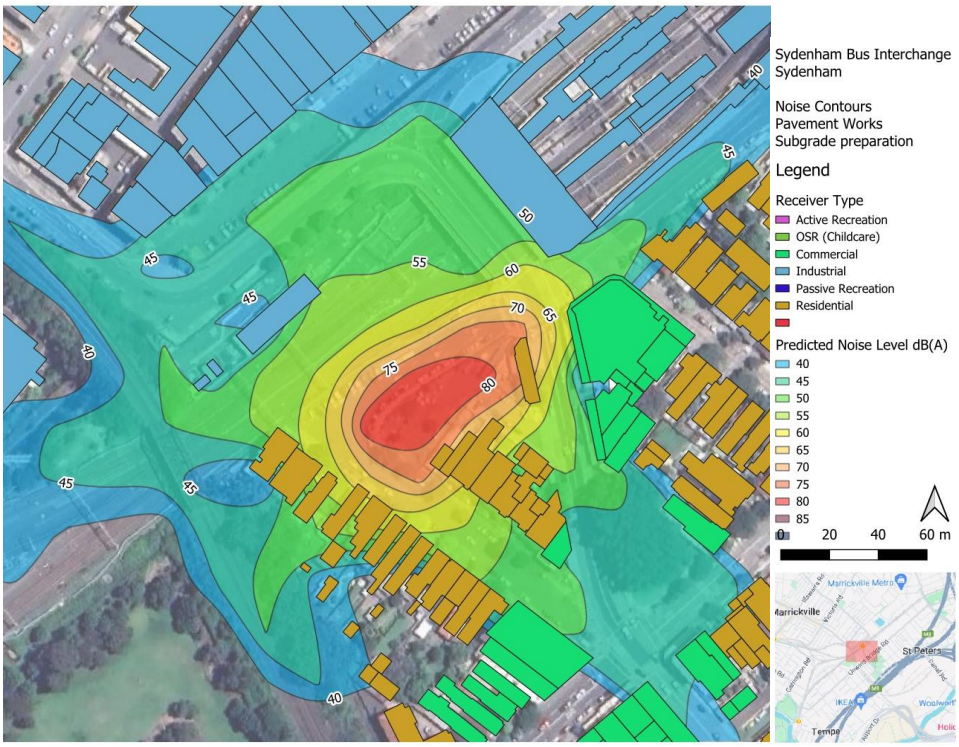


Figure 6-18 Noise contours – Standard Hours (LAeq) – Pavement works - subgrade preparation

Table 6-28 Receivers predicted to be highly noise affected during subgrade preparation works

Activity	Activity ID	Receiver address	Maximum LAeq,15-minute noise level at receiver
Subgrade preparation	6a	104 Railway Road, Sydenham	78
		106 Railway Road, Sydenham	76
		109 Railway Road, Sydenham	76
		111 Railway Road, Sydenham	84
		113 Railway Road, Sydenham	91
		115 Railway Road, Sydenham	93
		5 Wright St, Sydenham	98

Outside standard hours

Where works are required outside standard hours, although the predicted noise levels would be similar, the level of impact would increase due to lower background noise and a higher sensitivity of sensitive receivers at those times, i.e. lower NML. Predicted exceedances of the NML for construction activities proposed outside standard hours are summarised in Table 6-29. The closest sensitive receivers to the kerb footprint on Railway Road and Gleeson Avenue are likely to experience high levels noise when works are at or close to the boundary. Full details are provided in Appendix E.

The predicted noise levels for each activity are as follows:

- milling – 32 receivers predicted to exceed the NML during the evening period. 65 receivers predicted to exceed the NML during the night period
- demolition – 25 receivers predicted to exceed the NML during the evening period. 38 receivers predicted to exceed the NML during the night period

- concreting – 8 receivers predicted to exceed the NML during the evening period. 34receivers predicted to exceed the NML during the night period
- line marking – 3 receivers predicted to exceed the NML during the evening period. 15receivers predicted to exceed the NML during the night period.

Milling and demolition present a high risk of impact during the evening and night period, with more than 20 receivers likely to be classed as experiencing moderately or highly intrusive noise. Line marking and concreting present a minimal to low level of impact during the evening and night periods respectively.

A list of receivers predicted to be highly noise affected during milling activities is contained within Table 6-30. Noise contours for the worst-case construction scenario outside standard hours is presented in Figure 6-19.

Table 6-29 Predicted construction noise levels outside standard hours (evening and night-time)

Construction Activity		Predicted no. receivers with exceedance of NML							
		Outside standard hours - eve				Outside standard hours - night			
		0-5	5-15	15-20	25+	0-5	5-15	15-20	25+
11a	Milling	7	11	11	3	28	14	11	12
13a	Demolition	3	9	5	8	10	6	13	9
13b	Concreting	7	1	0	0	13	21	0	0
13c	Line marking	2	1	0	0	8	7	0	0

Table 6-30 Highly noise affected receivers during milling - OOH

Activity	Activity ID	Receiver address	Maximum LAeq,15-minute noise level at receiver
Milling	11a	82 Railway Road, Sydenham	76
		84 Railway Road, Sydenham	75
		103 Railway Road, Sydenham	92
		105 Railway Road, Sydenham	88
		107 Railway Road, Sydenham	81

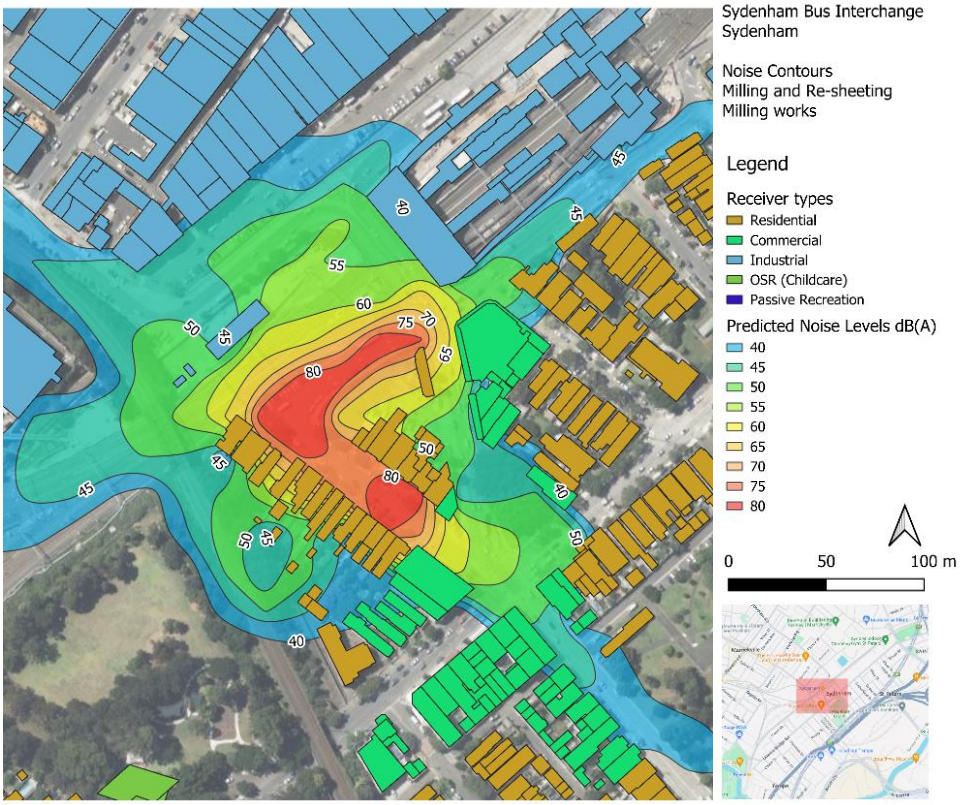


Figure 6-19 Noise contours – OOHW (LAeq) – milling works

Sleep disturbance

The predicted maximum noise levels (L_{Amax}) and exceedances of the sleep disturbance screening and awakening criteria are summarised in Table 6-31. The sleep disturbance screening criteria would be exceeded for all activities proposed during the night at the following number of receivers in Railway Road:

- nine and seven during demolition and concreting respectively
- up to 13 during milling and re-sheeting pavement works
- up to 2 during line marking.

The awakening noise level, >65dBA, would likely be exceeded by up to 15 nearby receivers in Railway Road during milling and demolition.

Noise contours for the worst-case sleep disturbance construction activity is presented in Figure 6-20.

Table 6-31 Predicted sleep disturbance (maximum noise) levels

Activity			Sleep disturbance criteria	
			Screening (RBL + 15)	Awakening (>65 dBA)
Milling and re-sheeting	11a	Milling	13	15
Kerb reshaping (Railway Road / Gleeson Ave)	13a	Demolition	9	14
	13b	Concreting	7	0

Activity			Sleep disturbance criteria	
			Screening (RBL + 15)	Awakening (>65 dBA)
	13c	Line marking	2	0



Figure 6-20 noise Contours - sleep disturbance (LAmax) - milling works

Vibration Assessment

Vibration-intensive works during the project would include the use of the following equipment:

- 18t vibratory rollers during pavement works and re-sheeting
- small piling rig during installation of the noise wall.

To assess the likelihood of impacts on human comfort and structures, reference vibration levels are summarised in Table 6-32. The curves of vibration with distance are presented in Figure 6-21 and Figure 6-22. Reference vibration levels are based on previously measured levels.

Table 6-32 PPV Summary of vibration intensive activities

Construction Activity	Typical equipment	Typical PPV vibration emission levels at 10 m
Pavement works, Re-sheeting	Vibratory roller 18 tonne	4.5 mm/s

Construction Activity	Typical equipment	Typical PPV vibration emission levels at 10 m
Noise wall installation	Piling (bored)	0.2 mm/s

Based on the estimated vibration emission levels of each activity and the following equation for geometric damping (conservatively ignoring material damping), predicted levels of vibration with distance can be established.

$$PPV_2 = PPV_1\left(\frac{R_1}{R_2}\right)^n$$

Where:

PPV – Peak Particle Velocity at the source (PPV1) and Receiver (PPV2)
R – distance from source of reference level (R1) and distance from source of receiver (R2)
n – ground factor assumed as 1.7 for body waves near the ground surface

Risk of impacts on human comfort

Predicted levels of vibration over distance are illustrated in Figure 6-21. The risk of impacts is low for vibratory rolling outside around 35 metres from the source during the day and around 42 metres at night. The risk of impacts is low for piling rig (bored) outside around 6 metres from the source during the day and 7 metres during the night.

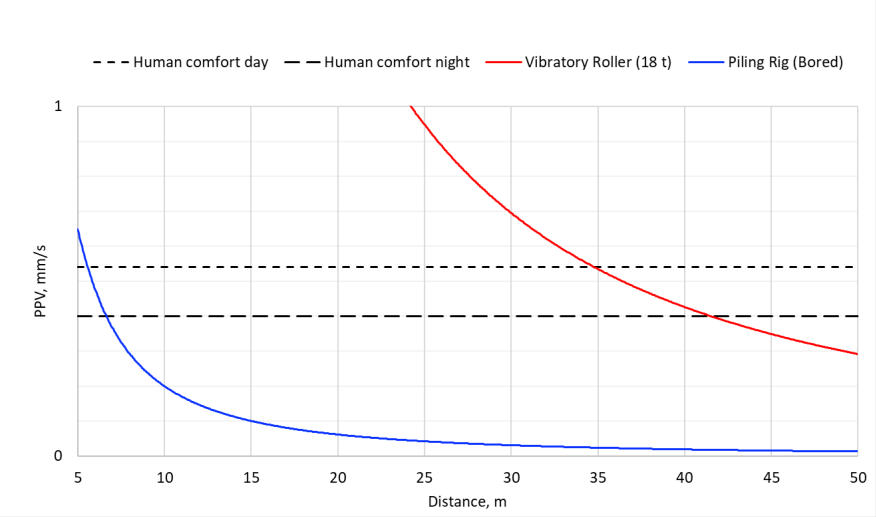


Figure 6-21 Vibration Curves - Human Comfort

Risk of cosmetic damage

Predicted levels of vibration over distance are illustrated in Figure 6-22. Considering the vibration guideline values prescribed in the CNVG, with residential dwellings at 7.5 mm/s, the risk of cosmetic damage is low for rollers outside around 7 to 8 metres from the source. For Heritage dwellings the risk of cosmetic damage is low for rollers outside around 14 metres to the source. No risk of cosmetic damage during use of the piling rig is expected at residential or heritage dwellings.

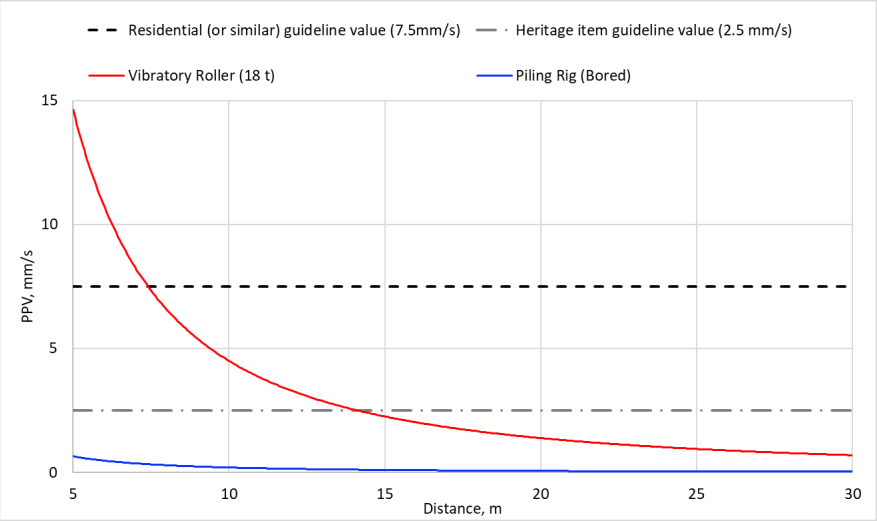


Figure 6-22 Vibration Curves – Cosmetic and Building Damage

Safe working buffers – human comfort and cosmetic damage

Contours depicting predicted safe working distances for human comfort and cosmetic damage are presented in Figure 6-23 to Figure 6-25.

The risk of impacts to human comfort is high for all residential receivers adjacent to the works during the use of the roller.

The risk of impacts to human comfort is high for two (2) residential receivers to the east of the works during the use of the small piling rig for the noise wall installation.

For cosmetic damage, residential receivers along Railway Road directly adjacent to the works may exceed cosmetic damage thresholds during rolling depending on the work location. Where structures are located within the safe work distance work practices would be reviewed and where the vibration screening criteria predictions continue to be exceeded, vibration monitoring would take place. Completion of building condition surveys would also be carried out prior to work commencing.

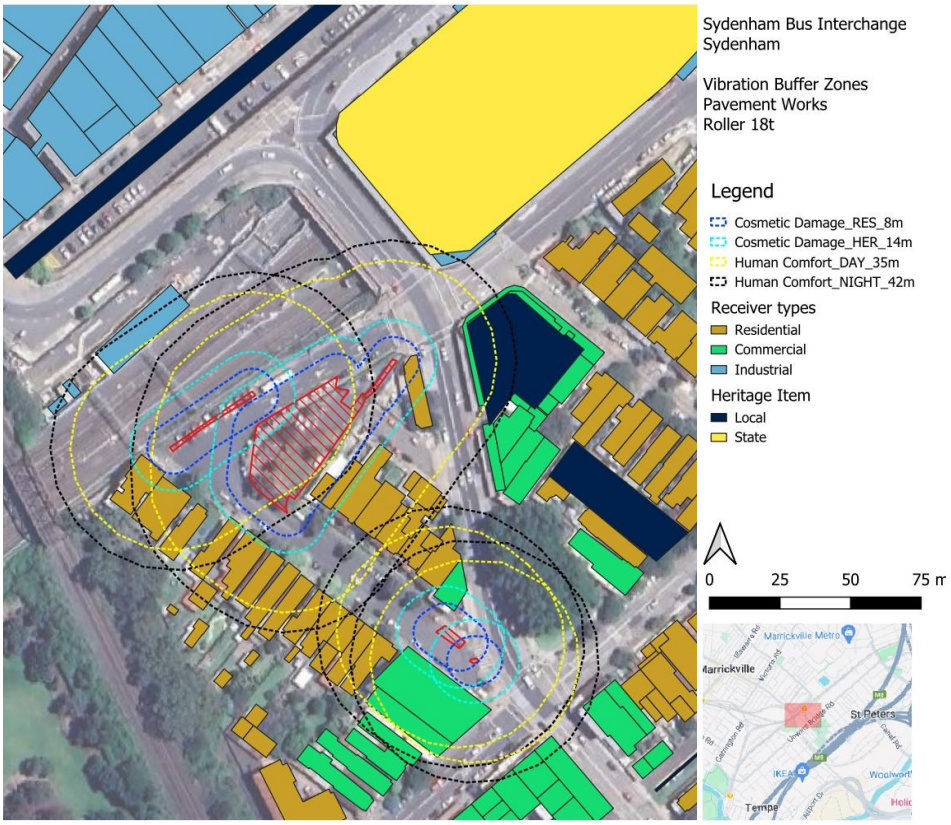


Figure 6-23 Vibration buffer zones – pavement works – roller 18t

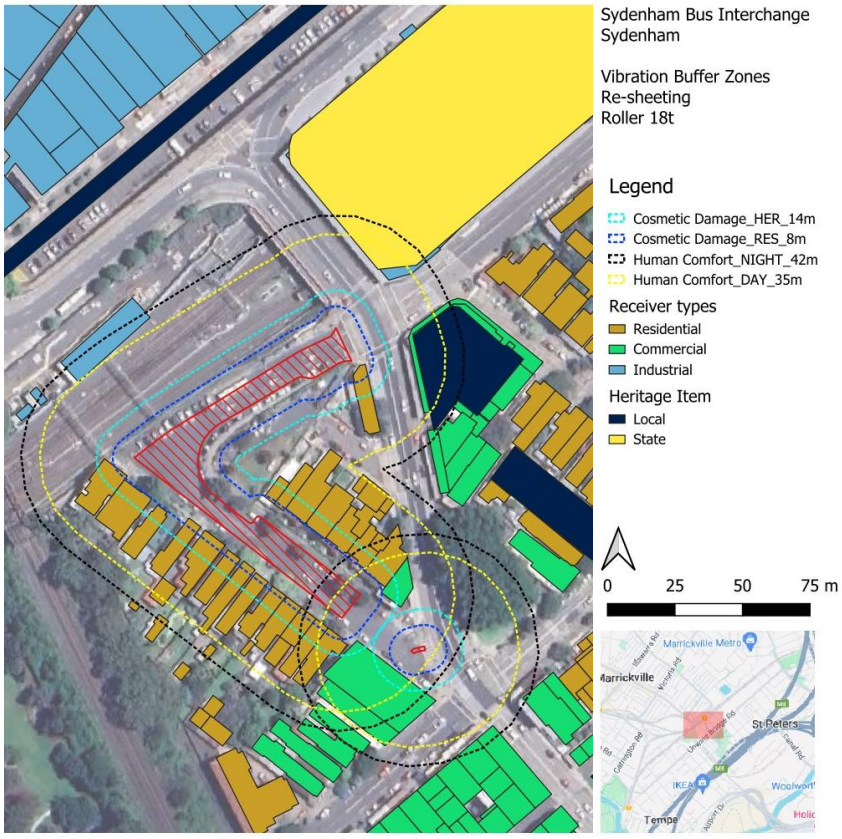


Figure 6-24 Vibration buffer zones – re-sheeting - roller 18t



Figure 6-25 Vibration buffer zones – noise wall installation - small piling rig

Operational

Predicted noise levels

Standard hours

Predicted noise levels and exceedance of the PTNL during standard hours are presented in Table 6-33.

The predicted noise levels comply with the PTNL during standard hours, which demonstrates no noise impacts are expected.

Table 6-33 Predicted Operational Noise Levels – Standard hours

Maximum predicted LAeq,15-minute noise level		Predicted no. receivers with exceedance of the NML (Standard hours)			
Residential	Non-Residential	0-10	10-20	20+	30+
51 dBA	41 dBA	0	0	0	0

Outside standard hours

Predicted noise levels and exceedance of the PTNL outside standard hours are presented in Table 6-34.

The results demonstrate low to moderate impacts are expected during operation of the site outside standard hours at the immediately adjacent receivers to the east and south.

Table 6-34 Predicted Operational Noise Levels – Outside Standard hours

Predicted no. receivers with exceedance of NML

Outside standard hours – evening				Outside standard hours – night			
0-5	5-15	15-20	25+	0-5	5-15	15-20	25+
3	0	0	0	8	4	0	0

Noise contours illustrating the extent of potential noise impacts are presented in Figure 6-27.

At-property treatments and noise barrier mitigation

A review of noise barrier heights was completed in March 2024. The barrier height was determined following assessment of noise barriers ranging from 3.5 metres up to 8 metres (increased incrementally by 0.5 metres). The minimum height of 3.5 metres was chosen as this was the height which started to show a noise reduction benefit. The result demonstrated increased barrier heights above 3.5 metres offer marginal benefit (see Figure 6-26), with mitigation at residential receivers necessary with a higher wall in place. Refer to *Technical Note - Noise Barrier Review – Sydenham Station Bus Layover* for more details.

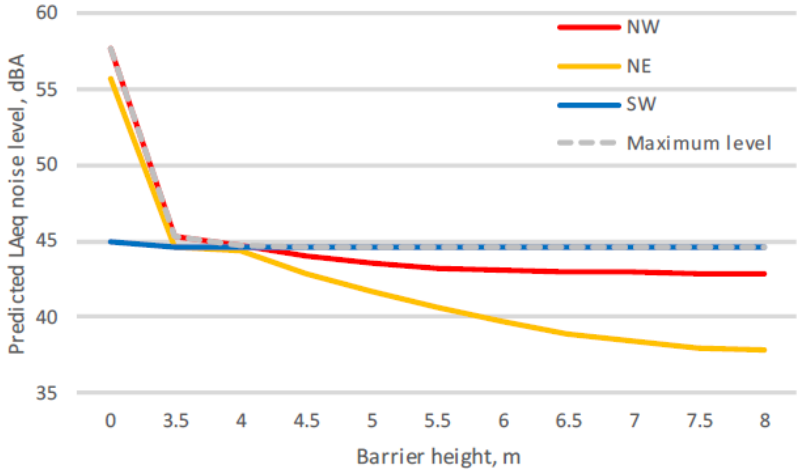


Figure 6-26 Reduction in facade levels (operational noise) at nearest receiver with increased barrier height

Construction of additional barriers is limited by site conditions and placement of access/egress. Therefore, residential receivers to the south of the site would require consideration of at-property acoustic treatments to achieve compliance. This includes but is not limited to improved glazing, door and window seals, and mechanical ventilation. Properties requiring treatment are shown in Figure 6-27 and listed in Table 6-35.

Architectural treatment for these residences would be considered based on Transport's *At-receiver Road Noise Treatment Guideline*.

Table 6-35 Properties requiring consideration of acoustic treatment

Properties requiring at property treatment	
90 Railway Road, Sydenham	102 Railway Road, Sydenham
92 Railway Road, Sydenham	104 Railway Road, Sydenham
94 Railway Road, Sydenham	106 Railway Road, Sydenham
96 Railway Road, Sydenham	111 Railway Road, Sydenham
98 Railway Road, Sydenham	113 Railway Road, Sydenham
100 Railway Road, Sydenham	115 Railway Road, Sydenham

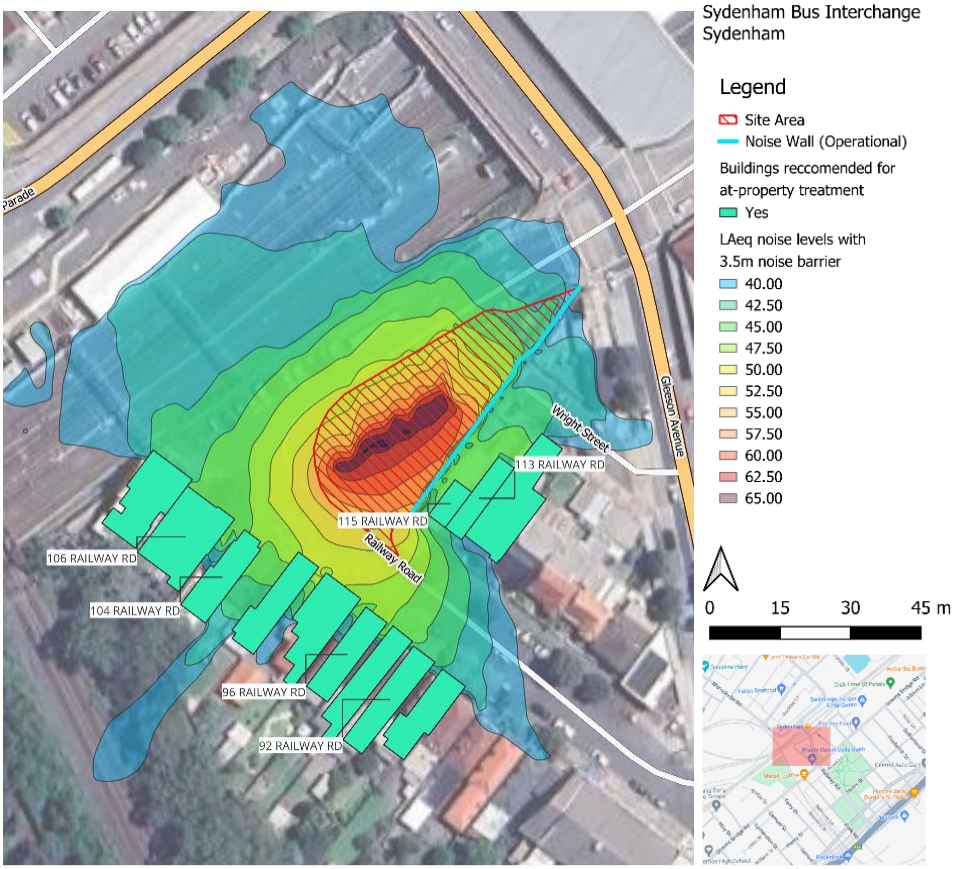


Figure 6-27 Noise contours with 3.5 metres noise barrier and at-property noise treatments

Sleep disturbance

Predicted maximum noise levels (L_{Amax}) and exceedances of the sleep disturbance screening and awakening criteria are summarised in Table 6-36. Sleep disturbance screening criteria would be exceeded at the nearest 12 residential receivers on Railway Road and sleep awakening criteria exceeded at 9 residential receivers even with the noise barrier in place. The L_{Amax} is correlated with acceleration of each bus as it exits the layover and would occur relatively frequently over the operating hours.

Noise contours are presented in Figure 6-28.

Table 6-36 Predicted sleep disturbance (operational)

Maximum predicted LAmax noise level	Sleep disturbance criteria	
Residential	Screening (RBL + 15)	Awakening (>65 dBA)
77	12	9

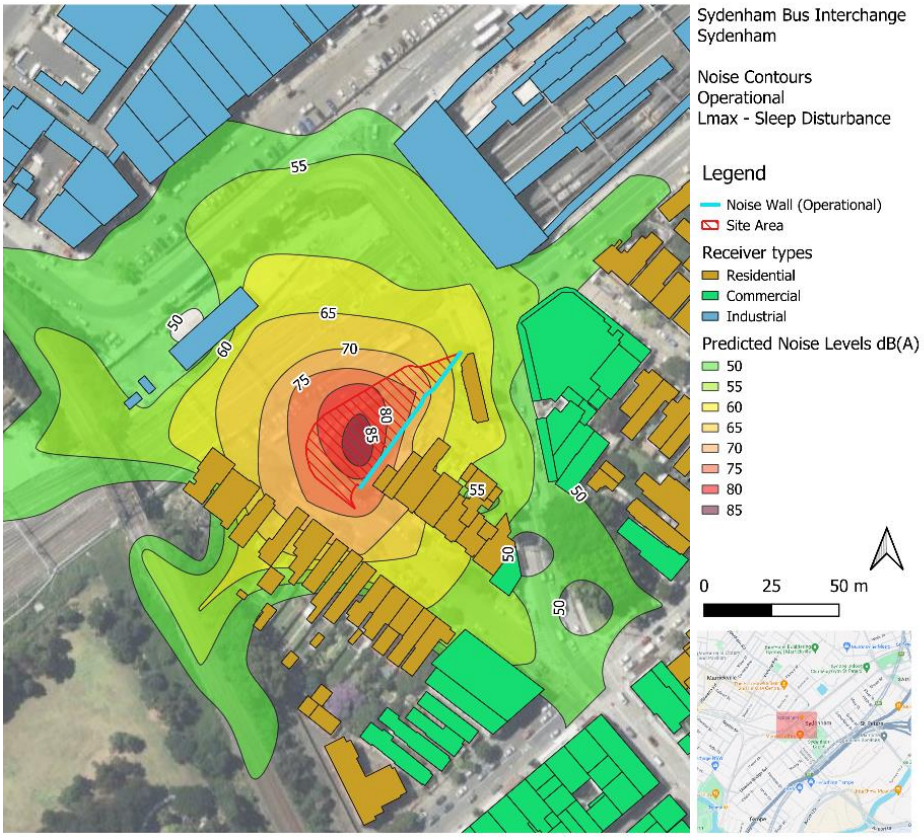


Figure 6-28 Operational noise contours – sleep disturbance (LAmax)

6.4.5 Safeguards and management measures

Table 6-37 Noise and vibration safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Noise and vibration	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in *the Interim Construction Noise Guideline (ICNG) (DECC, 2009*) and identify: • all potential noise and vibration generating activities associated with the activity • feasible and reasonable mitigation measures to be implemented, taking into account *Beyond the Pavement: urban design policy, process and principles* (Transport, 2014). • a monitoring program to assess performance against relevant noise and vibration criteria	Contractor	Detailed design / Pre-construction	Section 4.6 of QA *G36 Environment Protection*

Impact	Environmental safeguards	Responsibility	Timing	Reference
	• arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.			
Noise and vibration	All sensitive receivers (e.g., schools and local residents) likely to be affected will be notified at least 5 business days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • the project • the construction period and construction hours • contact information for project management staff • complaint and incident reporting • how to obtain further information.	Contractor	Detailed design / Pre-construction	Additional measure
Noise and vibration	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • site opening/closing times (including deliveries) • environmental incident procedures.	Contractor	Pre-construction Construction	Additional measure
Noise and vibration	All equipment shall be well maintained, including mufflers and any noise suppression	Contractor	Construction	Additional measure
Noise and vibration	All equipment should not exceed the maximum sound power requirements of Table 13 of the CNVG. Where these maximum sound power levels are exceeded, alternate plant and equipment must be investigated or additional at-source shielding, noise suppression or similar must be used to mitigate the noise impact.	Contractor	Construction	Additional measure
Noise and vibration	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work, including delivery vehicles.	Contractor	Construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
Noise and vibration	Stationary noise sources will be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained. Appendix D of AS 2436:2010 lists materials suitable for shielding.	Contractor	Construction	Additional measure
Noise and vibration	Noisy works (including jackhammering and sawcutting) to be completed by midnight. Temporary noise blankets must be used to shield noisy works during non-standard construction hours.	Contractor	Construction	Additional measure
Noise and vibration	Out of hours works are to be undertaken no more than five nights a week and only between Sunday to Thursday.	Contractor	Construction	Additional measure
Noise and vibration	Construction methods must consider safe working distances for rollers and other vibration producing equipment when working adjacent to structures, including heritage structures.	Contractor	Construction	Additional measure
Noise and vibration	Construction methods must adopt non-vibration producing equipment or plant where safe working distances cannot be achieved, to minimise or prevent vibration impacts on heritage structures.	Contractor	Construction	Additional measure
Noise and vibration	A vibration assessment is to be prepared and included in the NVMP. The vibration assessment is to include (as a minimum): • Identification of potentially affected properties/receivers • A risk assessment to determine the potential for discrete work activities to affect receivers • A map indicating the locations considered likely to be impacted and those requiring building condition surveys • Outline a monitoring program • A process for assessing the performance of the implemented mitigation measures • A process for resolving issues and conflicts	Contractor	Pre-Construction	Additional measure
Noise and vibration	Building condition surveys will be undertaken for buildings within safe working distances.	Contractor	Construction	Additional measure
Noise and vibration	An Out of Hours Works (OOHW) management plan is to be prepared as a part of the CEMP. The plan would include but not be limited to: · • process for preparing Out of Hours Assessments (OOHA) for all works outside normal hours including environmental and community consultation requirements. · • The works that would be undertaken including machinery. ·	Contractor	Construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
	• Conducting a noise assessment for the proposed works / activities in accordance with TfNSW procedures. · • Mitigation measures identified by these assessments are to comply with those specified within the TfNSW Construction Noise and Vibration Guideline - Roads. · • Method for assessing the adequacy of the noise assessment. · • Process for noise monitoring during works.			
Operational noise and vibration	The noise wall should be designed and constructed in accordance with the TfNSW (2023) *Noise Wall Design Guideline* (NWDG) and Transport's R271 Specification – *Design and Construction of Noise Walls*. This includes but is not limited to noise barriers must be continuous with no gaps in the vertical or horizontal plane. The wall height would not be decreased without additional assessment.	Contractor Designer	Detailed design / Pre-construction	Additional measure
Operational noise and vibration	At property treatment will be undertaken as per the requirements of the TfNSW At-receiver Road Noise Treatment Guideline where feasible and reasonable.	TfNSW	Detailed design / Pre-operation	Additional measure
Operational noise and vibration	Noise monitoring following the commencement of operation of the bus layover will be conducted.	TfNSW	Operation	Additional measure
Operational noise and vibration	Buses are to turn off their engine and avoid idling within the layover as much as practicable.	TfNSW	Operation	Additional measure

6.5 Visual impacts

6.5.1 Methodology

The Visual Impact Assessment (VIA) has been undertaken in accordance with Transport for NSW's *Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (Reference number EIA-N04) (Transport for NSW, 2023).

The method to measure impact was based on a combination of the sensitivity of the existing area to change and the magnitude (scale, contrast, quality, distance) of the proposal on that area. The assessment matrix within the guideline was then used to determine the overall impact of the proposal on landscape character and visual impacts in the proposal area. This matrix is contained within Figure 6-29.

Sensitivity	Magnitude: High	Magnitude: Moderate	Magnitude: Low	Magnitude: Negligible
High	High	High-Moderate	Moderate	Negligible
Moderate	High-Moderate	Moderate	Moderate-low	Negligible
Low	Moderate	Moderate-low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Figure 6-29 Visual Impact Assessment Matrix

The sensitivity of an area is determined by the qualities of an area, the number and type of receivers and how sensitive the existing character of the setting is to the proposed nature of change. The design quality of the proposed development does not make the area less sensitive to change but instead affects the magnitude of the impact as described following (TfNSW, 2023).

Magnitude refers to the physical scale of the proposal, how distant it is and the contrast it presents to the existing condition. The magnitude also considers the cumulative impact of other past current and known likely future activity which may cumulatively alter an area.

Visual Impact Assessment Method

The visual impact assessment helps define the day-to-day visual effects of a proposal on representative viewpoints within the proposal area (TfNSW, 2023). Representative viewpoints have been selected based on the visual catchment of the proposal, factoring in topographical features, landmarks, intersections, buildings and other items within the catchment.

The visual impact assessment determines the impact of the proposal by:

- defining an assessment area
- providing contextual information on the existing environment
- delecting representative viewpoints within the visual catchment
- assessing how sensitive the viewpoints are considering the capacity to absorb change, type and number of viewers and length of exposure to that view
- identifying changes to each viewpoint as a result of the proposal
- assessing the magnitude of change

Providing an overall assessment based on the measures of sensitivity and magnitude, as shown in Table 6-39.

Assessment area

Given the scale of the project and surrounding land use types, the study area is comprised of a 300-metre radius surrounding the proposal. This radius has been determined as the proposal area is largely isolated and recessed within its surrounds, bordered by state roads, local roads, major public transport infrastructure and residents. This area was determined through a combination of desktop reviews and site visits.

The bus layover facility would primarily be visible from residences along the western end of Railway Road, with partial views of the proposal experienced from Sydenham Railway Station and nearby roads and footpaths. A summary of those with line of sight or potential visual impacts from the proposal are described below and the viewpoints shown in Figure 6-30:

- southern end of Burrows Avenue (terraced and semi-detached housing)
- western end of Railway Road (terraced and semi-detached housing)
- single residence on Wright Street (house)
- road users, pedestrians and cyclists on Railway Road, Burrows Avenue, Gleeson Avenue and Wright Street
- businesses on Gleeson Avenue opposite Wight Street
- alighting passengers from Sydenham Railway Station and Burrows Avenue bus stop

Residences on the eastern end of Railway Road near Gleeson Avenue are screened from the project by adjoining properties and planted vegetation within the road reserve. The proposal includes the provision of a noise wall along the eastern property boundary of 117 Railway Road, which will protrude above the existing boundary fences. This wall will be visible by several residences on the western end of Railway Road along with certain properties situated east of the wall. The remainder of the bus layover is recessed within the landscape due to the topography, orientation, and height of nearby buildings and vegetation.

6.5.2 Existing environment

The proposal is situated within Sydenham, an area comprising of a mix of land uses including residential, industrial, commercial, recreation, and transport infrastructure. Most of the project site is located within 117 Railway Road, with the remainder within the adjoining road reserve of Railway Road and Burrows Avenue. Sydenham offers a unique landscape and visual setting through the mix of land use types and previous urban renewal within the suburb. The most significant landmark near the project is the Sydenham Railway Station. The station is of State and Local heritage significance and can be dated to the 19th and 20th centuries.

The proposal is largely visually recessed from its surrounds due to the undulating geography and adjacent landmark features. The visual setting is varied within the study area due to the mix of public infrastructure, residential buildings, commercial buildings and streetscapes nearby. A Visual Envelope Map (VEM) has been developed to define the visual catchment of the proposal and the representative viewpoints. The VEM is shown in Figure 6-30.

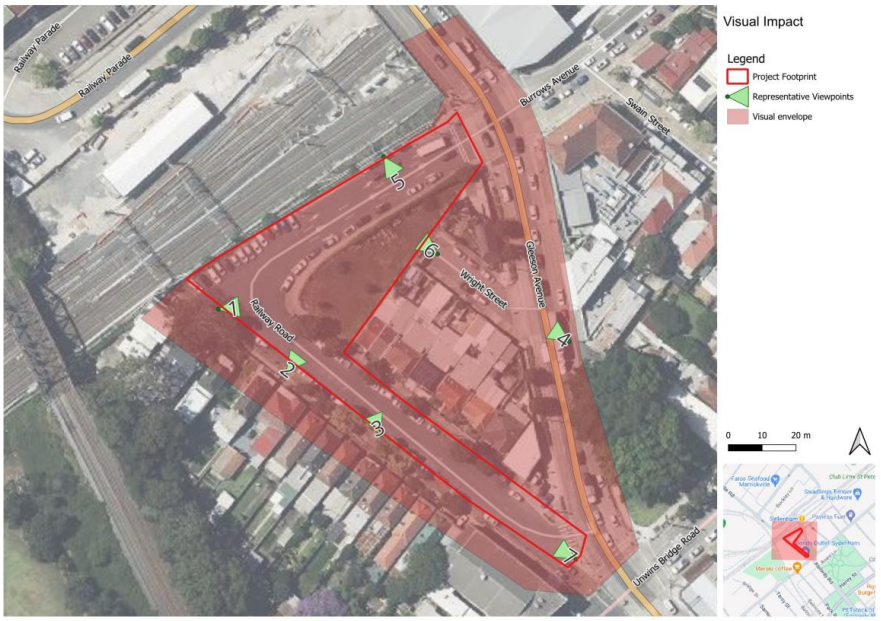
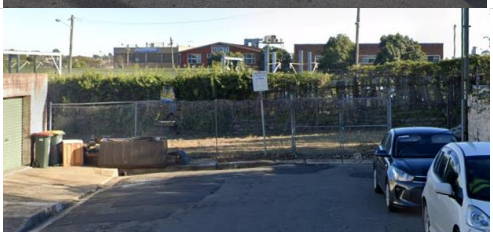


Figure 6-30 Visual Envelope Map

Each viewpoint shown in the VEM is described and given a sensitivity rating in Table 6-38.

Table 6-38 Description of assessed viewpoints.

Viewpoint	Description	Image	Sensitivity of view
1	View looking east from 106 Railway Road toward the proposed layover.		High. This view is representative of the nearby residences. The sensitivity is considered high as viewers would currently experience an area of vegetated greenspace (although it is not publicly accessible). This view would also be seen from primary living spaces in these properties. Current informal bus parking on Railway Road does however reduce the sensitivity when buses are parked.
2	View looking northeast from 100 Railway Road toward the layover entrance.		High. This view is representative of the nearby residences. The sensitivity is considered high as viewers currently experience an area of vegetated greenspace (although it is not publicly accessible). This view would also be seen from primary living spaces in these properties. Current informal bus parking on Railway Road does however reduce the sensitivity when buses are parked.
3	View looking northwest from 90 Railway Road toward the proposal.		Low. This view is transient and representative of road users and pedestrians. Current informal bus parking on Railway Road does however reduce the sensitivity when buses are parked.

Viewpoint	Description	Image	Sensitivity of view
4	View looking northwest from businesses opposite Wright Street toward the proposal.		Low. This view is representative of businesses that would be visually impacted by the proposal. A low sensitivity is given due to the temporary exposure patrons of the business would experience and the distance to the noise wall. Gleeson Avenue is heavily trafficked, and this view would be interrupted by passing vehicles.
5	View looking south east from the Burrows Avenue bus stop.		Moderate. This view is representative of passengers awaiting bus services opposite the proposal area. These receivers would not experience the view for extended periods of time.
6	View looking northwest from Wright Street toward the noise wall.		High. This view is representative of the two residential properties that adjoin 117 Railway Road. 115 Railway Road has multiple windows that face directly onto the proposal area. 5 Wright Street has a window facing the proposal, however, vegetation within their property obscures the view into 117 Railway Road.

Viewpoint	Description	Image	Sensitivity of view
7	View looking west from the corner of Gleeson Avenue and Burrows Avenue.		Low. This view is transient and representative of road users. This viewpoint is subject to similar impacts during existing bus layover operations in the area.

6.5.3 Potential impacts

Construction

Temporary visual impacts as a result of the proposal are expected to road and footpath users, businesses along Burrows Avenue and Railway Road, and to residents living in Railway Road and Burrows Avenue. The visual impacts to these groups are likely to stem from:

- construction plant and equipment
- ancillary facilities and material storage/stockpiling
- temporary safety barriers
- temporary traffic control equipment and signage.

The majority of these impacts would be confined to the construction phase. Following the completion of construction, any visual impacts from plant/equipment, ancillary areas, temporary barriers and traffic control would be removed. The areas used for construction will be restored to an equivalent pre-construction standard.

Longer-term operational impacts such as the removal of trees will occur during site establishment.

Operation

Operational impacts from the proposal are related to the following key design features:

- the removal of the existing trees and vegetation
- the layover with six bus parking spaces
- dedicated drivers' amenity block with a lunchroom and toilets
- a noise wall between eastern residential properties and the layover facility
- conversion of car parking spaces on the northern side of Railway Road from parallel to angled parking.

Visualisations of the proposal, in particular, the noise wall and dedicated drivers amenities block are provided in Figure 3-5 to Figure 3-8.

Operational impacts from the proposal have been assessed and summarised in Table 6-39.

Table 6-39 Visual impact assessment Sydenham bus layover

Viewpoint	Sensitivity	Magnitude	Impact
1	High	Moderate	**High-Moderate**. The removal of vegetation within the proposal area would impact this viewpoint, as shown in Table 6-38. The layover would remove vehicles and buses that

Viewpoint	Sensitivity	Magnitude	Impact
			are informally parking on Railway Road that are currently visible in the foreground to further in the background and on a reduced visual scale once the bus layover becomes operational. The noise wall would be partially visible. The increase in hardstand and asphalt and the presence of the dedicated driver amenities building would also have an impact on the magnitude of the change.
2	High	Moderate	**High-Moderate**. The removal of street trees will impact this viewpoint (see Table 6-38 for visualisation). Buses and vehicles currently parking closer in the foreground would be moved further into the background and result in a reduced visual scale once the bus layover becomes operational. The increase in hardstand and asphalt and the presence of the dedicated driver amenities building would also have an impact on the magnitude of the change.
3	Low	Low	**Low**. The retention of the closest street trees to the viewpoint provides some shielding from the proposal, as shown in the visualisation in Table 6-38. The removal of the two street trees on Railway Road would however reduce the visual density of landscape elements in this viewpoint. The buses currently in the foreground would be moved into the background of the viewpoint once the bus layover becomes operational.
4	Low	Low	**Low**. The proposal would be screened by the noise wall, as shown in the visualisation in Table 6-38. The noise wall from this distance would blend in with the surrounding walls and properties visible.
5	Moderate	Low	**Moderate-Low**. The proposal from this viewpoint would be interrupted by the buses setting down and picking up passengers, as shown in the visualisation in Table 6-38. The dedicated driver amenities building and noise wall would be visible in background. New landscaping and planted trees would be visible to the left hand side of this view. The proposal would generally be a continuation of the existing view experienced from this viewpoint.
6	High	High	**High.** This viewpoint is representative of the properties that adjoin the noise wall. During design, consideration was given to the composition of the wall in relation to overshadowing and visual impact. Transparent acrylic panelling will be used in sections of the wall that are: • above the existing property boundary • alongside any windows • other identified areas to reduce overshadowing impacts on adjoining properties. Whilst overshadowing impacts have been reduced, the current vista will remain heavily modified due to the noise wall and palisade fence that will alter the current visual amenity experienced from these properties and users of Wright St. The visualisation shown in Table 6-38 gives an indication of the vista experienced from these properties looking onto the proposal.

Viewpoint	Sensitivity	Magnitude	Impact
7	Low	Low	**Low.** This viewpoint would be subject to impacts primarily during construction as the kerb and median are realigned. , The visualisation in Table 6-38 shows there is no view of the operational footprint from this location.

6.5.4 Safeguards and management measures

Table 6-40 Landscape character and visual safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Visual impacts	Opportunities to minimise visual impacts from the proposal will be explored during detailed design. These measures may include architectural treatment of the amenities building, landscaping/hardscaping, public artwork, consideration of materiality for noise wall, and replacement planting. Advice from a suitably qualified urban designer, architect and/or landscape designer will be sought to determine these measures.	Contractor	Detailed design / Pre-construction	Additional measure
Visual impacts	Where architectural treatment or artwork is proposed to be painted of the noise wall, relevant stakeholders will be consulted.	Contractor	Detailed design / Pre-construction	Additional measure
Visual impacts	Following the completion of construction works, plant/equipment will be removed, and disturbed areas will be revegetated, turfed or otherwise restored as appropriate.	Contractor	Construction	Additional measure
Visual Impacts	Work sites including all ancillary facilities will be managed to minimise visual impacts including consideration of screening, placement of facilities and storage areas and maintaining sites in a clean state with minimal visual clutter.	Contractor	Pre-construction / Construction	Additional measure
Street trees	Trees will be replaced in accordance with Transport's *Biodiversity Policy*.	Contractor	Construction	Additional measure
Lighting	Temporary site lighting will be shielded and directed away from sensitive receivers.	Contractor	Pre-construction / Construction	Additional measure
Lighting	The design of new street lighting will consider potential light spill impacts on adjacent properties and be designed and operated in accordance with *AS4282:2023 Control of the Obtrusive Effect of Outdoor Lighting*.	Contractor	Detailed design / Pre-construction	Additional measure

6.6 Socio-economic

6.6.1 Methodology

This socio-economic assessment was prepared in accordance with the *Environmental Impact Assessment Practice Note: Socio-economic assessment* (Transport for NSW, 2020). The proposal is anticipated to have some

localised impacts to the communities surrounding the bus layover site and therefore a basic level of socio-economic assessment was carried out.

The assessment:

- identified the characteristics of the surrounding environment through a desktop review of 2021 Census data
- identified the location and type of social infrastructure surrounding the proposal that may be impacted
- identified any nearby businesses that could be affected by the proposal.

6.6.2 Existing environment

Population and demographics

The proposal is located within the suburb of Sydenham which falls within the Inner West Local Government Area (LGA). The Inner West LGA has a population of 182,818 people and a median age of 38 (ABS, 2021). Sydenham is a comparatively small suburb from a population perspective, with 1,100 residents and a median weekly household income (HHI) of $2,245 (ABS, 2021). A summary and comparison of key demographic indicators is contained in Table 6-41.

Table 6-41 Census data for Sydenham and Inner West LGA (source: 2021 Census Quickstats, ABS)

Indicator	Sydenham	Inner West LGA
Population	1,100	182, 218
Gender	Female 47.4% Male 52.6%	Female 51.2% Male 48.8%
Median age	36	38
Travel to work	By car (as driver or passenger) – 26.6% By public transport – 12.9% Worked at home – 39.4%	By car (as driver or passenger) – 22.8% By public transport – 7.0% Worked at home – 52.7%
Income	HHI - $2,245	HHI - $2,340
Employment	Unemployment rate – 4.4% Industry (top) – Cafés and restaurants 4.4%	Unemployment rate – 4.3% Industry (top) – Hospitals 4.5%

Social infrastructure

Social infrastructure near the proposal site includes:

- Sydenham Railway Station
- Sydenham Station bus stops
- Memory Reserve open space

Commercial and business properties

Commercial and business properties near the proposal include:

- General Gordon Hotel
- The Tinhorn Café
- Sydney City Auto Care – Sydenham
- Club Salsa
- Bonds Outlet Sydenham

Figure 6-16 identifies the location of the commercial and industrial properties in the locality.

Residential properties

Residential properties along Railway Road and Burrows Avenue have partial or direct line of sight onto the proposal area. Residential properties to the east of the proposal are immediately adjoin the proposal area.

Figure 6-16 identifies the location of the residential properties in the locality.

6.6.3 Potential impacts

Construction

Construction of the proposal may lead to temporary impacts to nearby residents, businesses and road users. These impacts are expected to be as follows:

- residential properties to the east and south of proposal footprint could be impacted during construction of the project. Two properties immediately adjoin the bus layover, with another approximately 13 residential and commercial properties in the near vicinity of the proposal. Construction may result in noise and vibration, landscape character and visual impact, property and land use, traffic and transport and other impacts (see Sections 6.4, 6.5, 6.3 and 6.7).
- no property acquisition is required of the proposal.
- no changes to population and demography are anticipated as a result of the project. The construction workforce required for the project is insignificant in the broader context of the area and is unlikely to change the demographic of the area in a perceivable manner. The workforce is described in Section 3.3.2.
- direct impacts to businesses are not anticipated to occur. Benefits to local cafes and restaurants during construction are expected from workers purchasing and using these businesses.
- no impacts to any identified social infrastructure have been identified. The bus stop on Burrows Avenue would continue to function during construction of the proposal.
- short-term impacts to access for residential properties may occur. Temporary pedestrian and cycle diversions may be in place periodically during construction to ensure the safety of workers and members of public. Consultation on any changes would occur and suitable alternative access provided where required and if possible.
- parking reduction during construction as a result of the permanent removal of parking along Railway Road and Burrows Avenue and the temporary removal of parking to facilitate the establishment of the ancillary facility along the western side of Burrows Avenue.

Operation

Operation of the proposal may lead to long-term impacts to nearby residents, businesses and road users. These impacts are expected to be as follows:

- residential properties to the east and south of the operational footprint could be impacted during operation of the bus layover. The bus layover may have corresponding noise and vibration and landscape character and visual impacts (see Sections 6.4, 6.5).
- the proposal involves a net reduction in parking within the area. A parking study was completed which concluded that the existing parking stock in the area is sufficient to cope with this loss. Further discussion on this is contained in Section 0.

The proposal is expected to have corresponding socio-economic benefits once operational, including:

- increased serviceability for public transport infrastructure in the area
- improved facilities for bus operators
- safety improvements to road users via a formalised and appropriately designed layover area.

The proposal would incorporate measures to minimise security and public safety risks, including implementation of the principles from Crime Prevention Through Environmental Design. This would include consideration of well-designed and efficiently controlled lighting systems which would contribute to a safe interchange environment. Passive design elements that promote safety would include clear visibility lines and traffic calming measures.

6.6.4 Safeguards and management measures

Table 6-42 Socio-economic safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Socio-economic	A Communication Strategy (CS) will be prepared and implemented to help provide timely and accurate information to the community during construction. The CS will include (as a minimum): • mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • contact name and number for complaints. The CS will be prepared in accordance with Transport requirements and subject to approval by the Senior Manager Community and Stakeholder Engagement.	Contractor	Pre-construction/ Construction	Standard Measure
Access	Access to businesses and residents will be maintained during construction. Where temporary changes to access arrangement are necessary, the contractor will advise owners and tenants and consult with them in advance with regards to alternative access arrangements.	Contractor	Detailed design	Additional measure
Access	Access to bus stops will be maintained during construction. Where changes to access arrangement are necessary, the contractor will advise those impacted.	Contractor	Detailed design	Additional measure

6.7 Other impacts

6.7.1 Existing environment and potential impacts

Table 6-43 Other potential impacts

Environmental factor	Existing environment	Potential impacts
Flooding and hydrology	A review of the Inner West Council Flood Liable Land Map MDCP 2011 shows that the proposal is situated outside areas marked as flood liable.	Flooding impacts as a result of construction or operation are not expected.
Air Quality	The proposal sits within an area comprised of a mix of land uses, including residential, industrial, commercial, recreation, and transport infrastructure. Air quality in the area is primarily influenced by vehicular traffic along nearby state and local roads, along with the operation of the nearby railway and other industrial premises. Air quality within the proposal area is also influenced at a regional scale. Background conditions have been established using data collected by the nearest EPA air quality monitoring site at Earlwood, NSW. The following table shows the annual averages for certain air quality parameters for 2023 compared to the National Environment Protection Measure for Ambient Air criteria. The	**Construction** Air quality impacts from the proposal could occur during the undertaking of certain activities, however, impacts would be minor and short-term. Dust could be generated from a variety of activities including: • Clearing vegetation • Demolition • Earthworks and piling • Stripping, stockpiling and managing topsoil • Pavement works • Transportation and handling of soils and materials

<table>
<tr><th>Environmental factor</th><th>Existing environment</th><th>Potential impacts</th></tr>
<tr><td></td><td>annual averages are all below the respective NEPM criteria.
<table>
<tr><th>Pollutant</th><th>NEPM Criteria (averaging period)</th><th>Annual Average</th></tr>
<tr><td>NO2</td><td>1.5 pphm (annual)</td><td>0.9 pphm</td></tr>
<tr><td>O3</td><td>6.5 pphm (8 hour)</td><td>1.6 pphm</td></tr>
<tr><td>PM10</td><td>25 µg/m3</td><td>15.9 µg/m3</td></tr>
<tr><td>PM2.5</td><td>8 µg/m3</td><td>7.1 µg/m3</td></tr>
</table>
Sensitive receivers for air quality identified include any nearby residences, businesses, users of open space or outdoor areas, and the Sydenham Railway station.</td><td>The total amount of dust would depend on the silt and moisture content in the soil, prevailing weather conditions and the types of activities being carried out.
Depending on wind speed and direction, short-term impacts could be experienced at all nearby sensitive receivers. The mobilisation of dust associated with the proposal is expected to be minor due to the small scale of work and following the implementation of appropriate mitigation measures.
During the application of asphalt and line marking, odours may be generated that impact adjacent areas during the asphalting or other odour generating activities. These impacts will be short term in nature and the overall impact is anticipated to be minor.
Operation
The proposal would not result in substantial changes to traffic volumes or changes to the traffic mix in the locality, nor the amount of buses that currently use these streets informally for a bus layover. The proposal is primarily for short stops and there is the potential for buses to remain idling whilst utilising the layover. As a result, some localised air quality and odour impacts from the generation of exhaust fumes may be experienced. These impacts however are consistent with the impacts generated by the surrounding road network and are therefore not expected to be great.</td></tr>
<tr><td>Waste and resource usage</td><td>The proposal would involve the generation of waste materials during construction and operation, however, these quantities are not expected to be significant. Waste and resource usage during construction is expected to occur during the following activities:
Excavation, piling, trenching
Utility relocation
Pavement construction
Site establishment and vegetation clearing
Other activities required as part of the proposal.
The works would be undertaken in accordance with the resource management principles outlined in the Waste Avoidance and Resource Recovery Act 2001. The following hierarchy would be followed, listed in terms of priority:
Waste generation is to be avoided or reduced.
Where avoidance or reduction is not possible, resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) is to occur.</td><td>The following waste streams have been identified:
Spoil from excavation and other ground disturbance activities
Green waste from vegetation clearing
Waste concrete and asphalt
General construction waste
Recyclable construction waste
General waste from operation
The handling of these waste streams will be done in accordance with the following:
Where waste reuse, recycling or recovery is not possible, waste will be treated and/or disposed of at a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.
All waste generated during construction will be classified in</td></tr>
</table>

Environmental factor	Existing environment	Potential impacts
	• Where waste reuse, recycling or recovery is not possible, waste will be treated and/or disposed of at a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.	accordance with the Waste Classification Guidelines (EPA 2014). • Waste generated offsite will not be received onsite for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the POEO Act, if such a licence is required in relation to that waste.
Aboriginal cultural heritage	An AHIMS basic search was conducted on 14 March 2024 applying a 200-metre radius around the proposal. No Aboriginal heritage sites were identified in this search. A copy of this search is included with Appendix C Community Engagement Report. The proposal area has been subject to previous ground disturbance during both road works and remedial works completed at 117 Railway Road, Sydenham.	**Construction** Activities during construction which involve ground disturbance include excavation, trenching, utility relocation and piling. Despite this, no direct or indirect impacts to items of Aboriginal cultural heritage are expected as a result of the proposal as there were no sites identified during a search of the AHIMS register and the proposal area has undergone significant previous disturbance. In the event unexpected heritage items are identified the safeguards in Section 6.7.2 would be implemented, including the Unexpected Finds Procedure. **Operation** There are no anticipated Aboriginal cultural heritage impacts during operation of the proposed bus layover.
Non-Aboriginal heritage	The method for assessment of Non-Aboriginal heritage impacts included a review of the relevant heritage databases and statutory lists within the study area. This review was completed on 14 March 2024. The study area comprises a 25-metre buffer around the proposed project area. This included a review of the following: • World Heritage List • Commonwealth Heritage List • National Heritage List • NSW State Heritage Register (SHR) • Section 170 Heritage and Conservation Registers for Transport for NSW • Inner West LEP An assessment of the study area confirmed the presence of no listed heritage items within the project area and 2 listed items within the study area. These items are shown in Figure 6-31 and listed in Table 6-44. Two heritage items are located near the proposal area: • The General Gordon Hotel is ~25 metres from the northeastern boundary. • Sydenham Railway Station is ~35 metres from the northeastern boundary.	**Construction** No direct impacts to the identified heritage listed items are anticipated during construction. There is the potential for vibration impacts to the buildings and structures located close to the proposal area, however, the General Gordon Hotel is a commercial premises and the relevant vibration criteria are unlikely to be exceeded as it is located outside of the safe work distance as shown in Figure 6-23 to Figure 6-25. The adoption of the mitigation measures outlined in Table 6-37 would minimise the potential for direct impacts. The existing kerb along both sides of Burrows Avenue is sandstone. Although these sections of kerb are not heritage listed, they may have heritage significance. To mitigate potential impact, the proposal would minimise the amount of sandstone kerb removed during construction and would reuse removed sandstone for new kerbs built by the proposal. Excess sandstone would be salvaged and offered to Inner West Council.

<table>
<tr><th>Environmental factor</th><th>Existing environment</th><th>Potential impacts</th></tr>
<tr>
<td></td>
<td>Table 6-44 Heritage items in study area
<table>
<tr><th>Item</th><th>Suburb</th><th>Significance</th><th>Listing</th></tr>
<tr><td colspan="4">Within project area</td></tr>
<tr><td>Nil</td><td>Nil</td><td>Nil</td><td>Nil</td></tr>
<tr><td colspan="4">Within buffer zone</td></tr>
<tr><td>Sydenham Railway Station Group</td><td>Sydenham</td><td>State</td><td>• SHR (No. 01254)
• Inner West LEP (I1748)</td></tr>
<tr><td>General Gordon Hotel</td><td>Sydenham</td><td>Local</td><td>Marrickville LEP (I290)</td></tr>
</table>
</td>
<td>An existing sandstone retaining wall about 19 metres long is located along the northern boundary of 117 Railway Road. This retaining wall would be demolished as part of the proposal. The wall does not comprise part of a heritage-listed item and is unlikely to have heritage significance based on previous demolition works within the site and studies undertaken as part of the DA process. The proposal would mitigate potential impact by reusing the sandstone within landscaping for the proposal.
Operation
No direct impacts to the identified listed heritage items are anticipated during operation of the proposed project. The inclusion of a noise wall may have some minor visual impact on the vistas from the General Gordon Hotel, however, the noise wall would be congruent with the visual aesthetic of the overall area. These potential impacts are considered negligible.</td>
</tr>
<tr>
<td>Hazards and risk</td>
<td>Existing hazards and risks within the proposal area are primarily associated with the surrounding road network and the interaction between vehicles and other road users. The proposal is not within land zoned as bush fire prone.</td>
<td>Hazards and risks during construction of the proposal could include:
• Working adjacent to trafficable areas
• The use of heavy machinery and equipment
• Working near existing live services such as power lines, water mains and gas mains.
• The use, handling and storage of hazardous materials.
Construction hazards and risks are manageable through the application of standard mitigation measures, which would be developed by the construction contractor prior to construction.
Hazards and risks during operation would primarily be related to the interaction between road users, buses and pedestrians/cyclists. Traffic calming measures or controls to minimise these risks will be finalised during detailed design.</td>
</tr>
</table>

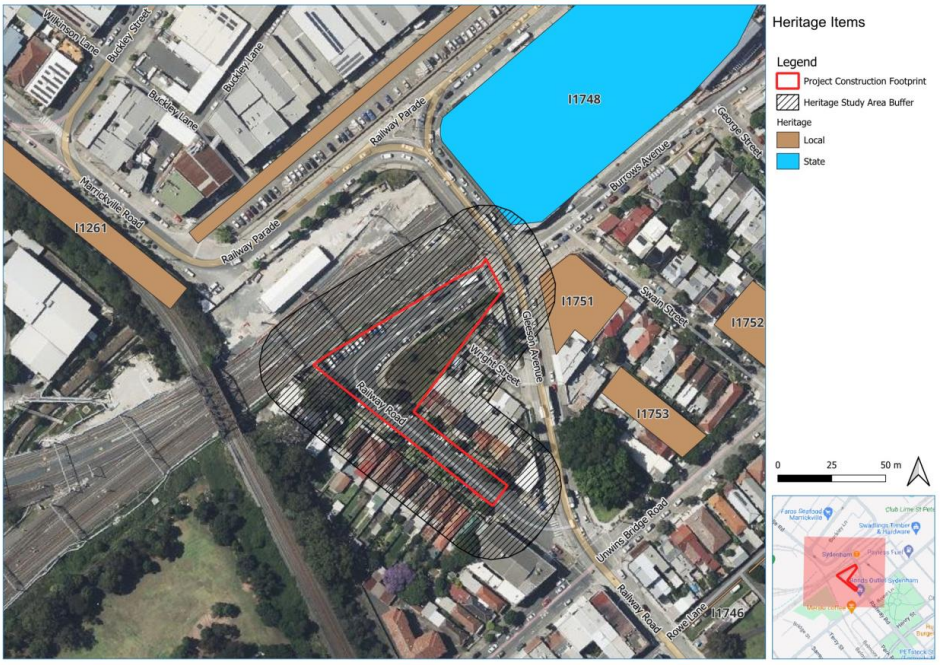


Figure 6-31 Non-Aboriginal heritage search results

6.7.2 Safeguards and management measures

Table 6-45 Other impacts safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Air quality	Air Quality Management measures will be included and implemented as part of the CEMP. The measures will include, but not be limited to: • Potential sources of air pollution. • air quality management objectives consistent with any relevant published EPA and/or Office of Environment and Heritage (OEH) guidelines. • mitigation and suppression measures to be implemented. • methods to manage work during strong winds or other adverse weather conditions. • a progressive rehabilitation strategy for exposed surfaces.	Contractor	Pre-construction	Section 4.4 of *QA G36 Environment Protection*
Waste	Waste Management measures will be included and implemented as part of the CEMP. The waste management measures will include but not be limited to:	Contractor	Pre-construction	Section 4.2 of *QA G36 Environment Protection*

Impact	Environmental safeguards	Responsibility	Timing	Reference
	• measures to avoid and minimise waste associated with the project. • classification of wastes and management options (re-use, recycle, stockpile, disposal). • statutory approvals required for managing on- and off-site waste, or application of any relevant resource recovery exemptions. • procedures for storage, transport and disposal. • monitoring, record keeping and reporting. The measures will align with the *Environmental Procedure - Management of Wastes on Transport for NSW Land* (Transport, 2014) and relevant Transport Waste fact sheets.			
Aboriginal cultural heritage	• The *Standard Management Procedure - Unexpected Heritage Items* (Transport for NSW, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered. • Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction	Section 4.9 of QA *G36 Environment Protection*
Non-Aboriginal heritage	• The *Standard Management Procedure - Unexpected Heritage Items* (Transport for NSW, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered. • Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction	Section 4.9 of QA *G36 Environment Protection*
Non-Aboriginal heritage	Removal of existing sandstone kerb is to be minimised.	Contractor	Construction	Additional measure
Non-Aboriginal heritage	Removed sandstone kerb is to be reused for construction of new kerb.	Contractor	Construction	Additional measure
Non-Aboriginal heritage	Excess sandstone kerb is to be and offered to Inner West Council.	Contractor	Construction	Additional measure
Non-Aboriginal heritage	Sandstone from existing retaining wall to be demolished should be considered for reuse in landscaping.	Contractor	Construction	Additional measure

Impact	Environmental safeguards	Responsibility	Timing	Reference
Hazards and risk management	Hazard and Risk management measures will be included and implemented as part of the CEMP. The CEMP will include, but not be limited to: • details of hazards and risks associated with the activity • measures to be implemented during construction to minimise these risks • record keeping for materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials • contingency measures to be implemented in the event of unexpected hazards, risks arising and emergency situations. The CEMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or OEH publications.	Contractor	Detailed design / Pre-construction	Additional measure
Hazards and risk	If an incident (eg spill) occurs, the TfNSW *Environmental Incident Procedure* is to be followed and the TfNSW Environment Manager notified as soon as practicable.	Contractor	Construction	Additional measure

6.8 Cumulative impacts

6.8.1 Study area

The cumulative impact assessment considered the area surrounding the proposal area to determine the potential for and likelihood of cumulative impacts on the environment.

6.8.2 Other projects and developments

Table 6-46: Past, present and future projects

Project	Construction impacts	Operational impacts
Sydney Metro City & Southwest Sydenham to Bankstown The Sydney Metro Sydenham to Bankstown project would include an upgrade of the T3 Bankstown Line between Sydenham and Bankstown. The work between Sydenham and Bankstown would include upgrading the corridor and stations, with improvements to wayfinding and signage. The closest approved project construction site would be the	The T3 Bankstown Line is being converted to Metro standards between Sydenham and Bankstown with all stations to be fully accessible with lifts and level access between platforms and trains. Construction activities associated with this project are unlikely to have considerable overlap with the bus layover due to the location of the Metro. The conversion works will involve a 12-month shutdown of the T3 Bankstown Line which will	During operation of the Sydenham Bus Layover there may be extended parking loss in the area due to the Metro project replacement buses and the locations of temporary bus layovers associated with the Metro. Car parking in Burrows Avenue and Railway Road that would otherwise have been reinstated following the completion of construction for the proposal may instead be occupied on an ongoing basis

Project	Construction impacts	Operational impacts
Marrickville dive site (southern). The proposed layover would be close to the eastern extent of the Sydenham to Bankstown project.	commence in about Q3 2024 and the proposed layover at 117 Railway Road will not be used for the Metro shutdown. Cumulative parking impacts are expected. Early notifications for the Metro project showed that Metro project's proposed parking removal for the 12 month shutdown would overlap with the areas needed for the construction of the proposal. These spaces are shown in Figure 6-32. Consultation has been undertaken with the project team about this proposal's construction and environmental impacts. Subsequently, the Metro project will not use Railway Road for rail replacement bus zones or layovers as part of this shutdown though the existing bus zone on Burrows Avenue will be temporarily extended once construction of this proposal is complete.	under the Metro project. These impacts may extend for a period of about 12 months, depending on the construction program for the Metro project.
Sydney Metro Chatswood to Sydenham Construction and operation of a metro rail line, approximately 16.5 kilometres long (of which approximately 15.5 kilometres is located in underground rail tunnels) between Chatswood and Sydenham, including the construction of a tunnel under Sydney Harbour, links with the existing rail network, seven metro stations, and associated ancillary infrastructure.	Construction of this project in the Sydenham area has largely finished, with testing and commissioning currently underway and expected to be completed and operations commence inmid-2024.	The bus layover proposal is in part designed to accommodate the additional passenger volumes at Sydenham Station following opening of this stage of the Metro project. No cumulative operational impacts are anticipated.

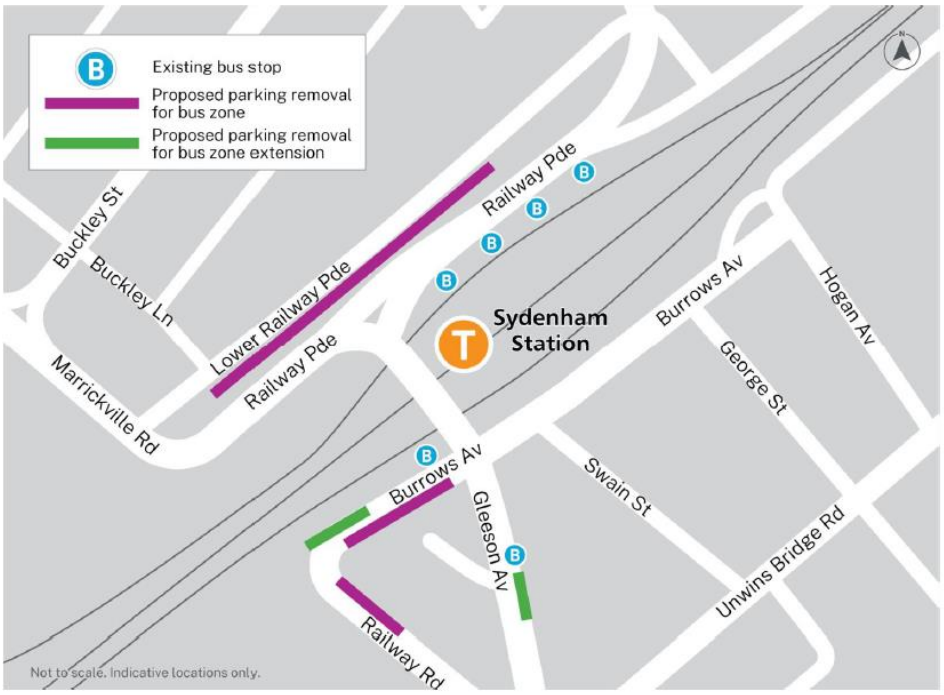


Figure 6-32 Metro Project proposed parking removal areas (note the parking removal for bus zones on Railway Parade and Burrows Ave will not be proceeding subsequent to consultation between this proposal and Metro)

6.8.1 Safeguards and management measures

Table 6-47 Cumulative safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Cumulative impacts	Coordination with other projects will occur where required to ensure any potential cumulative impacts to nearby stakeholders are managed.	Community Manager Project Manager	Construction	Additional measure

7. Environmental management

This chapter describes how the proposal will be managed to reduce potential environmental impacts during detailed design, construction and operation. A framework for managing potential impacts is provided. A summary of site-specific environmental safeguards is provided and the licence and/or approval requirements required prior to construction are listed.

7.1 Environmental management plans (or system)

Safeguards and management measures have been identified in the REF in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these safeguards and management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) will be prepared to describe the safeguards and management measures identified. The CEMP will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by the Transport for NSW Environment and Sustainability Officer prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the: *QA Specification G36 - Environmental Protection (Management System)*, *QA Specification G38 - Soil and Water Management (Soil and Water Plan)*, *QA Specification G40 - Clearing and Grubbing*, *QA Specification G10 - Traffic Management*.

Transport
for NSW

7.2 Summary of safeguards and management measures

Environmental safeguards and management measures outlined in this REF will be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards and management measures will minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 7 1.

Table 7-1: Summary of safeguards and management measures

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
GEN1	General - minimise environmental impacts during construction	A CEMP will be prepared and submitted for review and endorsement of the Transport for NSW Senior Manager Environment and Sustainability prior to commencement of the activity. As a minimum, the CEMP will address the following: • any requirements associated with statutory approvals • details of how the project will implement the identified safeguards outlined in the REF • issue-specific environmental management plans • roles and responsibilities • communication requirements • induction and training requirements • procedures for monitoring and evaluating environmental performance, and for corrective action • reporting requirements and record-keeping • procedures for emergency and incident management • procedures for audit and review. The endorsed CEMP will be implemented during the undertaking of the activity.	Contractor / Transport for NSW project manager	Pre-construction / detailed design	
GEN2	General - notification	All businesses, residential properties and other key stakeholders (eg schools, local councils) affected by the activity will be notified at least five days prior to commencement of the activity.	Contractor	Pre-construction	
GEN3	General - environmental awareness	All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings. Site-specific training will be provided to personnel engaged in activities or areas of higher risk. These include: • management of contaminated soils • adjoining residential areas requiring particular noise and vibration management measures • pedestrian and traffic management around the work zone	Contractor	Pre-construction / Construction	

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BIO1	Biodiversity	Flora and Fauna management measures will be included in the CEMP in accordance with Transport for NSW's *Biodiversity Guidelines: Protecting and Managing Biodiversity on Projects* (RMS, 2011) and implemented as part of the CEMP. It will include, but not be limited to: • plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas. • requirements set out in the *Landscape Guideline* (RMS, 2008). • pre-clearing survey requirements. • procedures for unexpected threatened species finds and fauna handling. • Procedures addressing relevant matters specified in the DPI *Policy and guidelines for fish habitat conservation and management* (2013). • protocols to manage weeds and pathogens.	Contractor	Detailed design / pre-construction	Section 4.8 of QA G36 Environment Protection
BIO2	Removal of native vegetation or threatened flora	Native vegetation removal will be minimised through detailed design.	Contractor	Detailed design	Additional measure
BIO3	Removal of native vegetation or threatened flora	Pre-clearing surveys will be undertaken in accordance with *Guide 1: Pre-clearing process* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	Prior to construction	Additional measure
BIO4	Removal of native vegetation or threatened flora	Vegetation removal will be undertaken in accordance with *Guide 4: Clearing of vegetation and removal of bushrock* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO5	Removal of native vegetation or threatened flora	The unexpected species find procedure is to be followed under *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site.	Contractor	During construction	Additional measure
BIO6	Removal of threatened fauna habitat	Fauna will be managed in accordance with *Guide 9: Fauna handling* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO7	Removal of threatened fauna habitat	Habitat removal will be undertaken in accordance with *Guide 4: Clearing of vegetation and removal of bushrock* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO8	**Injury and mortality of fauna**	Fauna will be managed in accordance with *Guide 9: Fauna* handling of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO9	**Invasion and spread of weeds**	Weed species will be managed in accordance *with Guide 6: Weed management* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO10	Invasion and spread of pests	Pest species will be managed within the proposal site.	Contractor	During construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BIO11	Invasion and spread of pathogens and disease	Pathogens will be managed in accordance with *Guide 2: Exclusion zones* of the *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011).	Contractor	During construction	Additional measure
BIO12	Retained vegetation	Tree protection fencing must be established around trees to be retained in accordance with Australia Standard 4970-2009 - *Protection of trees on development sites*. Existing fencing and site hoarding may be used as tree protection fencing.	Contractor	During construction	Additional measure
BIO13	Tree replacement	Trees will be replaced in accordance with Transport's *Tree and Hollow Replacement Guideline*.	Contractor	During construction	Additional measure
SW1	Soil and water	Soil and water management measures will be included as part of the CEMP in accordance with the requirements of TfNSW contract specification G38 prior to the commencement of construction. The measures will address the following: • Transport for NSW *Code of Practice for Water Management* • *The Blue Book- Managing Urban Stormwater: Soils and Construction, Volume 1 and 2* • Transport for NSW Technical Guideline – Temporary Stormwater Drainage for Road Construction.	Contractor	Detailed design / pre-construction	Section 4.2 of QA *G36 Environment Protection*
SW2	Soil and water	A site-specific Erosion and Sediment Control Plan/s will be prepared and implemented as part of the Soil and Water Management Plan [*delete reference to SWMP if not being prepared and replace with reference to CEMP*]. The Plan will include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.	Contractor	Detailed design / pre-construction	Section 4.2 of QA *G36 Environment Protection*
SW3	Soil and water	All stockpiles would be designed, established, operated and decommissioned in accordance with the Transport for NSW Stockpile Management Procedures.	Contractor	Construction	Additional measure
SW4	Soil and water	Controls would be implemented at construction zones exit points to minimise the tracking of material onto the road.	Contractor	Construction	Additional measure
SW5	Groundwater	Should the final design include exposure to groundwater or dewatering, a groundwater investigation undertaken to assess potential groundwater contamination. Should dewatering be required, a Dewatering Management Plan (DMP) is prepared that outlines monitoring procedures regarding the periodic measurements of estimated groundwater levels, flow and discharge volume, as well as the required measures to minimise risks of contamination, or other interference of the local aquifer system. The DMP will provide management procedures that will ensure any pumped-out groundwater discharged from site will be of an acceptable quality and complies with the requirements of the Protection of the Environment Operations Act 1997 (POEO 1997)	Transport for NSW	Detailed design	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
SW6	Contaminated land	A Detailed Site Investigation (DSI) will be prepared to assess site suitability based on the proposed land use. The investigation should include a groundwater assessment should the proposed construction extent intercept the groundwater table.	Transport for NSW	Detailed design	Additional measure
SW7	Contaminated land	A Remediation Action Plan (RAP) will be prepared to outline the remediation required to make the site suitable for the proposed end use.	Transport for NSW	Construction	Additional measure
SW8	Contaminated land	An Asbestos Management Plan (AMP) will be prepared that outlines the location of asbestos, safe work procedures and control measures, persons responsible, and safety representatives. The AMP will include procedures for the management, reporting and removal of asbestos when found on site. The AMP would be prepared in accordance with relevant EPA and SafeWork NSW guidelines	Contractor	Construction	Additional measure
SW9	Contaminated land	If unexpected contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport for NSW Senior Manager Environment and Sustainability and/or EPA.	Contractor	Detailed design / Pre-construction	Section 4.2 of QA *G36 Environment Protection*
SW10	Accidental spill	A site-specific emergency spill plan will be developed and include spill-management measures in accordance with the Transport *Code of Practice for Water Management* (RTA, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Transport EPA officers).	Contractor	Detailed design / Pre-construction	Section 4.3 of QA *G36 Environment Protection*
TT1	Traffic and transport	Traffic management measures will be included and implemented as part of the CEMP. The traffic management measures will be in accordance with the Transport *Traffic Control at Work Sites Manual* (RTA, 2010) and *QA Specification G10 Control of Traffic* (Transport for NSW, 2008). The measures will include: • confirmation of haulage routes • measures to maintain access to local roads and properties • site-specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads. • a response plan for any construction traffic incident	Contractor	Detailed design / Pre-construction	Section 4.8 of QA *G36 Environment Protection*

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms.			
TT2	Traffic and transport	Requirements for any changes to existing access arrangements shall be confirmed in consultation with the local road authority and any affected landowners.	Transport for NSW	Pre-construction/ Construction	Additional measure
TT3	Traffic and transport	Heavy vehicle traffic generated through construction shall be constrained to the arterial road network to minimise impacts on local roads.	Contractor	Construction	Additional measure
TT4	Traffic and transport	The movement of construction materials (haulage and deliveries) shall be scheduled to minimise the number of haulage and delivery vehicles required during peak periods and weekends.	Contractor	Construction	Additional measure
TT5	Traffic and transport	Property access will be maintained including access to residences and commercial premises. Where property access will be impacted during construction: • property owners will be notified at least five business days prior to the access impact • alternative access will be provided if available • access impacts will be minimised and access will be returned to the property owners as soon as possible	Contractor	Pre-construction/ Construction	Additional measure
N1	Noise and vibration	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in *the Interim Construction Noise Guideline (ICNG) (DECC, 2009*) and identify: • all potential significant noise and vibration generating activities associated with the activity • feasible and reasonable mitigation measures to be implemented, taking into account *Beyond the Pavement: urban design policy, process and principles* (Transport, 2014). • a monitoring program to assess performance against relevant noise and vibration criteria • arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.	Contractor	Detailed design / Pre-construction	Section 4.6 of QA *G36 Environment Protection*
N2	Noise and vibration	All sensitive receivers (e.g., schools and local residents) likely to be affected will be notified at least 5 business days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • the project • the construction period and construction hours	Contractor	Detailed design / Pre-construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• contact information for project management staff • complaint and incident reporting • how to obtain further information.			
N3	Noise and vibration	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • site opening/closing times (including deliveries) • environmental incident procedures.	Contractor	Pre-construction Construction	Additional measure
N4	Noise and vibration	Programming for works undertaken outside approved hours will also consider works being undertaken by third parties	Contractor	Construction	Additional measure
N5	Noise and vibration	All equipment shall be well maintained, including mufflers and any noise suppression	Contractor	Construction	Additional measure
N6	Noise and vibration	All equipment will meet the maximum sound power requirements of Table 13 of the CNVG.	Contractor	Construction	Additional measure
N7	Noise and vibration	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work, including delivery vehicles.	Contractor	Construction	Additional measure
N8	Noise and vibration	Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained. Appendix D of AS 2436:2010 lists materials suitable for shielding.	Contractor	Construction	Additional measure
N9	Noise and vibration	Noisy works (including jackhammering and sawcutting) to be completed by midnight.	Contractor	Construction	Additional measure
N10	Noise and vibration	Out of hours works are to be undertaken no more than five nights a week and only between Sunday to Thursday.	Contractor	Construction	Additional measure
N11	Noise and vibration	Construction methods must consider safe working distances for rollers and other vibration producing equipment when working adjacent to structures, including heritage structures.	Contractor	Construction	Additional measure
N12	Noise and vibration	Construction methods must adopt non-vibration producing equipment or plant where safe working distances cannot be achieved, to minimise or prevent vibration impacts on heritage structures.	Contractor	Construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
N13	Noise and vibration	A vibration assessment is to be prepared and included in the NVMP. The vibration assessment is to include (as a minimum): • Identification of potentially affected properties/receivers • A risk assessment to determine the potential for discrete work activities to affect receivers • A map indicating the locations considered likely to be impacted and those requiring building condition surveys • Outline a monitoring program • A process for assessing the performance of the implemented mitigation measures • A process for resolving issues and conflicts	Contractor	Pre-Construction	Additional measure
N14	Noise and vibration	Building condition surveys will be undertaken for buildings within safe working distances.	Contractor	Construction	Additional measure
N15	Noise and vibration	An Out of Hours Works (OOHW) management plan is to be prepared as a part of the CEMP. The plan would include but not be limited to: · • process for preparing Out of Hours Assessments (OOHA) for all works outside normal hours including environmental and community requirements. · • The works that would be undertaken including machinery. · • Conducting a noise assessment for the proposed works / activities in accordance with TfNSW procedures. · • Mitigation measures identified by these assessments are to comply with those specified within the TfNSW Construction Noise and Vibration Guideline - Roads. · • Method for assessing the adequacy of the noise assessment. · • Process for noise monitoring during works.	Contractor	Construction	Additional measure
ON1	Operational noise and vibration	The noise wall should be designed and constructed in accordance with the TfNSW (2023) *Noise Wall Design Guideline* (NWDG). This includes but is not limited to noise barriers must be continuous with no gaps in the vertical or horizontal plane. The wall height would not be decreased without additional assessment.	Contractor Designer	Detailed design / Pre-construction	Additional measure
ON2	Operational noise and vibration	At property treatment will be undertaken as per the requirements of the TfNSW At-receiver Road Noise Treatment Guideline where feasible and reasonable.	TfNSW	Detailed design / Pre-operation	Additional measure
ON3	Operational noise and vibration	Noise monitoring following the commencement of operation of the bus layover will be conducted.	TfNSW	Operation	Additional measure
ON4	Operational noise and vibration	Buses are to turn off their engine and avoid idling within the layover as much as practicable.	TfNSW	Operation	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
VI1	Visual impacts	Opportunities to minimise visual impacts from the proposal will be explored during detailed design. These measures may include architectural treatment of the amenities building, landscaping/hardscaping, public artwork, consideration of materiality for noise wall, and replacement planting. Advice from a suitably qualified urban designer, architect and/or landscape designer will be sought to determine these measures.	Contractor	Detailed design / Pre-construction	Additional measure
VI2	Visual impacts	Relevant stakeholders must be consulted regarding proposed noise wall architectural treatments, including artworks.	Contractor	Detailed design / Pre-construction	Additional measure
VI3	Visual impacts	Following the completion of construction works, plant/equipment will be removed, and disturbed areas will be revegetated, turfed or otherwise restored as appropriate.	Contractor	Construction	Additional measure
VI4	Visual Impacts	Work sites including all ancillary facilities will be managed to minimise visual impacts including consideration of screening, placement of facilities and storage areas and maintaining sites in a clean state with minimal visual clutter.	Contractor	Pre-construction / Construction	Additional measure
VI5	Street trees	Trees will be replaced in accordance with Transport's *Biodiversity Policy*.	Contractor	Construction	Additional measure
VI6	Lighting	Temporary site lighting will be shielded and directed away from sensitive receivers.	Contractor	Pre-construction / Construction	Additional measure
VI7	Lighting	The design of new street lighting will consider potential light spill impacts on adjacent properties and be designed and operated in accordance with *AS4282:2023 Control of the Obtrusive Effect of Outdoor Lighting*.	Contractor	Detailed design / Pre-construction	Additional measure
SE1	Socio-economic	A Communication Strategy (CS) will be prepared and implemented to help provide timely and accurate information to the community during construction. The CS will include (as a minimum): • mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • contact name and number for complaints. The CS will be prepared in accordance with Transport requirements and subject to approval by the Senior Manager Community and Stakeholder Engagement.	Contractor	Pre-construction / Construction	Standard Measure
SE2	Access	Access to businesses and residents will be maintained during construction. Where temporary changes to access arrangement are necessary, the contractor will advise owners and tenants and consult with them in advance with regards to alternative access arrangements.	Contractor	Detailed design	Additional measure
SE3	Access	Access to bus stops will be maintained during construction. Where changes to access arrangement are necessary, the contractor will advise those impacted.	Contractor	Detailed design	Additional measure
AQ1	Air quality	Air Quality Management measures will be included and implemented as part of the CEMP. The measures will include, but not be limited to: • Potential sources of air pollution.	Contractor	Pre-construction	Section 4.4 of *QA G36*

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• air quality management objectives consistent with any relevant published EPA and/or Office of Environment and Heritage (OEH) guidelines. • mitigation and suppression measures to be implemented. • methods to manage work during strong winds or other adverse weather conditions. • a progressive rehabilitation strategy for exposed surfaces.			*Environment Protection*
WA1	Waste	Waste Management measures will be included and implemented as part of the CEMP. The waste management measures will include but not be limited to: • measures to avoid and minimise waste associated with the project. • classification of wastes and management options (re-use, recycle, stockpile, disposal). • statutory approvals required for managing on- and off-site waste, or application of any relevant resource recovery exemptions. • procedures for storage, transport and disposal. • monitoring, record keeping and reporting. The measures will align with the *Environmental Procedure - Management of Wastes on Transport for NSW Land* (Transport, 2014) and relevant Transport Waste fact sheets.	Contractor	Pre-construction	Section 4.2 of *QA G36 Environment Protection*
ACH1	Aboriginal cultural heritage	• The *Standard Management Procedure - Unexpected Heritage Items* (Transport for NSW, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered. • Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction	Section 4.9 of QA *G36 Environment Protection*
NAH1	Non-Aboriginal heritage	• The *Standard Management Procedure - Unexpected Heritage Items* (Transport for NSW, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered. • Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction	Section 4.9 of QA *G36 Environment Protection*
NAH2	Non-Aboriginal heritage	Removal of existing sandstone kerb is to be minimised.	Contractor	Construction	Additional measure
NAH3	Non-Aboriginal heritage	Removed sandstone kerb is to be reused for construction of new kerb.	Contractor	Construction	Additional measure
NAH4	Non-Aboriginal heritage	Excess sandstone kerb is to be and offered to Inner West Council.	Contractor	Construction	Additional measure
NAH5	Non-Aboriginal heritage	Sandstone from existing retaining wall to be demolished should be considered for reuse in landscaping.	Contractor	Construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
HZ1	Hazards and risk management	Hazard and Risk management measures will be included and implemented as part of the CEMP. The CEMP will include, but not be limited to: • details of hazards and risks associated with the activity • measures to be implemented during construction to minimise these risks • record keeping for materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials • contingency measures to be implemented in the event of unexpected hazards, risks arising and emergency situations. The CEMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or OEH publications.	Contractor	Detailed design / Pre-construction	Additional measure
HZ2	Hazards and risk	If an incident (eg spill) occurs, the TfNSW *Environmental Incident Classification and Reporting Procedure* is to be followed and the TfNSW Environment Manager notified as soon as practicable.	Contractor	Construction	Additional measure
CI1	Cumulative impacts	Coordination with other projects will occur where required to ensure any potential cumulative impacts to nearby stakeholders are managed.	Community Manager Project Manager	Construction	Additional measure

7.3 Licensing and approvals

Table 7-2 provides a summary of the licensing and approval requirements relevant to the proposal.

Table 7-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
Roads Act 1993 (s138)	Road occupancy licence	Prior to start of the activity.

8. Conclusion

This chapter provides the justification for the proposal taking into account its biophysical, social and economic impacts, the suitability of the site and whether or not the proposal is in the public interest. The proposal is also considered in the context of the objectives of the EP&A Act, including the principles of ecologically sustainable development as defined in Section 193 of the Environmental Planning and Assessment Regulation 2021.

8.1 Justification

The proposal is consistent with several government strategic plans including the *Future Transport Strategy, the Greater Sydney Services and Infrastructure Plan, South East Sydney Transport Strategy*, and the *Bus Priority Infrastructure Program*. The proposal has been developed to:

- reduce buses idling and circling on streets between services
- improve bus on time running and reliability
- improve safety and connectivity for pedestrians, commuters and drivers
- provide a dedicated driver's facility for bus operators.

The proposal would result in several environmental impacts which have been assessed and identified in this REF including, traffic and transport, soils and contamination, noise and vibration and visual impacts. The implementation of the safeguards and management measures within this REF would mitigate these impacts and ensure the benefits of the project outweigh any adverse impacts.

8.1.1 Social factors

The potential socio-economic impacts of the proposal have been assessed in Section 6.6. Potential impacts on social factors include:

- noise and vibration and landscape character and visual impacts (see Sections 6.4, 6.5).
- the proposed net loss of parking within the area. A parking study was completed which concluded that the existing parking stock in the area is sufficient to cope with this loss. Further discussion on this is contained in Section 6.3.

The proposal is expected to have corresponding socio-economic benefits once operational, including:

- increased serviceability for public transport infrastructure in the area
- improved facilities for bus operators
- safety improvements to road users via a formalised and appropriately designed layover area.

8.1.2 Biophysical factors

The potential environmental impacts of the proposal are assessed in Chapter 6. The proposal is expected to have a minor biophysical impact due to the removal of six non-remnant native trees. Temporary impacts to amenity would occur during construction including noise and vibration, visual impacts and air quality. These impacts would not be significant and are manageable through application of the environment management measures and safeguards summarised in Chapter 7.

8.1.3 Economic factors

The potential socio-economic impacts of the proposal have been assessed in Section 6.6. Potential impacts on economic factors include:

- the proposed net loss of parking within the area. A parking study was completed which concluded that the existing parking stock in the area is sufficient to cope with this loss. Further discussion on this is contained in Section 6.3.

The proposal is expected to have corresponding socio-economic benefits once operational, including:

- increased serviceability for public transport infrastructure in the area

- improved facilities for bus operators
- safety improvements to road users via a formalised and appropriately designed layover area.

8.1.4 Public interest

The proposal benefits include:

- reduced buses idling and circling on streets between services
- improved bus on time running and reliability
- improved safety and connectivity for pedestrians, commuters and drivers
- a facility for drivers' rest, ablutions and meals.

Overall the impacts are considered justified compared to the benefits. Therefore, the proposal is considered to be in the public interest.

8.2 Objects of the EP&A Act

A review of the proposal against the objectives of the EP&A Act is contained in Table 8-1.

Table 8-1 Objects of the Environmental Planning and Assessment Act 1979

Instrument	Requirement
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposal would improve the provision and efficiency of public transport. Environmental impacts have been assessed and minimised.
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	The principles of ESD are considered in Section 8.1.
1.3(c) To promote the orderly and economic use and development of land.	The proposal is consistent with strategic plans for growth within the economic corridor.
1.3(d) To promote the delivery and maintenance of affordable housing.	Not relevant to the project.
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	There would be environmental impacts as a result of the proposal however no significant impacts to threatened native flora and fauna are anticipated.
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	Impacts on Aboriginal and non-aboriginal heritage are assessed in Section 6.7. No impacts to heritage are anticipated.
1.3(g) To promote good design and amenity of the built environment.	The proposal would remove buses from the roadway that currently use Burrows Avenue and Railway Road as a layover. Urban design and amenity is considered in Section 6.5.
1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	The dedicated driver amenities building will be built in accordance with the relevant standards and building codes.
1.3(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.	Not relevant to the project.

Instrument	Requirement
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	Consultation on the proposal has been undertaken and summarised in Chapter 5.

8.2.1 Ecologically sustainable development

Ecologically sustainable development (ESD) is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. The principles of ESD have been an integral consideration throughout the development of the project.

ESD requires the effective integration of economic and environmental considerations in decision-making processes. The four main principles supporting the achievement of ESD are discussed below.

The precautionary principle

The precautionary principle deals with reconciling scientific uncertainty about environmental impacts with certainty in decision-making. It provides that where there is a threat of serious or irreversible environmental damage, the absence of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation.

This principle was considered during route options development (refer to Chapter 2). The precautionary principle has guided the assessment of environmental impacts for this REF and the development of mitigation measures.

The following are examples statements only:

- Issues that may cause serious or irreversible environmental damage as a result of the proposed project and where there is scientific uncertainty as to the nature of the damage have been identified.
- The best-available technical information, environmental standards and measures have been used to minimise environmental risks.
- Preferred route alignment that minimises vegetation clearance, with particular consideration of sensitive areas, was selected.
- Preferred route alignment to avoid or minimise potential damage to known items or areas of cultural significance was selected.
- Route alignment that minimises potential impacts on existing residential properties and other existing land uses, while also taking into consideration potential impacts on proposed future land use, was selected.
- Conservative ‘worst case’ scenarios were considered while assessing environmental impact.
- Specialist studies were incorporated to gain a detailed understanding of the existing environment.

Intergenerational equity

Social equity is concerned with the distribution of economic, social and environmental costs and benefits. Inter-generational equity introduces a temporal element with a focus on minimising the distribution of costs to future generations.

Benefits that the project provides to current and future generations of local communities and the surrounding region, that would maintain or enhance the health, diversity and productivity of the environment, were identified. These include:

- Improved safety for pedestrians, cyclists and road users
- Improved efficiency and provision of public transport infrastructure.

Conservation of biological diversity and ecological integrity

The design of the proposal was chosen to minimise the impact on vegetation. Where this was not possible, measures have been included for compensatory planting. The proposal is not expected to have significant impacts on biological diversity or ecological integrity.

Improved valuation, pricing and incentive mechanisms

The principle of internalising environmental costs into decision making requires consideration of all environmental resources that may be affected by the carrying out of a project, including air, water, land and living things.

The assessment undertaken for the proposal included the following:

- environmental issues were considered as key matters in the route selection process and in the economic and financial feasibility assessments for the project
- the value of the project to the community in terms of improved safety was recognised
- mitigation measures for the avoidance, reuse, recycling and management of waste during construction and operation are to be implemented.

8.3 Conclusion

The proposed bus layover at Sydenham is subject to assessment under Division 5.1 of the EP&A Act. The REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration impacts on threatened species and ecological communities and their habitats, and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the EPBC Act.

A number of potential environmental impacts from the proposal have been avoided or reduced during the concept design development and options assessment. The proposal, as described in the REF, best meets the project objectives but would still result in some impacts on traffic and transport, noise and vibration and visual amenity. Safeguards and management measures as detailed in this REF would ameliorate or minimise these expected impacts. The proposal would also reduce safety concerns over the current use of the area as a bus layover and improve the efficiency and provision of bus services in the area. On balance, the proposal is considered justified and the following conclusions are made.

Significance of impact under NSW legislation

The proposal would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an environmental impact statement to be prepared nor approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposal is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

Significance of impact under Australian legislation

The proposal is not likely to have a significant impact on matters of national environmental significance nor the environment of Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). A referral to the Australian Department of Climate Change, Energy, the Environment and Water is not required.

10. EP&A Regulation publication requirement

Table 10-1 EP&A Regulation publication requirement

Requirement	Yes/No
Does this REF need to be published under section 171(4) of the EP&A Regulation?	Yes

11. References

Department of Environment and Climate Change. (2009). *Interim Construction Noise Guideline*. Sydney: Department of Environment and Climate Change.

Environment Protection Authority. (2017). *Noise Policy for Industry*. Sydney: Environment Protection Authority.

Greater Sydney Commission. (2018). *Greater Sydney Regional Plan - A Metropolis of Three Cities*. Sydney: Greater Sydney Commission

Transport for NSW. (2018). *Construction Noise and Vibration Strategy*. Sydney: Transport for NSW.

Transport for NSW. (2022). *Future Transport Strategy*. Sydney: Transport for NSW.

Transport for NSW. (2020). *Environmental Impact Assessment Practice Note: Guidelines for Landscape Character and Visual Impact Assessment*. Sydney: Roads and Maritime Services.

Transport for NSW. (2020). *Environmental Impact Assessment Practice Note: Socio-economic assessment*. Sydney: Transport for NSW.

Transport for NSW. (2024). *Community Engagement Report – Sydenham Bus Layover.* Sydney: Transport for NSW.

Terms and acronyms used in this REF

Table 11-1 Terms and acronyms used in this REF

Term / Acronym	Description
AusLink	Mechanism to facilitate cooperative transport planning and funding by Commonwealth and state and territory jurisdictions
BC Act	*Biodiversity Conservation Act 2016 (NSW)*
CEMP	Construction environmental management plan
EIA	Environmental impact assessment
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW).* Provides the legislative framework for land use planning and development assessment in NSW
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).* Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	*Fisheries Management Act 1994 (NSW)*
Heritage Act	*Heritage Act 1977 (NSW)*
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
LoS	Level of Service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers
MNES	Matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
NPW Act	*National Parks and Wildlife Act 1974 (NSW)*
OEH	Office of Environment and Heritage within the Department of Planning and Environment.
PEA Act	*Protection of the Environment Administration Act 1991.*
QA Specifications	Specifications developed by Transport for use with road work and bridge work contracts let by Transport.
RMS	NSW Roads and Maritime Services, now Transport for NSW
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SEPP (Biodiversity and Conservation)	State Environmental Planning Policy (Biodiversity and Conservation) 2021
SEPP (Planning Systems)	State Environmental Planning Policy (Planning Systems) 2021
SEPP (Precincts – Central River City)	State Environmental Planning Policy (Precincts – Central River City) 2021
SEPP (Precincts – Eastern Harbour City)	State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
SEPP (Precincts – Regional)	State Environmental Planning Policy (Precincts – Regional) 2021
SEPP (Resilience and Hazards)	State Environmental Planning Policy (Resilience and Hazards) 2021

Transport for NSW

SEPP (Transport and Infrastructure)	State Environmental Planning Policy (Transport and Infrastructure) 2021
Transport	Transport for NSW

Transport
for NSW

Appendix A - Consideration of section 171 factors and matters of national environmental significance and Commonwealth land

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Appendix B - Statutory consultation checklists

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Appendix C – Community engagement report

Appendix D – AHIMS search results

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Appendix E – Construction plant and equipment and detailed noise predictions

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Appendix F – Operational noise detailed predictions

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Appendix G – Parking impact assessment

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Appendix H – Biodiversity assessment report

Appendix I – Preliminary site investigation

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Appendix J – PACHCI assessment

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NSW GOVERNMENT

Transport for NSW

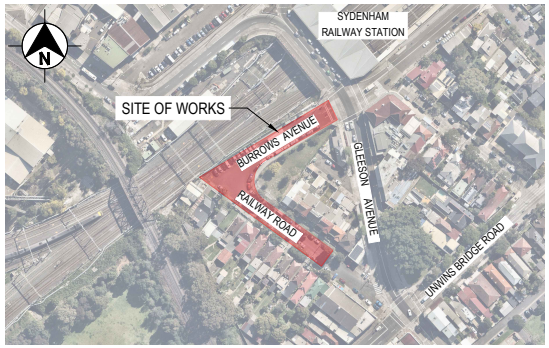
INNER WEST COUNCIL
SYDNEY ROAD ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
ISSUED FOR CONSTRUCTION

DRAWING LIST (ENGINEERING DRAWING)	
DRAWING NUMBER	DRAWING DESCRIPTION
520212-AURC-038-RW-DRG-000001	COVER SHEET AND DRAWING INDEX
520212-AURC-038-RW-DRG-000002	GENERAL NOTES
520212-AURC-038-ST-DRG-000003	STRUCTURAL GENERAL NOTES - SHEET 1
520212-AURC-038-ST-DRG-000004	STRUCTURAL GENERAL NOTES - SHEET 2
520212-AURC-038-ST-DRG-000005	STRUCTURAL GENERAL NOTES - SHEET 3
520212-AURC-038-ST-DRG-000006	STRUCTURAL GENERAL NOTES - SHEET 4
520212-AURC-038-ST-DRG-000007	DRAINAGE GENERAL NOTES
520212-AURC-038-RW-DRG-001001	GENERAL ARRANGEMENT PLAN
520212-AURC-038-RW-DRG-001011	AMENITIES BUILDING PLAN
520212-AURC-038-RW-DRG-002001	SIGN AND LINEMARKING PLAN
520212-AURC-038-RW-DRG-003001	PAVEMENT DETAILS
520212-AURC-038-RW-DRG-003002	PAVEMENT INTERFACE DETAIL
520212-AURC-038-RW-DRG-003003	PAVEMENT EDGE DETAIL - SHEET 1
520212-AURC-038-RW-DRG-003004	PAVEMENT EDGE DETAIL - SHEET 2
520212-AURC-038-RW-DRG-003101	PAVEMENT PLAN
520212-AURC-038-RW-DRG-003201	JOINTING PLAN - SHEET 1
520212-AURC-038-RW-DRG-003202	JOINTING PLAN - SHEET 2
520212-AURC-038-RW-DRG-003203	JOINTING DETAILS - SHEET 1
520212-AURC-038-RW-DRG-003204	JOINTING DETAILS - SHEET 2
520212-AURC-038-RW-DRG-004001	LONGITUDINAL SECTIONS - SHEET 1
520212-AURC-038-RW-DRG-004002	LONGITUDINAL SECTIONS - SHEET 2
520212-AURC-038-RW-DRG-004003	TYPICAL CROSS SECTIONS - SHEET 1
520212-AURC-038-RW-DRG-004004	TYPICAL CROSS SECTIONS - SHEET 2
520212-AURC-038-RW-DRG-004005	CROSS SECTIONS - SHEET 1
520212-AURC-038-RW-DRG-004006	CROSS SECTIONS - SHEET 2
520212-AURC-038-RW-DRG-004007	CROSS SECTIONS - SHEET 3
520212-AURC-038-RW-DRG-004101	SETOUT TABLES
520212-AURC-038-UT-DRG-005001	UTILITY PLAN
520212-AURC-038-UT-DRG-005002	UTILITY DETAIL
520212-AURC-038-DR-DRG-006001	STORMWATER DRAINAGE PLAN

DRAWING LIST (ENGINEERING DRAWING)	
DRAWING NUMBER	DRAWING DESCRIPTION
520212-AURC-038-DR-DRG-006002	STORMWATER DRAINAGE PIT SCHEDULE AND SPOON DRAIN DETAILS
520212-AURC-038-DR-DRG-006003	STORMWATER DRAINAGE LONGITUDINAL SECTION
520212-AURC-038-RW-DRG-007001	SWEEP PATH PLAN - SHEET 1
520212-AURC-038-RW-DRG-007002	SWEEP PATH PLAN - SHEET 2
520212-AURC-038-RW-DRG-007003	SWEEP PATH PLAN - SHEET 3
520212-AURC-038-RW-DRG-007101	STOPPING SIGHT DISTANCE PLAN
520212-AURC-038-ST-DRG-008001	NOISE WALL AND AMENITIES BUILDING GENERAL ARRANGEMENT
520212-AURC-038-ST-DRG-008002	NOISE WALL POST AND PANEL DETAILS - SHEET 1
520212-AURC-038-ST-DRG-008003	NOISE WALL POST AND PANEL DETAILS - SHEET 2
520212-AURC-038-LV-DRG-009001	LIGHTING PLAN
520212-AURC-038-LV-DRG-009002	LIGHTING - LUMINAIRE DETAIL AND SCHEDULE

DRAWING LIST (ARCHITECTS DRAWING)	
DRAWING NUMBER	DRAWING DESCRIPTION
520212-AURC-038-RW-DRG-000001	COVER SHEET
520212-AURC-038-RW-DRG-000002	GENERAL LEGENDS
520212-AURC-038-ST-DRG-000003	FINISHES & NOTES
520212-AURC-038-ST-DRG-000004	DOOR SCHEDULE
520212-AURC-038-ST-DRG-000101	SITE PLAN
520212-AURC-038-ST-DRG-000201	FLOOR PLAN
520212-AURC-038-ST-DRG-000230	ROOF PLAN
520212-AURC-038-RW-DRG-000301	REFLECTED CEILING PLAN
520212-AURC-038-RW-DRG-000401	ELEVATIONS SHEET
520212-AURC-038-RW-DRG-000402	ELEVATIONS SHEET
520212-AURC-038-RW-DRG-000501	SECTIONS SHEET
520212-AURC-038-RW-DRG-000701	ENTRY DOOR THRESHOLD
520212-AURC-038-RW-DRG-000702	FACADE DETAILS
520212-AURC-038-RW-DRG-000703	FACEDE DETAILS
520212-AURC-038-RW-DRG-000704	PARAPET/SOFFIT DETAIL

DRAWING LIST (ARCHITECTS DRAWING)	
DRAWING NUMBER	DRAWING DESCRIPTION
520212-AURC-038-RW-DRG-000705	PARAPET DETAIL
520212-AURC-038-RW-DRG-000706	WINDOW HEAD
520212-AURC-038-RW-DRG-000707	WINDOW SILL
520212-AURC-038-RW-DRG-000708	WINDOW JAMB
520212-AURC-038-RW-DRG-000709	WINDOW HEAD WITH DUCT
520212-AURC-038-RW-DRG-000800	PERSPECTIVES



LOCATION PLAN
SCALE: NTS

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00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
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COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

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DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
COVER SHEET AND DRAWING LIST

DRAWING SET No: | PART: | SHEET: 1 OF 41 | A1
STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©
DRG No. 520212-AURC-038-RW-DRG-000001 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-000001.dwg
PLOT DATE & TIME: 3/07/2024 8:00:49 PM

GENERAL

1. THE INFORMATION CONTAINED IN THESE DRAWINGS PRODUCED BY AURECON IS SOLELY FOR THE USE OF TRANSPORT FOR NSW FOR THE PURPOSE FOR WHICH IT HAS BEEN PREPARED. AURECON AUSTRALIA PTY LTD UNDERTAKES NO DUTY TO OR ACCEPTS NO RESPONSIBILITY TO ANY THIRD PARTY WHO MAY RELY UPON THIS DOCUMENT.
2. ALL WORKS SHALL BE PERFORMED IN ACCORDANCE WITH TfNSW STANDARD DRAWINGS AND SPECIFICATIONS UNLESS OTHERWISE SHOWN.
3. ANY DISCREPANCIES OR OMISSIONS FROM THESE DOCUMENTS SHALL BE REFERRED TO AURECON FOR CLARIFICATION AND APPROVED BY TFNSW.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE. ALL CHAINAGES AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
5. ALL DIMENSIONS RELEVANT TO SETTING OUT OR OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION HAS COMMENCED.
6. DO NOT SCALE FROM DRAWINGS.
7. ORIGIN OF LEVELS - AHD COORDINATES TO MGA20 - MAP GRID AUSTRALIA 2020.
8. WHERE A PROPRIETARY ITEM (OR EQUIVALENT) IS SPECIFIED, AND AN EQUIVALENT ITEM IS PROPOSED, THE CONTRACTOR SHALL PROVIDE MANUFACTURERS SPECIFICATIONS FOR BOTH PRODUCTS TO TfNSW FOR APPROVAL AND DEMONSTRATE THAT THE PRODUCT PERFORMANCE IS EQUIVALENT OR BETTER, PRIOR TO USE.
9. ALL PROPRIETARY PRODUCTS ARE TO BE INSTALLED FIXED AND TESTED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
10. DURING CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE STRUCTURES AND EXCAVATIONS ARE MAINTAINED IN A SAFE AND STABLE CONDITION AT ALL TIME AND NO PART IS TO BE OVERSTRESSED. THE CONTRACTOR SHALL DEVELOP WORK METHOD STATEMENTS FOR ALL ERECTION OF STRUCTURAL STEEL/FORMWORK/ DEMOLITION/EXCAVATION/TILT PANELS ETC. AND PROVIDE TEMPORARY WORKS SUCH AS BRACING, PROPPING AND SHORING ETC. TO KEEP THE WORKS AND EXCAVATIONS STABLE AND FREE FROM WATER AT ALL TIMES. THE CONTRACTOR IS TO ENGAGE A STRUCTURAL ENGINEER TO DESIGN AND CERTIFY THE TEMPORARY WORKS.

SITEWORKS

1. THE CONTRACTOR TO MAKE SMOOTH CONNECTION TO ANY EXISTING WORKS.
2. ON COMPLETION OF THE WORKS, THE CONTRACTOR MUST RESTORE OR REINSTATE ANY AREAS, STRUCTURES, PAVEMENTS OR UTILITY SERVICES DAMAGED OR DIRTIED DURING THE CONSTRUCTION, TO THE SATISFACTION OF CoS AND TfNSW. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
3. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED IN ACCORDANCE WITH CoS STANDARD DRAWINGS.
4. ASPHALTIC CONCRETE SHALL CONFORM TO TfNSW QA SPECIFICATION R116.
5. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS, COMPACTED TO 98% MODIFIED DENSITY IN ACCORDANCE WITH AS1289 5.2.1. FREQUENCY OF COMPACTION TESTING TO BE NO LESS THAN 1 TEST PER 50m2 OF BASECOURSE MATERIAL PLACED.
6. ALL SUBBASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS, COMPACTED TO 95% MODIFIED DENSITY IN ACCORDANCE WITH AS1289 5.2.1. FREQUENCY OF COMPACTION TESTING TO BE NO LESS THAN 1 TEST PER 50m² OF BASECOURSE MATERIAL PLACED.
7. THE USE OF RECYCLED MATERIALS IS ENCOURAGED BY CoS AND TfNSW. IF THE CONTRACTOR INTENDS TO USE RECYCLED MATERIALS, A RECYCLED MATERIAL COMPLYING WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS WILL BE CONSIDERED, SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF CoS.
8. THE CONTRACTOR IS TO CONTINUE TO PROVIDE CERTIFICATION FOR ALL RECYCLED MATERIALS DURING THE COURSE OF CONSTRUCTION, AND WHERE MATERIAL THAT DOES NOT COMPLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT WITH A SUITABLY COMPLIANT MATERIAL AT THEIR OWN COST.
9. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT, THE INTENT SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY NOTED.
10. ANY EXCAVATION OR SAW CUTTING OF THE ROAD SURFACE SHALL BE REINSTATED WITH APPROPRIATE WATERPROOFING BY THE CONTRACTOR.

SAFETY

1. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ONSITE.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EXCAVATION WORKS IN A STABLE CONDITION, AND ENSURING NO PART SHALL BE OVERSTRESSED DURING CONSTRUCTION ACTIVITIES. PROVISION OF TEMPORARY BRACING, SHORING AND BATTERING IS BY THE CONTRACTOR AS REQUIRED TO PROVIDE A SAFE WORKING ENVIRONMENT.
3. THE CONTRACTOR MUST MAKE PROVISION FOR THE SAFETY OF NORMAL VEHICULAR TRAFFIC AND PEDESTRIANS, AND OTHERS INCLUDING UNAUTHORISED INTRUDERS.
4. ALL PITS, MANHOLES, PUMP STATIONS AND OTHER CONFINED SPACES SHOULD BE FITTED WITH A CONFINED SPACE WARNING SIGN.

OTHER ENVIRONMENTAL NOTES

1. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHT WEIGHT MATERIALS AND LITTER.

SURVEY NOTES

1. THE SURVEY DATA USED FOR THE PROJECT WAS SUPPLIED BY CONNECT SYDNEY FILE NAME: GT0427 GLEESON AVE SYDENHAM GDA2020 220727.
2. SURVEY DATA WAS PROVIDED IN AUTOCAD 3D DWG, 12DA, PDF AND MOS FORMATS.
3. THE AERIAL MAP PROVIDED IS USED AS THE BASIS FOR DESIGN. AURECON DOES NOT GUARANTEE ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE AERIAL IMAGE AND ACTUAL SURVEY DATA, CONTACT THE PRINCIPAL'S REPRESENTATIVE.
4. CONTRACTOR TO VERIFY SURVEY AND SETOUT INFORMATION PRIOR TO CONSTRUCTION.

LINE MARKING AND SIGNAGE NOTES

1. THE FOLLOWING REFERENCES HAVE BEEN USED AS A BASIS FOR DESIGN:
   - 1.1. AS 1742.1 MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES PART 1: GENERAL INTRODUCTION AND INDEX OF SIGNS
   - 1.2. AS 1742.2 MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES PART 2: TRAFFIC CONTROL DEVICES FOR GENERAL USE.
   - 1.2. AS 1742.15 MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES PART 15: DIRECTION SIGNS, INFORMATION SIGNS AND ROUTE NUMBERING.
   - 1.3. AUSTROADS GUIDE TO ROAD DESIGN PART 3: GEOMETRIC DESIGN.
   - 1.4. TS 06307 INSTALLATION AND MAINTENANCE OF SIGNS.
   - 1.5. TS 05462.8 DELINEATION PART 8 DIAGONAL AND CHEVRON MARKINGS.

PAVEMENTS

1. APPLICATION OF TACKCOAT IS AS FOLLOWS
   - APPLICATION RATE OF BETWEEN 0.15L/M² AND 0.30L/M² OF RESIDUAL BITUMEN.
   - AT VERTICAL FACES AT JOINTS, THE APPLICATION RATES MUST BE DOUBLED THE ABOVE POINT.
2. HIGH FRICTION ASPHALT TO HAVE A MINIMUM POLISHED AGGREGATE FRICTION VALUE (PAFV) OF 56.
3. CONCRETE BASE
   - 3.1. ALL WORKS MUST BE IN ACCORDANCE WITH TfNSW QA R83.
   - 3.2. THE CONCRETE BASE TO BE REINFORCED WITH SYNTHETIC MACRO FIBRE STRUX 90/40 AT A MINIMUM RATE OF 4.6 Kg/m3/ /OR SIKAFIBRE FORCE 48 PP AT A MINIMUM RATE OF 5.7 Kg/m3/.
   - 3.3. THE CONCRETE BASES SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TfNSW QA R83 SPECIFICATION. IT IS NOTED THAT A MINIMUM COMPRESSIVE STRENGTH OF 40 MPa IS REQUIRED FOR THE CONCRETE BASE REINFORCED WITH SYNTHETIC MACRO FIBRES.
4. LEAN MIX CONCRETE
   - 4.1. ALL WORKS MUST BE IN ACCORDANCE WITH TfNSW QA R82.
   - 4.2. THE LMC SUBBASE SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TfNSW QA R82 SPECIFICATION. IT IS NOTED THAT A MINIMUM 15 MPa COMPRESSIVE STRENGTH AT 28 DAYS IS REQUIRED.
   - 4.3. WAX EMULSION TO BE ADOPTED FOR THE CURING AND DEBONDING TREATMENT OF THE LMC SUBBASE SURFACE.
5. SUBSURFACE DRAINAGE
   - 5.1. SUBSURFACE DRAINAGE CONNECTIONS TO THE DRAINAGE PITS SHALL BE IN ACCORDANCE WITH TfNSW STANDARD PAVEMENT SUBSURFACE DRAINAGE DETAILS VOLUME 6 - SUPPLEMENTARY MODEL DRAWINGS.
   - 5.2. GEOTEXTILE TYPE FOR SUBSURFACE TRENCH AND EDGE DRAINS SHALL BE IN ACCORDANCE WITH PROJECT TfNSW SPECIFICATION R63: APPLICATION G3 STRENGTH CLASS A. GEOTEXTILE LAPS SHALL BE IN ACCORDANCE WITH TfNSW MODEL DRAWING MD.R33.A06.
   - 5.3. ALL SUBSURFACE DRAINAGE TRENCH DRAINS SHALL BE INSTALLED WITH A LONGITUDINAL GRADIENT OF NOT LESS THAN 0.5%.TRENCH DRAIN TO BE CONSTRUCTED IN ACCORDANCE WITH R33 AND STANDARD DRAWING MD.R33.A06.
   - 5.4. CORRUGATED PERFORATED AND NON-PERFORATED PLASTIC PIPE TO CONFORM TO TfNSW 3552.
   - 5.5. BITUMINOUS SPRAYED SEALS ARE NOT TO BE PLACED OVER THE TOP OF SUBSURFACE DRAINAGE.

UTILITY SERVICES

1. THESE DRAWINGS SHALL TO BE READ IN CONJUNCTION WITH ALL PUBLIC OR PRIVATE SERVICE PROVIDER BYDA DATA, INCLUDING BUT NOT LIMITED TO:
   - JEMENA BYDA DATA
   - AUSGRID BYDA DATA
   - TRANSGRID
   - NBN BYDA DATA
   - SYDNEY WATER BYDA DATA
   - TFNSW BYDA DATA
   - TELSTRA, OPTUS, AND TPG BYDA DATA
   - SYDNEY TRAINS BYDA DATA
   - INNER WEST COUNCIL
2. EXISTING UTILITIES SHOWN ON DRAWINGS ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SERVICES PRESENT. AURECON TAKES NO RESPONSIBILITY FOR THE UTILITY INFORMATION AS SHOWN ON THESE DRAWINGS.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERTAKE A BYDA REQUEST AND LIAISE WITH EACH UTILITY SERVICE PROVIDER ON SITE, TO LOCATE AND IDENTIFY THE SIZE, POSITION, LINE AND LEVEL OF ALL UTILITY SERVICES IN BOTH PUBLIC AND PRIVATE LAND, PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
4. THE CONTRACTOR MUST TAKE EVERY PRECAUTION TO PROTECT EXISTING AND NEW UTILITY SERVICES THROUGH THE COURSE OF THE CONTRACT.
5. ALL WORKS INVOLVING UTILITY SERVICES TO BE UNDERTAKEN TO THE SATISFACTION OF THE UTILITY SERVICE PROVIDER. THE CONTRACTOR WILL BE RESPONSIBLE FOR ENGAGING WITH THE UTILITY SERVICE PROVIDER, THE EXECUTION OF THE WORK TO THEIR REQUIREMENTS AND PROCUREMENT OF APPROVALS FOR WORKS UNDERTAKEN.
6. ALL WORKS INVOLVING UTILITY SERVICES MUST ONLY BE UNDERTAKEN USING PLANS APPROVED BY THE UTILITY SERVICE PROVIDER.
7. ALL SERVICE PIT COVERS AND MARKERS ARE TO BE PLACED IN ACCORDANCE WITH THE LOCATIONS AS SHOWN ON THE PUBLIC DOMAIN DRAWINGS, AND IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATION.
8. ALL SERVICE PIT COVERS TO BE PLACED AT FINISHED SURFACE LEVELS TO MATCH THE PROPOSED LONGITUDINAL AND CROSS FALL GRADES OF THE FOOTPATH OR ROADWAY IT IS CONTAINED WITHIN.
9. "WORKS AS CONSTRUCTED" SURVEY ON ALL UTILITY WORK SHALL BE RECORDED PRIOR TO ANY BACKFILLING.
10. AUSGRID TRANSMISSION CABLES - AUSGRID SUPERVISOR SHALL BE ON SITE WHEN EXCAVATION IS WITHIN 2m OF TRANSMISSION CABLES.
11. TRANSGRID TRANSMISSION CABLES - TRANSGRID REPRESENTATIVE SHALL BE ON SITE WHEN EXCAVATION IS WITHIN 2m OF TRANSMISSION CABLES.
12. JEMENA GAS - JEMENA SUPERVISOR SHALL BE ON SITE WHEN EXCAVATION IS UNDERTAKEN AS REQUIRED BY JEMENA SPECIFICATIONS.
13. KERBS AMD CHANNELS:
    ALL KERBS AND CHANNELS ARE TO BE CONSTRUCTED AS PER TFNSW STANDARD DRAWINGS R0300 SERIES AND WITH CONCRETE CONFORMING TO TFNSW R53 U.N.O.

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REFERENCES:

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00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
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COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

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DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
GENERAL NOTES

DRAWING SET No: | PART: | SHEET: 2 OF 41 | A1
STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©
DRG No. 520212-AURC-038-RW-DRG-000002 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-000002.dwg
PLOT DATE & TIME: 3/07/2024 8:00:46 PM

STRUCTURAL GENERAL NOTES

1. READ THESE NOTES IN CONJUNCTION WITH ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED. REFER TO ARCHITECTURAL DRAWINGS FOR SETTING OUT AND DETAIL DIMENSIONS. IN CASE OF DISCREPANCY, PRECEDENCE IS GIVEN TO DRAWINGS, THEN NOTES, THEN SPECIFICATION.
2. CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE LEGISLATION, STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH ALL CURRENT WORK HEALTH AND SAFETY ACTS, LEGISLATIVE REQUIREMENTS, ASSOCIATED REGULATIONS AND CODES OF PRACTICE, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
3. REFER DISCREPANCIES TO SUPERINTENDENT BEFORE PROCEEDING WITH WORK.
4. SUBMIT DETAILS OF PROPOSED CHANGES TO SCOPE, WORK METHODS OR MATERIALS etc FOR APPROVAL BEFORE PROCEEDING. APPROVAL DOES NOT AUTHORISE A VARIATION TO THE CONTRACT.
5. CHECK STRUCTURAL DRAWINGS AGAINST ARCHITECTURAL, MECHANICAL, ELECTRICAL SERVICES AND OTHER DRAWINGS FOR REQUIREMENTS FOR PENETRATIONS, CONDUITS, DUCTS, PIPES, etc.
6. NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES REQUIRED PROPERTIES OF ITEM. SIMILAR ALTERNATIVES HAVING REQUIRED PROPERTIES MAY BE OFFERED FOR APPROVAL. APPROVAL DOES NOT AUTHORISE A VARIATION TO THE CONTRACT. INSTALL PROPRIETARY ITEMS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
7. OBTAIN NECESSARY PERMITS AND APPROVALS FROM RELEVANT AUTHORITIES BEFORE COMMENCING WORK ON SITE. NOTIFY RELEVANT SERVICE AUTHORITIES BEFORE COMMENCING WORK ON SITE.
8. GIVE TWO WORKING DAYS' (48 HOURS) NOTICE SO THAT INSPECTION MAY BE MADE OF CRITICAL STAGES OF WORK.
9. INSPECTIONS AND REVIEWS UNDERTAKEN BY SUPERINTENDENT OR OTHERS DO NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS.
10. DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWINGS.
11. DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES UNO, CHAINAGES ARE IN METRES UNO.
12. HAVE SURVEY AND SETTING OUT UNDERTAKEN BY A REGISTERED SURVEYOR.
13. VERIFY ON SITE SETTING OUT DIMENSIONS AND EXISTING MEMBER SIZES SHOWN ON DRAWINGS BEFORE SHOP DRAWINGS, CONSTRUCTION AND FABRICATION IS COMMENCED. EXISTING STRUCTURES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY.
14. USE STANDARD BOLT PATTERNS etc. THROUGHOUT THE WORKS TO AVOID CONFUSION OR AMBIGUITY.
15. TAKE CARE OF HAZARDS ASSOCIATED WITH BURIED, CONCEALED OR OVERHEAD SERVICES. TAKE PRECAUTIONS AND WORKMANSHIP UNDERTAKE EXPLORATION TO ESTABLISH LOCATION OF AND PROTECT EXISTING SERVICES AT SITE. SERVICES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY. SERVICES OTHER THAN THOSE SHOWN MAY EXIST ON SITE. MARK LOCATIONS OF SERVICES CLEARLY ON SITE, AND ON AS-BUILT DRAWINGS. HAND EXCAVATE WITHIN ONE METRE OF IN-GROUND SERVICES.
16. DISPOSE OF SURPLUS MATERIAL OFF SITE IN ACCORDANCE WITH LOCAL AUTHORITY WASTE REGULATIONS.
17. IMPLEMENT SOIL AND WATER MANAGEMENT PROCEDURES TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF SITE, SURROUNDING AREAS, AND DRAINAGE SYSTEMS.
18. WORKMANSHIP AND MATERIALS TO COMPLY WITH REQUIREMENTS OF AUSTRALIAN STANDARDS, NATIONAL CONSTRUCTION CODE (NCC) AND BY-LAWS AND ORDINANCES OF RELEVANT BUILDING AUTHORITIES. ALL STANDARDS REFERRED TO ARE THOSE CURRENT (AS AMENDED) AT COMMENCEMENT OF CONTRACT.
19. OBTAIN REQUIREMENTS FOR SERVICES, ADJOINING ELEMENTS etc TO BE EMBEDDED IN, FIXED TO OR SUPPORTED ON WORK AND PROVIDE FOR REQUIRED FIXINGS. PROVIDE FOR TEMPORARY SUPPORT OF ADJOINING ELEMENTS DURING CONSTRUCTION. DRAWINGS DO NOT SHOW DETAILS OF ALL FIXTURES, INSERTS, SLEEVES, RECESSES OR OPENINGS etc REQUIRED.
20. HAVE TESTING PERFORMED BY AN INDEPENDENT NATA (NATIONAL ASSOCIATION OF TESTING AUTHORITIES) ACCREDITED AUTHORITY AND PROVIDE TEST REPORTS TO SUPERINTENDENT.
21. SEPARATE METALS FROM INCOMPATIBLE MATERIALS (eg STAINLESS STEEL, GALVANIZED STEEL, UNGALVANIZED STEEL AND TREATED TIMBER etc) BY CONCEALED LAYERS OF SUITABLE INERT MATERIALS OF SUITABLE THICKNESSES. USE PLASTIC SLEEVES AND WASHERS FOR BOLTS, etc.
22. EXTERNAL ELEMENTS ARE THOSE EXPOSED TO WEATHER, RAIN AND WATER PENETRATION IN FINAL WORKS.
23. SUPPLY RELEVANT NOTES, DRAWINGS AND SPECIFICATIONS etc TO SUB-CONTRACTORS.
24. UNO=UNLESS NOTED OTHERWISE, SLS=SERVICEABILITY LIMIT STATE, ULS=ULTIMATE LIMIT STATE, NSL=NATURAL SURFACE LEVEL, FSL=FINISHED SURFACE LEVEL.
25. SUPERINTENDENT=SUPERINTENDENT NOMINATED IN CONTRACT.
26. BUILD, FABRICATE AND PROCURE ONLY FROM DRAWINGS 'ISSUED FOR CONSTRUCTION'.
27. KEEP ON SITE A COMPLETE SET OF CONTRACT DOCUMENTS (INCLUDING DRAWINGS AND SPECIFICATIONS) AND SITE INSTRUCTIONS.
28. REFER TO CIVIL AND UTILITIES DRAWINGS FOR INGROUND SERVICES.

SPECIFICATIONS

- TfNSW SPECIFICATION R44 EARTHWORKS
- TfNSW SPECIFICATION B59 BORED CAST-IN-PLACE REINFORCED CONCRETE PILES (WHOUT PERMANENT CASING)
- TfNSW SPECIFICATION B80 CONCRETE WORKS FOR BRIDGES (FOR BORED PILES)
- TfNSW SPECIFICATION B349 PRECAST CONCRETE NOISE WALLS (NOT PRETENSIONED)
- TfNSW SPECIFICATION B220 PROTECTIVE TREATMENT OF BRIDGE STEELWORK

TEMPORARY WORKS

29. THESE DRAWINGS DO NOT DETAIL TEMPORARY WORKS. CONSTRUCTION METHODS AND TEMPORARY WORKS ARE RESPONSIBILITY OF THE CONTRACTOR.
30. PROVIDE SCAFFOLDING, BARRIERS, FALL RESTRAINT, HAND-MID RAILS AND TOE BOARDS FOR WORK AT HEIGHT. ERECT ACCESS STAIRS AT EARLIEST OPPORTUNITY TO REDUCE OPEN SHAFT HAZARDS AND FACILITATE ACCESS. MAINTAIN SAFETY MESH AND BARRIERS TO ALL OPENINGS AND ELEVATED EDGES.
31. MAINTAIN STRUCTURE IN A STABLE CONDITION DURING CONSTRUCTION AND PROVIDE TEMPORARY BRACING AND/OR SUPPORT AS REQUIRED. SHOW TEMPORARY MEMBERS ON SHOP DRAWINGS. PROVIDE SPREADERS AT LOADS AND/OR LIFTING POINTS WHERE REQUIRED. ENSURE NO PART IS OVERSTRESSED. DO NOT PLACE OR STORE BUILDING MATERIALS ON, SUPPORT FORMWORK OR PROP FROM STRUCTURAL MEMBERS WITHOUT SUPERINTENDENT'S APPROVAL. PROVIDE CALCULATIONS BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO PROVE ADEQUACY OF STRUCTURE FOR PROPOSED CONSTRUCTION SEQUENCE, METHODS AND LOADS INCLUDING PROPPING, CRANE LIFTS etc.
32. PROVIDE TEMPORARY BRACING WHERE REQUIRED FOR STRUCTURAL ELEMENTS OR FRAMES STABILIZED BY MASONRY, PRECAST CONCRETE OR OTHER ELEMENTS CONSTRUCTED AFTER ERECTION OF THE STRUCTURAL ELEMENT OR FRAME, AND SHOW ON SHOP DRAWINGS.

DESIGN ASSUMPTIONS

33. ALL STRUCTURES TO HAVE A DESIGN WORKING LIFE OF 50 YEARS. BORED PILES ARE DESIGNED TO HAVE A DESIGN WORKING LIFE OF 100 YEARS.
34. STRUCTURAL WORK HAS BEEN DESIGNED FOR FOLLOWING LOADS:
    - PERMANENT DEAD LOAD OF STRUCTURE AS SHOWN ON DRAWINGS
    - LIVE LOADS TO AS/NZS1170.1:
        - NON-TRAFFICABLE ROOF: 0.25 kPa
    - CEILING AND SERVICES LOAD: 0.5 kPa
    - IMPOSED "SURCHARGE" LOAD ON GROUND: 10 kPa
    - COMPACTION LOADS: 12 kPa
    - SOIL DENSITY: 18 kN/m3
    - ANGLE OF INTERNAL FRICTION: 30 DEGREES
    - ACTIVE LATERAL EARTH PRESSURE COEFFICIENT ka: 0.33 FOR ENGINEERED FILL
    - AT REST LATERAL EARTH PRESSURE COEFFICIENT ko: 0.5 FOR ENGINEERED FILL
    - BUILDING DESIGN WORKING LIFE: 50 YEARS
    - BUILDING IMPORTANCE LEVEL: 2
    - WIND LOADS TO AS/NZS1170.2:
        - REGION A2
        - AVERAGE RECURRENCE INTERVAL, R 500 YEARS
        - ULTIMATE REGIONAL WIND SPEED VR (3 sec GUST) 45 m/s
        - SERVICEABILITY REGIONAL WIND SPEED V25 (3 sec) 37 m/s
        - DIRECTIONAL MULTIPLIER 1.0
        - TERRAIN CATEGORY 2.5
        - DESIGN BUILDING HEIGHT AS PER BUILDING ELEVATION 5 m MAX.
        - TERRAIN/HEIGHT MULTIPLIER (Mz,cat) 1.0
        - SHIELDING MULTIPLIER (Ms) 1.0
        - TOPOGRAPHIC MULTIPLIER (Mt) 1.0
    - EARTHQUAKE LOADS TO AS1170.4:
        - ANNUAL PROBABILITY OF EXCEEDANCE 1/500
        - PROBABILITY FACTOR, (kp) 1.0
        - HAZARD DESIGN FACTOR (Z) 0.08
        - SITE SUB-SOIL CLASS Ce (TBC)
        - EARTHQUAKE DESIGN CATEGORY (EDC) II
        - STRUCTURE HEIGHT, (hn) 5 m
        - NUMBER OF STOREYS 3
        - STRUCTURE DUCTILITY FACTOR (u) 2
        - STRUCTURAL PERFORMANCE FACTOR, (SP) 0.77
35. LATERAL DEFLECTION OF POST UNDER SLS WIND LOAD SHALL BE LIMITED TO 1:125 OF HEIGHT OF POST.
36. THE TOTAL CORROSION ALLOWANCE FOR BURIED POST FOR THE NOISE WALL IS 1.0 mm. THIS IS TO BE CONFIRMED ONCE THE SOIL PROPERTIES OF THE BACKFILL IS CONFIRMED.

PILES

1. BORED PILES TO BE IN ACCORDANCE WITH TfNSW QA SPECIFICATION B59.
2. PILES HAVE BEEN DESIGNED ASSUMING 700 kPa ALLOWABLE END BEARING AND 70 kPa SKIN FRICTION AND 8.4×10^4 kPa/m MODULUS OF SUBGRADE REACTION OF ROCK LAYERS.

PILING DELIVERABLES

3. SURVEY AS CONSTRUCTED PILE POSITIONS, GROUND LEVEL AT TIME OF INSTALLATION AND CUT-OFF LEVELS, AND SUBMIT RECORDS TO CONTRACTOR WITHIN ONE WEEK OF COMPLETION OF PILING.

EARTHWORKS, FOUNDATIONS AND FOOTINGS

EARTHWORKS

1. EARTHWORKS TO BE IN ACCORDANCE WITH TfNSW R44, AS3798 AND AS 2870.

FOUNDATIONS

2. FOUNDATION LEVELS SHOWN ARE CONTRACT LEVELS. FINAL LEVELS TO BE AS DIRECTED BY SUPERINTENDENT.
3. HARDCORE (BASE) SHALL BE APPROVED WELL GRADED NATURAL GRAVEL OR CRUSHED ROCK (MAX. SIZE 40mm) SPREAD AND COMPACTED TO 98% MAXIMUM DRY DENSITY DETERMINED BY TEST AS-1289-E2.1 OR 80% MINIMUM DENSITY INDEX FOR COHESIONLESS SOILS.
4. "CONTROLLED FILL" IS: SAND FILL UP TO 800 mm DEEP, WELL COMPACTED IN LAYERS < 300 mm THICK BY VIBRATING PLATE OR VIBRATING ROLLER, OR NON-SAND FILL UP TO 400 mm DEEP, WELL COMPACTED IN LAYERS <150 mm THICK BY MECHANICAL ROLLER (CLAY FILL TO BE MOIST DURING COMPACTION), OR OTHER MATERIAL PLACED AND COMPACTED IN ACCORDANCE WITH SPECIFICATION.
5. "ROLLED FILL" IS: SAND FILL UP TO 600 mm DEEP COMPACTED IN LAYERS < 300 mm THICK, OR NON-SAND FILL UP TO 300 mm DEEP COMPACTED IN LAYERS < 150 mm THICK (CLAY FILL TO BE MOIST DURING COMPACTION).
6. AVOID OVER EXCAVATION. BACKFILL OVER EXCAVATION WITH GRADE N7 BLINDING CONCRETE.
7. KEEP EXCAVATIONS FREE OF WATER. PROVIDE ADEQUATE DRAINAGE TO ENSURE FORMATION IS NOT AFFECTED BY MOISTURE. PREVENT FOUNDATION DRYING OUT DUE TO EXPOSURE. PLACE BLINDING, FOOTINGS, PILES AND BACKFILL AS SOON AS PRACTICABLE AFTER EXCAVATION.
8. ENSURE EXCAVATIONS ARE STABLE AND PROTECT SURROUNDING PROPERTY AND SERVICES FROM ADVERSE EFFECTS OF GROUND WORKS. PROVIDE TEMPORARY WORKS AS REQUIRED. PROVIDE SHORING CERTIFIED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ALL DEEP EXCAVATIONS WHERE REQUIRED.
9. DO NOT UNDERMINE EXISTING FOOTINGS.
10. DEEPEN FOOTINGS BY THICKENING BLINDING CONCRETE AS REQUIRED NEAR EXISTING SERVICE TRENCHES (EVEN IF BACKFILLED), EXCAVATIONS, BATTERS etc, SO INFLUENCE LINE (AT 30° TO HORIZONTAL) FROM FOOTING IS BELOW ADJACENT EXCAVATION.
11. PROVIDE SAFETY MESH AND OTHER PROTECTION TO PREVENT EXPOSURE OF PERSONNEL TO EXCAVATIONS DURING FOUNDATION CONSTRUCTION.
12. USE SUITABLE CONSTRUCTION TECHNIQUES AND EQUIPMENT FOR BACKFILLING ADJACENT TO STRUCTURES TO PREVENT OVERSTRESS AND DAMAGE. PROVIDE SUPPORT TO RETAINING WALLS IF CONSTRUCTION METHODS IMPOSE COMPACTION LOADS GREATER THAN ALLOWED (SEE DESIGN LOADS IN GENERAL NOTES). BACKFILL EVENLY TO AVOID DIFFERENTIAL SOIL PRESSURES ON STRUCTURES. BACKFILL AGAINST RETAINING WALLS ONLY AFTER SPECIFIED CONCRETE STRENGTH IS ACHIEVED, AND PERMANENT SUPPORT INSTALLED WHERE APPLICABLE.
13. BACKFILL FOR RETAINING WALLS TO BE FREE DRAINING GRANULAR MATERIAL. PROVIDE DRAINAGE BEHIND RETAINING WALLS COMPRISING CONTINUOUS SLOTTED DRAIN WITH GRANULAR SURROUND, OR NYLEX "COREDRAIN" CONNECTED TO RETICULATED STORMWATER DRAINAGE SYSTEM. PROVIDE 50 mm DIAMETER WEEPHOLES AT 1500 MAXIMUM CENTRES AT BASE OF WALL.
14. SLOPE SERVICES TRENCHES AWAY FROM BUILDING. BED SERVICES ON COMPACTED MATERIAL COMPATIBLE WITH NATURAL MATERIAL ON SITE. BACKFILL TOP 300 mm OF TRENCHES WITH HAND COMPACTED CLAY WITHIN 1500 mm OF BUILDING. WHERE SERVICES PASS THROUGH MIDDLE THIRD OF FOOTING, SLEEVE SERVICES OR PROVIDE 40 mm THICK CLOSED-CELL POLYETHYLENE LAGGING.
15. FOR SITES CLASSIFIED M OR GREATER REACTIVITY; WHERE SERVICES PASS UNDER FOOTINGS BACKFILL TRENCHES WITH HAND COMPACTED CLAY OR BLINDING CONCRETE FOR 1500 mm EACH SIDE OF FOOTING AGAINST CLEAN, DRY, UNDISTURBED NATURAL MATERIAL. BACKFILL TRENCHES WITH HAND COMPACTED CLAY WITHIN 1500 mm OF BUILDING. PROVIDE FLEXIBLE JOINTS IN STORMWATER AND WASTEWATER SERVICES AT EXTERIOR OF BUILDING.
16. FOLLOWING CONSTRUCTION, FOUNDATION MAINTENANCE TO BE IN ACCORDANCE WITH CSIRO BUILDING TECHNOLOGY FILE 18 "FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE: A HOMEOWNER'S GUIDE", INCLUDING CONSTRAINTS ON TREE LOCATIONS.

SLABS AND FOOTINGS

17. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE END BEARING PRESSURE OF 100 kPa IN CONTROLLED FILL.
18. CONSTRUCT FOOTINGS FOUNDED IN SPECIFIED MATERIALS (AS ABOVE, AND IN GEOTECHNICAL REPORT). REMOVE SOFTENED OR LOOSE MATERIAL AND MATERIAL THAT DOES NOT ACHIEVE THESE PRESSURES. ENSURE FORMATION IS CLEAN AND LEVEL. PROVIDE FORMWORK WHERE SIDES OF EXCAVATIONS NOT STABLE UNO.
19. PROOF ROLL FORMATION WITH HEAVY DUTY ROLLER.
20. OBTAIN APPROVAL OF FOUNDATION MATERIAL FOR THE DESIGN PRESSURES FROM SUITABLY QUALIFIED GEOTECHNICAL ENGINEER/SUPERINTENDENT/BUILDING AUTHORITY BEFORE FIXING REINFORCEMENT OR PLACING CONCRETE.
21. SLAB PANELS TO BE FOUNDED ON UNDISTURBED NATURAL SOIL WITH ALLOWABLE BEARING CAPACITY OF NOT LESS THAN 100 kPa. REMOVE ANY SOFT SPOTS AND REPLACE WITH COMPACTED CRUSHED ROCK. WHERE SLAB PANELS AND INTERNAL BEAMS ARE FOUNDED ON CONTROLLED FILL, CONTROLLED FILL MUST CONTINUE AT LEAST ONE METRE PAST BUILDING.
22. LOCATE FOOTINGS CENTRALLY UNDER WALLS AND COLUMNS UNO.
23. PROVIDE 0.2 mm HIGH IMPACT RESISTANT VIRGIN POLYETHYLENE FILM DAMP PROOF MEMBRANE TO AS2870 ON 50 mm SAND BLINDING WHERE SHOWN ON DRAWINGS. LAP 200 mm AND SEAL DAMP PROOF MEMBRANES, TAPE AT PENETRATIONS, etc TO ENSURE A COMPLETE VAPOUR BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS2870. PREVENT PUNCTURING OR DAMAGE BY PLACING A PLASTIC PLATE UNDER REINFORCEMENT SUPPORTS.
24. TOP OF CONCRETE SLAB TO BE AT LEAST 150 mm ABOVE ADJACENT GROUND LEVELS.
25. SLOPE GROUND SURROUNDING BUILDING SO WATER WILL DRAIN AWAY FROM BUILDING TO SUITABLE DISCHARGE POINTS WITHOUT PONDING. WHERE ACHIEVED BY FILLING, FILL TO BE LESS PERMEABLE THAN UNDERLYING MATERIAL.

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00.01	ISSUED FOR CONSTRUCTION	JO/04.07.24	DC/04.07.24	VT/04.07.24
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INNER WEST COUNCIL

SYDNEY ROADS ASSET PERFORMANCE CONTRACTS

SYDENHAM STATION BUS LAYOVER

BURROWS AVENUE AND RAILWAY ROAD

STRUCTURAL

GENERAL NOTES - SHEET 1

DRAWING SET No:	PART	SHEET: 3 OF 41 A1
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STEEL

1. WORKMANSHIP AND MATERIAL TO COMPLY WITH AS4100, AS/NZS4600, AND AS/NZS1554.
2. CONSTRUCTION CATEGORY FOR FABRICATION IN ACCORDANCE WITH AS/NZS5131 AS FOLLOWS:
   - SERVICE CATEGORY: SC1
   - FABRICATION CATEGORY: FC1
   - CONSTRUCTION CATEGORY: CC3
3. PROVIDE STEEL IN ACCORDANCE WITH:
   - AS1397 GRADE G450 FOR PURLINS AND GIRTS,
   - AS1443 COLD-FINISHED BARS,
   - AS/NZS1594 GRADE 250 HOT-ROLLED STEEL FLAT PRODUCTS,
   - AS/NZS3678 FOR PLATES AND FLOOR PLATE,
   - AS/NZS3679 PART 2, GRADE 300 FOR WELDED BEAMS AND WELDED COLUMNS, AS/NZS3679 PART 1 GRADE 300 OR BHP GRADE 300 PLUS FOR UNIVERSAL BEAMS, UNIVERSAL COLUMNS, PARALLEL FLANGE CHANNELS, ANGLES, FLATS, BARS AND RODS,
   - OTHERWISE TO COMPLY WITH AS/NZS3678 OR AS/NZS3679 GRADE 250 UNO.
4. MANUFACTURERS AND PROCESSORS OF STRUCTURAL STEEL MUST HOLD A VALID CERTIFICATE OF APPROVAL ISSUED BY ACRS (AUSTRALASIAN CERTIFICATION AUTHORITY FOR REINFORCING AND STRUCTURAL STEELS). PROVIDE ACRS CERTIFICATION OF COMPLIANCE WITH RELEVANT STANDARDS, PRODUCT TAGS AND SUPPORTING DOCUMENTATION FOR ALL STRUCTURAL STEELWORK.
5. MARK STEEL GRADES ON STRUCTURAL MEMBERS IN NON-CRITICAL AREAS. USE IDENTIFICATION MARKS COMPATIBLE WITH AND VISIBLE THROUGH PAINT SYSTEM.
6. PROVIDE 3 mm CAP PLATES SEAL WELDED TO HOLLOW SECTIONS UNO.
7. CARRY OUT ERECTION OF STEELWORK IN ACCORDANCE WITH AS3828 GUIDELINES FOR THE ERECTION OF BUILDING STEELWORK.
8. PROTECT STEELWORK FROM DAMAGE DURING HANDLING, TRANSPORT, STORAGE AND ERECTION. SUBMIT PROPOSED METHOD TO REPAIR DAMAGE FOR APPROVAL. PROTECT STEELWORK STORED ON SITE FROM CORROSION OR DETERIORATION OF COATINGS.
9. PLUMB COLUMNS WITH METAL PACKERS OR SHIMS.
10. SEQUENCE ERECTION WORKS TO AVOID PINCH POINTS AND SITE CONGESTION.
11. PROVIDE STEEL MEMBERS MADE FROM WHOLE LENGTHS WHEREVER POSSIBLE. SEEK APPROVAL TO MAKE LENGTHS UP OF SECTIONS JOINED BY COMPLETE PENETRATION FULL STRENGTH BUTT WELDS GROUND FLUSH WHERE REQUIRED. WHERE PROPOSED, SHOW JOINTS ON SHOP DRAWINGS. ENSURE MEMBERS ARE CONCENTRIC AT CONNECTIONS (GRAVITY- OR GAUGE-LINES TO INTERSECT) UNO. ACCURATELY PRE-FORM PARTS TO AVOID FORCE AND/OR RESTRAINT DURING JOINING.
12. DRILL HOLES FULL SIZE OR REAM TO FULL SIZE AFTER SUB-DRILLING OR SUB-PUNCHING. SUB DRILLED OR SUB-PUNCHED HOLES TO BE AT LEAST 3 mm UNDERSIZE. "OXY" OR FLAME CUTTING OF HOLES IS NOT PERMITTED. BOLT HOLE SIZE TO BE:
    - BOLT DIAMETER PLUS 2 mm FOR STEEL TO STEEL CONNECTIONS,
    - BOLT DIAMETER PLUS 4 mm FOR STEEL TO CONCRETE CONNECTIONS,
    - BOLT DIAMETER PLUS 4 mm FOR HOLDING DOWN BOLTS UP TO M20,
    - BOLT DIAMETER PLUS 6 mm FOR HOLDING DOWN BOLTS M24 OR LARGER.

WELDING

13. DEVELOP WELD PROCEDURES TO SUIT JOINT DETAILS AND SHOW ON SHOP DRAWINGS. USE PREQUALIFIED WELD PROCEDURES AND CONSUMABLES TO AS/NZS1554.1 CLAUSE 4.3 OR DEVELOP QUALIFICATION OF WELD PROCEDURE AND CONSUMABLES BY TESTING TO AS/NZS1554.1 CLAUSE 4.2. LIST APPLICABLE PARAMETERS ON WELDING PROCEDURE QUALIFICATION RECORD AND MAKE RECORD AVAILABLE FOR INSPECTION.
14. WELDING TO BE UNDERTAKEN BY SUITABLY QUALIFIED EXPERIENCED WELDER UNDER SUPERVISION OF QUALIFIED WELDING SUPERVISOR.
15. CARRY OUT WELDING TO AS/NZS1554: ALL INTERFACES BETWEEN STEEL SECTIONS TO BE CONNECTED WITH 6 mm CONTINUOUS FILLET WELDS ALL ROUND, BOTH SIDES UNO.
    - WELDS TO BE SHOP WELDED UNO,
    - WELDS TO BE CATEGORY SP,
    - BUTT WELDS TO BE FULL (COMPLETE) PENETRATION WITH MIN 6mm THICK WELD LEG UNO,
    - ELECTRODES TO BE LOW CARBON WITH TENSILE STRENGTH OF fuw=490 MPa, PRE-APPROVED TO AS/NZS1554, eg CLASSIFICATION B-E49XX.
16. EXTENT OF WELD INSPECTION/TESTING TO BE:
    - VISUAL SCANNING: 100% OF WELDS,
    - VISUAL EXAMINATION: 100% OF BUTT WELDS IN TENSION MEMBERS AND 50% OF OTHER WELDS,
    - RADIOGRAPHIC OR ULTRASONIC: 10% OF BUTT WELDS IN TENSION MEMBERS AND 5% OF OTHER WELDS.
17. GRIND WELDS SMOOTH AND FLUSH WITH PARENT METAL WHERE NOMINATED ON DRAWINGS. GRIND ONLY IN LONGITUDINAL DIRECTION OF MEMBER.
18. REPAIR FAULTY WELDS AND DEFECTS REVEALED BY WELD INSPECTION/TESTING AND REPEAT THE EXAMINATION.
19. WELDS TO BE INSPECTED BY INDEPENDENT NATA ACCREDITED QUALIFIED WELDING INSPECTOR TO AS2214. PROVIDE WELDING INSPECTOR'S REPORT TO SUPERINTENDENT.
20. WELDING SYMBOLS ARE TO AS1101.3. "CFW" INDICATES CONTINUOUS FILLET WELD. "FSBW" INDICATES FULL STRENGTH BUTT WELD WHICH IS EQUIVALENT TO CPBW. "CPBW" INDICATES COMPLETE PENETRATION BUTT WELD.

BOLTS

21. M16 AND LARGER BOLTS TO BE HIGH STRENGTH STRUCTURAL BOLTS, 8.8/S PROCEDURE AND M12 SIZE BOLTS SHALL BE COMMERCIAL BOLTS, 4.6/S PROCEDURE UNO.
22. FOR BOLTS MANUFACTURED OUTSIDE AUSTRALIA, PROVIDE LOCAL INDEPENDENT NATA ACCREDITED LABORATORY COMPLIANCE CERTIFICATE BASED ON APPROPRIATE TESTING AND VERIFICATION.
23. USE BOLTS WITH THREADS IN COMPLIANCE WITH AS1275. BOLTS OF STRENGTH GRADE 4.6 TO BE COMMERCIAL GRADE BOLTS TO AS1111 AND 1112. BOLTS OF STRENGTH GRADE 8.8 TO BE HIGH STRENGTH STRUCTURAL BOLTS, NUTS AND WASHERS TO AS/NZS1252. MECHANICAL PROPERTIES OF BOLTS, NUTS, SCREWS AND STUDS TO COMPLY WITH AS /NZS4291. WASHERS TO COMPLY WITH AS1237. TIGHTENING PROCEDURES TO COMPLY WITH AS4100:
    - S SNUG TIGHT,
    - TB BEARING MODE JOINT, BOLTS FULLY TENSIONED,
    - TF FRICTION MODE JOINT, BOLTS FULL TENSIONED. (CONTACT SURFACES OF FRICTION CONNECTIONS TO BE UNCOATED AND FREE OF MILL SCALE.)
24. BOLT TYPE AND TIGHTENING PROCEDURE ARE DESIGNATED: NUMBER, SIZE STRENGTH GRADE/TIGHTENING PROCEDURES. eg. 4-M24 8.8/TB = 4 OFF 24 DIAMETER METRIC HIGH STRENGTH STRUCTURAL BOLTS FULLY TENSIONED IN BEARING MODE.
25. USE BOLT LENGTHS SO THAT PROJECTION BEYOND NUT IS AT LEAST TWO THREADS, AND NOT MORE THAN 10 mm.
26. PROVIDE A COLOUR FLASH AT LOCATIONS OF TF AND TB BOLTS. DEGREASE AND LIGHTLY OIL TF AND TB BOLTS PRIOR TO INSTALLATION. TENSION TF AND TB BOLTS USING PART-TURN METHOD (OR TAMPER PROOF LOAD INDICATING WASHERS FOR TF BOLTS) TO AS4100. DO NOT USE CALIBRATED TORQUE WRENCHES. PROVIDE WITNESS MARKS ON BOLT AND NUT. PROVIDE A HARDENED WASHER UNDER BOLT HEAD OR NUT, WHICHEVER IS ROTATED. DO NOT REUSE TB OR TF BOLTS ONCE TENSIONED.
27. SLIP FACTOR ASSUMED FOR FRICTION TYPE BOLTS = 0.35. TREAT CONTACT SURFACES BY WIRE BRUSHING OR LIGHT BLASTING TO CLASS 3 (SURFACE PROFILE 35 TO 65 MICRONS) AS REQUIRED TO ACHIEVE ASSUMED SLIP FACTOR.
28. USE BOLTS, SCREWS, NUTS AND WASHERS HOT DIP GALVANIZED BY MANUFACTURER TO AS1214. TAP GALVANIZED NUTS 0.4 mm OVERSIZE TO SUIT GALVANIZED THREADS TO AS1214 AND OIL FOR PROTECTION. INSTALL WASHERS UNDER BOLT HEAD OR NUT, WHICHEVER PART IS ROTATED. USE HARDENED OR PLATE WASHERS UNDER BOTH HEAD AND NUT FOR OVERSIZED AND SLOTTED HOLES TO AS4100. USE TAPERED WASHERS AS REQUIRED UNDER NON-ROTATING PART.
29. SLOTTED HOLES TO BE 2.5 x BOLT DIAMETER LONG UNO. BOLTS TO BE SET CENTRAL IN SLOT UNO. USE 8 mm PLATE WASHERS UNDER BOLT HEAD AND NUT TO COMPLETELY COVER HOLE.

CONNECTIONS

30. STEEL CONNECTION DETAILS TO BE IN ACCORDANCE WITH AS4100 AND AUSTRALIAN STEEL INSTITUTE (ASI) STRUCTURAL STEEL CONNECTION SERIES OF MANUALS AND GUIDES UNO.
31. MAKE BOLTED STRUCTURAL CONNECTIONS WITH 10 mm THICK CLEAT PLATES AND 2 M16 8.8/S BOLTS UNO. USE M12 4.6/S BOLTS FOR PURLINS UP TO 250 DEEP UNO. STIFFENERS, PURLIN AND GIRT CLEATS AND FLY BRACE CLEATS TO BE 8 mm THICK UNO. ROD BRACING TO HAVE TURNBUCKLES WITH FULL CAPACITY OF ROD UNO.
32. PROVIDE CLEATS AND DRILL HOLES NECESSARY FOR FIXING OTHER ELEMENTS TO STEELWORK. SHOW ON SHOP DRAWINGS.
33. PROVIDE RADIUSED CORNERS ON EXPOSED CLEATS TO REDUCE RISK OF IMPALEMENT AND LACERATIONS.
34. PROVIDE BOLTED CLEAT CONNECTIONS TO SITE WELDED CONNECTIONS CAPABLE OF BEING LOADED BEFORE OR WHILE CONNECTIONS ARE WELDED TOGETHER.
35. CROP INTERNAL CORNERS OF CLEATS AND STIFFENERS, etc TO FACILITATE DRAINAGE. PROVIDE DRAINAGE HOLES TO PREVENT WATER PONDING ON STRUCTURAL ELEMENTS DURING CONSTRUCTION. SHOW PROPOSED HOLES ON SHOP DRAWINGS.
36. CLEARLY MARK CONNECTIONS SUBJECT TO VIBRATION. USE LOCK NUTS FOR BOLTS SUBJECT TO VIBRATION.

DURABILITY AND PROTECTIVE COATINGS

1. ALL EXPOSED STEELWORK TO BE HOT DIPPE GALVANISED.
2. FOR STEEL PROTECTIVE TREATMENT REFER TO TfNSW SPECIFICATION B220.

DELIVERABLES

3. SUBMIT NAMES AND CONTACT DETAILS OF PROPOSED FABRICATION AND INSTALLATION SUBCONTRACTORS.
4. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS; REFER GENERAL–DELIVERABLES NOTES.
5. PROVIDE DOCUMENTARY EVIDENCE (INCLUDING TEST RESULTS) OF COMPLIANCE WITH RELEVANT AUSTRALIAN STANDARDS ISSUED BY MANUFACTURER FOR ALL STEELWORK AND EACH BATCH OF FASTENERS USED. EVIDENCE MUST PROVIDE CLEAR VERIFICATION THAT PRODUCT MEETS RELEVANT AUSTRALIAN STANDARDS AND BE WRITTEN IN ENGLISH ALPHANUMERIC CHARACTERS. EVIDENCE TO INCLUDE: NAMES AND ADDRESSES OF MANUFACTURER, SUPPLIER AND TESTING AUTHORITY; TEST CERTIFICATE NUMBER AND DATE WITH PAGE NUMBER ON EACH PAGE; PRODUCT TESTING SPECIFICATION AND GRADE OF STEEL; PRODUCT DESIGNATION AND RELEVANT DIMENSIONS; PRODUCT STEEL MAKING PROCESS; LENGTH, BUNDLE, PACK OR UNIQUE IDENTIFIER TO WHICH CERTIFICATE APPLIES; HEAT NUMBER (FROM CASTING); MECHANICAL PROPERTIES FROM TENSILE TEST (ALL VALUES CITED IN AS/NZS STANDARD); WHETHER EACH MEASURED MECHANICAL PROPERTY COMPLIES WITH AS/NZS STANDARD; CHEMICAL ANALYSIS RESULTS AND TYPE OF ANALYSIS UNDERTAKEN; CUSTOMER PURCHASE ORDER TO MATCH BATCH NUMBER; ANY OTHER SYSTEM REFERENCE NUMBERS AND SIGNATURE OF AUTHENTICITY.

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PREPARED FOR: CONNECT SYDNEY

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INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STRUCTURAL
GENERAL NOTES - SHEET 2

DRAWING SET No: PART SHEET: 4 OF 41 A1
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CONCRETE

CONCRETE MIX

1. WORKMANSHIP AND MATERIALS TO COMPLY WITH AS3600, AS2870, AS3610, AS1379, AS1478, AS3582, AS3799, AS2758.1, AS5100.5 AND AS3972.
2. CONCRETE WORKS FOR BORED PILES SPECIFICATION SHALL COMPLY WITH TfNSW SPECIFICATIONS B80.
3. WET CONCRETE TO BE UNIFORM, HOMOGENEOUS, COHESIVE AND ABLE TO WORK READILY INTO CORNERS AND AROUND REINFORCEMENT COMPLETELY FILLING FORMWORK WITHOUT SEGREGATION, EXCESS FREE WATER ON SURFACE, LOSS OF MATERIAL OR CONTAMINATION. CONCRETE TO HAVE GOOD DIMENSIONAL STABILITY AND ABLE TO RESIST PLASTIC SETTLEMENT CRACKING, THERMAL CRACKING AND SHRINKAGE CRACKING.
4. FINISHED CONCRETE TO BE A DURABLE, DENSE, HOMOGENEOUS MASS COMPLETELY FILLING FORMWORK, EMBEDDING REINFORCEMENT AND TENDONS, AND FREE OF STONE POCKETS OR HONEYCOMBS, OF UNIFORM COLOUR AND TEXTURE, WITH LOW PERMEABILITY AND ADEQUATE BUT NOT EXCESSIVE STRENGTH FOR GRADE.
5. CONCRETE BLEED TO BE LESS THAN 3% FOR FLOOR AND ROOF SLABS, LESS THAN 2% FOR WALLS.
6. AIR ENTRAINMENT IS NOT PERMITTED UNLESS APPROVED IN WRITING BY SUPERINTENDENT.
7. REVIEW LOCATION OF EMBEDDED ITEMS TO MINIMIZE POSSIBLE ZONES OF POOR COMPACTION THAT MAY COMPROMISE STRUCTURAL INTEGRITY.
8. EXTERNALLY EXPOSED CONCRETE TO BE CLASSIFICATION B1 UNO.
9. QUALITY OF CONCRETE ELEMENTS TO BE AS FOLLOWS:

STRUCTURAL ELEMENT	BLINDING	AMENITIES BULDING RAFT SLAB	NOISE WALL	BORED PILES
EXPOSURE CLASSIFICATION	-	B1	B1	B1
STRENGTH GRADE (MPa)	N7	S32	S32	S32
MINIMUM DENSITY (kg/m³)	-	2350	2350	TfNSW SPECIFICATION B80
MAX AGGREGATE SIZE (mm)	-	20	20	
MAXIMUM / PEAK INSITU CONCRETE TEMPERATURE	-	65°C	65°C	
CEMENT TYPE	GB	GP	GP	
MINIMUM CEMENTITIOUS CONTENT (kg/m³)	100	270	270	
MAXIMUM WATER/CEMENTITIOUS RATIO	-	0.5	0.5	
MAX. 56 DAY DRYING SHRINKAGE (MICROSTRAIN)	-	650	650	

9. SUPPLEMENTARY CEMENTITIOUS MATERIALS INCLUDE AMORPHOUS SILICA FUME, FLY ASH, AND GROUND GRANULATED BLAST FURNACE SLAG (GGBFS OR SLAG) COMPLYING WITH AS3582.
10. RHEOLOGY, WORKABILITY AND SLUMP TO BE AS REQUIRED FOR PLACEMENT (eg PUMPING, CHUTE etc), COMPACTION AND FINISHING. USE SUPERPLASTICISERS AND HIGH RANGE WATER REDUCERS TO AS1478 TO ACHIEVE ADEQUATE WORKABILITY.
11. MAXIMUM SULPHATE CONTENT OF CONCRETE TO BE LESS THAN 5% BY MASS OF ACID SOLUBLE SO3 AS A PERCENTAGE OF CEMENTITIOUS MATERIAL.
12. TOTAL REACTIVE ALKALI CONTENT IN CONCRETE TO BE LESS THAN 2.8 kg/m3 Na2Oe (EQUIVALENT).
13. USE CEMENTITIOUS MATERIALS LESS THAN SIX MONTHS OLD. USE BAGGED CEMENT IN ORDER OF RECEIPT.
14. FOR GENERAL BLENDED CEMENT (GB) CONTAINING ORDINARY PORTLAND CEMENT PLUS AT LEAST 5% SUPPLEMENTARY CEMENTITIOUS MATERIALS:
    - SILICA FUME TO BE LESS THAN 10%, OR
    - FLYASH TO BE LESS THAN 25%, OR
    - GROUND GRANULATED BLAST FURNACE SLAG TO BE LESS THAN 40%. FOR DOUBLE BLENDED CEMENT TOTAL SUPPLEMENTARY CEMENTITIOUS MATERIAL MUST BE LESS THAN SMALLER OF PERCENTAGES GIVEN ABOVE FOR CONSTITUENTS INCLUDED. FOR TRIPLE BLENDED CEMENT TOTAL SUPPLEMENTARY CEMENTITIOUS MATERIAL MUST BE LESS THAN 40%.
15. TEST FINE AND COARSE AGGREGATES FOR POTENTIAL AGGREGATE ALKALI REACTIVITY (AAR) USING CSIRO ACCELERATED MORTAR BAR TEST (REFER SAA HANDBOOK HB-69 APPENDIX B3.2). ALTERNATIVELY USE ASTM C1293 CONCRETE PRISM TEST. PETROGRAPHIC TESTING CAN PROVIDE ADDITIONAL AGGREGATE AAR RISK INFORMATION. TESTS MUST USE SAME CEMENT TYPE AS PROPOSED IN THE WORKS.
16. ADMIXTURES TO COMPLY WITH AS1478. ADMIXTURES MUST NOT REDUCE STRENGTH OF CONCRETE BELOW SPECIFIED VALUE. ADMIXTURES MUST NOT CONTAIN CALCIUM CHLORIDE USE ADMIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONCRETE ADMIXTURES SHALL NOT ENHANCE CORROSION OF REINFORCEMENT, NOR BE DETRIMENTAL TO CONCRETE OR STEEL DURING EXPECTED LIFE OF STRUCTURE. DO NOT USE CHEMICAL ADMIXTURES OR OTHER MATERIALS WITHOUT SUPERINTENDENT'S WRITTEN APPROVAL.
17. MAXIMUM ACID SOLUBLE CHLORIDE ION CONTENT IS 0.4 kg/m3 OF CONCRETE. DO NOT USE STRONGLY IONIZED SALTS.
18. DO NOT ADD WATER TO CONCRETE AFTER TRUCK HAS LEFT BATCHING PLANT.
19. MIX CONCRETE TO ENSURE UNIFORM DISTRIBUTION OF CONSTITUENTS.
20. SPRAYED CONCRETE TO COMPLY WITH CONCRETE INSTITUTE OF AUSTRALIA'S REFERENCE SPECIFICATION (REFER APPENDIX A OF "RECOMMENDED PRACTICE SPRAYED CONCRETE").

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CONCRETE TESTING

21. TEST SLUMP OF EACH BATCH OF CONCRETE DELIVERED BEFORE PLACING CONCRETE FROM THAT DELIVERY. SLUMP MEASURED TO BE NO GREATER THAN TARGET SLUMP WITHIN TOLERANCES GIVEN IN AS1379 CLAUSE 5.2.3. CONCRETE OUTSIDE SLUMP TOLERANCE LIMITS IS LIABLE TO REJECTION.
22. REGISTER PROJECT FOR DISSEMINATION OF CONCRETE PRODUCTION ASSESSMENT INFORMATION. MANUFACTURER TO CARRY OUT PRODUCTION ASSESSMENT OF CONCRETE FOR COMPLIANCE WITH REQUIREMENTS OF AS1379.
23. CARRY OUT PROJECT ASSESSMENT OF CONCRETE TO AS1379 CLAUSE 6.4 AND 6.5. TAKE SAMPLES AT PROJECT SITE AT POINT OF DISCHARGE FROM AGITATOR. SPREAD SAMPLING EVENLY THROUGH POUR. SAMPLE CONCRETE FOR PROJECT ASSESSMENT CONCURRENTLY WITH EACH SAMPLE TAKEN FOR PRODUCTION ASSESSMENT AT PROJECT SITE. FOR EACH CONCRETE DESIGN MIX TAKE ONE SAMPLE FROM EACH 25 CUBIC METRES OF CONCRETE DELIVERED PER DAY, NOT LESS THAN FIVE SAMPLES TOTAL FOR EACH MIX DESIGN. EACH SAMPLE TO COMPRISE FOUR CYLINDERS: TEST TWO AT 7 DAYS AND TWO AT 28 DAYS. NOTIFY SUPERINTENDENT WITHIN 2 WORKING DAYS IF 7 DAY CONCRETE TEST RESULTS INDICATE 28 DAY STRENGTHS ARE LIKELY TO BE BELOW SPECIFIED STRENGTH.
24. FOR TYPE LH CEMENT EACH SAMPLE TO COMPRISE FOUR CYLINDERS: TEST ONE AT 7 DAYS AND TWO AT 28 DAS AND ONE AT 56 DAYS.
25. CARRY OUT DRYING SHRINKAGE TESTING TO AS1012.13. FOR EACH CONCRETE DESIGN MIX TAKE ONE SAMPLE EVERY THREE MONTHS, OR FOR EVERY 1000 m3 OF CONCRETE PLACED, A MINIMUM OF ONE SAMPLE. EACH SAMPLE TO COMPRISE THREE SPECIMENS. SAMPLE CONCRETE AT PROJECT SITE, DIRECTLY FROM DELIVERY VEHICLE. BASE ASSESSMENT ON AVERAGE OF THREE TEST RESULTS.
26. CONCRETE SAMPLING AND TESTING TO BE BY AN APPROVED INDEPENDENT NATA REGISTERED LABORATORY.

REINFORCEMENT COVER

27. COVER IS CLEAR DISTANCE BETWEEN ANY REINFORCEMENT (INCLUDING LIGATURES, TIE WIRE etc) AND OUTSIDE SURFACE OF STRUCTURAL CONCRETE.
28. COVER MUST NOT BE LESS THAN SPECIFIED. PROVIDE MINIMUM CLEAR COVER TO REINFORCEMENT AS SHOWN BELOW, EXCEPT WHERE SPECIFIED OTHERWISE.

LOCATION	COVER (mm)
BORED PILES	80
FOOTINGS, UNDERSIDE SLABS ON GROUND, etc CAST AGAINSTGROUND ON MEMBRANE	30
TOP OF SLAB - INTERIOR	20
NOISE WALL	REFER TO 520212-AURC-038-ST-DRG-008002
ELSEWHERE	50

29. PROVIDE 50 mm BLINDING CONCRETE UNDER STRUCTURAL REINFORCED CONCRETE CAST ON GROUND UNO.
30. TOLERANCE ON COVER IS +10mm, -5 mm UNO.

DURABILITY AND PROTECTIVE COATINGS

31. APPLY ANTI-GRAFFITI COATING TO ALL EXPOSED CONCRETE SURFACES IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, SYSTEM PSL1 OF AS/NZS2312 TABLE 6.3 USING AN EPOXY PRIMER CONFORMING WITH AS/NZS3750.9 AND RECOMMENDED FOR APPLICATION OVER CONCRETE BY THE MANUFACTURER. COLOUR AND FINISH OF THE COATING TO BE ADVISED BY URBAN DESIGNER.

REINFORCEMENT

1. SYMBOLS ON DRAWINGS FOR GRADE AND TYPE OF REINFORCEMENT ARE AS FOLLOWS:
    - R: STRUCTURAL GRADE 250 PLAIN ROUND BAR TO AS/NZS4671
    - N: HOT ROLLED GRADE 500 DEFORMED (RIBBED) BAR DUCTILITY CLASS N TO AS/NZS4671
    - L: HOT ROLLED GRADE 500 DEFORMED BAR DUCTILITY CLASS L TO AS/NZS4671
    - SL: HARD DRAWN WIRE GRADE 500 SQUARE MESH DUCTILITY CLASS L TO AS/NZS4671
    - RL: HARD DRAWN WIRE GRADE 500 RECTANGULAR MESH DUCTILITY CLASS L TO AS/NZS4671
    - TM: HARD DRAWN STEEL GRADE 500 TRENCH MESH DUCTILITY CLASS L TO AS/NZS4671
    - W: GRADE 500 STEEL REINFORCING WIRE TO AS/NZS4671
2. MANUFACTURERS AND PROCESSORS OF STEEL REINFORCING AND PRE-STRESSING MATERIALS MUST HOLD A VALID CERTIFICATE OF APPROVAL ISSUED BY ACRS (AUSTRALASIAN CERTIFICATION AUTHORITY FOR REINFORCING AND STRUCTURAL STEELS). PROVIDE ACRS CERTIFICATION OF COMPLIANCE WITH AS/NZS4671, PRODUCT TAGS AND SUPPORTING DOCUMENTATION FOR ALL REINFORCEMENT. PROVIDE CERTIFICATION OF COMPLIANCE WITH AS/NZS4672.1 FOR ALL PRESTRESSING TENDONS.
3. PROVIDE DOCUMENTATION TO SHOW THAT REINFORCEMENT SUPPLIER AND MILL COMPLIES WITH AS/NZS4671.
4. REINFORCEMENT MUST HAVE UNIQUE MARKS TO IDENTIFY SUPPLIER.
5. DO NOT USE LOW DUCTILITY REINFORCEMENT (GRADE L) UNO.
6. USE MESH SUPPLIED IN FLAT SHEETS UNLESS APPROVED OTHERWISE.
7. REINFORCEMENT TO BE CLEAN, FREE OF LOOSE MILL SCALE, RUST, OIL, GREASE, MUD OR OTHER MATERIAL THAT MIGHT REDUCE BOND BETWEEN REINFORCEMENT AND CONCRETE.
8. SUBMIT PROPOSAL FOR CUTTING OR DISPLACING REINFORCEMENT. CLEAN AND PROTECT EXPOSED CUT ENDS OF REINFORCEMENT USING 6 mm APPROVED EPOXY.
9. DESIGNATION OF REINFORCEMENT BARS IS AS SHOWN: eg. 17 N20 - 350 EF
    - 17: DENOTES No OF BARS AND TYPE IN GROUP
    - N: DENOTES BAR GRADE AND DUCTILITY CLASS
    - 20: DENOTES NOMINAL BAR DIAMETER IN mm
    - 350: DENOTES SPACING IN mm
    - EF: DENOTES LOCATION
10. TO MINIMIZE TRIP HAZARDS CONSIDER MAXIMUM REINFORCEMENT BAR SPACING FOR TRAFFICABLE AREAS PRIOR TO CASTING CONCRETE OF 200 mm. ALTERNATIVELY PROVIDE SL82 ADDITIONAL IF MAIN REINFORCEMENT SPACING IS GREATER THAN 200 mm.
11. FOLLOWING ABBREVIATIONS APPLY TO LOCATION OF REINFORCEMENT:

EW:	EACH WAY	FF:	FAR FACE	BB:	BOTTOM BOTTOM (LAID FIRST)
EF:	EACH FACE	B:	BOTTOM	TT:	TOP TOP (LAID LAST)
NF:	NEAR FACE	T:	TOP C OR	CP:	CENTRALLY PLACED

12. PROVIDE STANDARD COGS AND HOOKS TO AS3600. TERMINATE ENDS OF COLUMN AND BEAM LIGATURES IN A HOOK OF AT LEAST 135 DEGREES. PROVIDE FIRST LIGATURE WITHIN 50 mm OF FACE OF SUPPORT.
13. COG HALF OF SLAB BOTTOM REINFORCEMENT AT EDGES TO ACHIEVE ANCHORAGE.
14. PROVIDE ONE CONTINUOUS BAR PARALLEL TO (WITHIN 75 mm OF) CONCRETE EDGES, INCLUDING CONSTRUCTION JOINTS UNO.
15. PROVIDE N12 DIAGONAL TRIMMER BARS BY 1000 mm LONG AT EACH LAYER OF REINFORCEMENT AT RE-ENTRANT CORNERS, OPENINGS, SERVICE PENETRATIONS etc UNO.
16. PROVIDE N12-300 DISTRIBUTION BARS LAPPED 500 WHERE NONE SHOWN ON DRAWINGS.
17. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY IN TRUE PROJECTION. SET REINFORCEMENT OUT AT EQUAL CENTRES IF SPACING IS NOT NOMINATED.
18. CAP STARTER BARS AND OTHER REINFORCEMENT TO REDUCE RISK OF IMPALEMENT AND LACERATIONS.
19. ENSURE ALL LAID REINFORCING BARS ARE RESTRAINED BEFORE STOPPING WORK TO PREVENT BARS ROLLING UNDERFOOT.
20. REINFORCEMENT TO BE SUPPLIED TO SITE PRE-BENT TO REQUIRED SHAPES. REINFORCEMENT CAGES TO BE PRE-FABRICATED OFF-SITE AS FAR AS PRACTICABLE.
21. SECURE REINFORCEMENT IN POSITION AGAINST DISPLACEMENT AND MAINTAIN SPECIFIED CLEAR CONCRETE COVER TO REINFORCEMENT (INCLUDING FITMENTS) BY APPROVED CHAIRS, SPACERS, LIGATURES OR TIES AT 800 mm MAXIMUM CENTRES EACH WAY UNO. PROVIDE ADEQUATE SUPPORT TO PREVENT DISPLACEMENT OF REINFORCEMENT BY WORKMEN OR EQUIPMENT DURING CONCRETE PLACEMENT.
22. SECURELY TIE REINFORCEMENT WITH WIRE TIES. TURN ENDS OF TIE WIRES INTO CONCRETE, CLEAR OF COVER ZONE.
23. TIE BUNDLED BARS TOGETHER SO THEY ARE IN CLOSEST POSSIBLE CONTACT WITH 2.5 mm DIAMETER WIRE AT CENTRES LESS THAN 24 TIMES DIAMETER OF SMALLEST BAR IN BUNDLE.
24. FOR BEAMS, TIE STIRRUPS TO BARS IN EACH CORNER OF EACH STIRRUP. FIX OTHER LONGITUDINAL BARS TO STIRRUPS AT 1000 MAXIMUM CENTRES.

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REFERENCES:

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SCALE: NOT TO SCALE

REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	JO/04.07.24	DC/04.07.24	VT/04.07.24
C	ISSUED FOR 100% DETAILED DESIGN	JO/11.04.24	MP/11.04.24	VT/11.04.24
B	ISSUED FOR 80% DETAILED DESIGN	JO/13.02.24	DC/13.02.24	VT/13.02.24
A	ISSUED FOR 20% DETAILED DESIGN	JO/21.09.23	MP/21.09.23	VT/21.09.23

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SYDENHAM STATION BUS LAYOVER
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GENERAL NOTES - SHEET 3

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CONTINUATION FOR REINFORCEMENT

25. FOR EXTERNAL OR CORROSIVE APPLICATIONS USE HOT DIP GALVANIZED TIE WIRES
26. SUPPORT REINFORCEMENT ON PROPRIETARY CONCRETE, METAL OR PLASTIC SUPPORTS ADEQUATE TO WITHSTAND CONSTRUCTION AND TRAFFIC LOADS AND MAINTAIN DURABILITY OF FINISHED CONCRETE STRUCTURE. FOR CONCRETE SURFACES WITH B2 EXPOSURE CLASSIFICATION OR GREATER, ONLY USE PROPRIETARY HIGH STRENGTH FIBRE REINFORCED CEMENT SPACER BLOCKS OR SUPPORTS.
27. DO NOT PLACE OR MOVE REINFORCEMENT DURING OR AFTER CONCRETE PLACEMENT.
28. ENSURE EMBEDDED ITEMS (INSERTS, THREADED SOCKETS, FERRULES, BOLTS, DISSIMILAR METAL ITEMS, etc) IN COVER CONCRETE OR EXPOSED TO AIR ARE NOT IN CONTACT WITH REINFORCEMENT. PROVIDE ISOLATION BETWEEN DISSIMILAR METALS, AND BETWEEN REINFORCEMENT AND EXPOSED ITEMS.
29. OBTAIN SUPERINTENDENT'S APPROVAL OF INSERTS, FIXINGS AND OTHER ITEMS EMBEDDED IN COVER CONCRETE.
30. DO NOT WELD REINFORCEMENT, CAST-IN ITEMS etc UNLESS APPROVED UNO.
31. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS OR AS APPROVED BY SUPERINTENDENT. STAGGER LAPS WHERE POSSIBLE. LAPPED SPLICE LENGTHS TO COMPLY WITH AS3600. CLEAR SPACING BETWEEN LAPPED BARS TO BE LESS THAN THREE TIMES BAR DIAMETER. WHERE BAR SIZES VARY USE LAPPED SPLICE LENGTH FOR SMALLER BAR DIAMETER.
32. LAPPED SPLICE LENGTHS FOR HORIZONTAL BARS WITH MORE THAN 300 mm CONCRETE CAST BELOW THE BAR AND SPACED AT ≥150 mm CENTRES TO COMPLY WITH THE FOLLOWING UNO:

COVER	f'c	N12	N16	N20	N24	N28	N32
≥25	≥20	770	1150	1570	-	-	-
≥40	≥25	630	980	1350	1740	-	-
≥40	≥32	510	770	1100	1440	1810	2220
≥50	≥40	460	630	890	1200	1530	1890

DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS.
LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO DETAILS OR SUPERINTENDENT.
EPOXY COATED BARS, BARS IN LIGHTWEIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS. REFER TO AS3600 OR SUPERINTENDENT.

33. LAPPED SPLICE LENGTHS FOR VERTICAL BARS (AND HORIZONTAL BARS WITH LESS THAN 300 mm CONCRETE CAST BELOW THE BAR) AND SPACED AT ≥150 mm CENTRES TO COMPLY WITH THE FOLLOWING UNO:

COVER	f'c	N12	N16	N20	N24	N28	N32
≥25	≥20	590	890	1210	-	-	-
≥40	≥25	490	750	1040	1340	-	-
≥40	≥32	390	600	840	1110	1400	1710
≥50	≥40	350	480	690	920	1180	1450

NOT APPLICABLE FOR BARS IN COLUMNS.
DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS.
LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO DETAILS OR SUPERINTENDENT.
EPOXY COATED BARS, BARS IN LIGHTWEIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS. REFER TO AS3600 OR SUPERINTENDENT.

34. REINFORCEMENT SPLICES IN TENSION MEMBERS MUST BE WELDED OR MECHANICAL SPLICES.
35. ENSURE REINFORCEMENT COUPLERS PROVIDE FULL TENSION CAPACITY OF REINFORCEMENT.
36. LAY MESH REINFORCEMENT SO THAT MINIMUM COVER IS TO MAIN WIRES UNO.
37. PROVIDE MINIMUM MESH LAPS TO CROSS WIRES OF REINFORCING MESH, SO TWO OUTERMOST WIRES OF ONE SHEET OVERLAP TWO OUTERMOST WIRES OF ADJACENT SHEET BY AT LEAST 25 mm, THUS:

RECTANGULAR MESHES	225 END LAP	125 SIDE LAP
SQUARE MESHES SL102 TO SL42	225 END LAP	225 SIDE LAP
SL81	125 END LAP	125 SIDE LAP
TRENCH MESH	500 END LAP	N/A

USE LAP LENGTHS BASED ON LARGEST WIRE SPACING. DO NOT LAP MORE THAN THREE SHEETS AT ANY ONE POINT.

38. ALTERNATIVELY USE N12 SPLICE BARS TO LAP ADJACENT SHEETS OF MESH, SPACING OF SPLICE BARS TO MATCH SPACING OF BARS IN MESH, SPLICE BARS TO OVERLAP MESH BY 750 mm MINIMUM UNO.
39. SPLICE TRENCH MESH BY A LAP OF 750 mm MINIMUM UNO. AT T- AND L-INTERSECTIONS, CONTINUE TRENCH MESH FULL WIDTH OF INTERSECTION. AT L-INTERSECTIONS PROVIDE AN N12 L BAR TO LAP 750 mm WITH OUTSIDE BARS UNO.
40. DO NOT WELD REINFORCEMENT UNLESS SHOWN ON DRAWINGS OR OTHERWISE APPROVED BY SUPERINTENDENT. WHERE ALLOWED, WELDING OF REINFORCEMENT (INCLUDING TACK-WELDING FOR FIXING PURPOSES) TO COMPLY WITH AS3600 AND AS/NZS1554.3. DO NOT WELD REINFORCEMENT WITHIN 75 mm OF A SECTION THAT HAS BEEN BENT (100 mm FOR N28 AND N32 BARS, 125 mm FOR N36 BARS).
EXTENT OF WELD INSPECTION/TESTING TO BE:
- VISUAL SCANNING 100% OF WELDS
- VISUAL EXAMINATION 50% OF WELDS
- RADIOGRAPHIC OR ULTRASONIC 5% OF FILLET WELDS AND 100% OF BUTT WELDS.

41. DO NOT BEND OR STRAIN REINFORCEMENT IN A WAY THAT MAY CAUSE DAMAGE. BEND DIAMETERS TO BE TO AS3600. BARS TO BE BENT COLD UNO. GRADE 250 BARS MAY BE BENT AT TEMPERATURES UP TO 850°C. DO NOT COOL HEATED BARS BY QUENCHING.
42. USE ONLY N12 QUENCHED AND SELF-TEMPERED REINFORCEMENT FOR PULLOUT BARS OR BARS TO BE BENT ON SITE (eg TEMPCORE BY ONESTEEL). DO NOT USE MICROALLOY REINFORCEMENT FOR PULLOUT BARS AND BARS TO BE BENT ON SITE. CAST IN PULLOUT BARS WITH BEND CLEAR OF CONCRETE. USE PROPRIETARY POWERED BENDING TOOLS WITH PIN DIAMETERS TO AS3600 AT AMBIENT TEMPERATURE FOR SITE BENDING OF PULLOUT BARS, USING A SINGLE SMOOTH BENDING ACTION. DO NOT USE IMPACT BLOWS OR HAMMER BARS, OR BEND BARS USING A PIPE. TAKE CARE TO MINIMISE SURFACE DAMAGE, AND INSPECT REBENT BARS FOR CRACKS. REPORT CRACKS TO SUPERINTENDENT.
43. DO NOT CUT, BEND NOR HEAT REINFORCEMENT ON SITE WITHOUT SUPERINTENDENTS PRIOR WRITTEN APPROVAL.
44. ENSURE HOT BENDING OF REINFORCEMENT COMPLIES WITH AS3600 CLAUSE 17.2.3.1. DO NOT HEAT D500N REINFORCEMENT. USE TEMPERATURE INDICATOR PAINTS AND/OR CRAYONS TO ENSURE REINFORCEMENT TEMPERATURE DOES NOT EXCEED MANUFACTURERS RECOMMENDED LIMITS, 450 DEGREES MAXIMUM. REINFORCEMENT THAT CHANGED COLOUR DURING HEATING MUST BE DISCARDED.
45. DO NOT BEND REINFORCEMENT AFTER GALVANISING OR APPLICATION OF OTHER COATINGS.
46. USE 10 mm HOT DIPPED GALVANIZED DANLEY DIAMOND DOWELS (TEL: 07 3899 3466). INSTALL DOWELS PARALLEL TO SURFACE OF SLAB. MAINTAIN DOWEL ALIGNMENT BY USE OF A SUITABLE SUPPORT ASSEMBLY TO ENSURE HORIZONTAL AND VERTICAL ALIGNMENT TOLERANCE OF 2 IN 300. DO NOT INSERT DOWELS DURING PLACEMENT OF CONCRETE.
47. PERCUSSION ROTARY DRILL HOLES FOR GROUTED BARS AND THREADED RODS (NOTE: CORED HOLES MUST BE ROUGHENED). HOLE DIAMETER AND INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EMBEDMENT LENGTHS AS PER DRAWINGS.
48. ENSURE HOLES FOR GROUTED BARS AND THREADED RODS ARE DRY AND CLEANED THOROUGHLY BEFORE INSTALLING ANCHORS. WIRE BRUSH HOLES AND BLOW OUT WITH COMPRESSED AIR TO REMOVE DUST. FILL HOLE WITH ADHESIVE USING A CAULKING GUN FROM BOTTOM OF HOLE OUTWARDS. DISCARD ADHESIVE FROM FIRST TRIGGER PULL. PROVIDE BARS/THREADED RODS WITH CHAMFERED (CHISELLED) ENDS. BARS TO BE DEGREASED, AND FLAKY RUST REMOVED. ROTATE WHILE INSERTING TO ENSURE FULLY COATED AND PUSH FULLY INTO HOLE. PROTECT FROM DISTURBANCE DURING CURING. FOLLOW MANUFACTURER'S RECOMMENDATIONS.
49. USE HILTI-HY200R OR HILTI HIT-RE500v3 ADHESIVE IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS UNO.

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REFERENCES:

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	JO/04.07.24	DC/04.07.24	VT/04.07.24
C	ISSUED FOR 100% DETAILED DESIGN	JO/11.04.24	MP/11.04.24	VT/11.04.24
B	ISSUED FOR 80% DETAILED DESIGN	JO/13.02.24	DC/13.02.24	VT/13.02.24
A	ISSUED FOR 20% DETAILED DESIGN	JO/21.09.23	MP/21.09.23	VT/21.09.23

COORDINATE SYSTEM: MGA_ZONE_56 GDA2020 HEIGHT DATUM: AHD

SCALE: NOT TO SCALE

DESIGN LOT CODE:

CLIENT: NSW GOVERNMENT Transport for NSW

PREPARED FOR: CONNECT SYDNEY

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DRAWN	M. COMEDES	04.07.24
DESIGNED	J. OBLEA	04.07.24
DRG CHECK	S. TYLER	04.07.24
DESIGN CHECK	B. REMEDIOS	04.07.24
PROJ/DES MNGR	J. STEWART	04.07.24
APPROVED	V. TIET	04.07.24

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STRUCTURAL
GENERAL NOTES - SHEET 4

DRAWING SET No: PART SHEET: 6 OF 41 A1
STATUS: DETAILED DESIGN - 100% BRIDGE No: ©
DRG No. 520212-AURC-038-ST-DRG-000006 REV 00 VER EDMS No. AMD No.

PLOT DATE & TIME 9/12/2024 10:32:21 AM Autodesk Docs://520212 - SRAPC/520212-AURC-038-RHI-MED-000001.rvt

DRAINAGE - GENERAL

1. ALL COORDINATES ARE REFERENCED TO GEODETIC DATUM OF AUSTRALIA (GDA94-) ZONE 56 AND ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS, STATIONS AND COORDINATES ARE EXPRESSED IN METRES.
3. REFER TO TfNSW STANDARD DRAWING INDEX TABLE 3 FOR DRAWINGS TO BE USED FOR THIS PROJECT.
4. ALL GRADING POINTS ARE RELATED TO FINISHED ROAD LEVEL.
5. ALL LOCATIONS, ORIENTATION AND LEVELS MUST BE VERIFIED ON SITE BEFORE COMMENCING ANY WORK. REFER DISCREPANCIES TO THE PRINCIPAL. DO NOT OBTAIN DIMENSIONS FROM SCALING. EXISTING SURFACE LEVELS ON THE DRAWINGS ARE INDICATIVE ONLY.
6. THE DOCUMENTED DRAINAGE SYSTEM IS DETAILED ONLY FOR THE PERMANENT ROAD CONFIGURATION UNLESS NOTED OTHERWISE.
7. EXISTING STORMWATER DRAINAGE PIPES AND MANHOLES WITHIN THE LIMITS OF WORK MUST BE RETAINED, DECOMMISSIONED OR MODIFIED AS SPECIFIED.
8. CONTRACTOR TO UNDERTAKE PRE AND POST CONSTRUCTION CCTV INSPECTIONS FOR ALL PIPE LINES IMPACTED BY THE WORKS AND TO BE PROVIDED TO TfNSW FOR ACCEPTANCE PRIOR TO HAND-OVER.
9. CONTRACTOR TO MANAGE AND STAGE CONSTRUCTION WORKS, INCLUDING PROVIDING TEMPORARY DIVERSION WORKS, IF NECESSARY, TO ENABLE EXISTING DRAINAGE SYSTEM TO PERFORM TO ITS CURRENT STANDARD.

SAFETY - IN - DESIGN INFORMATION

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH TfNSW QA SPECIFICATION G22 AND THE PROJECT SAFETY IN DESIGN REGISTER. OTHER HAZARDS AND RISKS IDENTIFIED IN THESE DOCUMENTS TO BE ADDRESSED BY CONTRACTOR AND SUB-CONTRACTORS ON SITE DURING MEETINGS.
2. AT ALL TIMES DURING CONSTRUCTION, ADEQUATE SAFETY PROCEDURE SHALL BE TAKEN TO PREVENT PERSONNEL FROM FALLING INTO PITS AND OPEN TRENCHES.

EXISTING STORMWATER

1. LAYOUT OF EXISTING STORMWATER DRAINAGE HAVE BEEN PREPARED BASED ON A COMBINATION OF DRAINAGE UTILITIES SURVEY, DETAILED GROUND FEATURE SURVEY PROVIDED BY TfNSW OBTAINED DURING CURRENT DESIGN AND BYDA INFORMATION.
2. WHERE AN EXISTING PIT HAS ONLY ONE PIPE OUTLET, THE SETOUT / REFERENCE POINT OF THE EXISTING PIT IS BASED ON THE SURVEYED PIPE INVERT LEVEL.
3. WHERE AN EXISTING PIT HAS TWO OR MORE CONNECTION PIPES, THE SETOUT / REFERENCE OF THE EXISTING PIT IS BASED ON THE INTERSECTION POINT OF THE CENTERLINE OF EACH PIPE.
4. ANY EXISTING RETAINED PIPES ARE TO BE TREATED IN ACCORDANCE WITH TfNSW QA SPECIFICATION R11.
5. EXISTING STORMWATER PIPES OR CULVERTS THAT ARE IDENTIFIED TO BE DECOMMISSIONED OR ABANDONED SHALL BE ASSESSED FOR THE APPROPRIATE TREATMENT WHICH INCLUDES:
   - REMOVE AND BACKFILL - EXISTING PIPES / PITS TO BE REMOVED WITH TRENCH BACKFILLED AND COMPACTED.
   - SEAL AND GROUT - PIPE ENDS TO BE CAPPED AND PIPES INFILLED WITH GROUT.
6. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN, AND ANY PART OF THE SYSTEM IDENTIFIED AS WARRANTING REPAIR SHALL BE REPORTED TO PRINCIPAL FOR FURTHER DIRECTION.

LONGITUDINAL PAVEMENT DRAINAGE

1. ALL PIPES ARE TO BE CLASS 4 STEEL REINFORCED CONCRETE PIPE AS PER AS/NZS 4058:2007 UNLESS NOTED OTHERWISE. CONCRETE PIPES ARE TO BE RUBBER RING JOINTED SPIGOT AND SOCKET TYPE. ALL PIPEWORK IS TO LAID WITH SOCKET FACING UPSTREAM.
2. CONCRETE PIPE INSTALLATION SUPPORT TYPE TO BE MINIMUM 'HS2' IN ACCORDANCE WITH AS/NZS 3725:2007.
3. CONCRETE PIPE CLASSES HAVE BEEN DETERMINED, BASED ON TYPE HS3 SUPPORT AND TRENCH OR EMBANKMENT CONDITION INSTALLATION TO AS3725 AND TfNSW QA SPECIFICATION R11 UNLESS OTHERWISE NOTED.
4. ALL PITS AND PIPES ARE TO BE IN ACCORDANCE WITH TfNSW STANDARD DRAWINGS.
5. CONNECTION BETWEEN PIPES AND STRUCTURES TO BE UNDERTAKEN IN ACCORDANCE WITH TfNSW QA SPECIFICATION R11 AND TfNSW STANDARD DRAWINGS.
6. PIPE CLASSES HAVE BEEN CHECKED FOR OPERATIONAL TRAFFIC LOADING AND THE FOLLOWING CONSTRUCTION MINIMUM COVER REQUIRED ABOVE EXISTING AND NEW PIPES BEFORE USING THE PLANT SHOWN IN TABLE 1. PIPES ARE TO BE PROTECTED IN ACCORDANCE WITH TfNSW QA SPECIFICATION R11.

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TABLE 1 - MINIMUN COVER FOR CONSTRUCTION LOADS

PLANT	MINIMUN COVER FOR CONSTRUCTION LOADS	
	EXISTING PIPE (mm)	RCP CLASS 4 (mm)
EXCAVATOR CAT 325B - 25.9T	400	300
ROLLER CPAAVR - 10T	900	400
GRADER CAT140H - 17T	400	300
TRUCK CATD300E - 49T	500	400
COMPACTOR CAT815F - 20.9T	400	300
DOZER CATD9R - 48.3T	400	300
SCRAPER CAT623F - 60.2T	800	400
EXCAVATOR - COMPACTION WHEEL CAPAACWH1 - 20T	800	400
EXCAVATOR - COMPACTION WHEEL CAPAACWH2 - 25T	1050	500

DRAINAGE DURABILITY

1. PRECAST PIPES SHALL BE IN ACCORDANCE WITH AS/NZS 4058:2007. ALL PIPES SHALL BE BACKFILLED WITH NON-AGGRESSIVE SOIL (pH >5.5, S04 < 1000 mg/Kg (ppm) AND CHLORIDE < 1000 mg/Kg (ppm)). THE EXPOSURE CLASSIFICATION FOR PRECAST PIPES HAS BEEN CLASSIFIED AS 'NORMAL' UNLESS NOTED OTHERWISE IN THE PIT AND PIPE SCHEDULE.

TRANSPORT FOR NSW SPECIFICATIONS

- QA R11 STORMWATER DRAINAGE
- QA R44 EARTHWORKS
- QA R53 CONCRETE FOR GENERAL WORKS

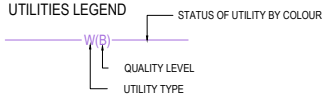
DRAINAGE STRUCTURES

1. STRUCTURES HAVE BEEN DESIGNED FOR FINAL LOADS (UNLESS STATED OTHERWISE) ACTING ON COMPLETED STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND PROVISION OF ANY TEMPORARY BRACING, PROPPING, ETC. REQUIRED DURING CONSTRUCTION. STRUCTURES MUST BE MAINTAINED IN A STABLE CONDITION AND NO PART MUST BE OVERSTRESSED.
2. FOUNDATION SUPPORT FOR DRAINAGE STRUCTURES TO BE PROVIDED IN ACCORDANCE TO TfNSW QA SPECIFICATION R11.
3. INADEQUATE FOUNDING MATERIAL FOR PIPES AND STRUCTURES MUST BE REMOVED OR IMPROVED IN ACCORDANCE WITH TfNSW QA SPECIFICATION R11.
4. TfNSW STANDARD DETAILS TO BE ADOPTED UNLESS NOTED OTHERWISE.
5. STEEL GRATES AND FRAMES ARE TO BE FABRICATED FROM MILD STEEL AND HOT DIP GALVANISED. ALL GRATES ARE TO BE CLASS D (UNLESS NOTED OTHERWISE). GRATES AND FRAMES WITHIN THE PAVEMENT SURFACE ARE TO BE BICYCLE SAFE IN ACCORDANCE WITH AS 3996 UNLESS NOTED OTHERWISE.
6. ALL WELDS TO COMPLY WITH AUSTRALIAN STANDARD AS 1554. FILLET WELDS TO BE NOT LESS THAN 6mm UNLESS NOTED OTHERWISE.
7. ALL GALVANISING TO BE IN ACCORDANCE WITH AS/NZS 2312 AND AS/NZS 4680. GALVANISING TO THREADED FASTENERS TO BE IN ACCORDANCE WITH AS 1214. MINIMUM GALVANISING 600g/sqm OTHER THAN ON FASTENERS.
8. GRATE SUPPORT TO BE CONSTRUCTED LEVEL TO ENSURE THAT THE GRATE DOES NOT ROCK AFTER INSTALLATION.
9. FOR LOCATION AND LEVEL OF PITS, REFER TO PIT SCHEDULE ON DRAWING 520212-AURC-038-DR-DRG-006001.

TABLE 3 - TfNSW STANDARD DRAWINGS

MODEL DRAWING NUMBER	DESCRIPTION	LAST AMENDED
R0220-01	GULLY PIT TYPE SA FOR PIPE DIA. UP TO 450mm	Jun-17
R0220-03	PRECAST CONCRETE LINTELS FOR TYPE SA GULLY PITS	Jun-17
R0220-21	GULLY PIT TYPE SO1	Jun-17
R0220-28	GULLY PIT WIDENING FOR PIPES GREATER THAN 450mm DIA	Jun-17
R0220-35	INSPECTION PIT WITH SINGLE OR DOUBLE CAST IRON FRAME AND COVER	Jun-17
R0240-01	INSTALLATION OF BURIED CONCRETE PIPES TYPE HS3 SUPPORT	

UTILITIES LEGEND



INSTRUCTION

COLOUR	DESCRIPTION
GREEN	DESIGN UTILITIES
PURPLE	EXISTING UTILITIES - TO BE PRESERVED
RED	EXISTING UTILITIES - TO BE DECOMMISSIONED

W(B)	E WATER MAIN
S(B)	E SEWER MAIN
G(D)	E GAS MAIN
E-HV(C)	E ELECTRICAL HIGH VOLTAGE UG
E-LV(C)	E ELECTRICAL LOW VOLTAGE UG
E-HV(B)	E ELECTRICAL HIGH VOLTAGE OH
E-LV(D)	E ELECTRICAL LOW VOLTAGE OH
OC(D)	E COMMUNICATIONS OPTIC FIBRE
OA-T	E COMMUNICATIONS ABOVE GROUND
WH	WATER HYDRANT
	WATER STOP VALVE
	WATER METER
	SEWER MANHOLE
EJB	ELECTRICAL CABLE JUNCTION BOX
EMH	ELECTRICAL CABLE MANHOLE
OFP	OPTICAL FIBRE PIT
	COMMUNICATIONS SINGLE CONCRETE PIT
	COMMUNICATIONS TWIN CONCRETE PIT
	COMMUNICATIONS TRIPLE CONCRETE PIT
TSP	MAIN COMMUNICATION PIT
TDP	TELEPHONE DISTRIBUTION PILLAR

FOR CONSTRUCTION

REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	K.G 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
AA	ISSUED FOR 100% DETAILED DESIGN	K.G 18.04.2024	A.J 18.04.2024	V.T 18.04.2024

REFERENCES:

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SCALE: NOT TO SCALE

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

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DESIGNED	K_GONZALES	04.07.2024
DRG CHECK	E_WAYMOUTH	04.07.2024
DESIGN CHECK	P_MCLEAN	04.07.2024
PROJ/DES MNGR	J_STEWART	04.07.2024
APPROVED	V_TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
DRAINAGE GENERAL NOTES

DRAWING SET No:	PART:	SHEET: 7 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-000007	REV 00.01.01	VER	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-000007.dwg
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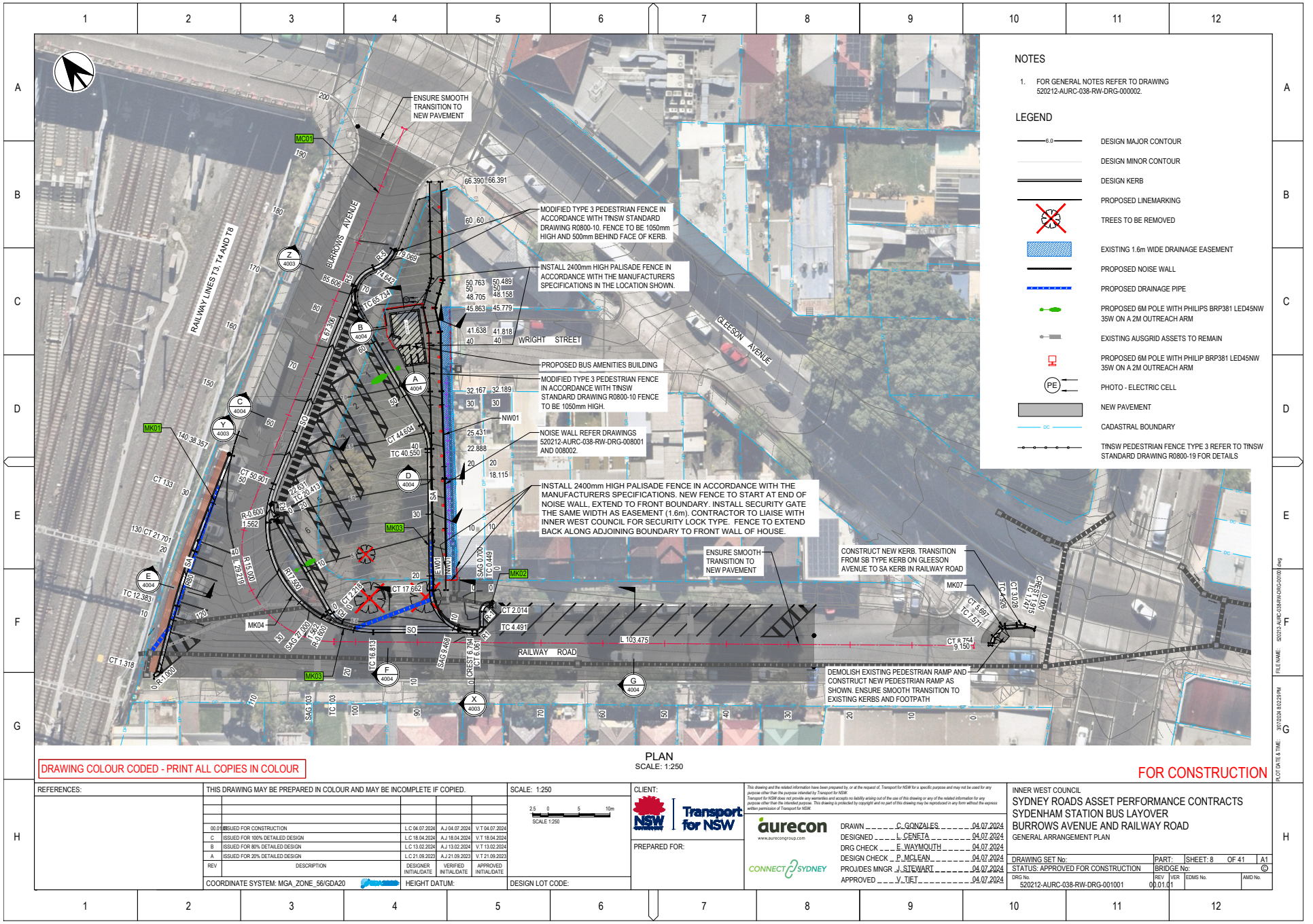

PLAN
SCALE: 1:250

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REFERENCES:	THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED.	SCALE: 1:250

REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
C	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
B	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

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DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
GENERAL ARRANGEMENT PLAN

DRAWING SET No:	PART:	SHEET: 8 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©

DRG No.	REV	VER	EDMS No.	AMD No.
520212-AURC-038-RW-DRG-001001	00	01.01		

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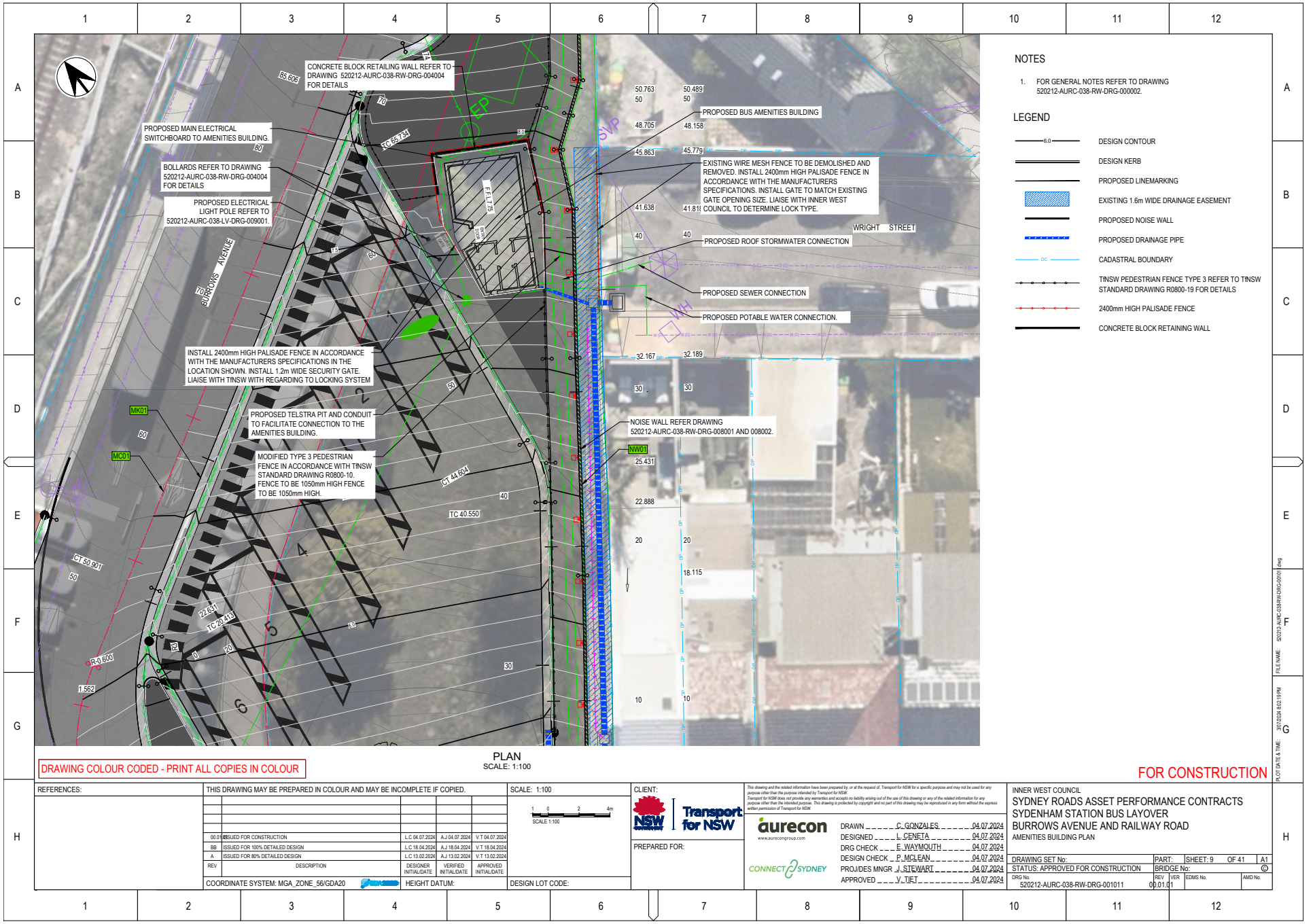
CONCRETE BLOCK RETAILING WALL REFER TO DRAWING 520212-AURC-038-RW-DRG-004004 FOR DETAILS
PROPOSED MAIN ELECTRICAL SWITCHBOARD TO AMENITIES BUILDING.
BOLLARDS REFER TO DRAWING 520212-AURC-038-RW-DRG-004004 FOR DETAILS
PROPOSED ELECTRICAL LIGHT POLE REFER TO 520212-AURC-038-LV-DRG-009001.
INSTALL 2400mm HIGH PALISADE FENCE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS IN THE LOCATION SHOWN. INSTALL 1.2m WIDE SECURITY GATE. LIAISE WITH TINSW WITH REGARDING TO LOCKING SYSTEM
PROPOSED TELSTRA PIT AND CONDUIT TO FACILITATE CONNECTION TO THE AMENITIES BUILDING.
MODIFIED TYPE 3 PEDESTRIAN FENCE IN ACCORDANCE WITH TINSW STANDARD DRAWING R0800-10. FENCE TO BE 1050mm HIGH FENCE TO BE 1050mm HIGH.
PROPOSED BUS AMENITIES BUILDING
EXISTING WIRE MESH FENCE TO BE DEMOLISHED AND REMOVED. INSTALL 2400mm HIGH PALISADE FENCE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. INSTALL GATE TO MATCH EXISTING GATE OPENING SIZE. LIAISE WITH INNER WEST COUNCIL TO DETERMINE LOCK TYPE.
PROPOSED ROOF STORMWATER CONNECTION
PROPOSED SEWER CONNECTION
PROPOSED POTABLE WATER CONNECTION.
NOISE WALL REFER DRAWING 520212-AURC-038-RW-DRG-008001 AND 008002.
BURROWS AVENUE
WRIGHT STREET
NOTES
1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
LEGEND
DESIGN CONTOUR
DESIGN KERB
PROPOSED LINEMARKING
EXISTING 1.6m WIDE DRAINAGE EASEMENT
PROPOSED NOISE WALL
PROPOSED DRAINAGE PIPE
CADASTRAL BOUNDARY
TINSW PEDESTRIAN FENCE TYPE 3 REFER TO TINSW STANDARD DRAWING R0800-19 FOR DETAILS
2400mm HIGH PALISADE FENCE
CONCRETE BLOCK RETAINING WALL
PLAN
SCALE: 1:100
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:100
00.01 ISSUED FOR CONSTRUCTION L.C 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
BB ISSUED FOR 100% DETAILED DESIGN L.C 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
A ISSUED FOR 80% DETAILED DESIGN L.C 13.02.2024 A.J 13.02.2024 V.T 13.02.2024
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
Transport for NSW
PREPARED FOR:
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CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED L. CENETA 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
AMENITIES BUILDING PLAN
DRAWING SET No:
PART:
SHEET: 9 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-001011
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-001011.dwg
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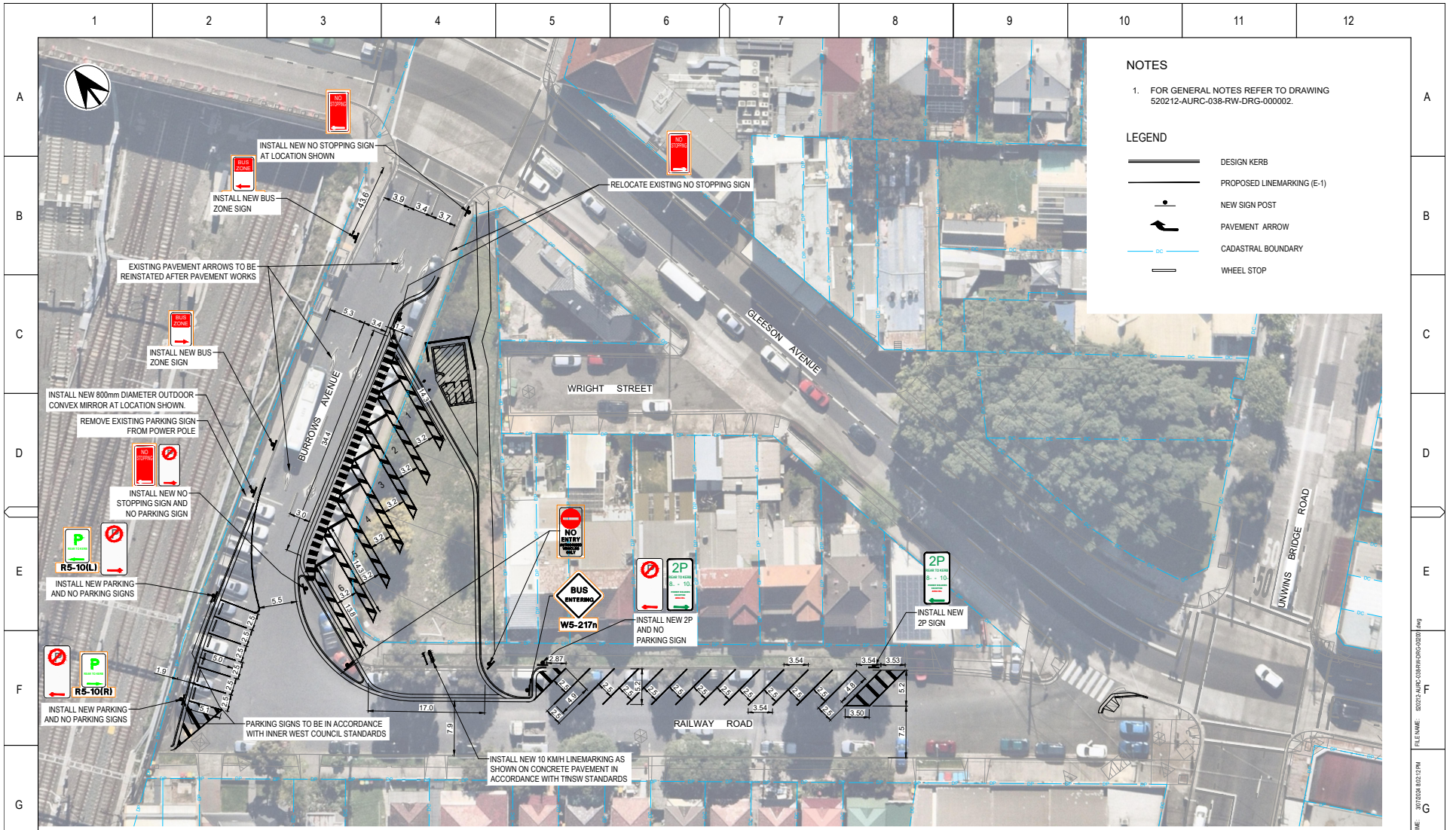

PLAN
SCALE: 1:250

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B	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 1:250

DESIGN LOT CODE:

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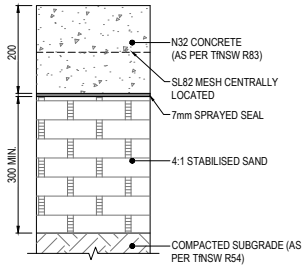
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
SIGN AND LINEMARKING PLAN

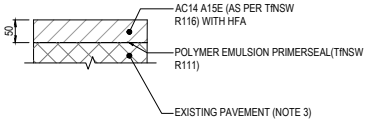
DRAWING SET No: | PART: | SHEET: 10 OF 41 | A1
STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©
DRG No. 520212-AURC-038-RW-DRG-002001 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-002001.dwg
PLOT DATE & TIME: 10/7/2024 8:02:12 PM

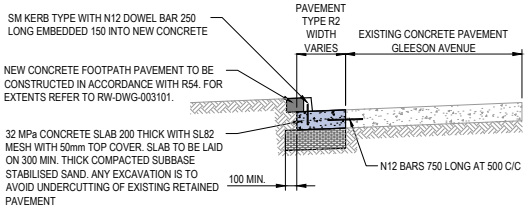
PAVEMENT TYPE R1
BUS LAYOVER
SCALE 1:5



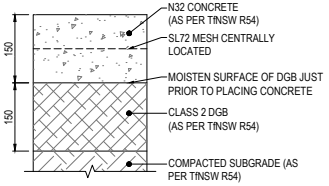
PAVEMENT TYPE R2
GLEESON AVENUE WIDENING
SCALE 1:5



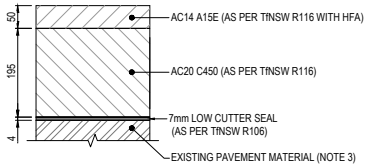
PAVEMENT TYPE MR1
RAILWAY ROAD AND BURROWS AVENUE MILL AND RESHEET
SCALE 1:5



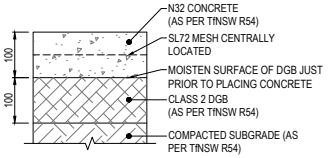
TYPICAL CROSS SECTION FOR INFILL CONCRETE PAVEMENT TYPE R2
SCALE N.T.S



PAVEMENT TYPE SP1
CONCRETE SHARED PATH
SCALE 1:5



PAVEMENT TYPE F1
RAILWAY ROAD AND BURROWS AVENUE PAVEMENT REHABILITATION
SCALE 1:5



PAVEMENT TYPE SP2
CONCRETE FOOTPATH
SCALE 1:5

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
2. CAPPING LAYER SHALL BE IMPERVIOUS (PERMEABILITY <5*10^(-9) m/s) SUCH AS DENSE GRADED GRAVEL WITH PLASTICITY INDEX (PI)>4. THE CAPPING LAYER SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH TfNSW R44 LOWER UZF LAYER REQUIREMENTS.
3. WHERE SUBGRADE IS
   - GRANULAR, COMPACT WITH STATIC ROLLER (8 TONNE MIN.) TO ACHIEVE ADEQUATE COMPACTION AT OMC AND PERFORMANCE CRITERIA OF NO DEFORMATION WHEN PROOF ROLLED. PROOF ROLL MUST BE UNDERTAKEN AT A SPEED WITHIN THE RANGE OF 3-10KM/H OVER THE FULL AREA OF EXPOSED GRANULAR SUBGRADE. ANY UNSUITABLE MATERIAL IS TO BE REMOVED TO A DEPTH OF 200mm MIN. AND REPLACED WITH STABLISED SAND TO A RATIO OF 8:1 AS PER TfNSW M250.

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REFERENCES:

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00.01	ISSUED FOR CONSTRUCTION	R.P 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
C	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
B	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	A.J 09.02.2024	V.T 09.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: 1:250

SCALE 1:5

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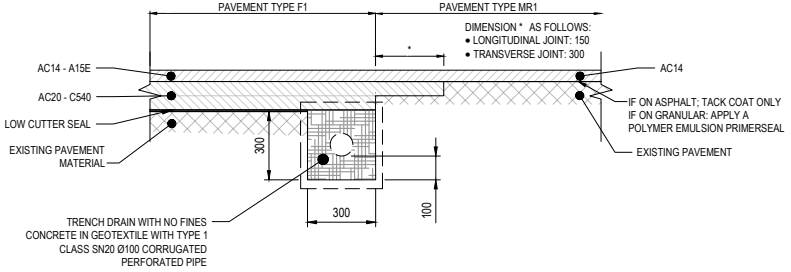
DESIGN CHECK E.A LINARES 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
PAVEMENT DETAILS

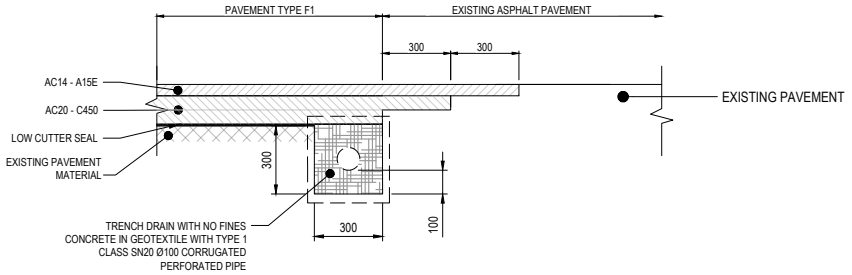
DRAWING SET No:	PART:	SHEET: 11 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003001	REV 00.01.01	VER	EDMS No. / AMD No.

FILE NAME: S:\2021\520212-AURC-038\RW\DRG\003001.dwg
PLOT DATE & TIME: 9/08/2024 3:01:24 PM



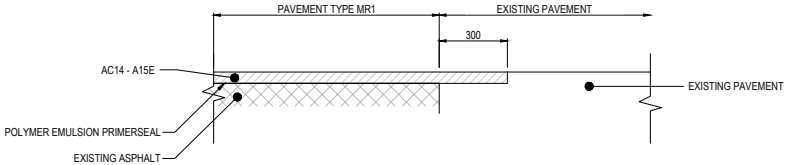
DETAIL 201 / 1:10 / 003101

PAVEMENT INTERFACE DETAIL
PAVEMENT TYPE F1 TO PAVEMENT TYPE MR1



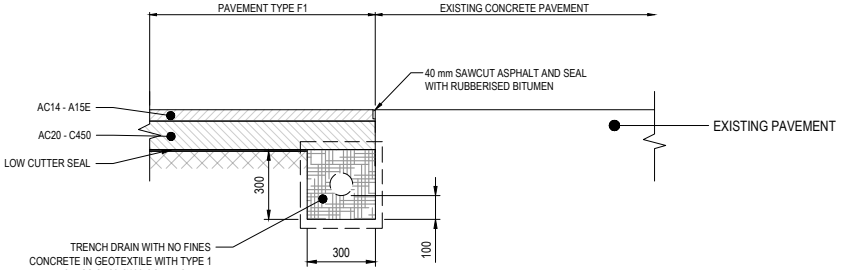
DETAIL 202 / 1:10 / 003101

PAVEMENT INTERFACE DETAIL
PAVEMENT TYPE F1 TO EXISTING ASPHALT PAVEMENT



DETAIL 203 / 1:10 / 003101

PAVEMENT INTERFACE DETAIL
PAVEMENT TYPE MR1 TO EXISTING PAVEMENT



DETAIL 204 / 1:10 / 003101

PAVEMENT INTERFACE DETAIL
PAVEMENT TYPE F1 TO EXISTING CONCRETE PAVEMENT

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REFERENCES:

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B	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	A.J 09.02.2024	V.T 09.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: 1:10

SCALE 1:10

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DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

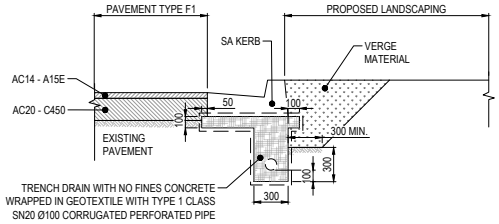
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
PAVEMENT INTERFACE DETAILS

DRAWING SET No:	PART:	SHEET: 12 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003002	REV 00	VER 01.01	EDMS No. / AMD No.

PLOT DATE & TIME: 9/08/2024 3:01:27 PM
FILE NAME: S:\2021\520212-AURC-038\RW\DRG\003002.dwg

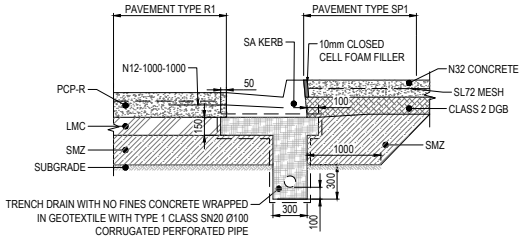
NOTES

1. ALL KERBS ARE TO BE CONSTRUCTED AS PER TfNSW STANDARD DRAWINGS R0300 AND WITH CONCRETE CONFIRMING TO R53 UNLESS NOTED OTHERWISE.



DETAIL 301 / 1:20 / 003101

PAVEMENT EDGE DETAIL
TYPE SA GUTTER PAVEMENT TYPE F1 INTERFACE



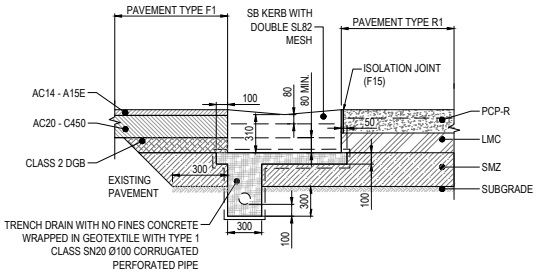
DETAIL 302 / 1:20 / 003101

PAVEMENT EDGE DETAIL
TYPE SA GUTTER PAVEMENT TYPE R1 INTERFACE WITH FOOTPATH

NOT IN USE

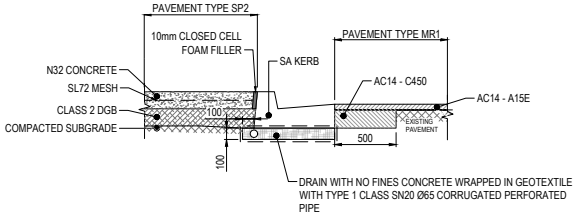
DETAIL 303 / 1:20 / 003101

PAVEMENT EDGE DETAIL



DETAIL 304 / 1:20 / 003101

PAVEMENT EDGE DETAIL
THICKENED TYPE SB GUTTER &
PAVEMENT TYPE F1 TO PAVEMENT TYPE R1 INTERFACE



DETAIL 305 / 1:20 / 003101

PAVEMENT EDGE DETAIL
TYPE SA GUTTER & PAVEMENT TYPE MR1 INTERFACE WITH FOOTPATH

NOT IN USE

DETAIL 306 / 1:20 / 003101

PAVEMENT EDGE DETAIL

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B	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	A.J 09.02.2024	V.T 09.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: 0.2 0 0.4 0.8m SCALE 1:20

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DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

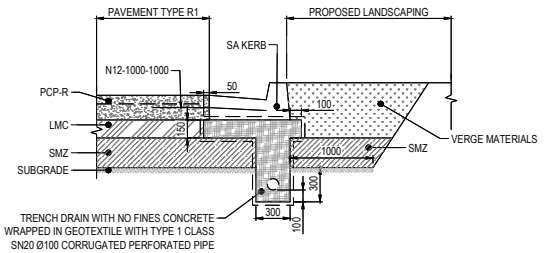
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
PAVEMENT EDGE DETAILS - SHEET 1

DRAWING SET No:	PART:	SHEET: 13 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003003	REV 00.01.01	VER	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-003003.dwg
PLOT DATE & TIME: 9/08/2024 3:01:24 PM

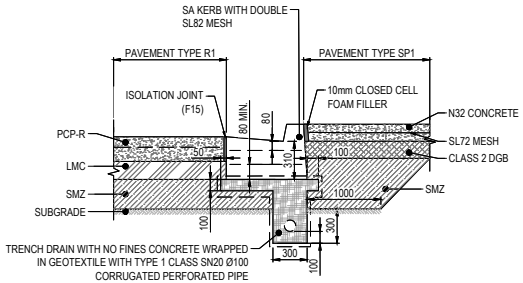
NOTES

1. ALL KERBS ARE TO BE CONSTRUCTED AS PER TINSW STANDARD DRAWINGS R0300 AND WITH CONCRETE CONFIRMING TO R53 UNLESS NOTED OTHERWISE.



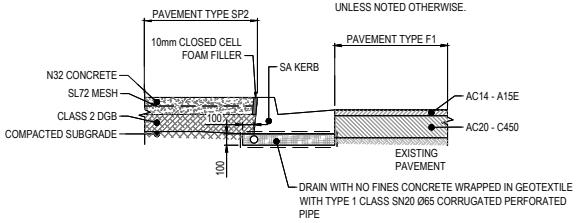
DETAIL 307 1:20 003101

PAVEMENT EDGE DETAIL
TYPE SA GUTTER & PAVEMENT TYPE R1 INTERFACE WITH LANSCAPING



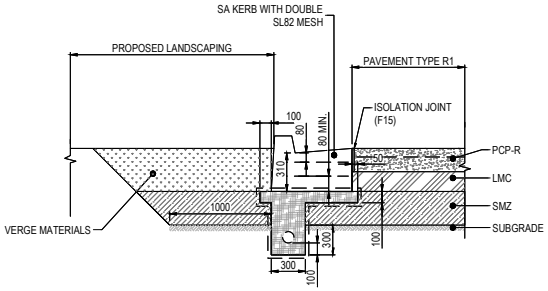
DETAIL 308 1:20 003101

PAVEMENT EDGE DETAIL
THICKENED TYPE SA GUTTER & PAVEMENT TYPE R1 INTERFACE WITH FOOTPATH



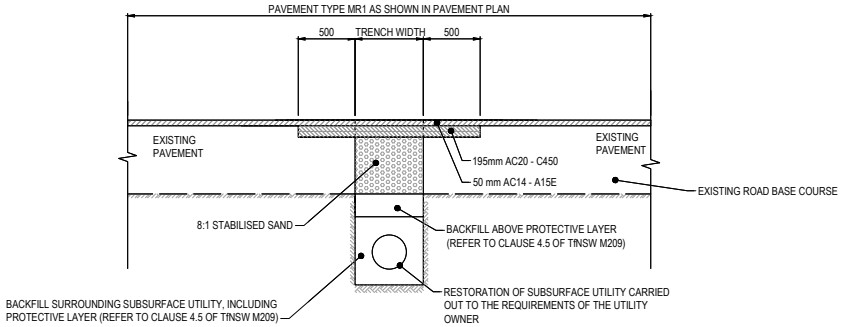
DETAIL 309 1:20 003101

PAVEMENT EDGE DETAIL
TYPE SA GUTTER & PAVEMENT TYPE F1 INTERFACE WITH FOOTPATH



DETAIL 310 1:20 003101

PAVEMENT EDGE DETAIL
THICKENED TYPE SA GUTTER & PAVEMENT TYPE R1 TO LANDSCAPING INTERFACE



DETAIL 311 1:20 003101

TRENCH RESTORATION DETAIL
TRENCHES ON EXISTING ASPHALT PAVEMENT

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A	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 0.2 0 0.4 0.8m SCALE 1:20

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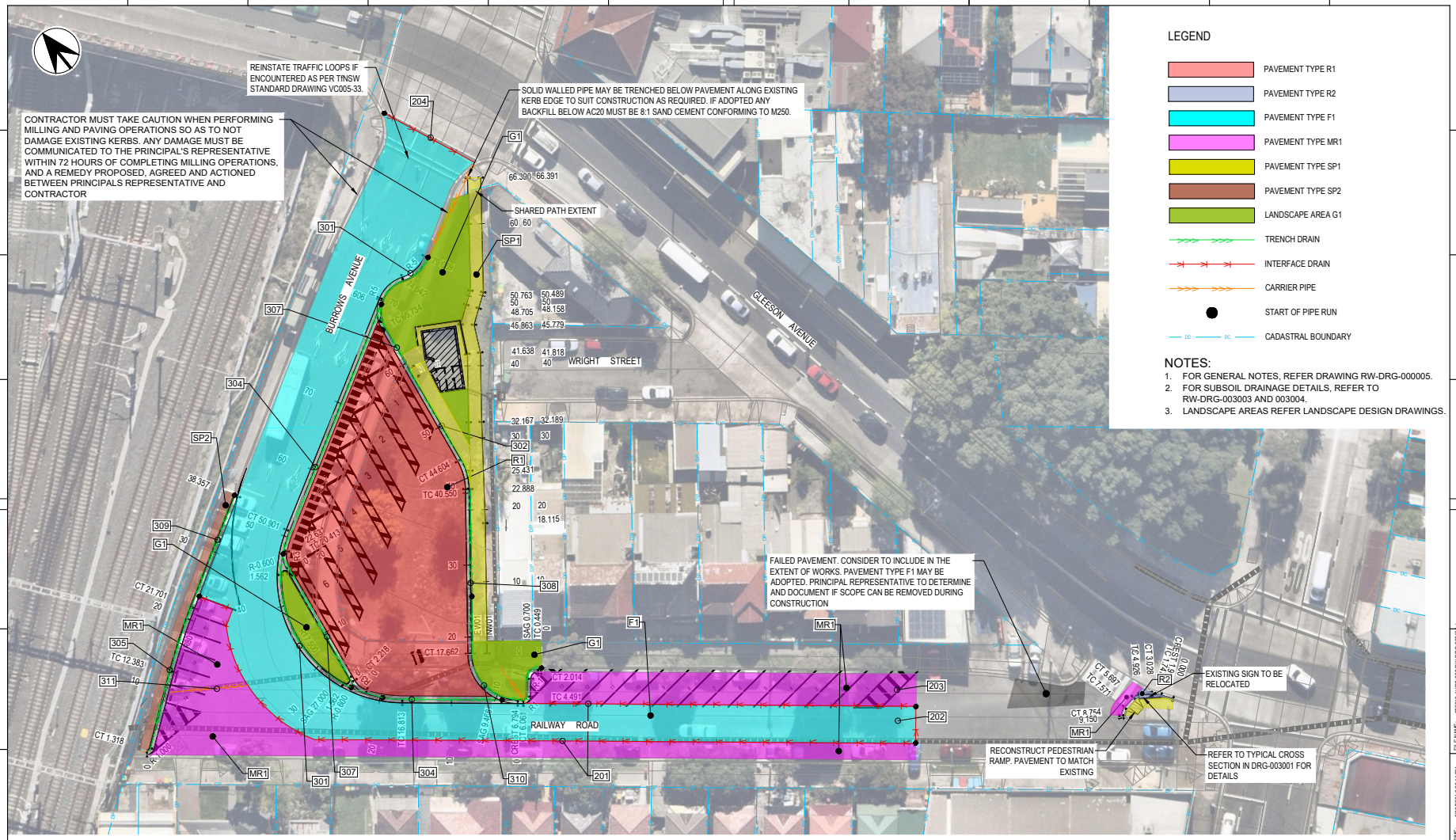
DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
PAVEMENT EDGE DETAILS - SHEET 2

DRAWING SET No:	PART:	SHEET: 14 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003004	REV 00.01.01	VER	EDMS No. / AMD No.

FILE NAME: S:\2021\520212-AURC-038\RW\DRG\003004.dwg
PLOT DATE & TIME: 9/08/2024 3:01:27 PM



PLAN
SCALE: 1:250

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00.01.01	ISSUED FOR CONSTRUCTION	R.P 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
C	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
B	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	A.J 09.02.2024	V.T 09.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:

SCALE: 1:250
SCALE 1:250
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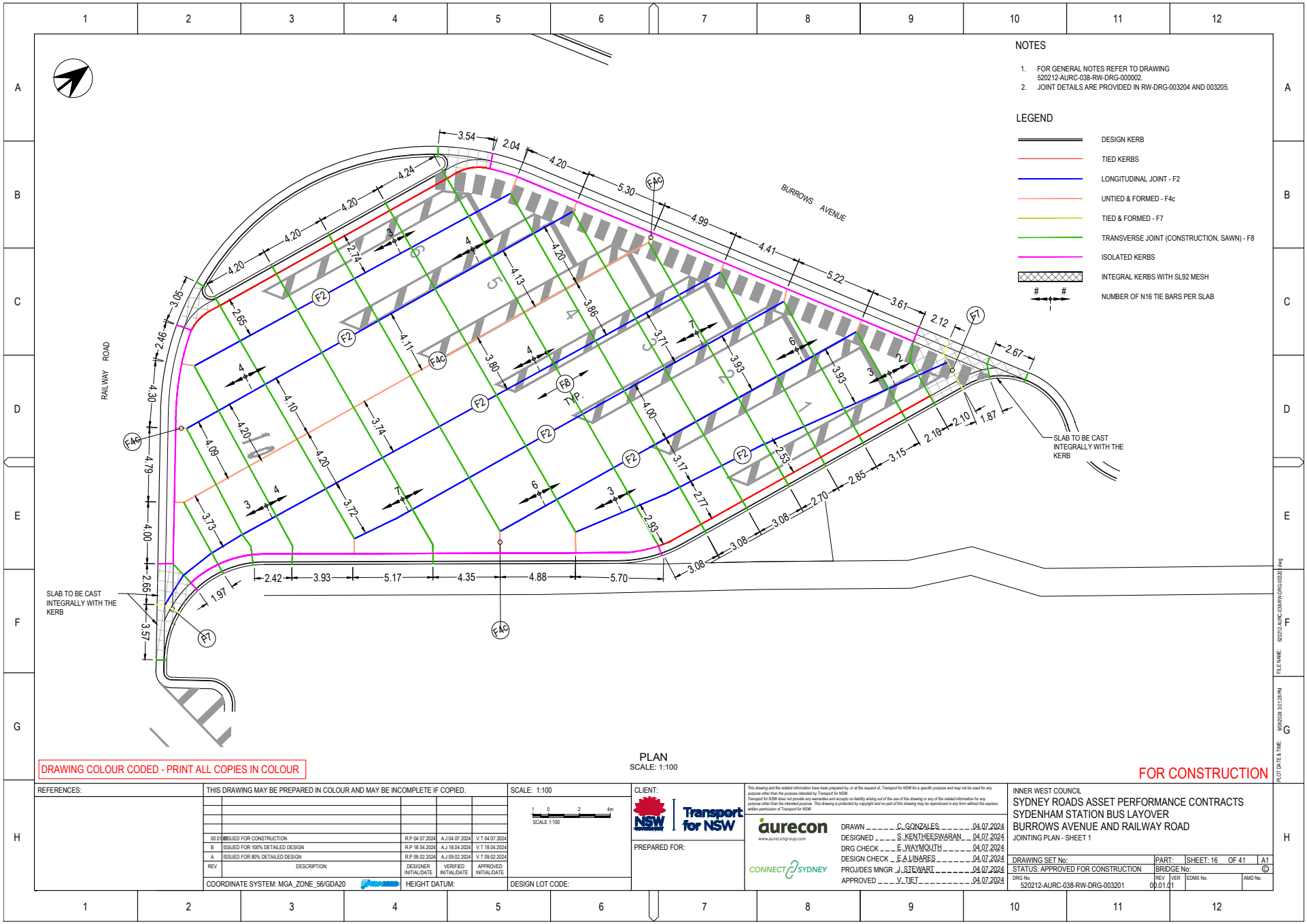
DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
PAVEMENT PLAN

DRAWING SET No: | PART: | SHEET: 15 OF 41 | A1
STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©
DRG No. 520212-AURC-038-RW-DRG-003101 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-003101.dwg
PLOT DATE & TIME: 9/08/2024 3:06:11 PM


NOTES
1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
2. JOINT DETAILS ARE PROVIDED IN RW-DRG-003204 AND 003205.
LEGEND
DESIGN KERB
TIED KERBS
LONGITUDINAL JOINT - F2
UNTIED & FORMED - F4c
TIED & FORMED - F7
TRANSVERSE JOINT (CONSTRUCTION, SAWN) - F8
ISOLATED KERBS
INTEGRAL KERBS WITH SL92 MESH
NUMBER OF N16 TIE BARS PER SLAB
BURROWS AVENUE
RAILWAY ROAD
SLAB TO BE CAST INTEGRALLY WITH THE KERB
SLAB TO BE CAST INTEGRALLY WITH THE KERB
F2
F4c
F7
F8 TYP.
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
PLAN
SCALE: 1:100
FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:100
00.01 ISSUED FOR CONSTRUCTION R.P 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
B ISSUED FOR 100% DETAILED DESIGN R.P 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
A ISSUED FOR 80% DETAILED DESIGN R.P 09.02.2024 A.J 09.02.2024 V.T 09.02.2024
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
Transport for NSW
PREPARED FOR:
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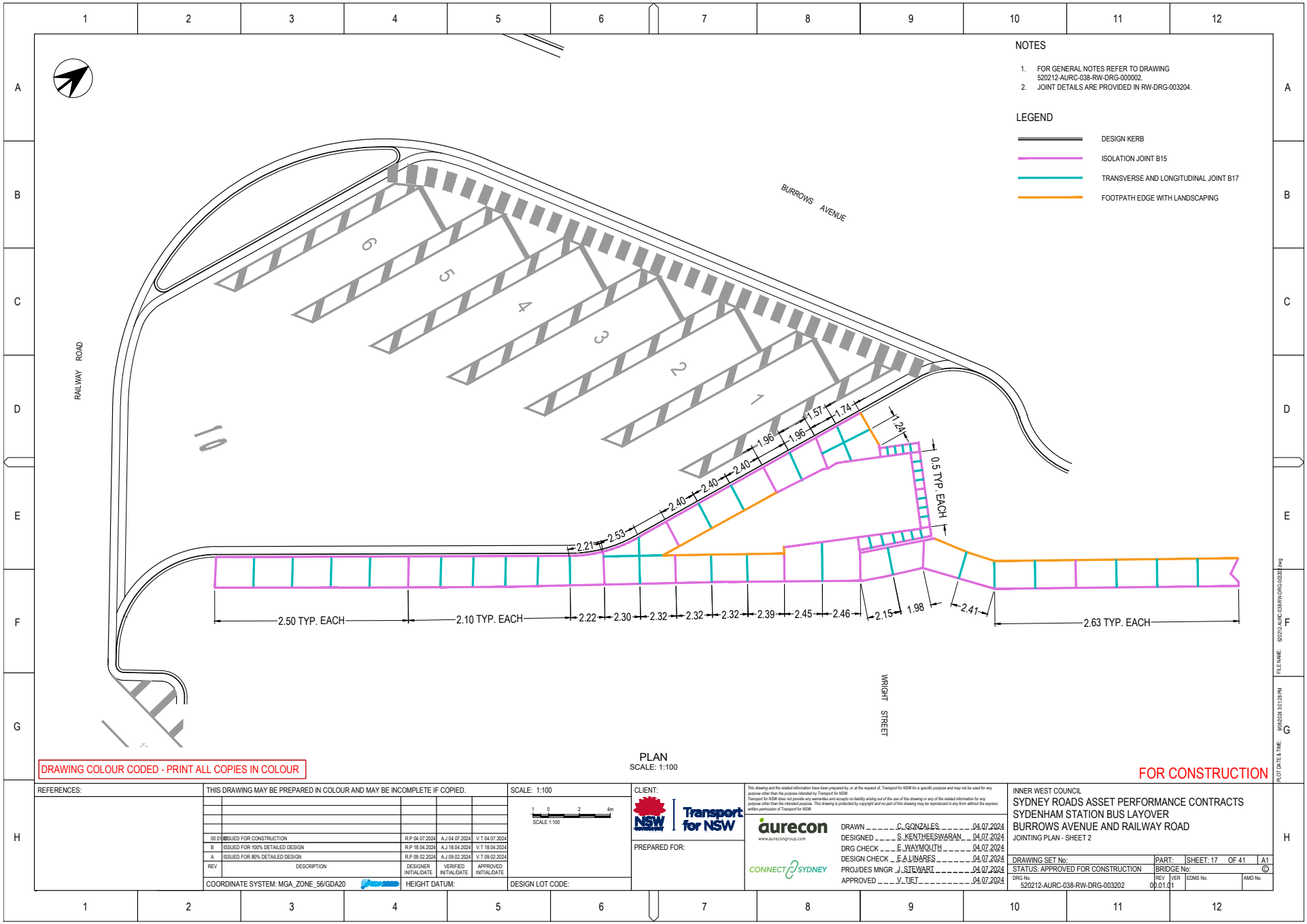
CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED S. KENTHEESWARAN 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK E.A LINARES 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
JOINTING PLAN - SHEET 1
DRAWING SET No:
PART:
SHEET: 16 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-003201
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-003201.dwg
PLOT DATE & TIME: 9/08/2024 3:01:28 PM


NOTES
1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
2. JOINT DETAILS ARE PROVIDED IN RW-DRG-003204.
LEGEND
DESIGN KERB
ISOLATION JOINT B15
TRANSVERSE AND LONGITUDINAL JOINT B17
FOOTPATH EDGE WITH LANDSCAPING
BURROWS AVENUE
RAILWAY ROAD
WRIGHT STREET
6
5
4
3
2
1
10
1.24
1.57
1.74
1.96
1.96
2.40
2.40
2.40
2.53
2.21
0.5 TYP. EACH
2.50 TYP. EACH
2.10 TYP. EACH
2.22
2.30
2.32
2.32
2.32
2.39
2.45
2.46
2.15
1.98
2.41
2.63 TYP. EACH
PLAN
SCALE: 1:100
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
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REFERENCES:
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SCALE: 1:100
SCALE 1:100
00.01 B ISSUED FOR CONSTRUCTION R.P 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
B ISSUED FOR 100% DETAILED DESIGN R.P 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
A ISSUED FOR 80% DETAILED DESIGN R.P 09.02.2024 A.J 09.02.2024 V.T 09.02.2024
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
NSW GOVERNMENT
Transport for NSW
PREPARED FOR:
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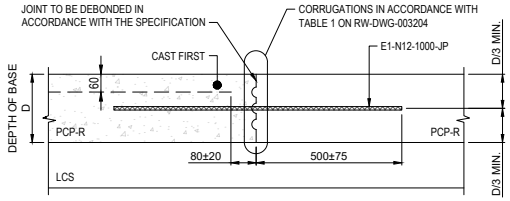
DESIGNED S. KENTHEESWARAN 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK E.A LINARES 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
JOINTING PLAN - SHEET 2
DRAWING SET No:
PART:
SHEET: 17 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-003202
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-003202.dwg
PLOT DATE & TIME: 9/09/2024 3:01:28 PM



JOINT TYPE F2
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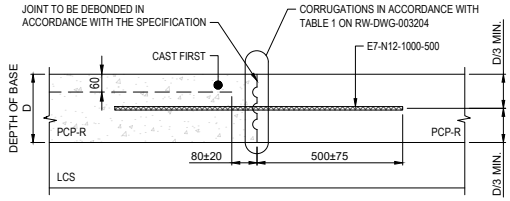
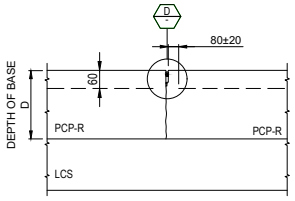
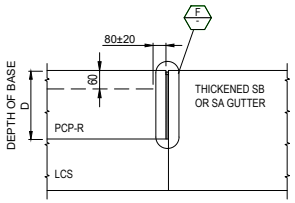
N.T.S



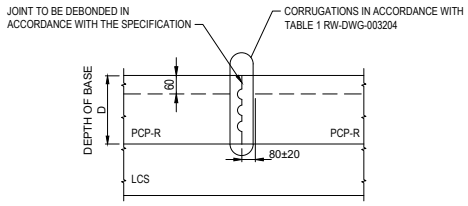
JOINT TYPE F7
TRANSVERSE: TIED AND FORMED
N.T.S



JOINT TYPE F8
TRANSVERSE: CONSTRUCTION, SAWN
N.T.S



JOINT TYPE F15
ISOLATION, WITHOUT SUBGRADE BEAM
N.T.S



JOINT TYPE F4c
UNTIED AND FORMED
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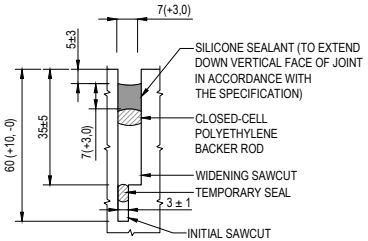
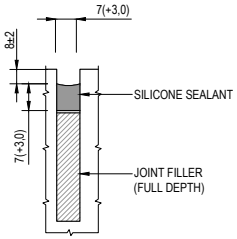


DETAIL D
N.T.S



DETAIL F
N.T.S

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00.01	ISSUED FOR CONSTRUCTION	R.P 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	R.P 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	A.J 09.02.2024	V.T 09.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

SCALE: 1:20

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DESIGNED	S. KENTHEESWARAN	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

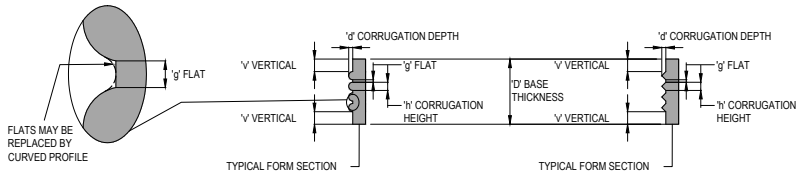
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
JOINTING DETAILS - SHEET 1

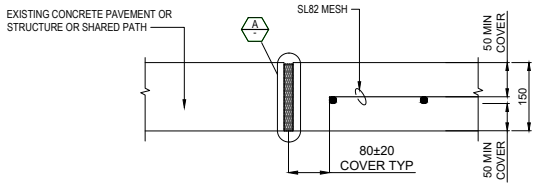
DRAWING SET No:	PART:	SHEET: 18 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003203	REV 00.01	VER 01	EDMS No. / AMD No.

PLOT DATE & TIME: 9/08/2024 3:01:27 PM
FILE NAME: 520212-AURC-038-RW-DRG-003203.dwg

TABLE 1: JOINT CORRUGATION DETAILS

BASE THICKNESS 'D' (mm)	NUMBER OF CORRUGATIONS	CORRUGATION DEPTH 'd' (mm)	MINIMUM CORRUGATION HEIGHT 'h' (mm)	MINIMUM FLAT 'g' (mm)	MINIMUM VERTICAL 'V' (mm)
210	4	10± 3	25	12	50





B15: ISOLATION JOINT
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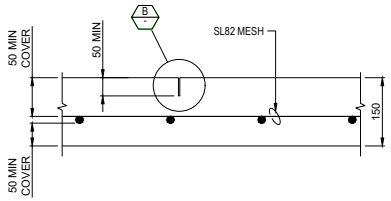

B17: TRANSVERSE HINGE / TIED / SAWN
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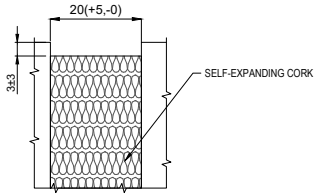

DETAIL A
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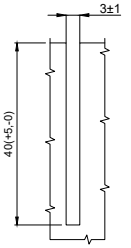

DETAIL B
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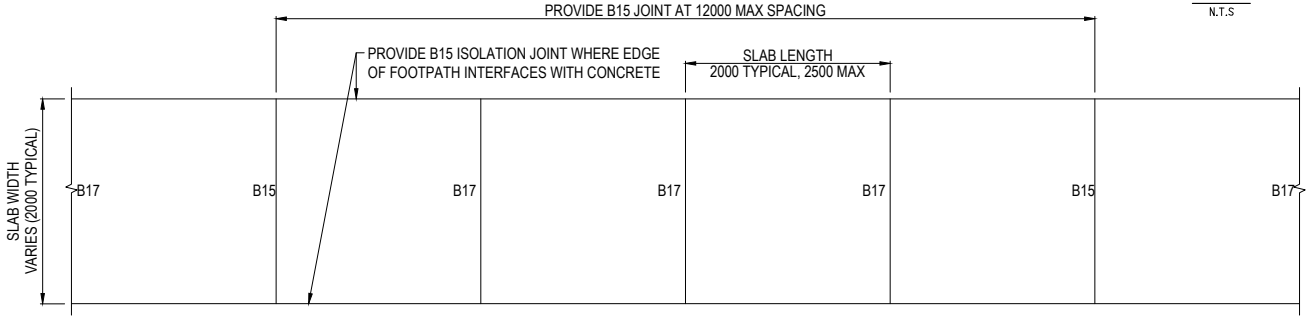

TYPICAL JOINTING LAYOUT
PAVEMENT TYPE SP2 WHERE JOINTING LAYOUT IS NOT PROVIDED

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A	ISSUED FOR 80% DETAILED DESIGN	R.P 09.02.2024	V.T 09.02.2024	A.J 09.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: AS SHOWN

DESIGN LOT CODE:

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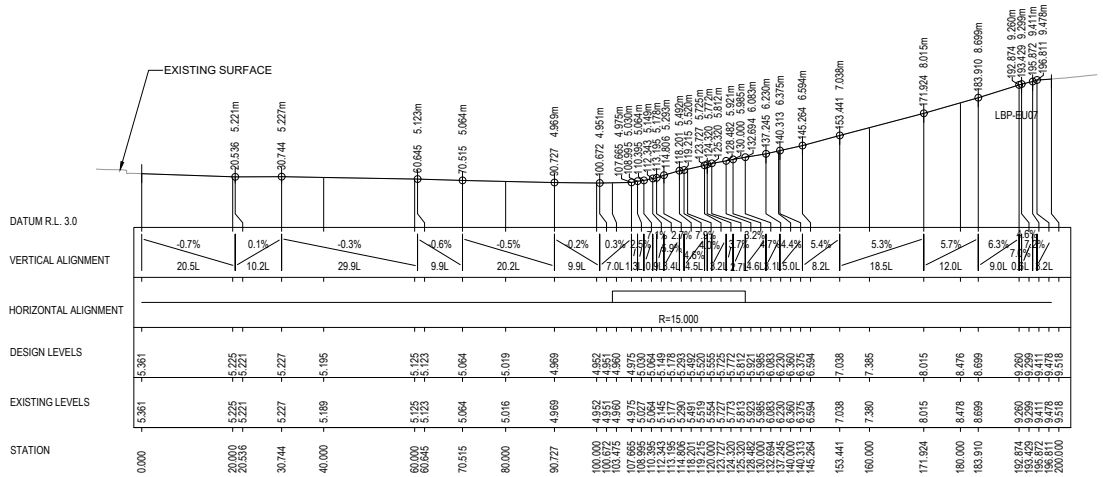
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	E.A LINARES	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

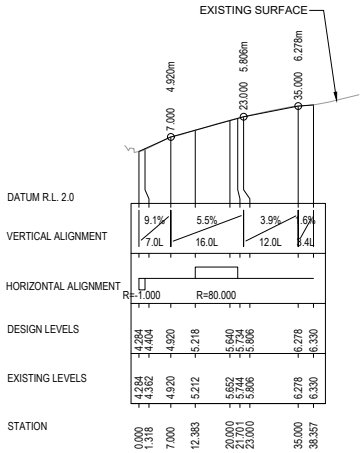
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
JOINTING DETAILS - SHEET 2

DRAWING SET No:	PART:	SHEET: 19 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-003204	REV 00.01.01	VER	EDMS No. / AMD No.

PLOT DATE & TIME: 9/08/2024 3:01:27 PM | FILE NAME: S:\2021\520212-AURC-038\RW\DRG\003204.dwg



LONGITUDINAL SECTION ALONG MC01
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



LONGITUDINAL SECTION ALONG MK01
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

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C	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
B	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

SCALE: AS SHOWN

SCALE 1:500 (5 0 10 20m)

SCALE 1:100 (1 0 2 4m)

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DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
LONGITUDINAL SECTIONS - SHEET 1

DRAWING SET No:	PART:	SHEET: 20 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-004001	REV 00.01.01	VER	EDMS No. / AMD No.

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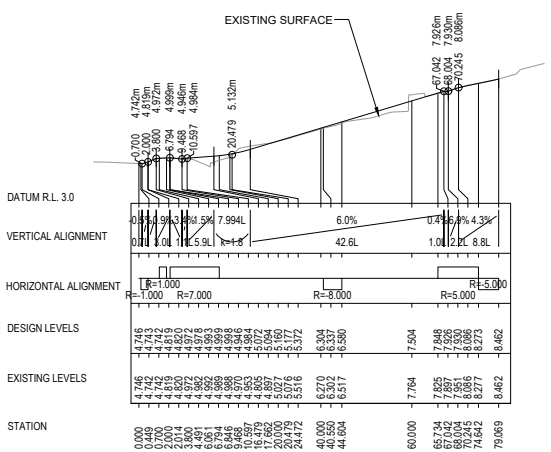
PLOT DATE & TIME: 3/07/2024 8:00:46 PM



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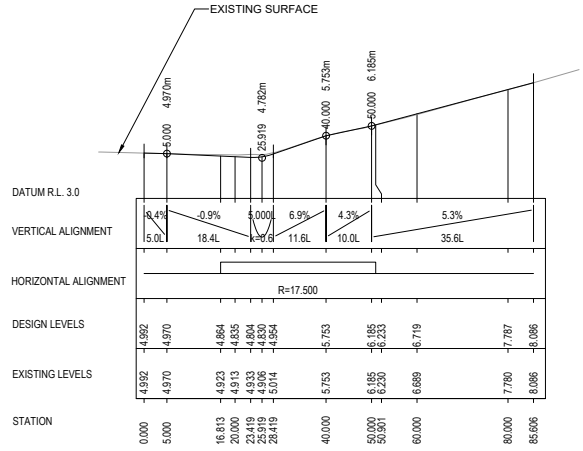

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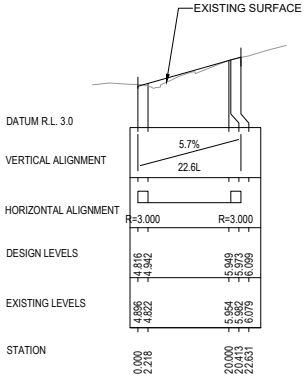

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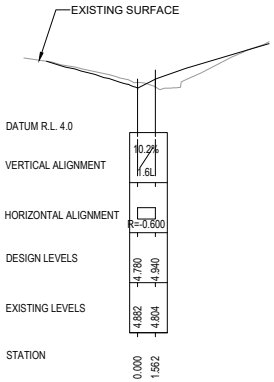

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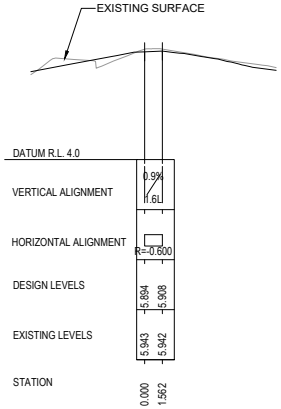

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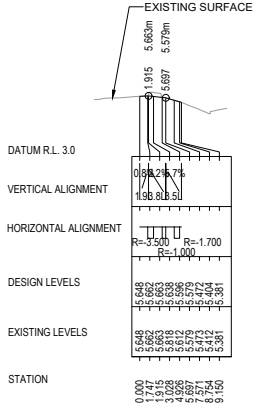

LONGITUDINAL SECTION ALONG MK07
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:40

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B	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: AS SHOWN

SCALE 1:500 (5 0 10 20m)

SCALE 1:100 (1 0 2 4m)

DESIGN LOT CODE:

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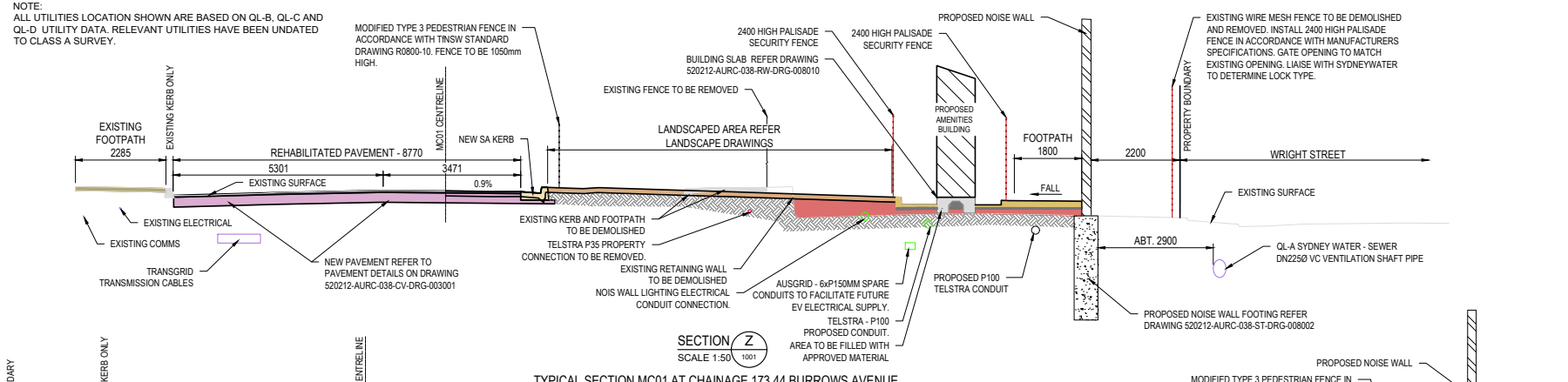
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
LONGITUDINAL SECTIONS - SHEET 2

DRAWING SET No: PART: SHEET: 21 OF 41 A1
STATUS: APPROVED FOR CONSTRUCTION BRIDGE No: ©
DRG No. 520212-AURC-038-RW-DRG-004002 REV 00.01.01 VER EDMS No. AMD No.

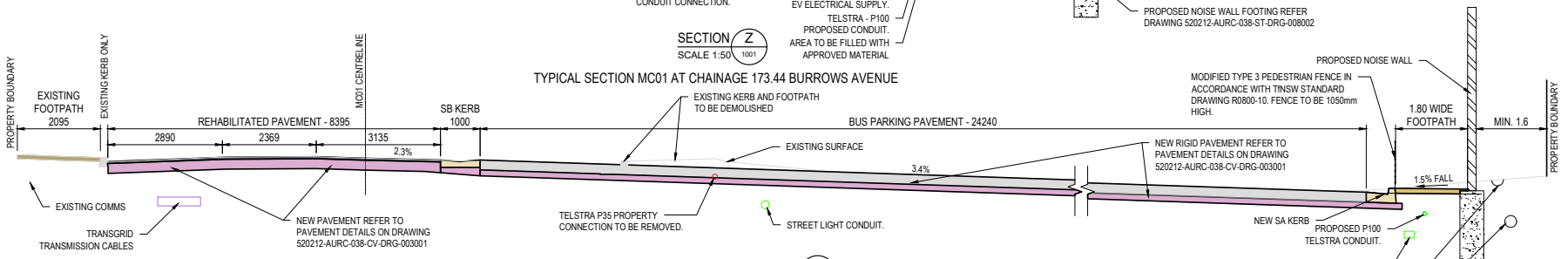
FILE NAME: 520212-AURC-038-RW-DRG-004002.dwg
PLOT DATE & TIME: 30/10/2024 8:01:14 PM

NOTE:
ALL UTILITIES LOCATION SHOWN ARE BASED ON QL-B, QL-C AND QL-D UTILITY DATA. RELEVANT UTILITIES HAVE BEEN UNDATED TO CLASS A SURVEY.



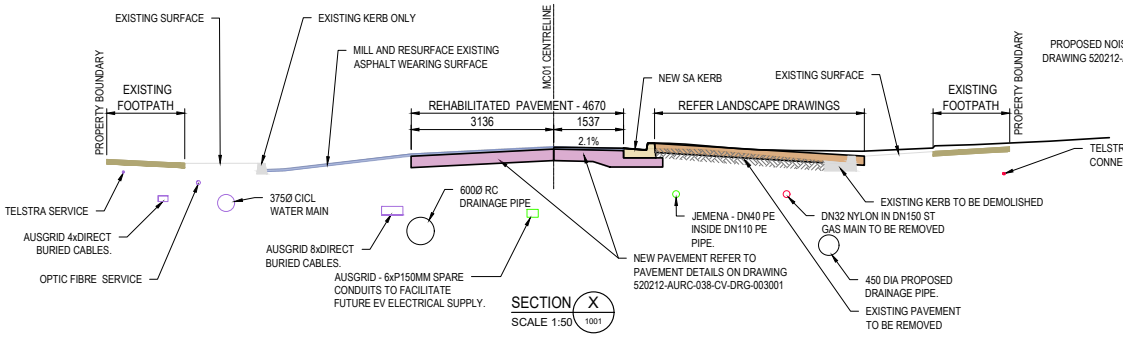
SECTION Z
SCALE 1:50 1001

TYPICAL SECTION MC01 AT CHAINAGE 173.44 BURROWS AVENUE



SECTION Y
SCALE 1:50 1001

TYPICAL SECTION MC01 AT CHAINAGE 143.93 BURROWS AVENUE



SECTION X
SCALE 1:50 1001

TYPICAL SECTION MC01 AT CHAINAGE 80.73 RAILWAY ROAD

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REFERENCES:

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
C	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
B	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024
A	ISSUED FOR 20% DETAILED DESIGN	L.C 21.09.2023	A.J 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

SCALE: 1:200
SCALE 1:50

CLIENT: NSW Government | Transport for NSW

PREPARED FOR:

aurecon www.aurecongroup.com
CONNECT SYDNEY

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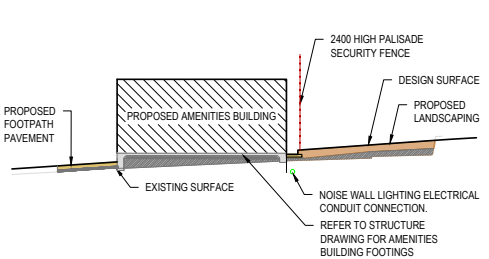
DRAWN	C_GONZALES	04.07.2024
DESIGNED	L_CENETA	04.07.2024
DRG CHECK	E_WAYMOUTH	04.07.2024
DESIGN CHECK	P_MCLEAN	04.07.2024
PROJ/DES MNGR	J_STEWART	04.07.2024
APPROVED	V_TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
TYPICAL CROSS SECTION - SHEET 1

DRAWING SET No:	PART:	SHEET: 22 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-004003	REV 00.01	VER	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-004003.dwg
PLOT DATE & TIME: 3/07/2024 8:01:19 PM



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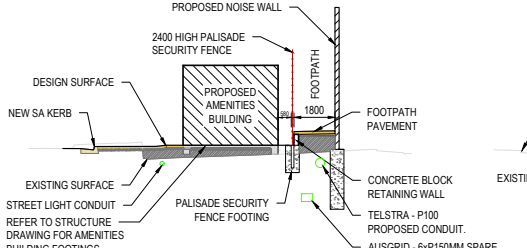

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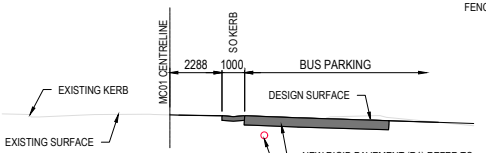

SECTION C
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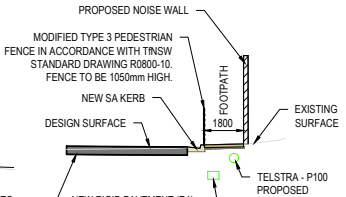
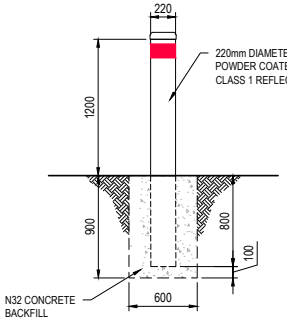
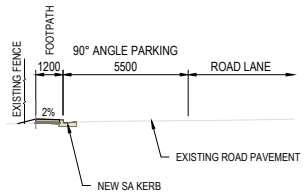


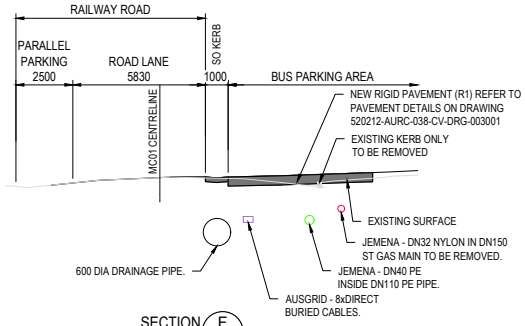
SECTION D
1 : 100



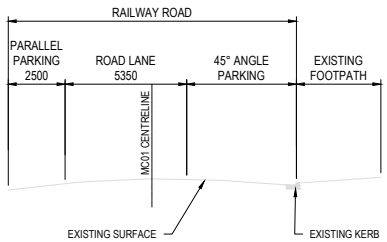
BOLLARD DETAIL
NOT TO SCALE



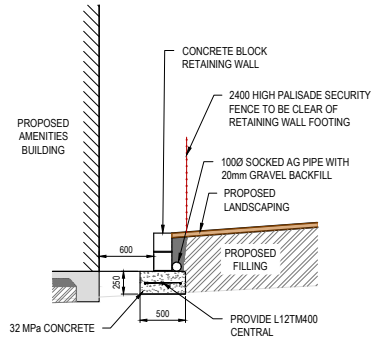
SECTION E
1 : 100



SECTION F
1 : 100



SECTION G
1 : 100



CONCRETE BLOCK RETAINING WALL DETAIL
NOT TO SCALE

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REFERENCES:

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

SCALE: 1:100

SCALE 1:100

CLIENT: NSW Government Transport for NSW

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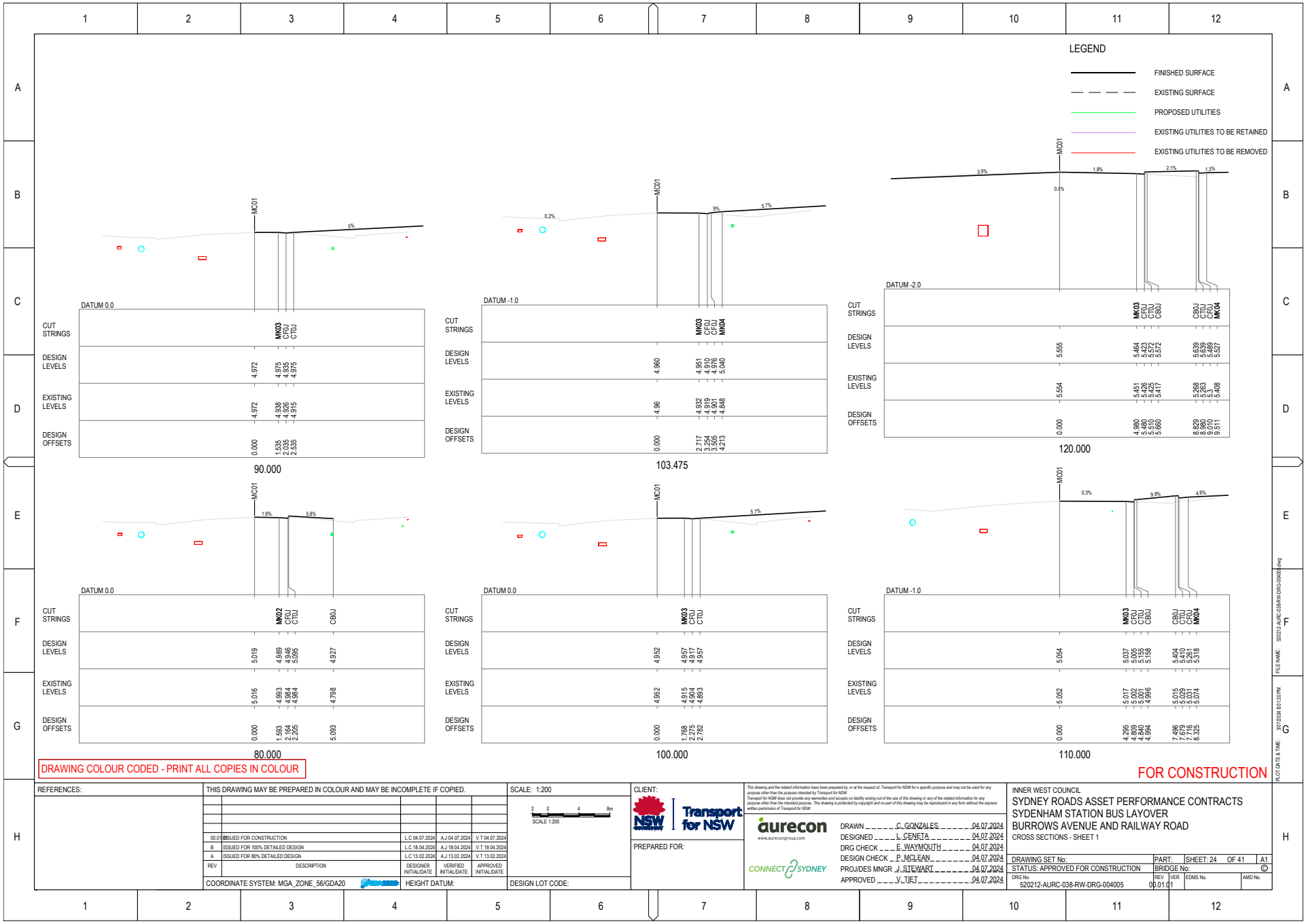
DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
TYPICAL CROSS SECTION - SHEET 2

DRAWING SET No:	PART:	SHEET: 23 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-004004	REV 00.01	VER 01	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-004004.dwg
PLOT DATE & TIME: 30/10/2024 8:01:12 PM


LEGEND
FINISHED SURFACE
EXISTING SURFACE
PROPOSED UTILITIES
EXISTING UTILITIES TO BE RETAINED
EXISTING UTILITIES TO BE REMOVED
MC01
DATUM 0.0
CUT STRINGS
DESIGN LEVELS
EXISTING LEVELS
DESIGN OFFSETS
MK03 CFOU CTOU
4.972 4.975 4.935 4.975
4.972 4.938 4.926 4.915
0.000 1.535 2.035 2.535
90.000
DATUM -1.0
MK03 CFOU CTOU MK04
4.960 4.951 4.910 4.976 5.040
4.96 4.932 4.919 4.901 4.848
0.000 2.717 3.254 3.505 4.213
103.475
DATUM -2.0
MK03 CFOU CTOU CBOU
CBOU CFOU CTOU MK04
5.555 5.464 5.423 5.572 5.572
5.554 5.461 5.420 5.425 5.417
0.000 4.980 5.480 5.510 5.660
8.829 5.268 5.253 5.489 5.527
9.010 5.423 5.408 9.511
120.000
DATUM 0.0
MK02 CFOU CTOU CBOU
5.019 4.989 4.946 5.095 4.927
5.016 4.963 4.984 4.984 4.798
0.000 1.593 2.164 2.205 5.093
80.000
DATUM 0.0
MK03 CFOU CTOU
4.952 4.957 4.917 4.957
4.952 4.915 4.904 4.893
0.000 1.768 2.275 2.762
100.000
DATUM -1.0
MK03 CFOU CTOU CBOU
CBOU CFOU CTOU MK04
5.054 5.037 5.005 5.155 5.158
5.052 5.017 5.002 5.001 4.996
0.000 4.295 4.809 4.840 4.994
7.496 5.015 5.029 5.031 7.716 5.074 8.325
110.000
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FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:200
SCALE 1:200
00.01 ISSUED FOR CONSTRUCTION L.C 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
B ISSUED FOR 100% DETAILED DESIGN L.C 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
A ISSUED FOR 80% DETAILED DESIGN L.C 13.02.2024 A.J 13.02.2024 V.T 13.02.2024
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
Transport for NSW
PREPARED FOR:
aurecon
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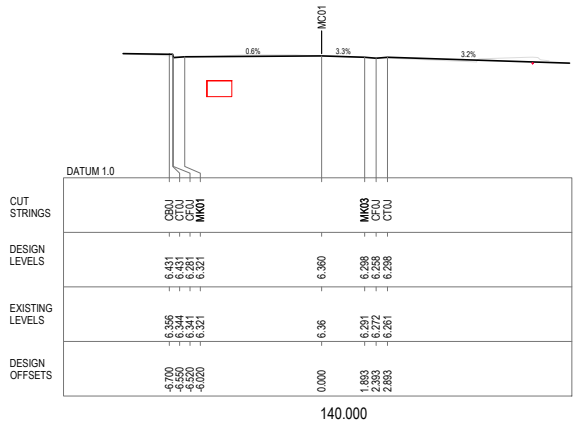
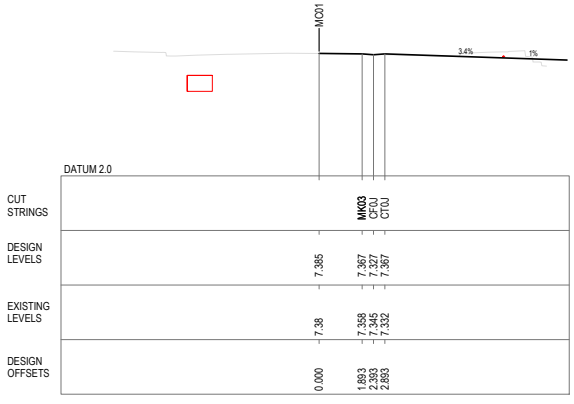
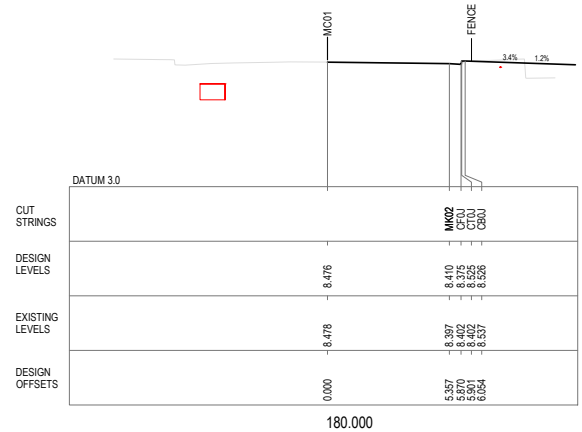
CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED L. CENETA 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
CROSS SECTIONS - SHEET 1
DRAWING SET No:
PART:
SHEET: 24 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-004005
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-004005.dwg
PLOT DATE & TIME: 3/07/2024 8:01:20 PM

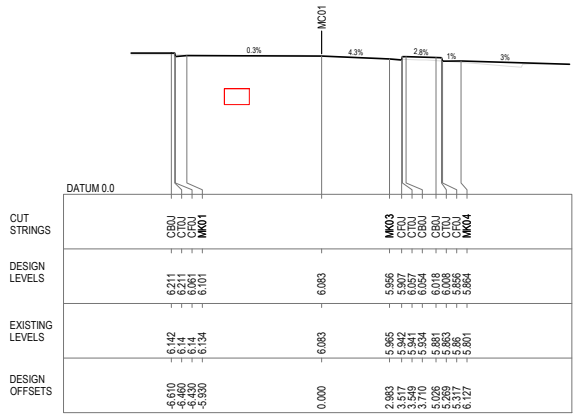
LEGEND

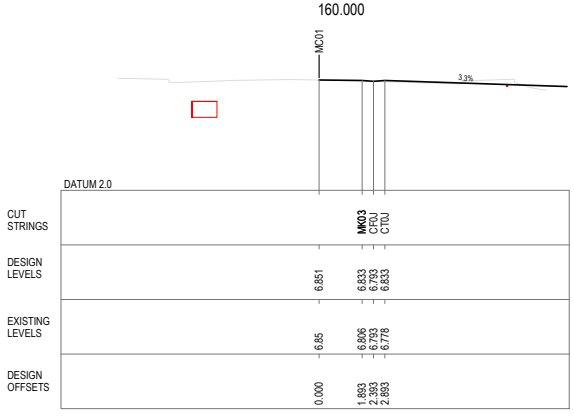
- FINISHED SURFACE
- EXISTING SURFACE
- PROPOSED UTILITIES
- EXISTING UTILITIES TO BE RETAINED
- EXISTING UTILITIES TO BE REMOVED

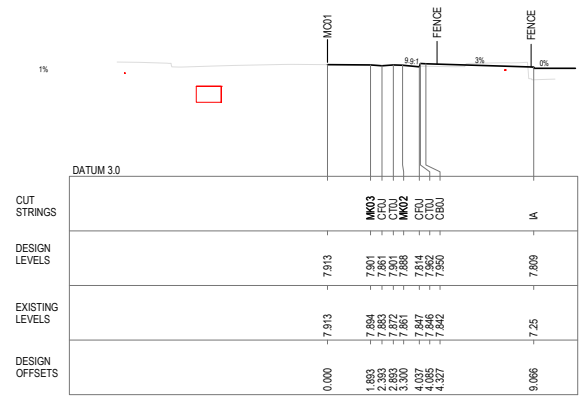












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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

CLIENT: NSW Government — Transport for NSW

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DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
CROSS SECTIONS - SHEET 2

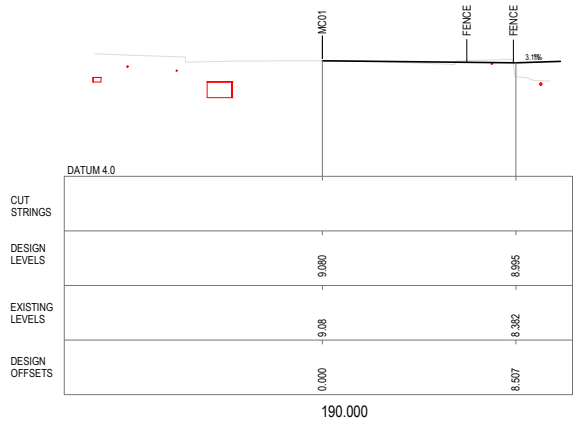
DRAWING SET No:	PART:	SHEET: 25 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©

DRG No.	REV	VER	EDMS No.	AMD No.
520212-AURC-038-RW-DRG-004006	00.01	01		

FILE NAME: 520212-AURC-038-RW-DRG-004006.dwg
PLOT DATE & TIME: 3/07/2024 8:01:19 PM

LEGEND

- FINISHED SURFACE
- EXISTING SURFACE
- PROPOSED UTILITIES
- EXISTING UTILITIES TO BE RETAINED
- EXISTING UTILITIES TO BE REMOVED



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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: 1:200

2 0 4 8m
SCALE 1:200

DESIGN LOT CODE:

CLIENT: NSW Government Transport for NSW

PREPARED FOR:

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CONNECT SYDNEY

DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
CROSS SECTIONS - SHEET 3

DRAWING SET No: | PART: | SHEET: 26 OF 41 | A1
STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©
DRG No. 520212-AURC-038-RW-DRG-004007 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: S:\2021\520212-AURC-038\RW\DRG\004007.dwg
PLOT DATE & TIME: 30/10/2024 8:01:20 PM

ALIGNMENT->MC01 HORIZONTAL SEGMENTS								
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S	0.000	330482.782	6245606.795	5.361	307°43'30.59"	LINE		103.475
	10.000	330474.873	6245612.914	5.293	307°43'30.59"			
	20.000	330466.963	6245619.032	5.225	307°43'30.59"			
	30.000	330459.054	6245625.151	5.227	307°43'30.59"			
	40.000	330451.144	6245631.270	5.195	307°43'30.59"			
	50.000	330443.234	6245637.389	5.160	307°43'30.59"			
	60.000	330435.325	6245643.507	5.125	307°43'30.59"			
	70.000	330427.415	6245649.626	5.067	307°43'30.59"			
	80.000	330419.506	6245655.745	5.019	307°43'30.59"			
	90.000	330411.596	6245661.864	4.972	307°43'30.59"			
	100.000	330403.687	6245667.982	4.952	307°43'30.59"			
TC	103.475	330400.938	6245670.108	4.960	307°43'30.59"	ARC	15.000	29.219
	110.000	330396.793	6245675.081	5.054	332°38'57.06"		15.000	
IP2	118.084	330383.478	6245683.616	5.485			15.000	
	120.000	330395.384	6245684.795	5.555	10°50'46.93"		15.000	
	130.000	330400.284	6245693.301	5.985	49°02'36.80"		15.000	
CT	132.694	330402.466	6245694.875	6.083	59°19'57.09"	LINE		67.306
	140.000	330408.750	6245698.602	6.360	59°19'57.09"			
	150.000	330417.351	6245703.702	6.851	59°19'57.09"			
	160.000	330425.953	6245708.803	7.385	59°19'57.09"			
	170.000	330434.554	6245713.903	7.913	59°19'57.09"			
	180.000	330443.156	6245719.004	8.476	59°19'57.09"			
	190.000	330451.757	6245724.104	9.080	59°19'57.09"			
E	200.000	330460.359	6245729.205	9.518	59°19'57.09"			

ALIGNMENT KERB->MK01 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330374.342	6245683.272	4.284	51°57'15.61"	ARC	-1.000	1.318
CT	1.318	330375.567	6245683.278	4.404	51°57'15.61"	LINE		11.065
	10.000	330382.404	6245688.629	5.086	51°57'15.61"			
TC	12.383	330384.280	6245690.097	5.218	51°57'15.61"	ARC	80.000	9.318
	20.000	330390.493	6245694.499	5.640	57°24'34.55"		80.000	
CT	21.701	330391.936	6245695.400	5.734	58°37'40.92"	LINE		16.656
	30.000	330399.022	6245699.720	6.081	58°37'40.92"			
E	38.357	330406.157	6245704.071	6.330	58°37'40.92"			

ALIGNMENT KERB->MK02 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330424.859	6245659.191	4.746	307°42'00.77"	LINE		0.449
TC	0.449	330424.504	6245659.465	4.743	307°42'00.77"	ARC	-1.000	1.565
CT	2.014	330423.105	6245659.290	4.820	218°01'05.57"	LINE		2.477
TC	4.491	330421.580	6245657.339	4.978	218°01'05.57"	ARC	1.000	1.570
CT	6.061	330420.176	6245657.166	4.993	307°58'33.08"	LINE		0.785
TC	6.846	330419.557	6245657.650	4.998	307°58'33.08"	ARC	7.000	10.816
	10.000	330417.584	6245660.076	4.964	333°47'29.21"		7.000	
CT	17.662	330418.238	6245667.332	5.094	36°30'22.51"	LINE		22.888
	20.000	330419.629	6245669.211	5.160	36°30'22.51"			
	30.000	330425.578	6245677.249	5.704	36°30'22.51"			
	40.000	330431.527	6245685.287	6.304	36°30'22.51"			
TC	40.550	330431.854	6245685.729	6.337	36°30'22.51"	ARC	-8.000	4.054
CT	44.604	330433.356	6245689.448	6.580	7°28'20.59"	LINE		21.130
	50.000	330434.058	6245694.798	6.904	7°28'20.59"			
	60.000	330435.358	6245704.713	7.504	7°28'20.59"			
TC	65.734	330436.104	6245710.399	7.848	7°28'20.59"	ARC	5.000	8.908
	70.000	330438.291	6245713.911	8.069	56°21'26.77"		5.000	
CT	74.642	330442.735	6245714.460	8.273	109°33'15.04"	LINE		0.000
TC	74.642	330442.735	6245714.460	8.273	109°33'14.39"	ARC	-5.000	4.427
E	79.069	330446.997	6245714.894	8.462	58°49'26.41"			

ALIGNMENT KERB->MK03 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330420.176	6245657.167	4.992	307°43'30.64"	LINE		16.813
	10.000	330412.267	6245663.285	4.925	307°43'30.64"			
TC	16.813	330406.878	6245667.454	4.864	307°43'30.64"	ARC	17.500	34.089
	20.000	330404.548	6245669.622	4.835	318°09'38.80"		17.500	
	30.000	330400.306	6245678.528	5.063	350°54'04.40"		17.500	
	40.000	330401.555	6245688.313	5.753	23°38'30.01"		17.500	
	50.000	330407.897	6245695.869	6.185	56°22'55.61"		17.500	
CT	50.901	330408.660	6245696.348	6.233	59°19'57.17"	LINE		34.705
	60.000	330416.487	6245700.989	6.719	59°19'57.17"			
	70.000	330425.088	6245706.089	7.253	59°19'57.17"			
	80.000	330433.689	6245711.190	7.787	59°19'57.17"			
E	85.606	330438.511	6245714.049	8.086	59°19'57.17"			

ALIGNMENT KERB->MK04 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330404.053	6245671.856	4.816	7°28'20.77"	ARC	3.000	2.218
CT	2.218	330403.539	6245673.963	4.942	7°28'20.77"	LINE		18.195
	10.000	330404.551	6245681.678	5.383	7°28'20.77"			
	20.000	330405.851	6245691.593	5.949	7°28'20.77"			
TC	20.413	330405.905	6245692.003	5.973	7°28'20.77"	ARC	3.000	2.218
E	22.631	330406.945	6245693.905	6.099	49°50'17.90"			

ALIGNMENT KERB->MK05 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330401.986	6245674.540	4.780	7°28'20.77"	ARC	-0.600	1.562
E	1.562	330403.131	6245674.701	4.940	7°28'20.77"			

ALIGNMENT KERB->MK06 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330405.321	6245691.395	5.894	218°21'29.35"	ARC	-0.600	1.562
E	1.562	330404.256	6245691.845	5.908	218°21'29.35"			

ALIGNMENT KERB->MK07 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330492.273	6245602.936	5.648	324°17'03.56"	LINE		1.747
TC	1.747	330491.253	6245604.355	5.662	324°17'03.56"	ARC	-3.500	1.280
CT	3.028	330490.334	6245605.236	5.638	303°19'20.32"	LINE		1.898
TC	4.926	330488.748	6245606.279	5.596	303°19'20.32"	ARC	-1.000	0.771
CT	5.697	330488.010	6245606.425	5.579	259°08'27.04"	LINE		1.874
TC	7.571	330486.170	6245606.072	5.472	259°08'27.04"	ARC	-1.700	1.183
CT	8.754	330485.174	6245605.479	5.404	219°16'10.21"	LINE		0.396
E	9.150	330484.923	6245605.172	5.381	219°16'10.21"			

ALIGN NOISE WALL->NW01 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330420.392	6245665.738	5.234	36°30'22.51"	LINE		18.115
	10.000	330426.341	6245673.776	5.704	36°30'22.51"			
DIS	18.115	330431.169	6245680.298	6.191	35°22'02.17"	LINE		14.075
	20.000	330432.260	6245681.835	6.304	35°22'02.17"			
	30.000	330438.048	6245689.990	6.933	35°22'02.17"			
DIS	32.189	330439.316	6245691.775	7.073	36°15'07.69"	LINE		9.628
	40.000	330443.934	6245698.074	7.572	36°15'07.69"			
DIS	41.818	330445.009	6245699.540	7.689	24°34'45.74"	LINE		3.961
DIS	45.779	330446.657	6245703.142	7.960	53°17'43.34"	LINE		2.379
DIS	48.158	330448.564	6245704.564	8.123	53°25'55.25"	LINE		2.331
	50.000	330450.044	6245705.662	8.249	53°25'55.25"			
DIS	50.489	330450.436	6245705.953	8.282	36°02'58.33"	LINE		15.902
	60.000	330456.033	6245713.643	8.933	36°02'58.33"			
E	66.391	330459.794	6245718.810	9.246	36°02'58.33"			

ALIGNMENT FOOTPATH->EW01 HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	330418.785	6245666.927	5.204	36°30'22.51"	LINE		22.888
	10.000	330424.734	6245674.965	5.673	36°30'22.51"			
	20.000	330430.683	6245683.003	6.273	36°30'22.51"			
DIS	22.888	330432.401	6245685.324	6.447	37°43'39.32"	LINE		2.543
DIS	25.431	330433.957	6245687.336	6.610	35°22'02.17"	LINE		6.736
	30.000	330436.602	6245691.062	6.903	35°22'02.17"			
DIS	32.167	330437.856	6245692.829	7.042	36°14'09.25"	LINE		9.471
	40.000	330442.486	6245699.147	7.545	36°14'09.25"			
DIS	41.638	330443.454	6245700.468	7.650	24°34'45.74"	LINE		4.225
DIS	45.863	330445.212	6245704.310	7.922	53°17'43.34"	LINE		2.842
DIS	48.705	330447.490	6245706.009	8.104	53°25'55.25"	LINE		2.058
	50.000	330448.530	6245706.780	8.187	53°25'55.25"			
DIS	50.763	330449.143	6245707.235	8.236	36°02'58.33"	LINE		15.627
	60.000	330454.579	6245714.703	8.829	36°02'58.33"			
E	66.390	330458.339	6245719.869	9.240	36°02'58.33"			

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REFERENCES:

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SCALE: AS SHOWN

REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024
A	ISSUED FOR 80% DETAILED DESIGN	L.C 13.02.2024	A.J 13.02.2024	V.T 13.02.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM: | DESIGN LOT CODE:

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CONNECT SYDNEY

DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

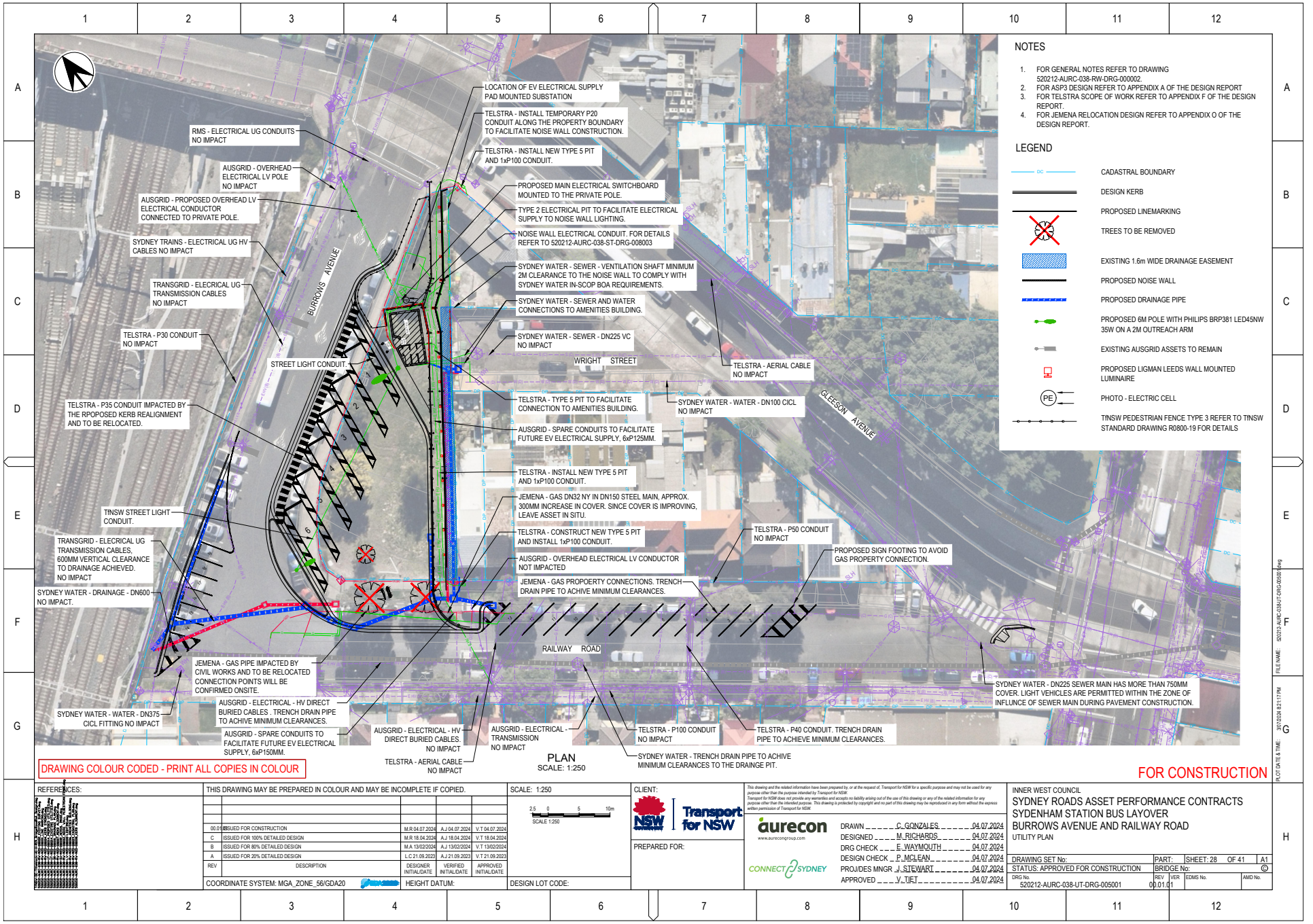
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
SETOUT TABLES

DRAWING SET No:	PART:	SHEET: 27 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©

DRG No.	REV	VER	EDMS No.	AMD No.
520212-AURC-038-RW-DRG-004101	00.01	01		

FILE NAME: 520212-AURC-038-RW-DRG-004101.dwg

PLOT DATE & TIME: 30/10/2024 8:01:26 PM


LOCATION OF EV ELECTRICAL SUPPLY PAD MOUNTED SUBSTATION
TELSTRA - INSTALL TEMPORARY P20 CONDUIT ALONG THE PROPERTY BOUNDARY TO FACILITATE NOISE WALL CONSTRUCTION.
TELSTRA - INSTALL NEW TYPE 5 PIT AND 1xP100 CONDUIT.
RMS - ELECTRICAL UG CONDUITS NO IMPACT
AUSGRID - OVERHEAD ELECTRICAL LV POLE NO IMPACT
AUSGRID - PROPOSED OVERHEAD LV ELECTRICAL CONDUCTOR CONNECTED TO PRIVATE POLE.
SYDNEY TRAINS - ELECTRICAL UG HV CABLES NO IMPACT
TRANSGRID - ELECRICAL UG TRANSMISSION CABLES NO IMPACT
TELSTRA - P30 CONDUIT NO IMPACT
STREET LIGHT CONDUIT.
TELSTRA - P35 CONDUIT IMPACTED BY THE RPOPOSED KERB REALIGNMENT AND TO BE RELOCATED.
TINSW STREET LIGHT CONDUIT.
TRANSGRID - ELECRICAL UG TRANSMISSION CABLES, 600MM VERTICAL CLEARANCE TO DRAINAGE ACHIEVED. NO IMPACT
SYDNEY WATER - DRAINAGE - DN600 NO IMPACT.
JEMENA - GAS PIPE IMPACTED BY CIVIL WORKS AND TO BE RELOCATED CONNECTION POINTS WILL BE CONFIRMED ONSITE.
SYDNEY WATER - WATER - DN375 CICL FITTING NO IMPACT
AUSGRID - ELECTRICAL - HV DIRECT BURIED CABLES . TRENCH DRAIN PIPE TO ACHIVE MINIMUM CLEARANCES.
AUSGRID - SPARE CONDUITS TO FACILITATE FUTURE EV ELECTRICAL SUPPLY, 6xP150MM.
AUSGRID - ELECTRICAL - HV DIRECT BURIED CABLES. NO IMPACT
TELSTRA - AERIAL CABLE NO IMPACT
AUSGRID - ELECTRICAL - TRANSMISSION NO IMPACT
PROPOSED MAIN ELECTRICAL SWITCHBOARD MOUNTED TO THE PRIVATE POLE.
TYPE 2 ELECTRICAL PIT TO FACILITATE ELECTRICAL SUPPLY TO NOISE WALL LIGHTING.
NOISE WALL ELECTRICAL CONDUIT. FOR DETAILS REFER TO 520212-AURC-038-ST-DRG-008003
SYDNEY WATER - SEWER - VENTILATION SHAFT MINIMUM 2M CLEARANCE TO THE NOISE WALL TO COMPLY WITH SYDNEY WATER IN-SCOP BOA REQUIREMENTS.
SYDNEY WATER - SEWER AND WATER CONNECTIONS TO AMENITIES BUILDING.
SYDNEY WATER - SEWER - DN225 VC NO IMPACT
TELSTRA - TYPE 5 PIT TO FACILITATE CONNECTION TO AMENITIES BUILDING.
AUSGRID - SPARE CONDUITS TO FACILITATE FUTURE EV ELECTRICAL SUPPLY, 6xP125MM.
TELSTRA - INSTALL NEW TYPE 5 PIT AND 1xP100 CONDUIT.
JEMENA - GAS DN32 NY IN DN150 STEEL MAIN, APPROX. 300MM INCREASE IN COVER. SINCE COVER IS IMPROVING, LEAVE ASSET IN SITU.
TELSTRA - CONSTRUCT NEW TYPE 5 PIT AND INSTALL 1xP100 CONDUIT.
AUSGRID - OVERHEAD ELECTRICAL LV CONDUCTOR NOT IMPACTED
JEMENA - GAS PROPOERTY CONNECTIONS. TRENCH DRAIN PIPE TO ACHIVE MINIMUM CLEARANCES.
TELSTRA - AERIAL CABLE NO IMPACT
SYDNEY WATER - WATER - DN100 CICL NO IMPACT
TELSTRA - P50 CONDUIT NO IMPACT
PROPOSED SIGN FOOTING TO AVOID GAS PROPERTY CONNECTION.
TELSTRA - P100 CONDUIT NO IMPACT
TELSTRA - P40 CONDUIT. TRENCH DRAIN PIPE TO ACHIEVE MINIMUM CLEARANCES.
SYDNEY WATER - TRENCH DRAIN PIPE TO ACHIVE MINIMUM CLEARANCES TO THE DRAINGE PIT.
SYDNEY WATER - DN225 SEWER MAIN HAS MORE THAN 750MM COVER. LIGHT VEHICLES ARE PERMITTED WITHIN THE ZONE OF INFLUNCE OF SEWER MAIN DURING PAVEMENT CONSTRUCTION.
BURROWS AVENUE
WRIGHT STREET
GLEESON AVENUE
RAILWAY ROAD
NOTES
1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
2. FOR ASP3 DESIGN REFER TO APPENDIX A OF THE DESIGN REPORT
3. FOR TELSTRA SCOPE OF WORK REFER TO APPENDIX F OF THE DESIGN REPORT.
4. FOR JEMENA RELOCATION DESIGN REFER TO APPENDIX O OF THE DESIGN REPORT.
LEGEND
CADASTRAL BOUNDARY
DESIGN KERB
PROPOSED LINEMARKING
TREES TO BE REMOVED
EXISTING 1.6m WIDE DRAINAGE EASEMENT
PROPOSED NOISE WALL
PROPOSED DRAINAGE PIPE
PROPOSED 6M POLE WITH PHILIPS BRP381 LED45NW 35W ON A 2M OUTREACH ARM
EXISTING AUSGRID ASSETS TO REMAIN
PROPOSED LIGMAN LEEDS WALL MOUNTED LUMINAIRE
PHOTO - ELECTRIC CELL
TINSW PEDESTRIAN FENCE TYPE 3 REFER TO TINSW STANDARD DRAWING R0800-19 FOR DETAILS
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PLAN
SCALE: 1:250
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REFERENCES:
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00.01 ISSUED FOR CONSTRUCTION M.R 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
C ISSUED FOR 100% DETAILED DESIGN M.R 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
B ISSUED FOR 80% DETAILED DESIGN M.A 13/02/2024 A.J 13/02/2024 V.T 13/02/2024
A ISSUED FOR 20% DETAILED DESIGN L.C 21.09.2023 A.J 21.09.2023 V.T 21.09.2023
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
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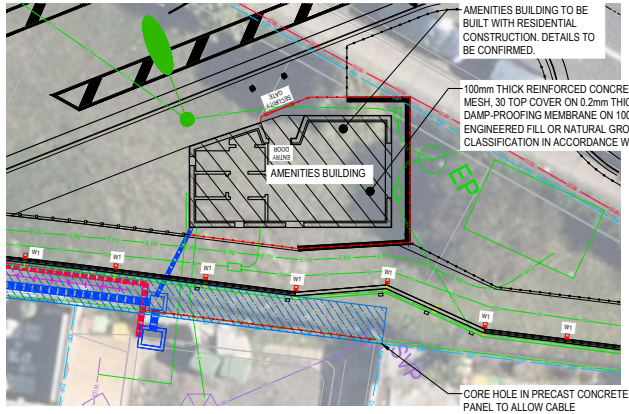
CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED M. RICHARDS 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
UTILITY PLAN
DRAWING SET No:
PART:
SHEET: 28 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-UT-DRG-005001
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-UT-DRG-005001.dwg
PLOT DATE & TIME: 13/12/2024 8:21:17 PM



PLAN
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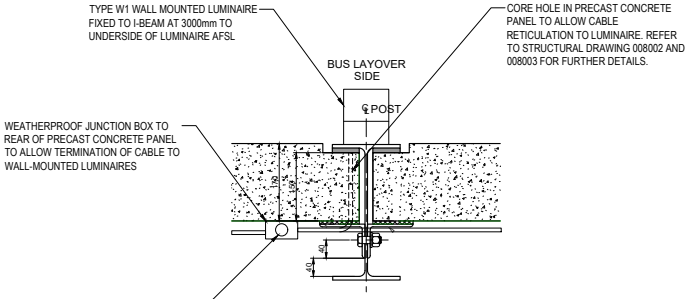

310UB32 TYPICAL DETAIL
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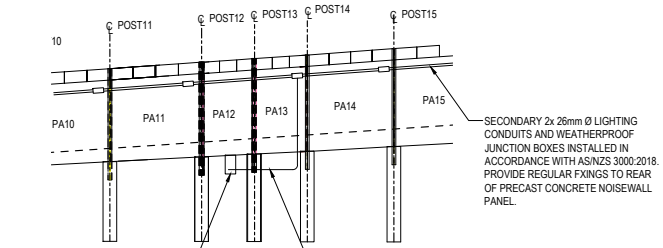

ELEVATION
SCALE: 1:100

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	M.R 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
A	ISSUED FOR 100% DETAILED DESIGN	M.R 18.04.2024	A.J 18.04.2024	V.T 18.04.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE: 1:250

SCALE 1:100 (1 0 2 4m)

SCALE 1:5 (50 0 100 200mm)

DESIGN LOT CODE:

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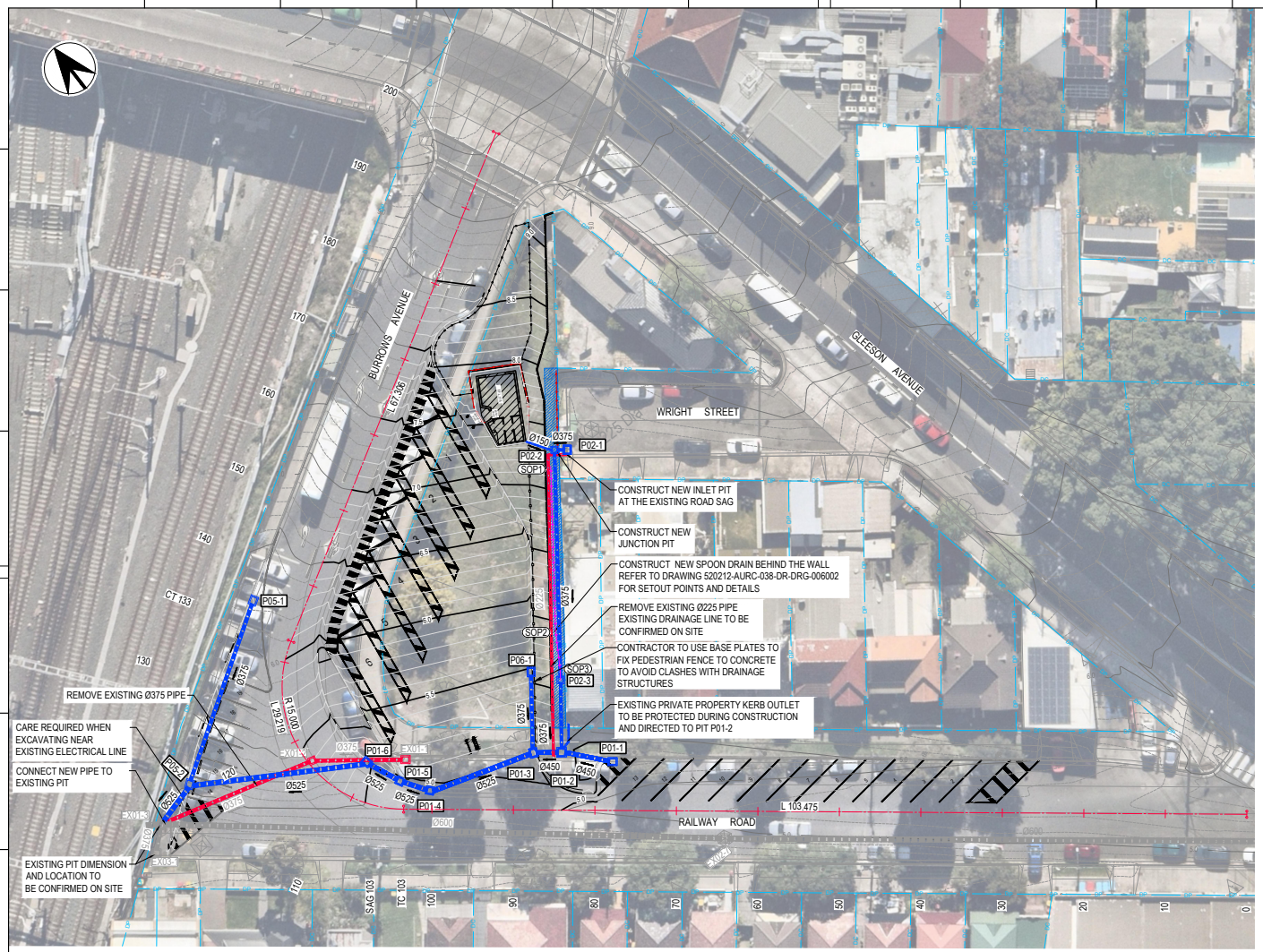
CONNECT SYDNEY

DRAWN	C. GONZALES	04.07.2024
DESIGNED	M. RICHARDS	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
UTILITY DETAIL

DRAWING SET No:	PART:	SHEET: 29 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-UT-DRG-005002	REV 00.01	VER 01	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-UT-DRG-005002.dwg
PLOT DATE & TIME: 18/10/2024 8:02:12 PM



PLAN
SCALE: 1:250

NOTES:
1. FOR GENERAL NOTES REFER TO DRAWING 520212-AURC-038-RW-DRG-000002.
2. EXISTING UTILITIES INFORMATION IS BASED ON A COMPILATION OF SURVEY DATA AND BYDA INFORMATION. ACTUAL LOCATION OF SERVICES AND IDENTITY OF PIT COVERS ARE TO BE CONFIRMED ON SITE.

LEGEND:

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED PIPE (WITH FLOW DIRECTION AND SIZE) Ø300
- EXISTING PIPE (WITH FLOW DIRECTION AND SIZE) Ø225
- EXISTING PIPE TO BE REMOVED
- PROPOSED SPOON DRAIN
- PROPOSED DRAINAGE PIT
- EXISTING DRAINAGE PIT
- EXISTING 1.6m WIDE DRAINAGE EASEMENT
- EXISTING DRAINAGE PIT TO BE REMOVED
- CADASTRAL BOUNDARY

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	K.G 04.07.2024	Y.C 04.07.2024	V.T 03.07.2024
C	ISSUED FOR 100% DETAILED DESIGN	K.G 18/04/2024	Y.C 18/04/2024	V.T 18/04/2024
B	ISSUED FOR 80% DETAILED DESIGN	K.G 13/02/2024	Y.C 13/02/2024	V.T 13/02/2024
A	ISSUED FOR 20% DETAILED DESIGN	E.F 21.09.2023	Y.C 21.09.2023	V.T 21.09.2023

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 1:250

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CONNECT SYDNEY

DRAWN	C. GONZALES	04.07.2024
DESIGNED	K. GONZALES	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

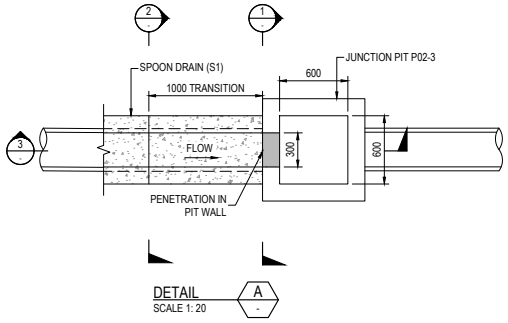
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STORMWATER DRAINAGE PLAN

DRAWING SET No:	PART:	SHEET: 30 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-DR-DRG-006001	REV 00.01	VER 01	EDMS No. / AMD No.

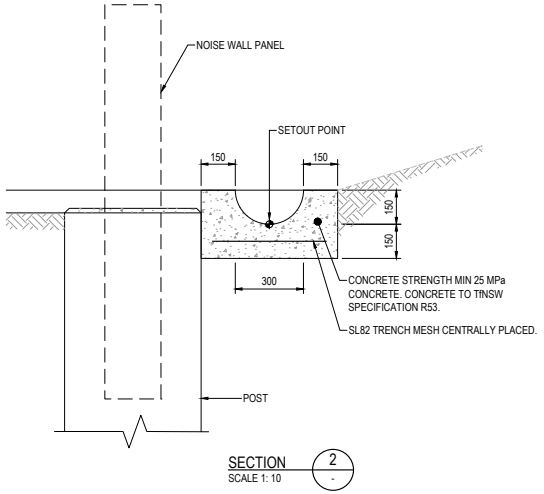
FILE NAME: 520212-AURC-038-DR-DRG-006001.dwg
PLOT DATE & TIME: 4/07/2024 1:35:00 PM

PIT SIZE						PIT LOCATION			
STRUCTURE ID	STRUCTURE TYPE	LENGTH (m)	WIDTH (m)	PIT LID LEVEL (m AHD)	PIT DEPTH(m)	EASTING	NORTHING	DRAWING REFERENCE	REMARKS
P01-1	SA2	0.85	0.67	4.72	1.50	330424.80	6245659.24	R0220-01 AND R0220-28	
P01-2	JUNCTION PIT	0.90	0.90	5.06	2.00	330420.59	6245663.89	R0220-35	
P01-3	SA1 WIDEN	0.85	0.67	5.04	2.09	330417.81	6245665.94	R0220-01 AND R0220-28	
P01-4	SO1	0.70	0.70	4.79	1.98	330404.92	6245669.96	R0220-21	
P01-5	SO1	0.70	0.70	4.76	1.99	330402.24	6245672.88	R0220-21	
P01-6	SA1	0.85	1.20	4.96	2.23	330400.52	6245677.41	R0220-01 AND R0220-28	Base Length=0.85m; Base Width=1.2m Base Height=1.5m
P02-1	SA1	0.85	0.67	6.90	0.88	330443.68	6245692.97	R0220-01 AND R0220-28	
P02-2	JUNCTION PIT	0.60	0.60	7.28	1.30	330442.43	6245693.90	R0220-36	
P02-3	JUNCTION PIT	0.60	0.60	5.89	1.08	330425.86	6245671.01	R0220-36	
P05-1	SA2	0.85	0.67	6.20	1.53	330401.83	6245701.65	R0220-01	
P05-2	SA2	0.85	0.67	5.05	2.61	330382.04	6245688.35	R0220-01 AND R0220-28	Base Length=0.85m; Base Width=1.0m; Base Height=1.7m
P06-1	SA2	0.85	0.67	5.45	1.59	330423.59	6245674.00	R0220-01	

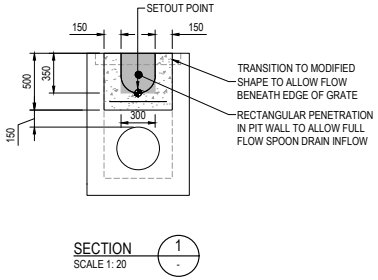
SET OUT POINT	"INVERT LEVEL (m AHD)"	"SURFACE LEVEL (m AHD)"	EASTING	NORTHING
SOP 1	6.97	7.12	330440.84	6245692.60
SOP 2	5.89	6.09	330429.17	6245676.36
SOP 3	5.78	5.93	330426.43	6245671.84

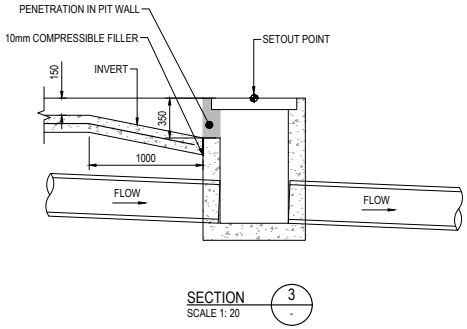


SPOON DRAIN (S1) TRANSITION TO JUNCTION PIT



SPOON DRAIN (S1)





NOTES

CONCRETE STRENGTH MIN 25 MPa CONCRETE. CONCRETE TO TfNSW SPECIFICATION R53.

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REFERENCES:

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	K.G 28.06.2024	Y.C 28.06.2024	V.T 03.07.2024
A	ISSUED FOR 100% DETAILED DESIGN	K.G 18/04/2024	Y.C 18/04/2024	V.T 18/04/2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 0.2 0 0.4 0.8m SCALE 1:20

DESIGN LOT CODE:

CLIENT: NSW Government Transport for NSW

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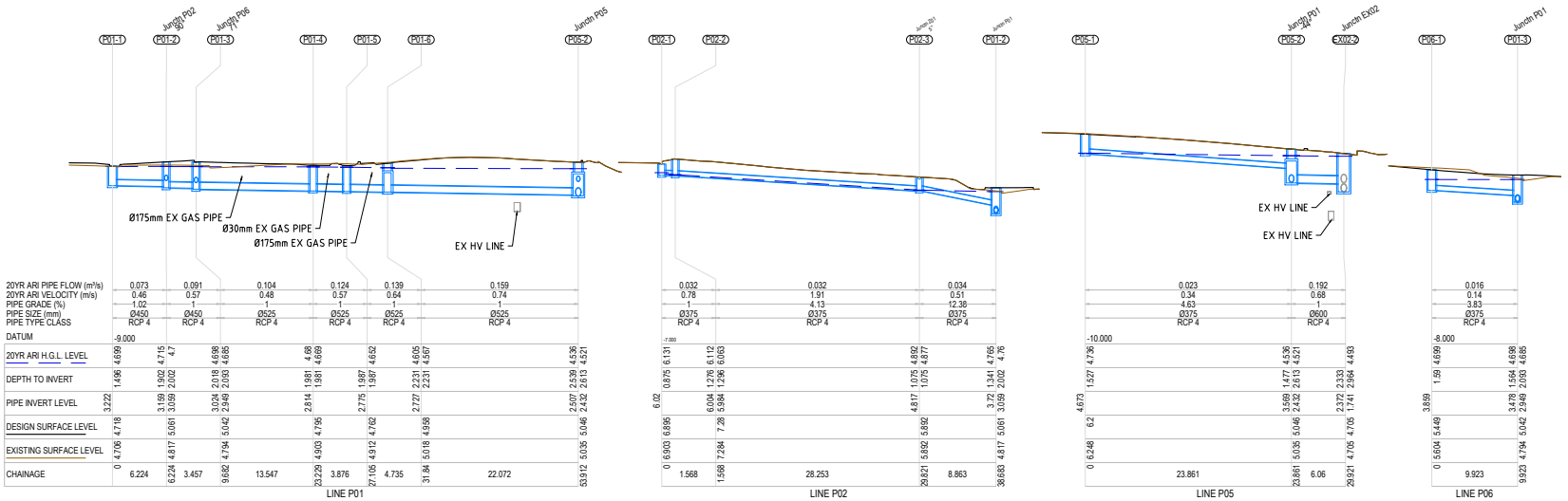
DRAWN C. GONZALES 03.07.2024
DESIGNED K. GONZALES 03.07.2024
DRG CHECK E. WAYMOUTH 03.07.2024
DESIGN CHECK P. MCLEAN 03.07.2024
PROJ/DES MNGR J. STEWART 03.07.2024
APPROVED V. TIET 03.07.2024

INNER WEST COUNCIL

SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STORMWATER DRAINAGE PIT SCHEDULE AND SPOON DRAIN DETAILS

DRAWING SET No: PART: SHEET: 31 OF 41 A1
STATUS: APPROVED FOR CONSTRUCTION BRIDGE No: ©
DRG No. 520212-AURC-038-RW-DRG-006002 REV 00.01.01 VER EDMS No. AMD No.

PLOT DATE & TIME: 4/07/2024 11:22:24 AM FILE NAME: 520212-AURC-038-RW-DRG-006002.dwg



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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	K.G 04.07.2024	Y.C 04.07.2024	V.T 03.07.2024
B	ISSUED FOR 100% DETAILED DESIGN	K.G 18/04/2024	Y.C 18/04/2024	V.T 18/04/2024
A	ISSUED FOR 80% DETAILED DESIGN	K.G 13/02/2024	Y.C 13/02/2024	V.T 13/02/2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 1:250

SCALE 1:250

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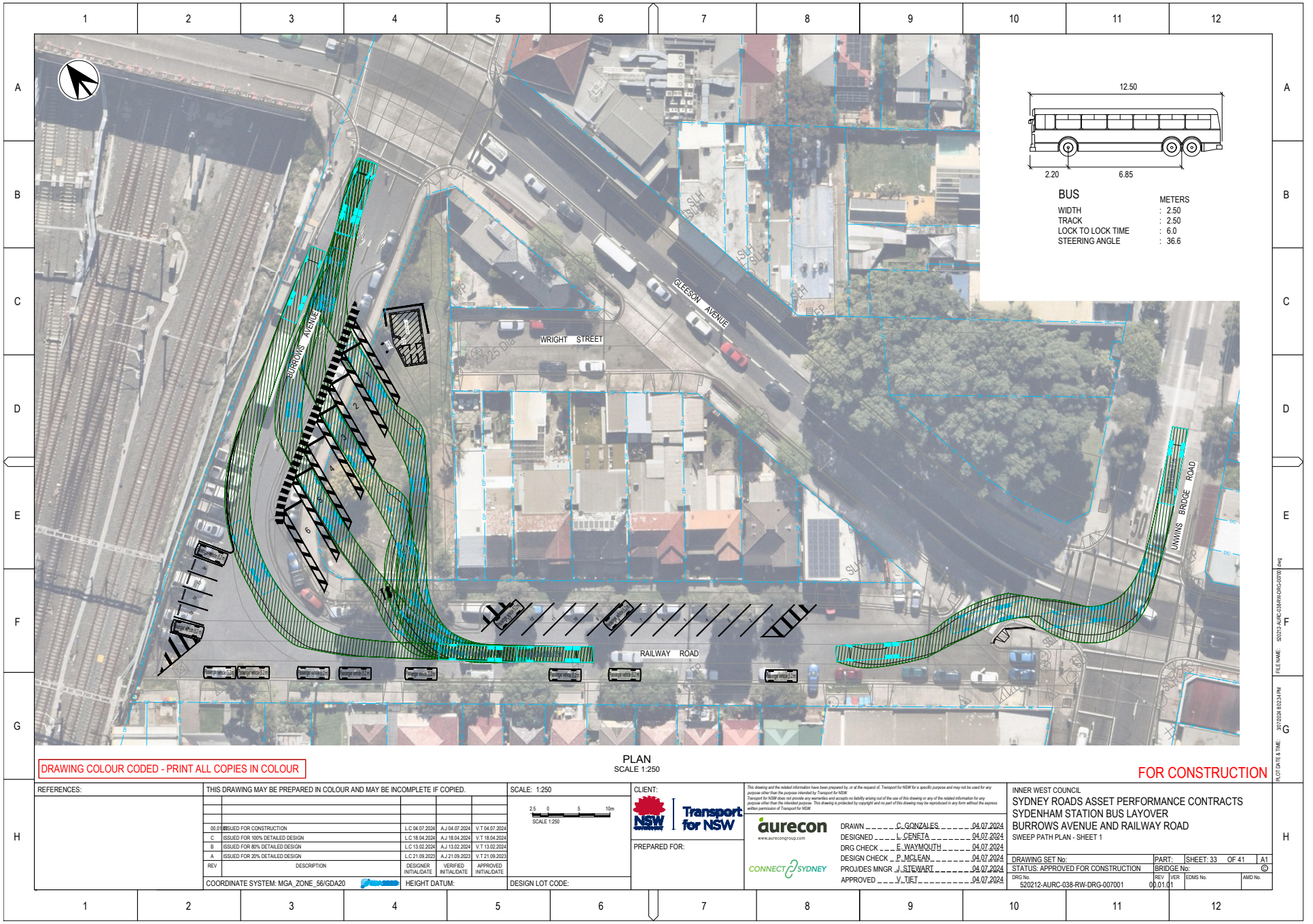
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STORMWATER DRAINAGE LONGITUDINAL SECTION

DRAWING SET No: PART: SHEET: 32 OF 41 A1
STATUS: APPROVED FOR CONSTRUCTION BRIDGE No: ©
DRG No. 520212-AURC-038-DR-DRG-006003 REV 00.01.01 VER EDMS No. AMD No.

PLOT DATE & TIME: 4/07/2024 11:23:39 AM FILE NAME: S:\2021\520212-AURC-038\DR-DRG-006003.dwg


12.50
2.20
6.85
BUS
METERS
WIDTH : 2.50
TRACK : 2.50
LOCK TO LOCK TIME : 6.0
STEERING ANGLE : 36.6
GLEESON AVENUE
WRIGHT STREET
BURROWS AVENUE
RAILWAY ROAD
UNWINS BRIDGE ROAD
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
PLAN
SCALE 1:250
FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:250
00.01 ISSUED FOR CONSTRUCTION L.C 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
C ISSUED FOR 100% DETAILED DESIGN L.C 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
B ISSUED FOR 80% DETAILED DESIGN L.C 13.02.2024 A.J 13.02.2024 V.T 13.02.2024
A ISSUED FOR 20% DETAILED DESIGN L.C 21.09.2023 A.J 21.09.2023 V.T 21.09.2023
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
Transport for NSW
PREPARED FOR:
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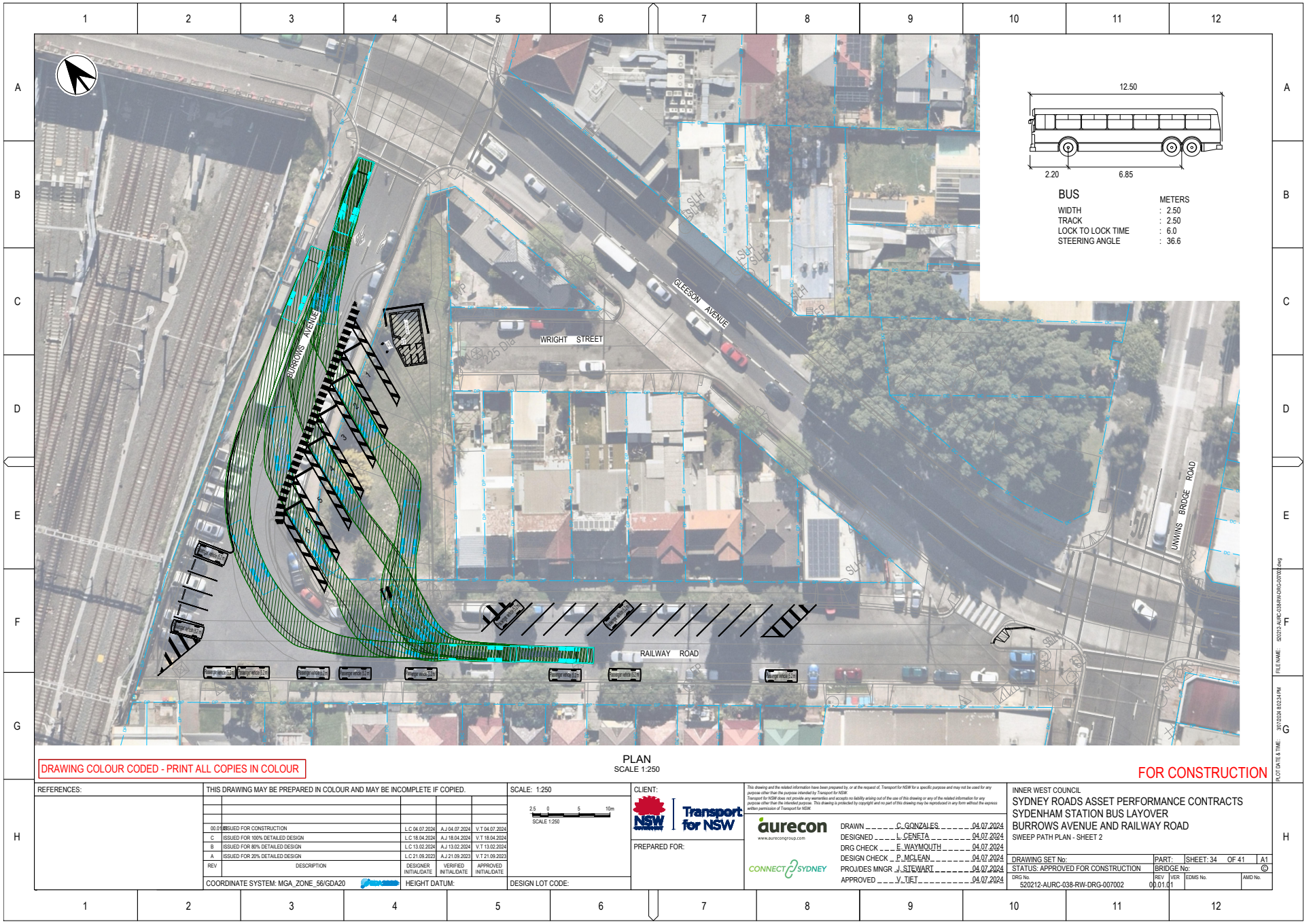
CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED L. CENETA 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
SWEEP PATH PLAN - SHEET 1
DRAWING SET No:
PART:
SHEET: 33 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-007001
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-0070[1].dwg
PLOT DATE & TIME: 10/10/2024 8:02:34 PM


12.50
4.30
2.20
6.85
BUS
METERS
WIDTH : 2.50
TRACK : 2.50
LOCK TO LOCK TIME : 6.0
STEERING ANGLE : 36.6
BURROWS AVENUE
GLEESON AVENUE
WRIGHT STREET
RAILWAY ROAD
UNWINS BRIDGE ROAD
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
PLAN
SCALE 1:250
FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:250
00.01 ISSUED FOR CONSTRUCTION L.C 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
C ISSUED FOR 100% DETAILED DESIGN L.C 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
B ISSUED FOR 80% DETAILED DESIGN L.C 13.02.2024 A.J 13.02.2024 V.T 13.02.2024
A ISSUED FOR 20% DETAILED DESIGN L.C 21.09.2023 A.J 21.09.2023 V.T 21.09.2023
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
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DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
SWEEP PATH PLAN - SHEET 2
DRAWING SET No:
PART:
SHEET: 34 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-007002
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-007002.dwg
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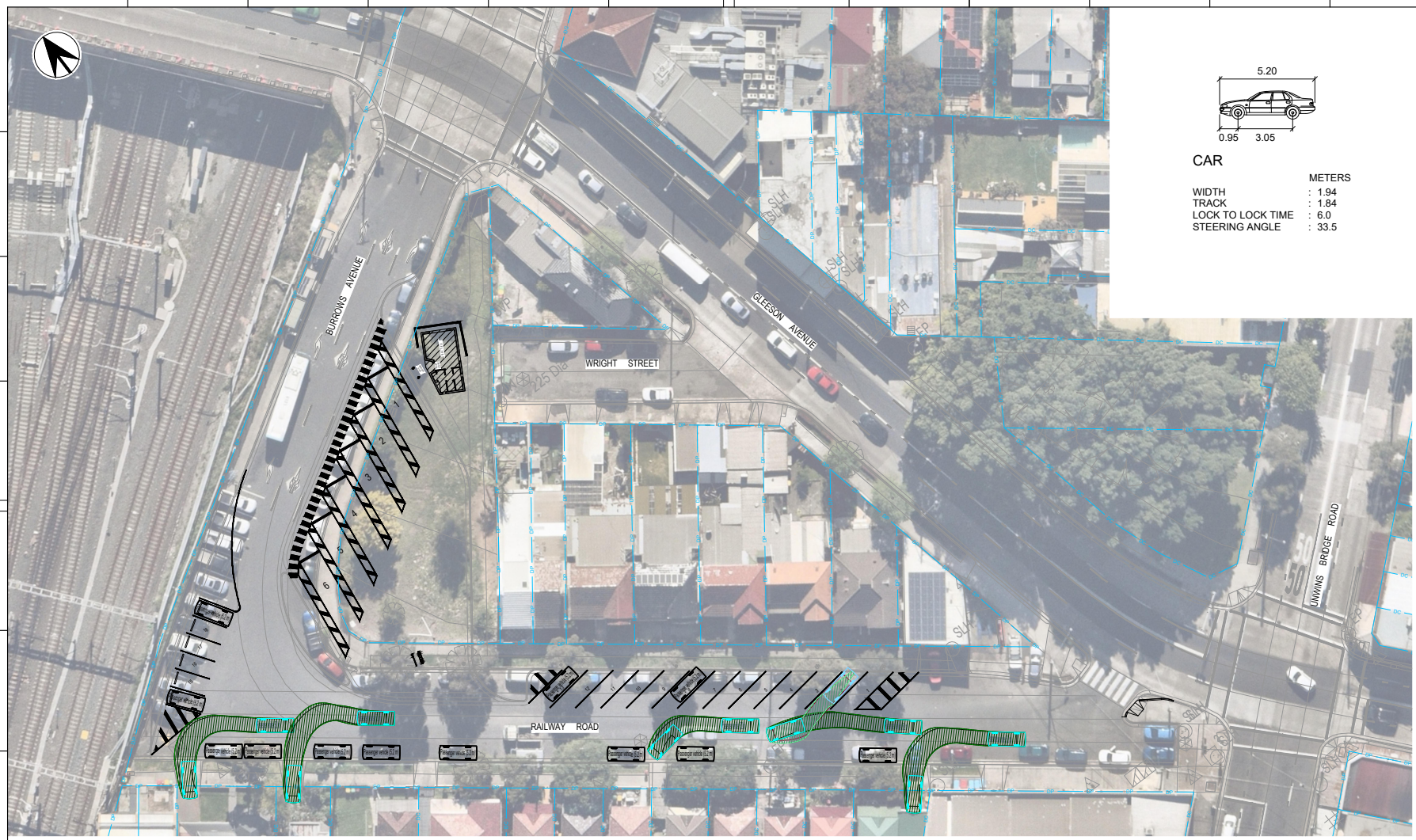

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PLAN
SCALE 1:250

UNCLASSIFIED

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REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE
00.01	ISSUED FOR CONSTRUCTION	L.C 04.07.2024	A.J 04.07.2024	V.T 04.07.2024
A	ISSUED FOR 100% DETAILED DESIGN	L.C 18.04.2024	A.J 18.04.2024	V.T 18.04.2024

COORDINATE SYSTEM: MGA_ZONE_56/GDA20 HEIGHT DATUM:

SCALE: 1:250

2.5 0 5 10m
SCALE 1:250

DESIGN LOT CODE:

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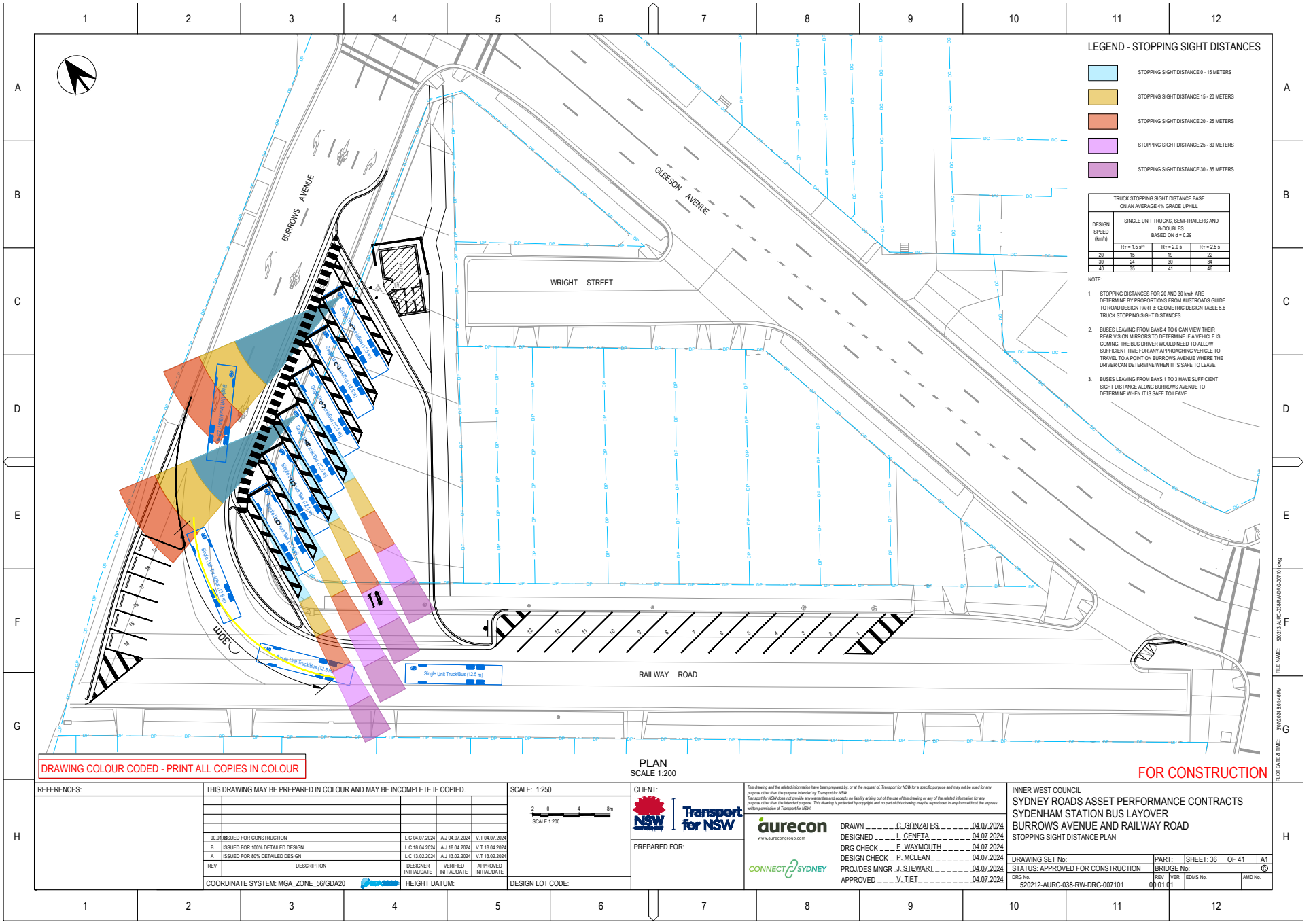
DRAWN	C. GONZALES	04.07.2024
DESIGNED	L. CENETA	04.07.2024
DRG CHECK	E. WAYMOUTH	04.07.2024
DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
SWEEP PATH PLAN - SHEET 3

DRAWING SET No:	PART:	SHEET: 35 OF 41	A1
STATUS: APPROVED FOR CONSTRUCTION	BRIDGE No:		©
DRG No. 520212-AURC-038-RW-DRG-007003	REV 00.01.01	VER	EDMS No. / AMD No.

FILE NAME: 520212-AURC-038-RW-DRG-007003.dwg
PLOT DATE & TIME: 18/10/2024 8:02:34 PM


LEGEND - STOPPING SIGHT DISTANCES
STOPPING SIGHT DISTANCE 0 - 15 METERS
STOPPING SIGHT DISTANCE 15 - 20 METERS
STOPPING SIGHT DISTANCE 20 - 25 METERS
STOPPING SIGHT DISTANCE 25 - 30 METERS
STOPPING SIGHT DISTANCE 30 - 35 METERS
TRUCK STOPPING SIGHT DISTANCE BASE ON AN AVERAGE 4% GRADE UPHILL
DESIGN SPEED (km/h)
SINGLE UNIT TRUCKS, SEMI-TRAILERS AND B-DOUBLES: BASED ON d = 0.29
R↑ = 1.5 s
R↑ = 2.0 s
R↑ = 2.5 s
20 15 19 22
30 24 30 34
40 35 41 46
NOTE:
1. STOPPING DISTANCES FOR 20 AND 30 km/h ARE DETERMINE BY PROPORTIONS FROM AUSTROADS GUIDE TO ROAD DESIGN PART 3: GEOMETRIC DESIGN TABLE 5.6 TRUCK STOPPING SIGHT DISTANCES.
2. BUSES LEAVING FROM BAYS 4 TO 6 CAN VIEW THIER REAR VISION MIRRORS TO DETERMINE IF A VEHICLE IS COMING. THE BUS DRIVER WOULD NEED TO ALLOW SUFFICIENT TIME FOR ANY APPROACHING VEHICLE TO TRAVEL TO A POINT ON BURROWS AVENUE WHERE THE DRIVER CAN DETERMINE WHEN IT IS SAFE TO LEAVE.
3. BUSES LEAVING FROM BAYS 1 TO 3 HAVE SUFFICIENT SIGHT DISTANCE ALONG BURROWS AVENUE TO DETERMINE WHEN IT IS SAFE TO LEAVE.
BURROWS AVENUE
GLEESON AVENUE
WRIGHT STREET
RAILWAY ROAD
30m
Single Unit Truck/Bus (12.5 m)
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
PLAN
SCALE 1:200
FOR CONSTRUCTION
REFERENCES:
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SCALE: 1:250
00.01 B ISSUED FOR CONSTRUCTION L.C 04.07.2024 A.J 04.07.2024 V.T 04.07.2024
B ISSUED FOR 100% DETAILED DESIGN L.C 18.04.2024 A.J 18.04.2024 V.T 18.04.2024
A ISSUED FOR 80% DETAILED DESIGN L.C 13.02.2024 A.J 13.02.2024 V.T 13.02.2024
REV DESCRIPTION DESIGNER INITIAL/DATE VERIFIED INITIAL/DATE APPROVED INITIAL/DATE
COORDINATE SYSTEM: MGA_ZONE_56/GDA20
HEIGHT DATUM:
DESIGN LOT CODE:
CLIENT:
PREPARED FOR:
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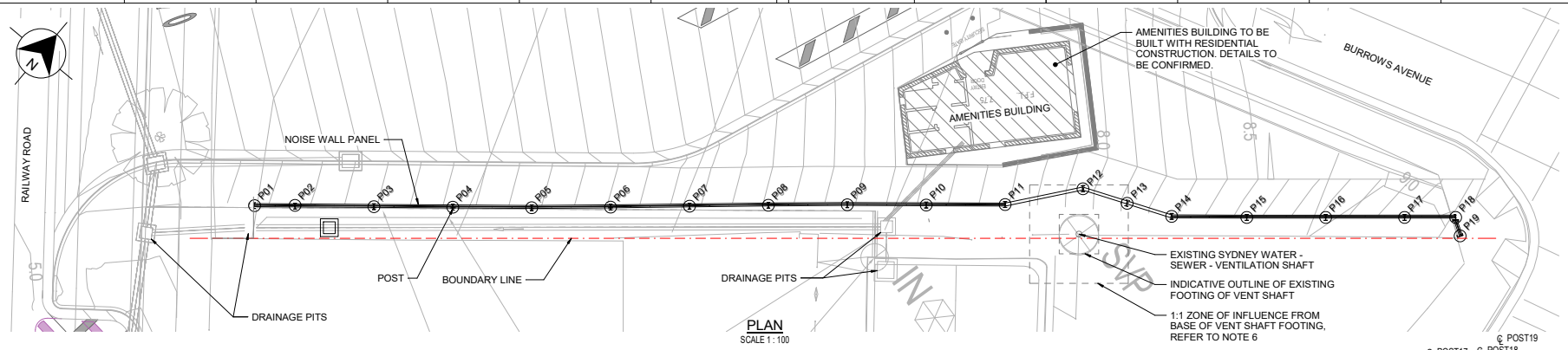
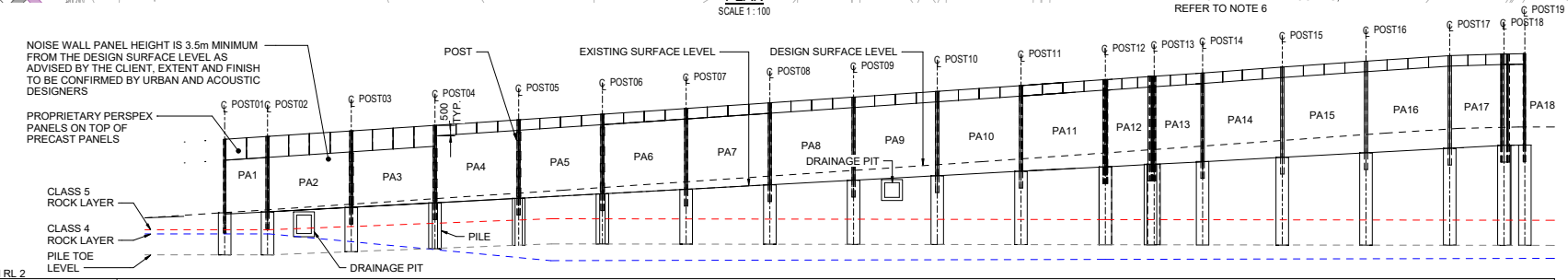
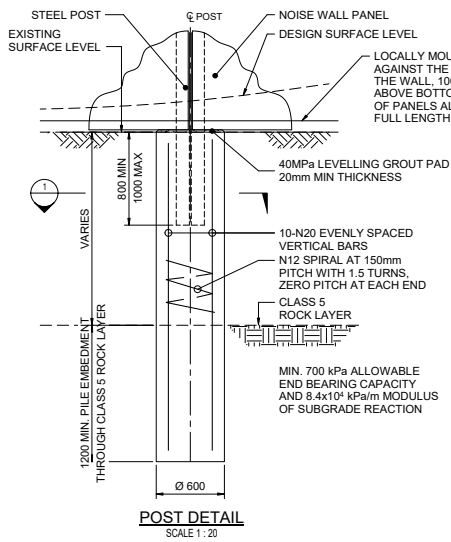
CONNECT SYDNEY
DRAWN C. GONZALES 04.07.2024
DESIGNED L. CENETA 04.07.2024
DRG CHECK E. WAYMOUTH 04.07.2024
DESIGN CHECK P. MCLEAN 04.07.2024
PROJ/DES MNGR J. STEWART 04.07.2024
APPROVED V. TIET 04.07.2024
INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
STOPPING SIGHT DISTANCE PLAN
DRAWING SET No:
PART:
SHEET: 36 OF 41
A1
STATUS: APPROVED FOR CONSTRUCTION
BRIDGE No:
DRG No. 520212-AURC-038-RW-DRG-007101
REV 00.01.01
VER
EDMS No.
AMD No.
FILE NAME: 520212-AURC-038-RW-DRG-007101.dwg
PLOT DATE & TIME: 30/10/2024 8:01:46 PM



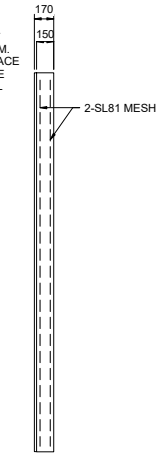
PLAN
SCALE 1 : 100



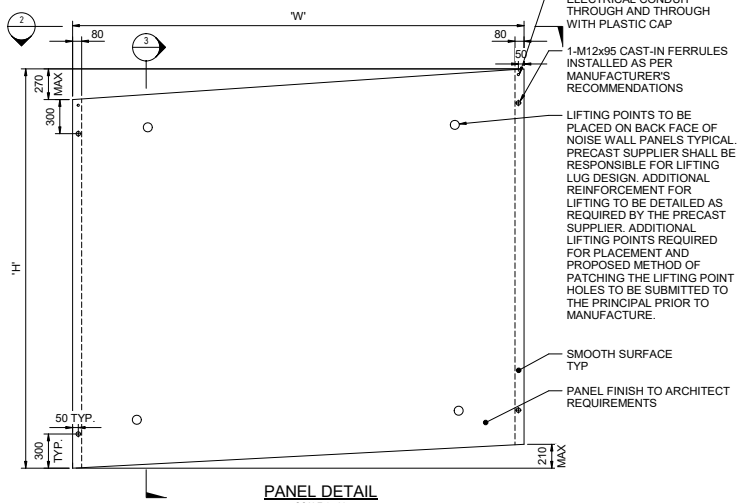
| HORIZONTAL ALIGNMENT | | |



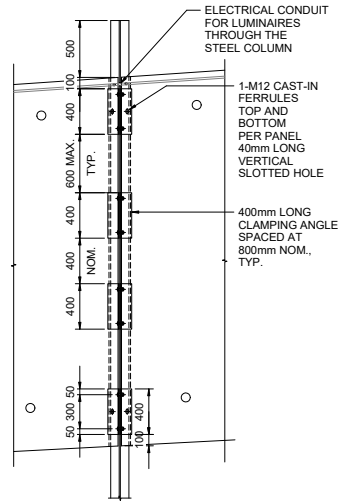
POST DETAIL
SCALE 1 : 20



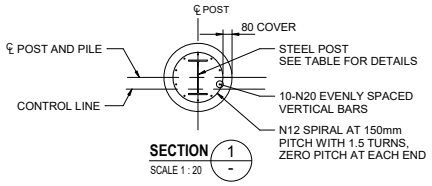
SECTION 3
SCALE 1 : 20



PANEL DETAIL
SCALE 1 : 20



CLAMPING ANGLE DETAIL
SCALE 1 : 20



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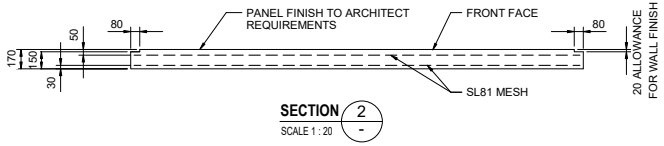

SECTION 2
SCALE 1 : 20

TABLE 1 - PRECAST PANEL DIMENSIONS

PANEL	DIMENSION 'H'	DIMENSION 'W'
PA1	2575	2035
PA2	2600	
PA3	2650	
PA4	3465	
PA5	3515	
PA6	3570	3970
PA7	3625	
PA8	3680	
PA9	3740	
PA10	3795	
PA11	3855	
PA12	3925	2290
PA13	3970	2290
PA14	4010	
PA15	4080	3970
PA16	5145	
PA17	5190	2560
PA18	5130	815

TABLE 2 - POST SECTIONS

POST	STEEL SECTION
POST 01	300PFC
POST 02	
POST 03	
POST 04	
POST 05	
POST 06	
POST 07	
POST 08	
POST 09	
POST 10	310UB32
POST 11	
POST 12	
POST 13	
POST 14	
POST 15	
POST 16	
POST 17	
POST 18	300PFC
POST 19	300PFC

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COORDINATE SYSTEM: MGA_ZONE_56 GDA2020 | HEIGHT DATUM: AHD | DESIGN LOT CODE:

SCALE: 1:20

1:20 @ A1 0 200 400 600 800 1000 mm

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APPROVED	V. TIET	04.07.24

INNER WEST COUNCIL

SYDNEY ROADS ASSET PERFORMANCE CONTRACTS

SYDENHAM STATION BUS LAYOVER

BURROWS AVENUE AND RAILWAY ROAD

NOISE WALL

POST AND PANEL DETAILS - SHEET 1

DRAWING SET No: | PART | SHEET: 38 OF 41

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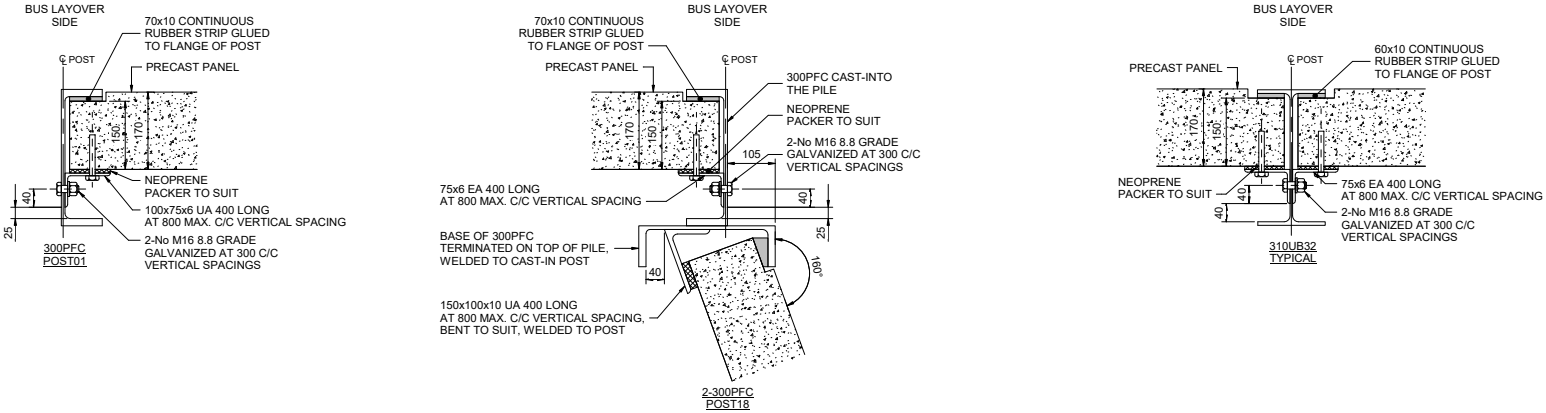
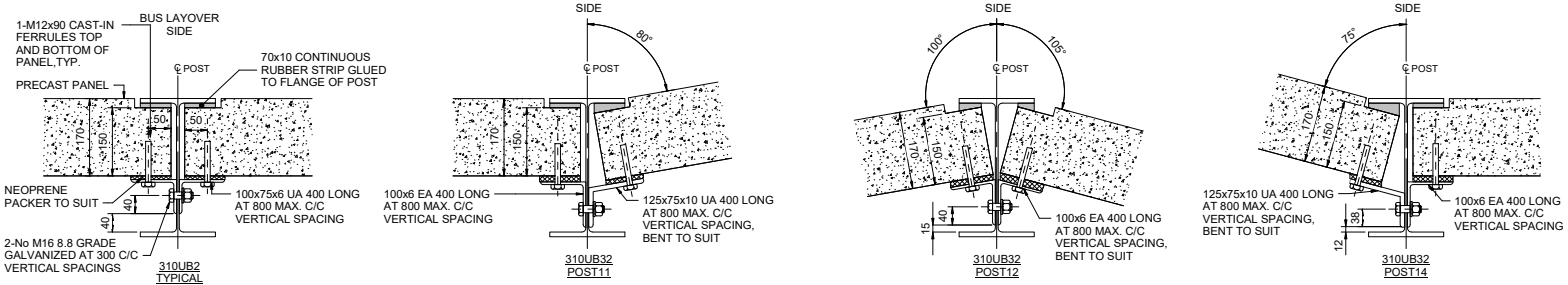
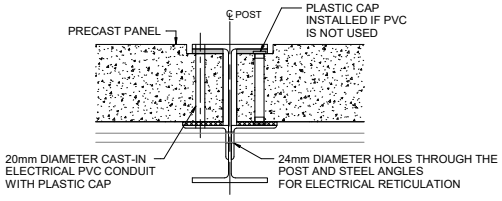




POST PACKING DETAILS
SCALE 1 : 5



TYPICAL COLUMN TO WALL PANEL DETAILS FOR LUMINAIRE RETICULATION

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INNER WEST COUNCIL
SYDNEY ROADS ASSET PERFORMANCE CONTRACTS
SYDENHAM STATION BUS LAYOVER
BURROWS AVENUE AND RAILWAY ROAD
NOISE WALL
POST AND PANEL DETAILS - SHEET 2

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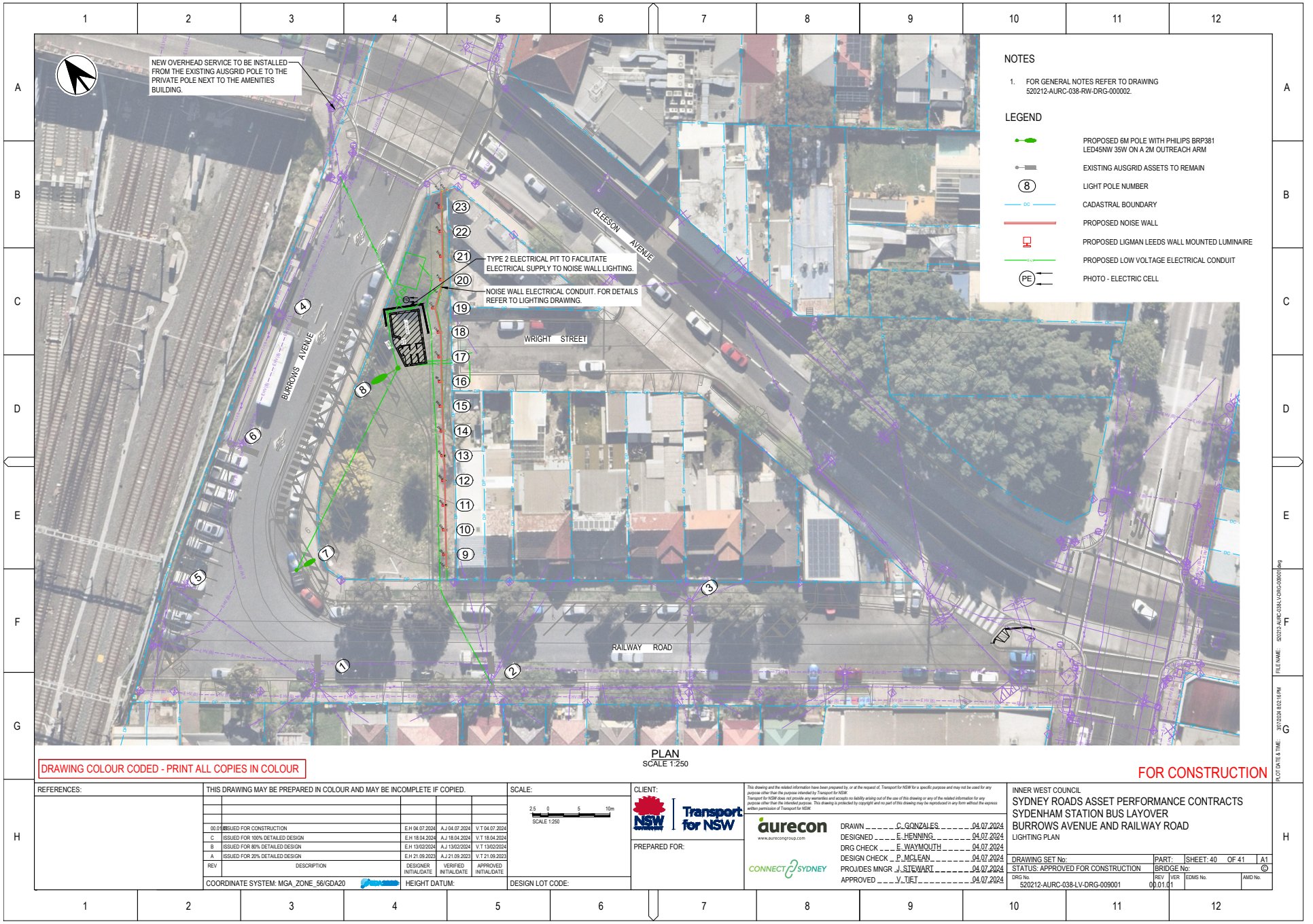

PLAN
SCALE 1:250

Streetlight / Luminaire Schedule									
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2.00	9.00	2.00	330416.88	6245648.78	E1	9.00	5.00	Existing To Remain	Endeavour
3.00	9.00	2.00	330450.50	6245640.21	E1	9.00	5.00	Existing To Remain	Endeavour
4.00	9.00	2.00	330426.01	6245717.50	E1	9.00	5.00	Existing To Remain	Endeavour
5.00	9.00	2.00	330385.58	6245692.93	E1	9.00	5.00	Existing To Remain	Endeavour
6.00	9.00	2.00	330407.03	6245705.86	E1	9.00	5.00	Existing To Remain	Endeavour
7.00	6.00	2.00	330403.22	6245682.99	N1	6.00	5.00	New	TfNSW
8.00	6.00	2.00	330436.02	6245698.98	N1	6.00	5.00	New	TfNSW
9.00	-	-	-	-	W1	3.00	-	New	TfNSW
10.00	-	-	-	-	W1	3.00	-	New	TfNSW
11.00	-	-	-	-	W1	3.00	-	New	TfNSW
12.00	-	-	-	-	W1	3.00	-	New	TfNSW
13.00	-	-	-	-	W1	3.00	-	New	TfNSW
14.00	-	-	-	-	W1	3.00	-	New	TfNSW
15.00	-	-	-	-	W1	3.00	-	New	TfNSW
16.00	-	-	-	-	W1	3.00	-	New	TfNSW
17.00	-	-	-	-	W1	3.00	-	New	TfNSW
18.00	-	-	-	-	W1	3.00	-	New	TfNSW
19.00	-	-	-	-	W1	3.00	-	New	TfNSW
20.00	-	-	-	-	W1	3.00	-	New	TfNSW
21.00	-	-	-	-	W1	3.00	-	New	TfNSW
22.00	-	-	-	-	W1	3.00	-	New	TfNSW
23.00	-	-	-	-	W1	3.00	-	New	TfNSW

GALLERY & FoH LIGHTING													
N1		TFNSW STREETLIGHT	DIE CAST ALUMINIUM IP66 / IK08	GREY	L 449mm x H 138mm x W 310mm	GREENVISION XCEED GEN2	BRP381 LED45/NW 35W 220-240V DWP P7 HP	PHILIPS	35W LED, 4000K OPTIC: TYPE III CRI 70	INTEGRAL ELECTRONIC DRIVER	COLUMNN OUTREACH MOUNTED AT 6m AFSL	BRENT SNASHALL SIGNIFY 0427 083 237	
W1		WALL-MOUNTED LUMINAIRE	DIE CAST ALUMINIUM IP65 / IK07	BLACK	L 125mm x H 204mm x W 108mm	LEEDS WEDGE 1	LEW-3001-T2-8040-IND-01	LIGMAN	8W LED, 4000K OPTIC: TYPE II CRI 80, 3 SDCM	INTEGRAL ELECTRONIC DRIVER	WALL MOUNTED TO NOISE WALL COLUMNS	PIERRE ASAADI JADECROSS 0437 815 457	- TO BE SUPPLIED WITH 210mA DRIVER FOR DERATING TO 40% OF NORMAL FLUX.

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COORDINATE SYSTEM: MGA_ZONE_56/GDA20 | HEIGHT DATUM:

SCALE:

SCALE 1:100 (1 0 2 4m)

SCALE 1:5 (50 0 100 200mm)

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DESIGN CHECK	P. MCLEAN	04.07.2024
PROJ/DES MNGR	J. STEWART	04.07.2024
APPROVED	V. TIET	04.07.2024

INNER WEST COUNCIL

SYDNEY ROADS ASSET PERFORMANCE CONTRACTS

SYDENHAM STATION BUS LAYOVER

BURROWS AVENUE AND RAILWAY ROAD

LIGHTING - LUMINAIRE DETAIL AND SCHEDULE

DRAWING SET No: | PART: | SHEET: 41 OF 41 | A1

STATUS: APPROVED FOR CONSTRUCTION | BRIDGE No: | ©

DRG No. 520212-AURC-038-LD-DRG-009002 | REV 00.01.01 | VER | EDMS No. | AMD No.

FILE NAME: SD212-AURC-038-LI-DRG-009002.dwg

PLOT DATE & TIME: 3/10/2024 8:00:45 PM

Item 12

Item No: **LTC1224(1) Item 12**

Subject: **WARDELL ROAD RAILWAY OVERBRIDGE IN DULWICH HILL - PROPOSED MODIFICATION TO THE EXISTING DELINEATION FOR ASSOCIATED FOOTPATH AND BARRIERS WORKS (MIDJUBURI - MARRICKVILLE WARD / SUMMER HILL ELECTORATE / INNER WEST PAC)**

Prepared By: George Tsaprounis - Coordinator Traffic Engineering Services (south)

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the proposed changes to the road widths along Wardell Road rail bridge from 7.8m to 6.6m for footpath widening and road safety barrier works be approved (including adjustment to associated travel lane linemarking).**

2. **That Narrow Bridge (W4-1) signs be installed in Wardell Road (both north and southbound) and in Dudley Street (southwest bound), prior to approaching the railway overbridge.**

3. **That Sydney Metro (TfNSW) undertake all necessary actions (including preparation of a Traffic Management Plan) for the installation of a "No Left Turn; Vehicles under 6.5m and Council Waste Vehicles Excepted" sign on the southbound approach of Dudley Street from Wardell Road.**

4. **That Sydney Metro (TfNSW) monitor the changes made to the bridge over a 12 month period and report back to Council with the outcome of this monitoring including a Post Construction Road Safety Audit. Any costs related to addressing the outcomes of the monitoring period and a Post Construction Road Safety Audit be borne by Sydney Metro.**

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

As part of Sydney Metro, Sydenham to Bankstown project works to road over rail bridges are being upgrade with barriers (for errant vehicles) and throw screens to meet current safety standards for such bridges. Wardell Road railway bridge amongst other bridges in the LGA is proposed to be upgraded.

This report seeks Council approval to re-adjust existing line markings on Wardell Road Railway overbridge and to undertake necessary road safety barrier works and improvement to the existing footpath widths (by reducing/removing existing road shoulder).

It is recommended that the following changes to the bridge travel lane, shoulder and footpath as well as changes to the line marking be approved. It is also recommended that a ''No Left Turn'' ban for vehicles over 6.5m with the exception of Council Waste vehicles be installed for left turning vehicles from Wardell Road into Dudley Street. Finally, that TfNSW monitor the

changes made to the bridge over a 12 month period and report back to Council with the outcome of this monitoring including a Post Construction Road Safety Audit. Any costs related to addressing the outcomes of the monitoring period and a Post Construction Road Safety Audit be borne by TfNSW.

BACKGROUND

To mitigate any potential errant vehicle entering the rail corridor, which are also Critical State Significant Infrastructure (CSSI), it is proposed to implement protection measures. In addition, Sydney Metro Trains are driverless trains, hence not able to see/observe errant vehicles in the rail corridor. To overcome the above concern a barrier design has been developed which includes upgrade works to the overbridge, providing errant vehicle mitigation solution to protect the rail corridor. The kerb line positioning ensures compliance with the carriageway width, minimising impact on the existing bridge while optimising footpath width for improved pedestrian access. A cross section of the bridge with proposed changes have been provided in Figure 1 below. Proposed works will involve modification of existing Traffic Control Signal (TCS) design at Wardell Road and Dudley Street intersection.
The civil and structural design works for the Wardell Road overbridge at Dulwich Hill Station site include:

- Upgrading existing footpaths and kerbs to accommodate regular performance traffic barriers.
- Kerb and footpath reconstruction, and level tie-ins.
- Installation of HVM PAS 68 rated bollards.
- Line marking/delineation.

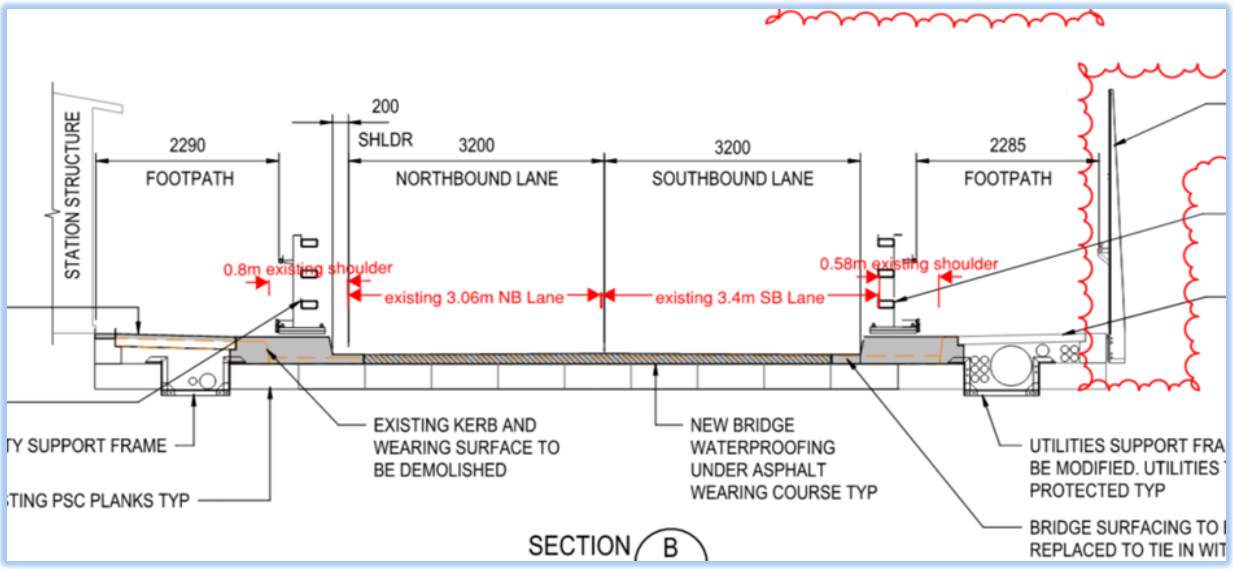


Figure 1: Cross section of the Wardell Road Railway Over-bridge in Dulwich Hill

DISCUSSION

Wardell Road is a regional road which provide general access to vehicles (including buses), the subject section of Wardell Road overbridge, the section between Dudley Street and Bedford Crescent, consists of two-lane and two-way traffic. These lanes are situated within an 8.4 m wide carriageway. On either side of the carriageway, there are approx. 1.9m wide footpaths.
The intersection of Wardell Road and Dudley Street has been upgraded to a signalised intersection part of Inner West Council recent 40km/h HPAA (High Pedestrian Activity Area) and Public Domain upgrade works that consists of a raised intersection arrangement. Below Traffic Control Signals (TCS) diagram illustrates the existing intersection arrangements at the subject location.

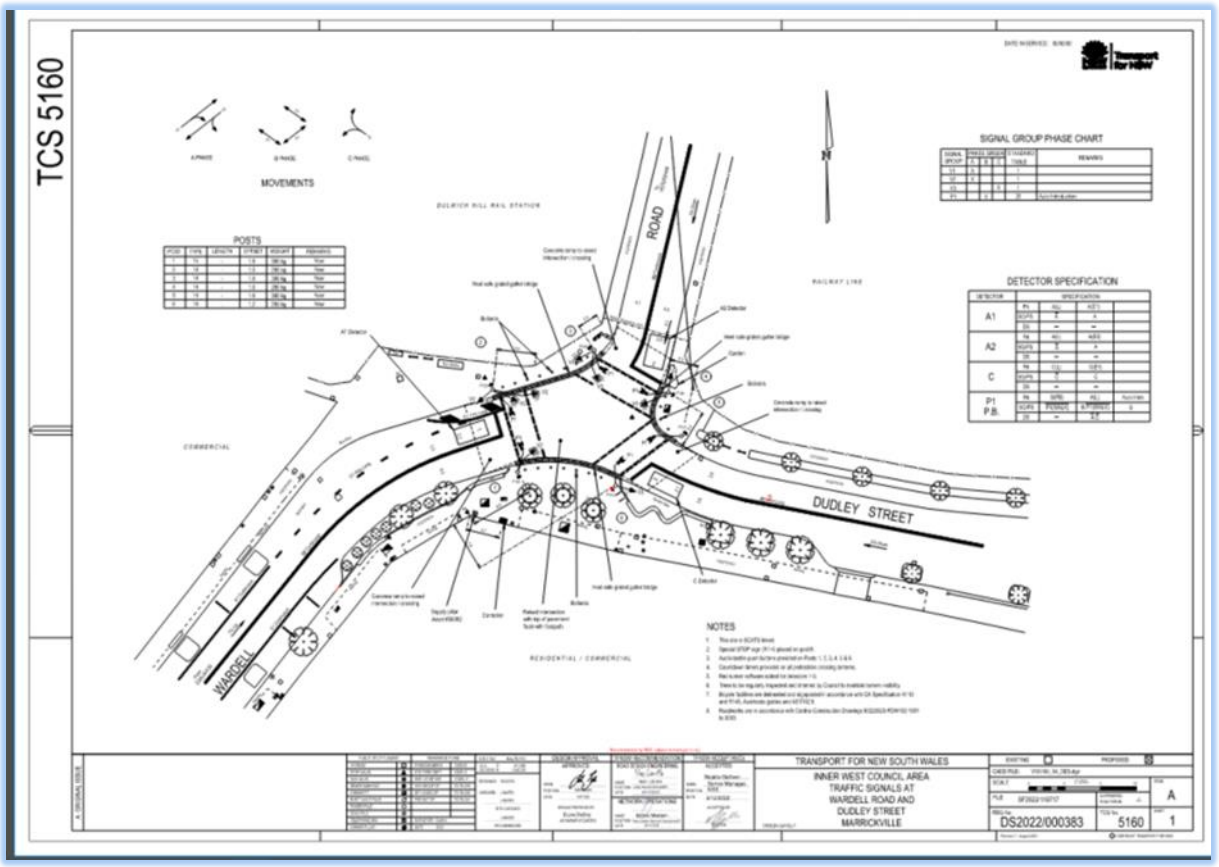


Figure 2: TCS design/ diagram for Wardell Road, Dudley Street intersection at Dulwich Hill

Proposed Changes

The existing footpaths and kerbs are proposed to be replaced to provide structure to support the new bridge barriers. The new reinforced concrete footpath/deck has been designed with a reduced thickness to accommodate the required reinforcement while maintaining or improving the girder rating. The impact on the bridge is minimal due to the slight increase in the wearing surface. Waterproofing will be applied under the new surface between the relocated kerb lines on the bridge.

The proposed relocation of the kerb line toward the centre of the carriageway on both sides is designed to ensure that the traffic barrier is supported by two girders rather than just one. The primary design intent is to maintain both the width and the position of the existing traffic lanes, ensuring minimal disruption to the current lane configuration and clearances.

All new kerbs, traffic barrier transitions, and terminals will tie into the existing kerbs of the bridge (Refer to figure 1).

Key width dimensions have also been documented in the table 1 below.

Location	Existing (m)	Proposed (m)	Difference (m)
NB Lane	3.06	3.20	0.14 addition
NB Shoulder	0.80	0.20	0.60 reduction
Western footpath	1.92	2.29	0.37 addition
SB lane	3.41	3.20	0.21 reduction
SB Shoulder	0.58	0.00	0.58 reduction
Eastern footpath	1.96	2.28	0.32 addition

Table 1 – Summary of changes to travel lane, shoulder and footpath arrangements

Load Limits
The existing bridge is rated to accommodate a 44-tonne, 19-meter semi-trailer. Check vehicle movements are illustrated in the images below.

The new kerb and barrier arrangement on the bridge would not affect the check vehicle turning movements. However, the existing movements remain constrained and may require traffic control measures to ensure safe execution.

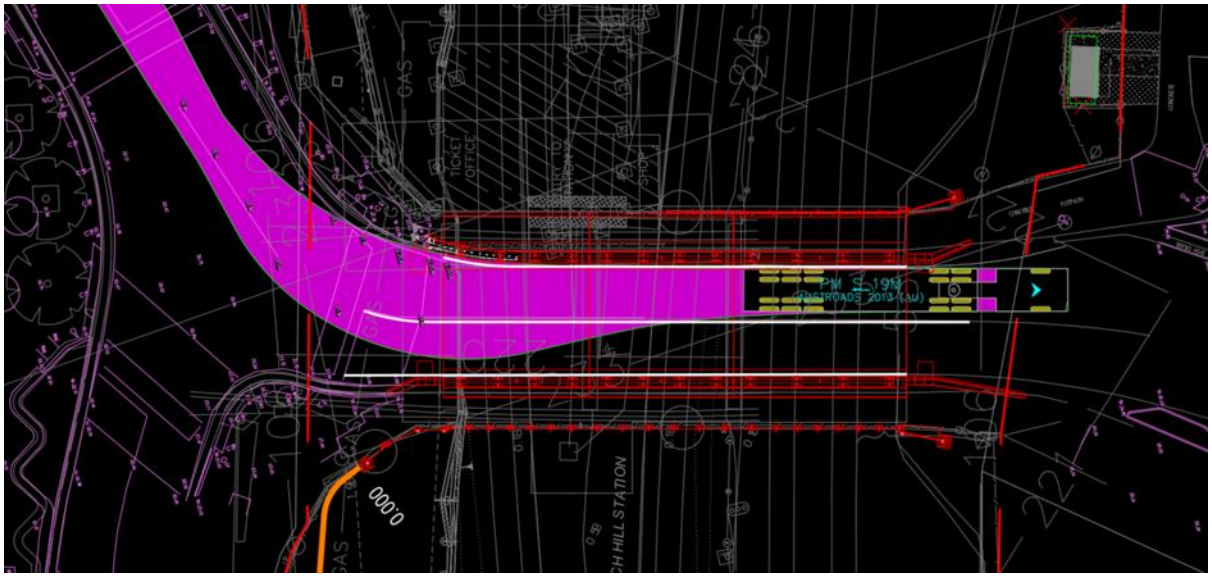


Figure 3: Wardell Road northbound heavy vehicle movements

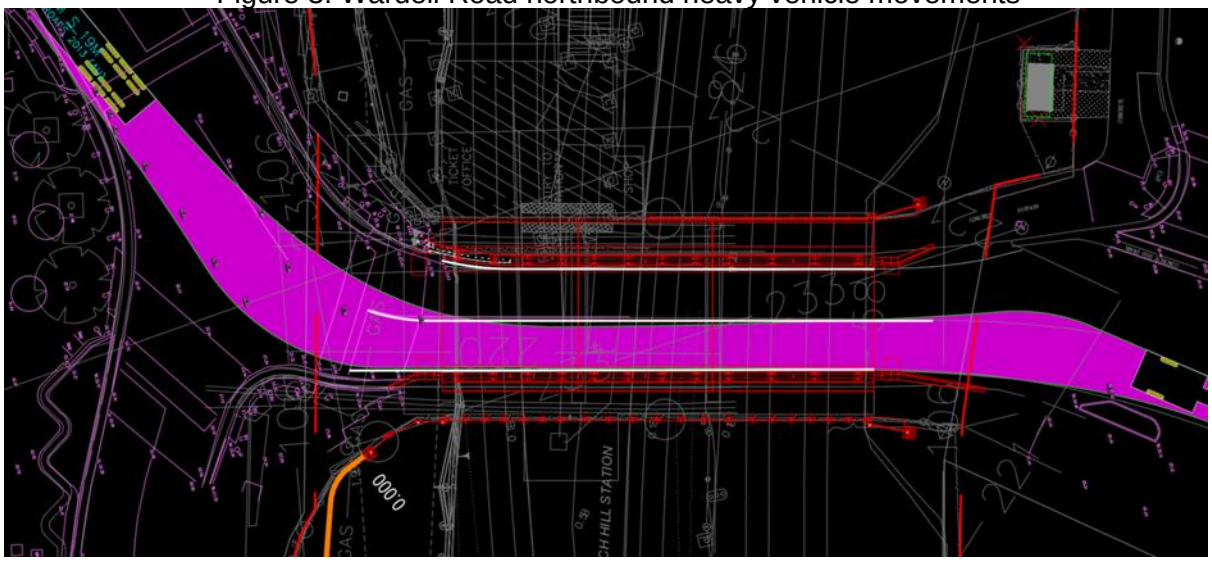


Figure 4: Wardell Road southbound heavy vehicle movements

Bus Routes
Currently the bus service 412 travels through Dulwich Hill via Wardell Road and Dudley Street but do not go over Wardell Road bridge (refer to figure 5). Therefore, the proposed barrier does not have any impact to this regular bus route services.

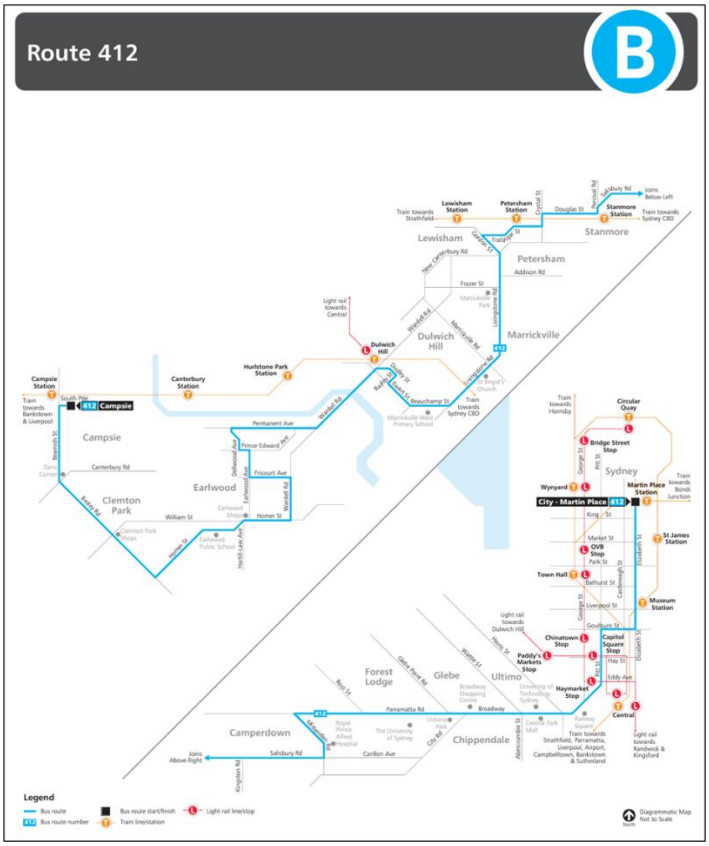


Figure 5: Bus Route No. 412 route plan

However, there are school bus services which travel over Wardell Road bridge which operates only during school terms and 1-2 service per day during school days.

In addition, there are bus services during Light Rail track possessions which also use Wardell Road railway overbridge as their movement route. Potential impact to the buses is discussed below.

Turn Paths

Turn paths have been assessed for all types of vehicles travelling north and southbound on Wardell Road overbridge and turning in/out of Dudley Street. The turn paths included but not limited to 5.2m cars/vans (B99 vehicles), 8.8m long service vehicles and 12.5m long vehicles/ buses. From the turn path analysis, it was identified that the existing road configuration following Council's recent road, public domain and traffic signal works, vehicles over 6m long are having difficulties turning left into Dudley Street from Wardell Road overbridge, due to the vehicles crossing the centreline of the roads and/or encroaching to the opposite travelling lane.

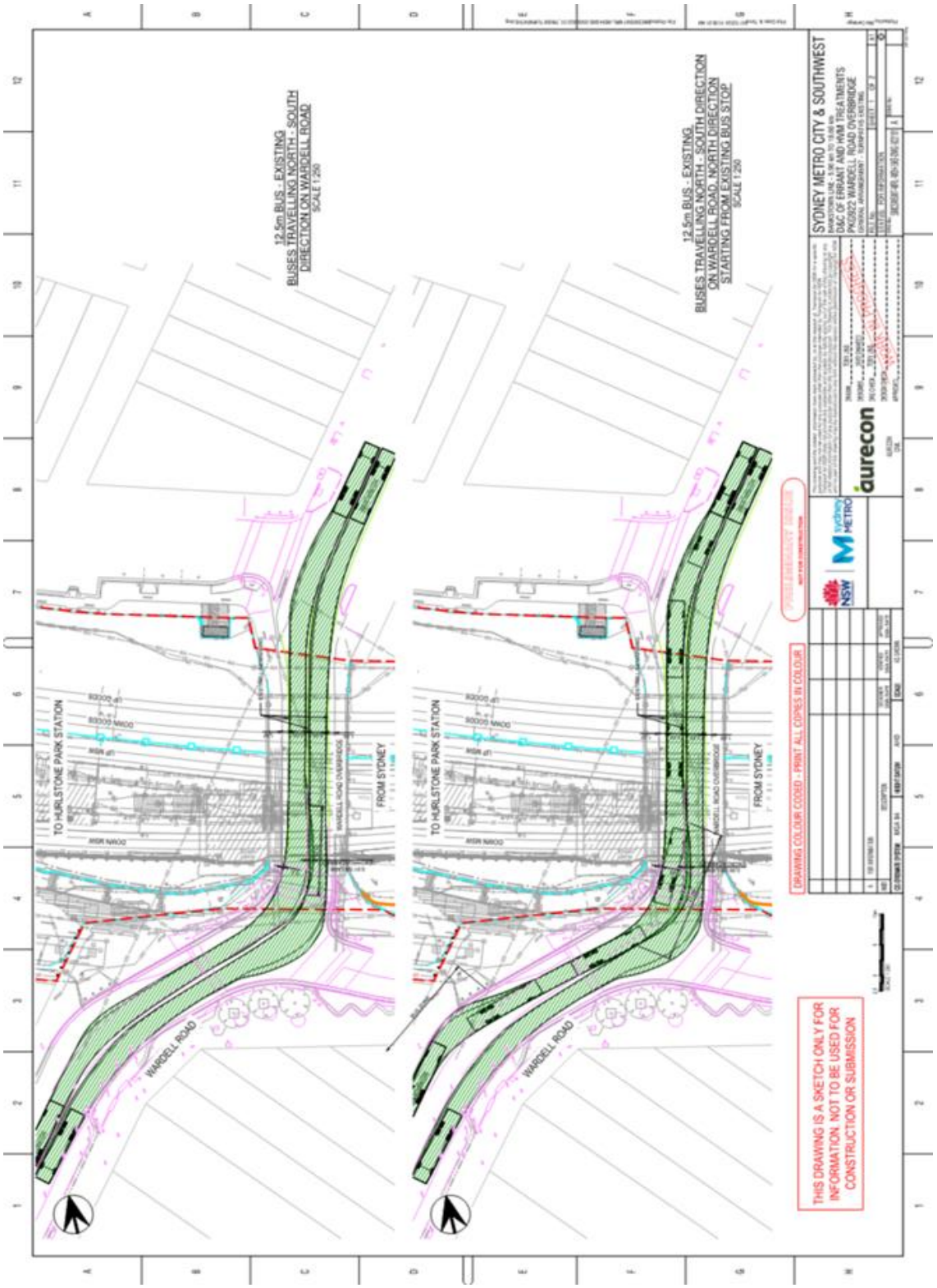


Figure 6: Turn paths on existing road configuration for buses travelling north-south direction on Wardell Road over the railway bridge.

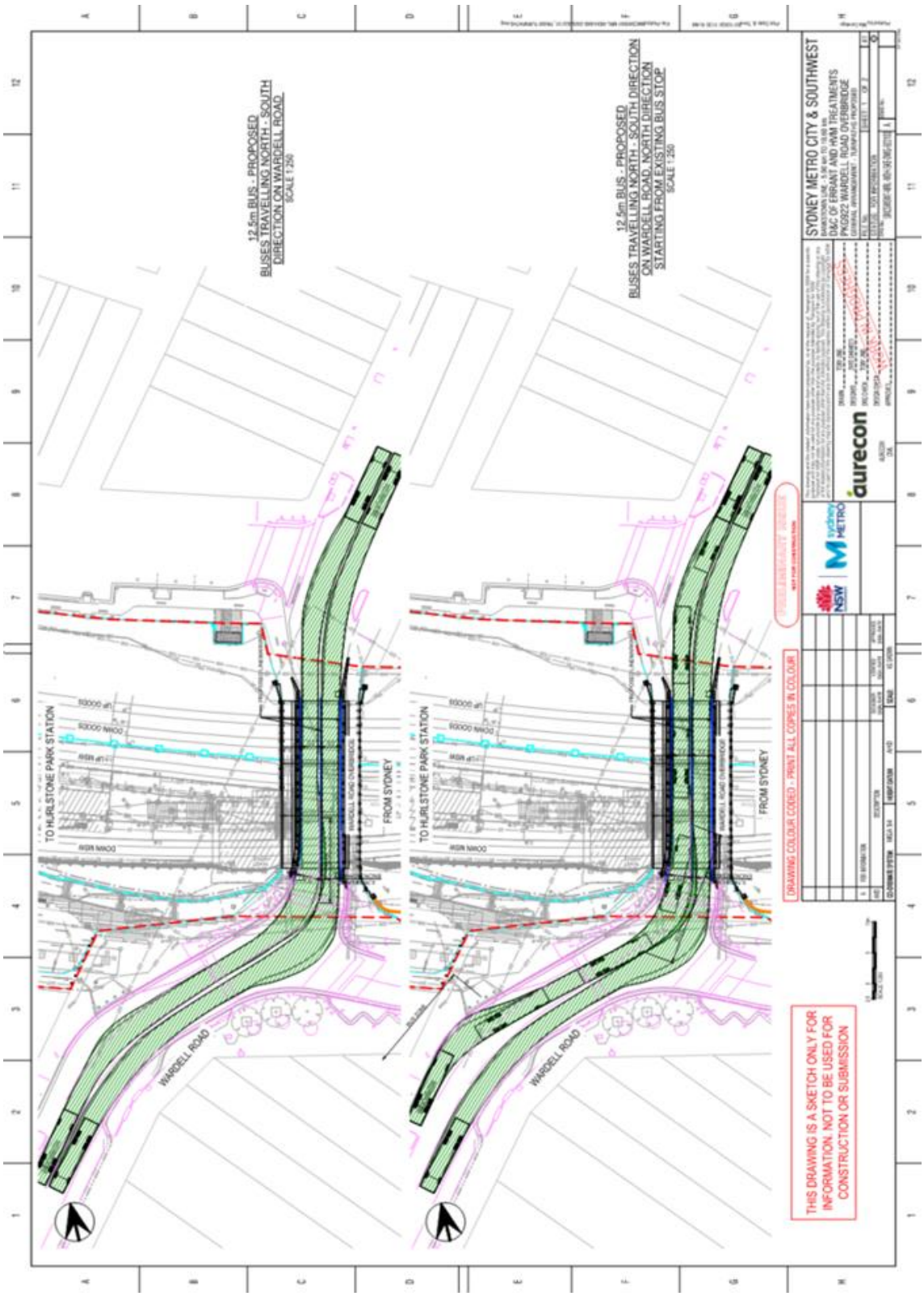


Figure 7: Turn paths with proposed road barriers for buses travelling north-south direction on Wardell Road over the railway bridge.

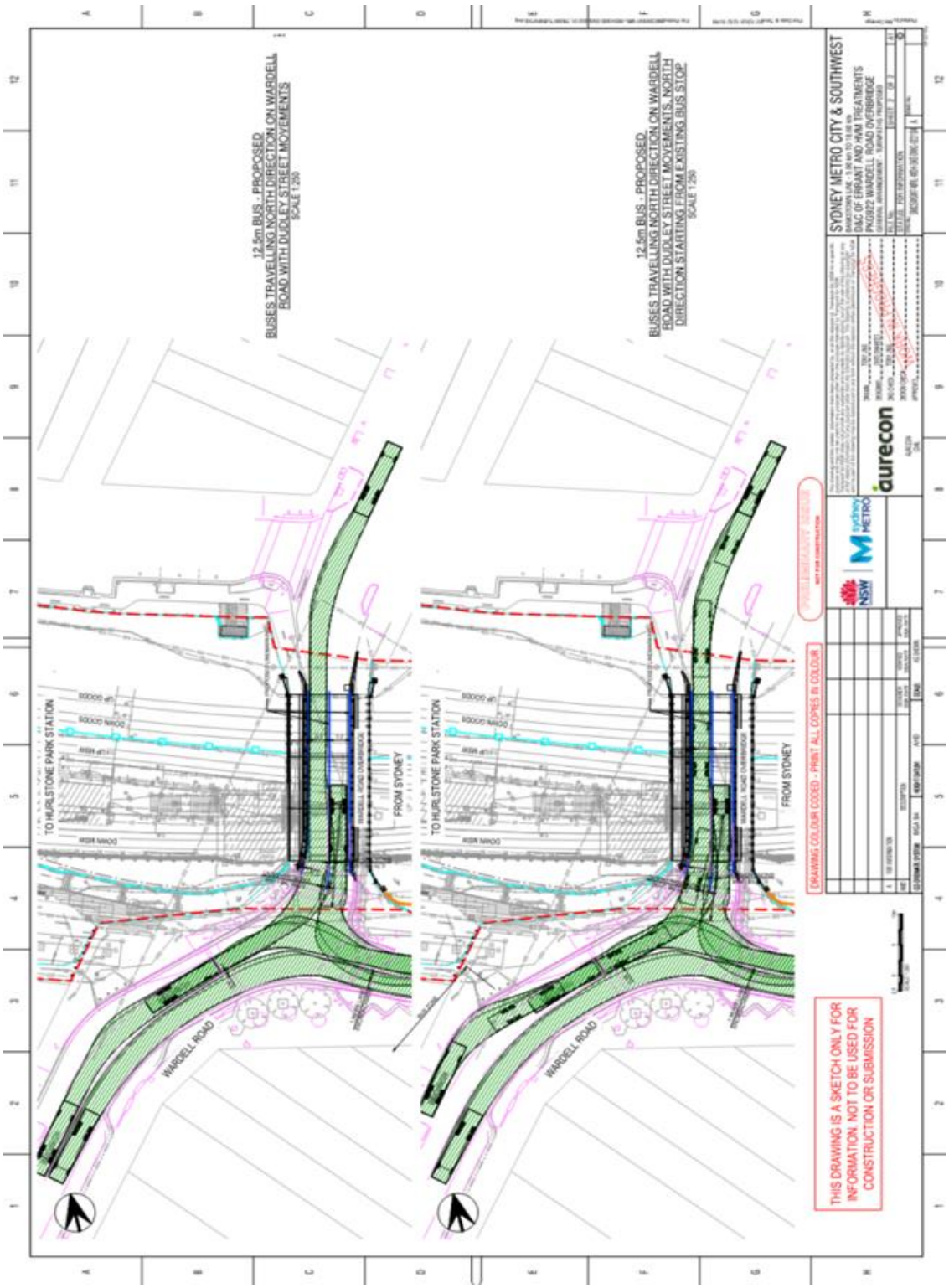


Figure 8: Turn paths with proposed barriers for buses travelling north-south direction on Wardell Road over the railway bridge while making left turn into Dudley Street from the overbridge and bus movements between Wardell Road and Dudley Street.

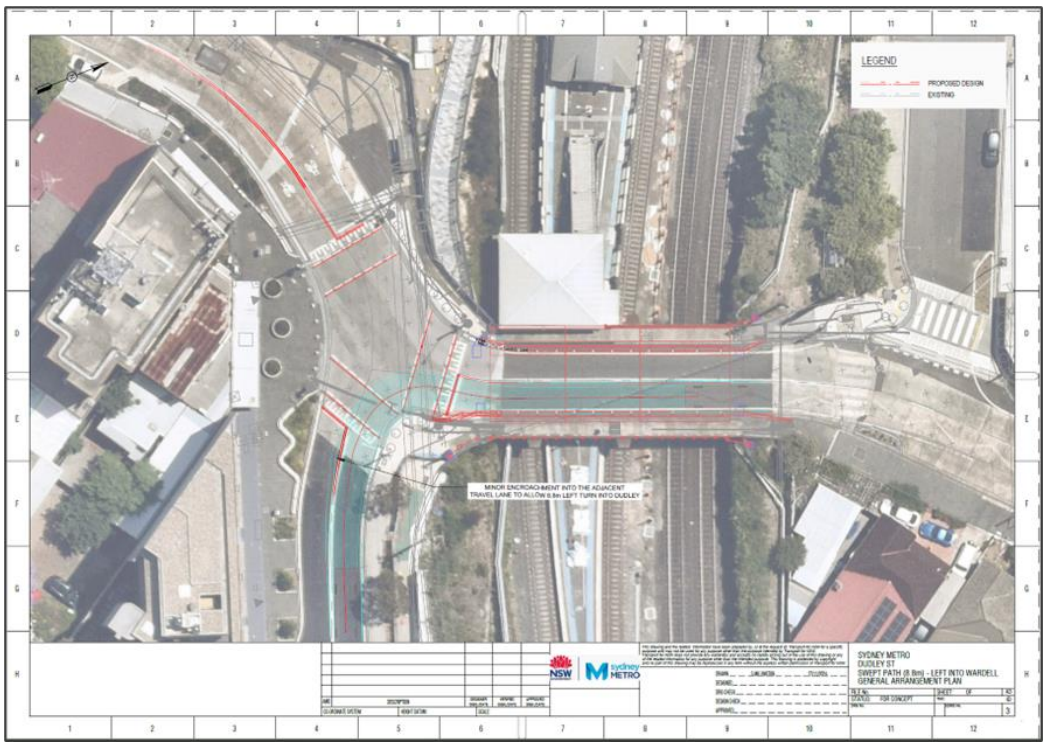


Figure 9: Turn paths with proposed road safety barriers for 8.8m long service vehicles turning left into Dudley Street from Wardell Road the overbridge.

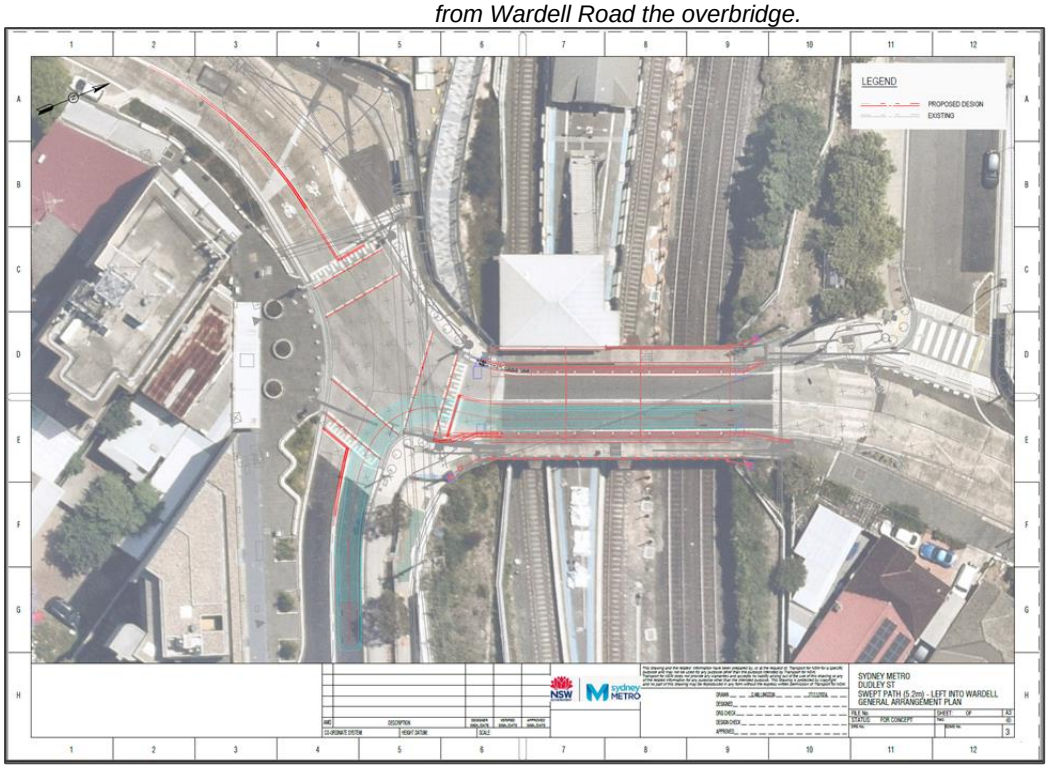


Figure 10: Turn paths with proposed road safety barriers for 5.2m long vehicles turning left into Dudley Street from Wardell Road the overbridge.

TfNSW contractors have stated that the proposed road safety barriers works on Wardell Road overbridge will not have any adverse impact on vehicle turn paths. Instead, the proposed design (with safety barriers) will minimise the overlap and slightly improve the existing situation.

The proposed Wardell Road turn path movements, compared to the existing turn path, reduce encroachment into the southbound lane. This is due to the minor shift of the proposed centre line towards the east. However, the proposed arrangement results in minor shoulder clearance

reduction on the northbound approach to the bridge barrier terminal. If the existing centreline overhang is applied, the clearance to the barrier terminal is similar to the existing offset to the kerb. A summary of the encroachment based on a 12.5m bus is provided in table 2 below
Limiting the vehicles which can turn left into Dudley Street from Wardell Road to around 6.5m (small rigid truck) with the exception of Council Waste vehicles should be undertaken regardless of any other proposals within this report based on the vehicle analysis undertaken.

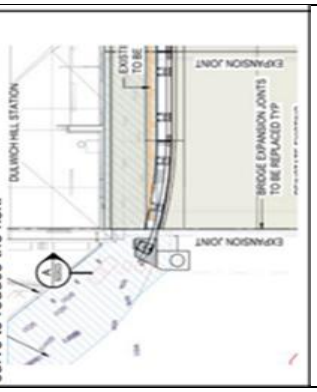
Location	SB encroachment Existing (m)	SB encroachment Proposed (m)	NB lane encroachment existing (m)	NB lane encroachment proposed (m)
Wardell Road	0.91	0.76	0.00	0.00
Wardell Road from bus stop	0.96	0.74	0.00	0.00
Wardell Road + Dudley Street	0.91	0.74	0.71	0.91
Wardell Road + Dudley Street from bus stop	0.96	0.76	0.71	0.91

Table 2 – Summary of encroachments based on a 12.5m bus

Road Safety Audit
A pre-construction road safety audit was conducted on 11th September 2024. This report presented the findings based on the Preliminary Design Drawings. The audit reviewed the design information provided for the section of Wardell Road near Dulwich Hill Train Station, which was impacted by the planned changes outlined in the design.

The purpose of the audit was to verify the implementation of documentation and planning for works within road-related areas, particularly within the project's specified impact zone. It evaluated the application of the 'safe system' approach to road design, focusing on identifying and mitigating roadside hazards. These hazards included, but were not limited to, signage and pavement markings, pedestrian and cyclist facilities, delineation, sight distances, intersection controls, and safety barriers.

The following items were identified, designer responses are provided below in figure 11.

Designer's Response/Action for Resolution The proposed new barrier have now been removed. The steel rail will extend and follow a curve to reduce the risk.		The 3.2m wide traffic lane widths are proposed to maintain the width of the required footpath. The 3.2m wide traffic lane have been raised with Sydney Metro through RFI 148 and Sydney Metro is supportive of the proposed width.

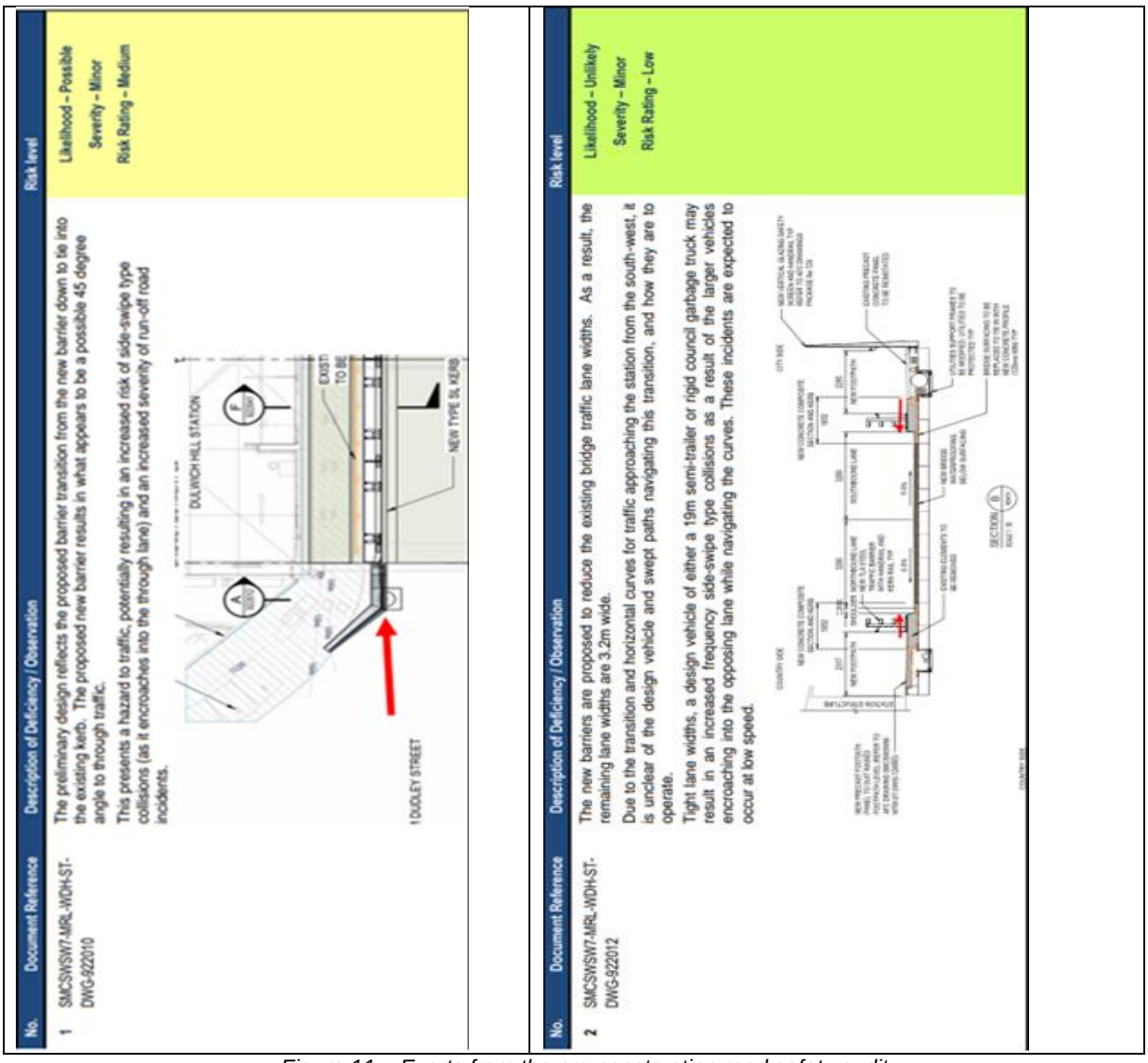


Figure 11 – Exerts from the pre-construction road safety audit.

As this section of Wardell Road has a 40 km/h speed limit, it is expected that most vehicles would approach the bridge at lower speeds which reduces the chances of incidence. Larger vehicles such as buses and or trucks passing would be a rare occurrence and, on such occurrences, the low-speed approach would likely result in one vehicle giving way to another.

Proposal

The proposed line marking scheme shows minimal impacts compared to the approved TCS design. A minor adjustment to the centreline is proposed to accommodate the revised alignment. Additionally, the reinstatement of edge lines will further delineate the newly proposed kerb, enhancing road clarity and safety.

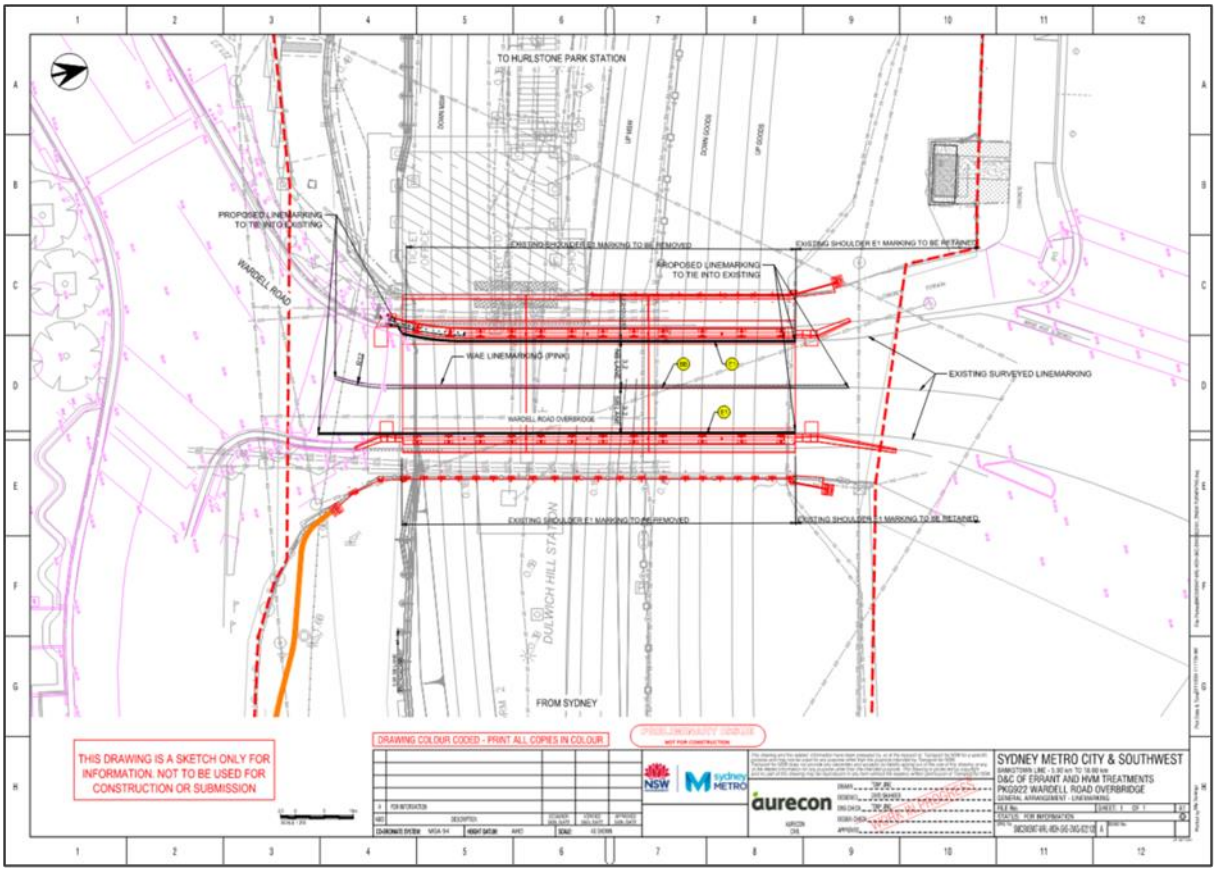


Figure 12: proposed delineation on Wardell Road overbridge between Dudley Street and Bedford Crescent.

Community Engagement

The above barrier design and existing safety turn path issues with buses have been discussed with CJP (Bus Operations team), TfNSW (Network & Safety representatives) and Inner West Council. Following extensive discussion with these relevant stakeholders TfNSW advised Sydney Metro to restrict left turn movements for vehicles over 6.0 metre with a discretion for "Buses & Council's Waste Collection Vehicles Excepted" condition. This will prevent all above 6.0m long vehicles to turn except buses and Council's service vehicles when/if needed.
It should be noted that as a result of the turn path analysis above, limiting the vehicle size to around 6.5m (i.e., small rigid vehicle) with the exception of Council Waste vehicles would provide better access for deliveries to the nearby shops without compromising safety.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

CONCLUSION

The proposed Wardell Road turn path movements and line marking adjustments are acceptable and generally in line with existing conditions. Given the minimal changes to the existing lane configurations and necessity for vehicle protection to the rail corridor it is recommended that the following changes to the bridge travel lane, shoulder and footpath as well as changes to the line marking be approved. It is also recommended that a ''No Left Turn'' ban for vehicles over 6.5m with the exception of Council Waste vehicles be installed for left turning vehicles from Wardell Road into Dudley Street. Finally, that Sydney Metro (TfNSW) monitor the changes made to the bridge over a 12 month period and report back to Council with the outcome of this monitoring including a Post Construction Road Safety Audit. Any costs related to addressing the outcomes of the monitoring period and a Post Construction Road Safety Audit be borne by Sydney Metro (TfNSW).

ATTACHMENTS

Nil.

Item 13

Item No: **LTC1224(1) Item 13**

Subject: **DULWICH HILL STATION PRECINCT - PROPOSED PARKING CHANGES (DJARRAWUNANG-DULWICH HILL WARD/SUMMER HILL ELECTORATE/INNER WEST PAC)**

Prepared By: James Nguyen - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the following parking changes within the Dulwich Hill Station Precinct be approved:

1. **the reallocation of three (3) timed parking restrictions signposted as '1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat' to 'P30 minute 8am-6pm Mon-Fri; 8.am-4pm Sat' on the western side of Wardell Road north of Ewart Street,**
2. **the reallocation of four (4) timed parking restrictions signposted as '1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat' to '1P 8am-6pm Mon-Fri; 8am-4pm Sat' on the western side of Wardell Road, north of Ewart Street,**
3. **the reallocation of 4.5 metres of the existing 'Bus Zone' to '1P 8am-6pm Mon-Fri;8am-4pm Sat' on the western side of Wardell Road, north of Ewart Street,**
4. **the reallocation of the 18 metre 'Bus Zone' to 'P30 minute 9.30am-2.30pm, 4pm-6pm Mon-Fri; 8am-4pm Sat, Bus Zone 8am-9.30am,2.30pm-4pm Mon-Fri' on the western side of Wardell Road, north of Ewart Street,**
5. **the reallocation of 16 metres of the existing 'No Parking' restriction on the eastern side of Wardell Road, north of Ewart Street to 'P30 minute 8am-6pm Mon-Fri; 8am-4pm Sat',**
6. **the reallocation of five (5) timed parking restrictions signposted as '1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat' to '1P 8am-6pm Mon-Fri; 8am-4pm Sat' on the eastern side of Wardell Road, north of Ewart Street,**
7. **the reallocation of two (2) timed parking restrictions signposted as '1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat' to 'P30 minute 8am-6pm Mon-Fri; 8am-4pm Sat' on the eastern side of Wardell Road, north of Ewart Street,**
8. **the reallocation of the 'Loading Zone 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat' and 'No Stopping' restrictions on the northern side of Dudley Street, west of School Parade to '1P 8am-6pm Mon-Fri; 8am-4pm Sat',**
9. **the allocation of three (3) motorcycle parking spaces to the 3.6 metre unallocated kerb length on the southern side of Dudley Street, west of School Parade**
10. **the reallocation of eight (8) metres from the existing temporary bus zone on the southern side of Dudley Street to 'Loading Zone 8am-6pm'**
11. **the 26-metre-long temporary bus zone on the southern side of Dudley Street, west be made a permanent bus zone (there are no changes to the 'Bus Zone' signposting);**
12. **the reallocation of four (4) timed parking restrictions signposted as '1P 9am-5pm Mon-Fri' to '1P 8am-6pm Mon-Fri; 8am-4pm Sat' on the western side of Wardell Road, north of Bedford Crescent,**
13. **the reallocation of one (1) timed parking restrictions signposted as '1P 9am-5pm Mon-Fri' to 'P30 minute 8am-6pm Mon-Fri on the western side of Wardell Road, north of Bedford Crescent; and**
14. **the reallocation of two (2) timed parking restrictions signposted as '2P 9am-5pm Mon-Fri' to '2P 8am-6pm Mon-Fri;8am-4pm Sat' on the northern side of Bedford Crescent, west of Wardell Road.**

Item 13

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report outlines the parking investigations completed in the Dulwich Hill Station Precinct following the completion of the Public Domain Improvement works. The proposed parking changes seek to provide more flexible parking options and improve turnover of parking in the morning and on Saturdays, particularly within the Precinct along Wardell Road. Furthermore, parking adjustments are also proposed on Dudley Street to provide more parking and improve loading and unloading operations.

BACKGROUND

Council received a petition from local businesses seeking a review of the existing parking restrictions on Wardell Road, and nearby streets in the Dulwich Hill Station Precinct. This request noted the following:

- More timed parking within the Dulwich Hill Station Precinct;
- The existing one (1) hour time restriction does not provide quick turnover of parking spaces, whilst some businesses require two (2) hour time limits;
- Commence the time restricted parking on Wardell Road at 6am as opposed to 8.30 am (the existing starting time); and
- Extend timed parking restrictions to include Sundays.

Following the completion of the Dulwich Hill Station Precinct Public Domain Improvements, Council officers have subsequently commenced an assessment of the current parking restrictions within the Dulwich Hill Station Precinct. This report highlights key findings and a proposed suite of parking changes to improve parking operations within the Precinct, particularly on Wardell Road.

DISCUSSION

Parking surveys and assessment

Parking occupancy surveys were completed to assess whether timed parking restrictions should commence at 6am; be extended to Sunday; and whether additional short-term parking and 2-hour parking is required. The parking surveys were completed on Wednesday 15 May 2024 between 6am and 10am, and Sunday 19 May 2024 between 8am and 12noon.

The parking survey identified the following:

- Parking space utilisation within the Dulwich Hill Station Precinct on a weekday increases at approximately 7am, with utilisation reaching its morning peak at 9am as shown in Figure 1 below. Accordingly, commencing the timed parking restrictions at 6am, may have limited benefit as activity within the Precinct in the morning reaches its peak at approximately 9am. Commencing the parking restrictions from 8am as opposed to the existing 8.30am time would be more appropriate, as the first turnover of parking would ideally occur at 9am as opposed to 9.30am.

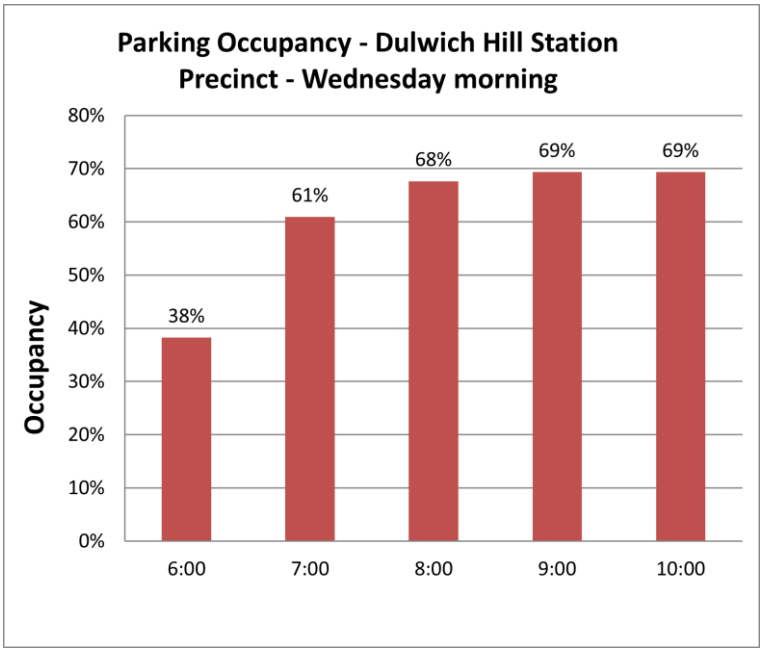


Figure 1 - Weekday morning parking occupancy rates - Dulwich Hill Station Precinct

- Figure 2 below shows that the parking duration of stay on Wardell Road varies between three (3) time frames: less than one (1) hour; two (2) hours; and more than four (4) hours. Vehicles parked for more than four (4) hours are likely to be those recorded on the eastern side of Wardell Road between Bedford Crescent and Wilga Avenue which is currently unrestricted. Furthermore, there may be some instances of motorists overstaying the one (1) hour limit. Accordingly, the parking survey shows parking needs along Wardell Road vary between less than an hour and up to two hours, and current timed parking restrictions on Wardell Road may need to be adjusted to suit.

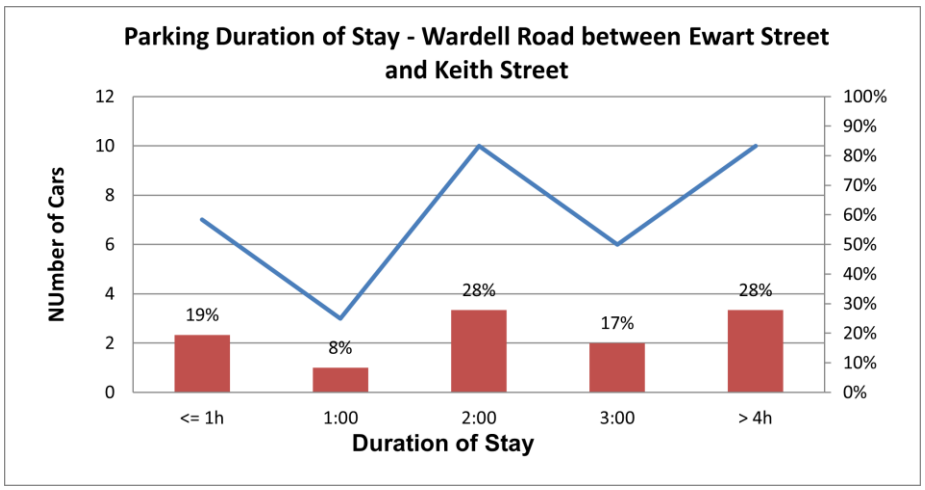


Figure 2 - Weekday morning duration of stay - Wardell Road

- Figure 3 below shows there is available parking capacity within the Dulwich Hill Station Precinct, with an average of 64 per cent between 9am and 12pm. Table 1 shows a breakdown of the parking occupancy rates on Wardell Road during Sunday, with parking capacity available along the southern part of the Precinct. This survey indicates that there is parking capacity along the southern portion of Wardell Road and the broader Precinct, with some locations having higher utilisation. Extending the timed parking restrictions on Wardell Road is not recommended given the available parking capacity, particularly on the southern end.

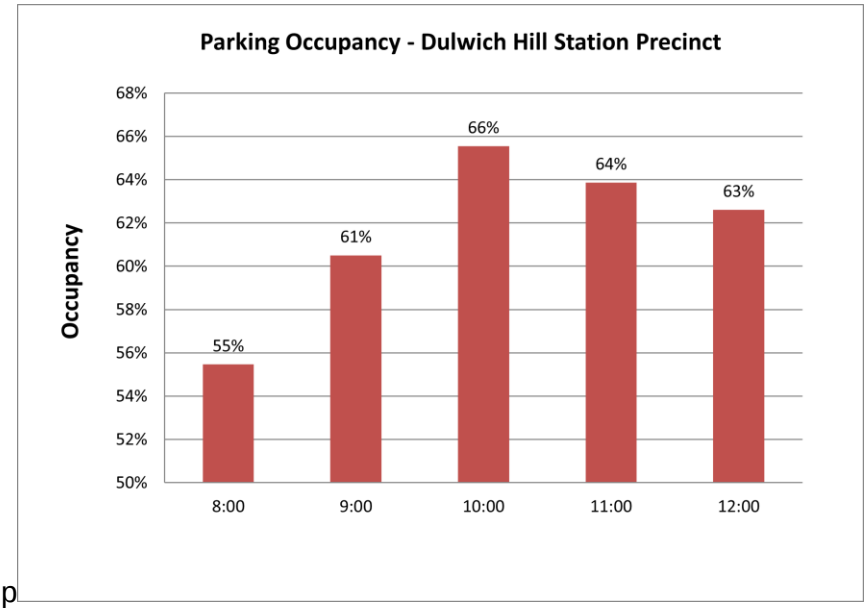


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Figure 3 - Weekend parking occupancy rates - Dulwich Hill Station Precinct

Table 1 - Parking occupancy rates - Wardell Road

Street	Between	Side	Restriction	10am (peak) (%)	Average (%)
Wardell Road	Ewart Street and Dudley Street	Eastern	1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat	57%	40%
		Western	1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat	55%	36%
	Dudley Street and Keith Street	Eastern	Unrestricted	100%	100%
		Western	1P 9am-5pm Mon-Fri	86%	86%

Proposed parking changes

The parking surveys completed revealed the following deficiencies of the existing parking network within the Dulwich Hill Station Precinct:

- A lack of short-term timed parking to accommodate parking durations less than an hour
- Timed parking restrictions may be commencing too late to enable earlier turnover of parking for businesses, with parking utilisation reaching its morning peak at 9am.
- Parking overstay of the existing one (1) hour time limit. Vehicles may be parked between two (2) to three (3) hours or greater than four (4) hours.

In addition, Council officers also identified additional opportunities to adjust existing parking restrictions to maximise the use of kerbside parking in locations which have some flexibility for partial or merit for full time timed parking restrictions.

This includes the following locations:

- The existing bus zone on the western side of Wardell Road, adjacent to Dulwich Hill Town Centre, the existing 'No Parking' restriction on the eastern side of Wardell Road, north of Ewart Street, and the existing 'No Stopping' restriction on the northern side of Dudley Street, west of School Parade.
- Relocating the loading zone from the northern side of Dudley Street to the southern side is recommended as businesses and residents are location on the southern side.
- Adjusting the temporary bus zone on the southern side of Dudley Street from 33.8 metres to 26 metres. This bus zone is proposed to also be made a formal bus zone. This will allow for the relocation of the loading zone to the southern side.
- Signpost a short section of kerb as 'Motorcycle parking only' with marked bays perpendicular to the kerb, as the kerb length is approximately 3.6 metres long and inadequate for a passenger vehicle to use.

Accordingly, the following parking changes were proposed for consultation with the community:

- Convert some 1P timed parking restrictions to 30-minute restrictions on Wardell Road.
- Additional 1P and 30-minute timed parking restrictions on Wardell Road.
- Additional 1P timed parking restrictions on Dudley Street.
- Relocating the 'Loading Zone' to the southern side of Dudley Street.
- Install motorcycle parking on the southern side of Dudley Street.
- Extend the timed restrictions from 8 am to 6 pm Monday to Friday, and extend the restriction on Saturday from 8 am to 4 pm

PUBLIC CONSULTATION

Council consulted with affected businesses and nearby residents on the proposed parking changes between 21 October 2024 and 18 November 2024. There were 207 letters sent and the proposed parking changes were exhibited on Council's YSIW page. There were three (3) responses received supporting and one (1) response opposing the proposal.

Resident/business responses	Officer response
I support some of the proposed changes but not all of them. I support additional 1P and 30min timed parking restrictions on Wardell Rd and Dudley St, relocating the loading zone to the southern side. I do not support converting 1P timed parking to 30min parking and extend the timed restrictions hours (Monday to Friday 8am-6pm and Saturday 8am-4pm). The reason that I'm not supporting	Converting 1 hour timed parking to 30 minute parking is proposed to create quicker turnover of parking spaces. The parking surveys completed revealed there was some demand for parking uses less than an hour. These spaces are proposed on the end/outer parking bays along Wardell Road. In addition, the 1 hour timed parking on Dudley Street offsets some of the loss of 1 hour parking on Wardell Road. The timed parking restrictions on Wardell Road are essential to support businesses by providing acceptable

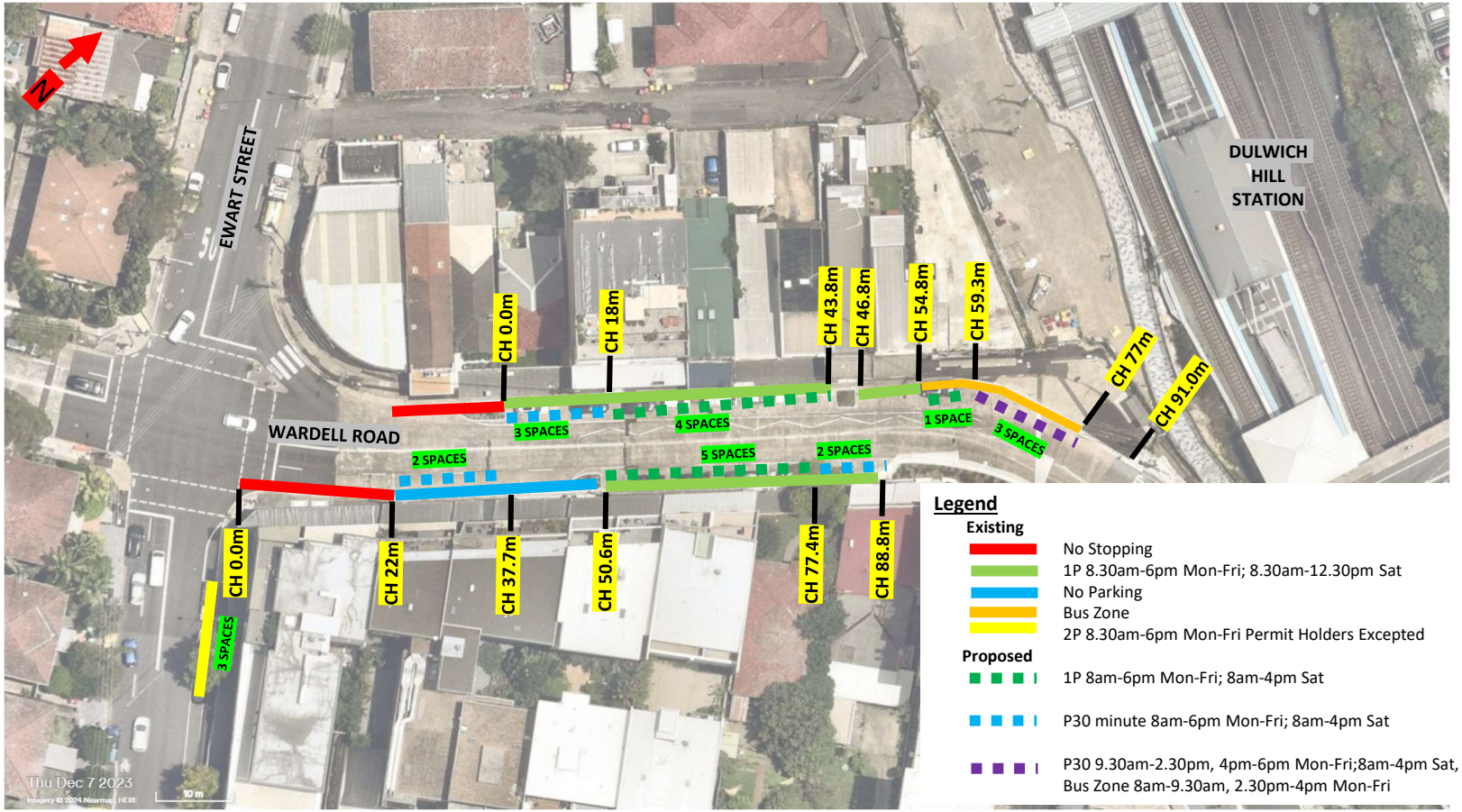
some of the proposed changes are because they don't serve train and light rail commuters.	hours of operations, time limits and turnover of parking. There are already existing unrestricted parking spaces on Bedford Crescent, and on the periphery of the Dulwich Hill Station Precinct which provides parking opportunities for commuter parking.
Shorter parking time frames so people can use it as a drop off spot etc - should have better and more bike parking and bike paths connecting to the station for the people who ride there (takes away cars for those who could ride!)	There is an existing 'No Parking' restriction on the southern side of Bedford Crescent that has been installed to allow for drop-off and pick-up at Dulwich Hill Station.
It's hard enough as a nearby resident to get parking near my house especially when i have groceries to unload and i also don't want to have to park further away to avoid a fine when i get home from work in the afternoon if you extend the times.	The parking survey completed on the Sunday indicates that there are available parking spaces in the residential streets on the periphery of the Dulwich Hill Station Precinct. This is likely to reflect similar parking trends on the Saturday. Furthermore, some of these streets (Wardell Road, Dudley, Ewart, Bayley, Wilga and Keith Streets) have timed permit parking restrictions (2-hour) which ensures households with limited off-street parking can find a parking space closer to their place of residence. New apartment buildings closer to the Dulwich Hill Station Precinct should have off-street parking and long-term parking on Wardell Road between Ewart and Keith Streets may impact businesses. Particularly those that are operating on Saturday from 8am-4pm.

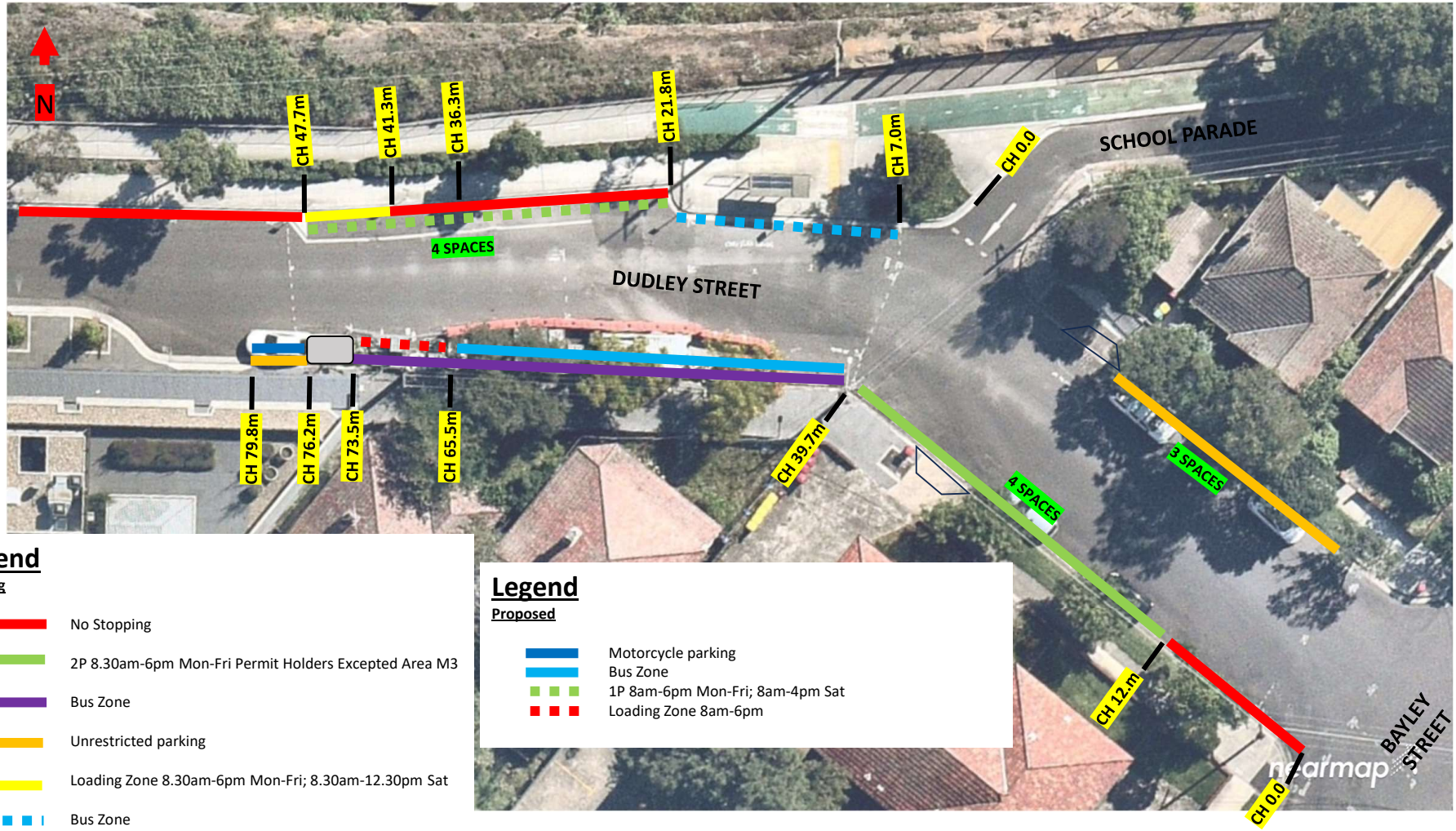
FINANCIAL IMPLICATIONS

The cost of installation of new restrictions as recommended can be funded within Council's signs and line market budget.

ATTACHMENTS

1.⇩ Parking plan (final)


N
EWART STREET
WARDELL ROAD
DULWICH HILL STATION
CH 0.0m
CH 18m
CH 43.8m
CH 46.8m
CH 54.8m
CH 59.3m
CH 77m
CH 91.0m
3 SPACES
4 SPACES
1 SPACE
3 SPACES
2 SPACES
5 SPACES
2 SPACES
CH 0.0m
CH 22m
CH 37.7m
CH 50.6m
CH 77.4m
CH 88.8m
3 SPACES
Thu Dec 7 2023
Legend
Existing
No Stopping
1P 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat
No Parking
Bus Zone
2P 8.30am-6pm Mon-Fri Permit Holders Excepted
Proposed
1P 8am-6pm Mon-Fri; 8am-4pm Sat
P30 minute 8am-6pm Mon-Fri; 8am-4pm Sat
P30 9.30am-2.30pm, 4pm-6pm Mon-Fri;8am-4pm Sat,
Bus Zone 8am-9.30am, 2.30pm-4pm Mon-Fri

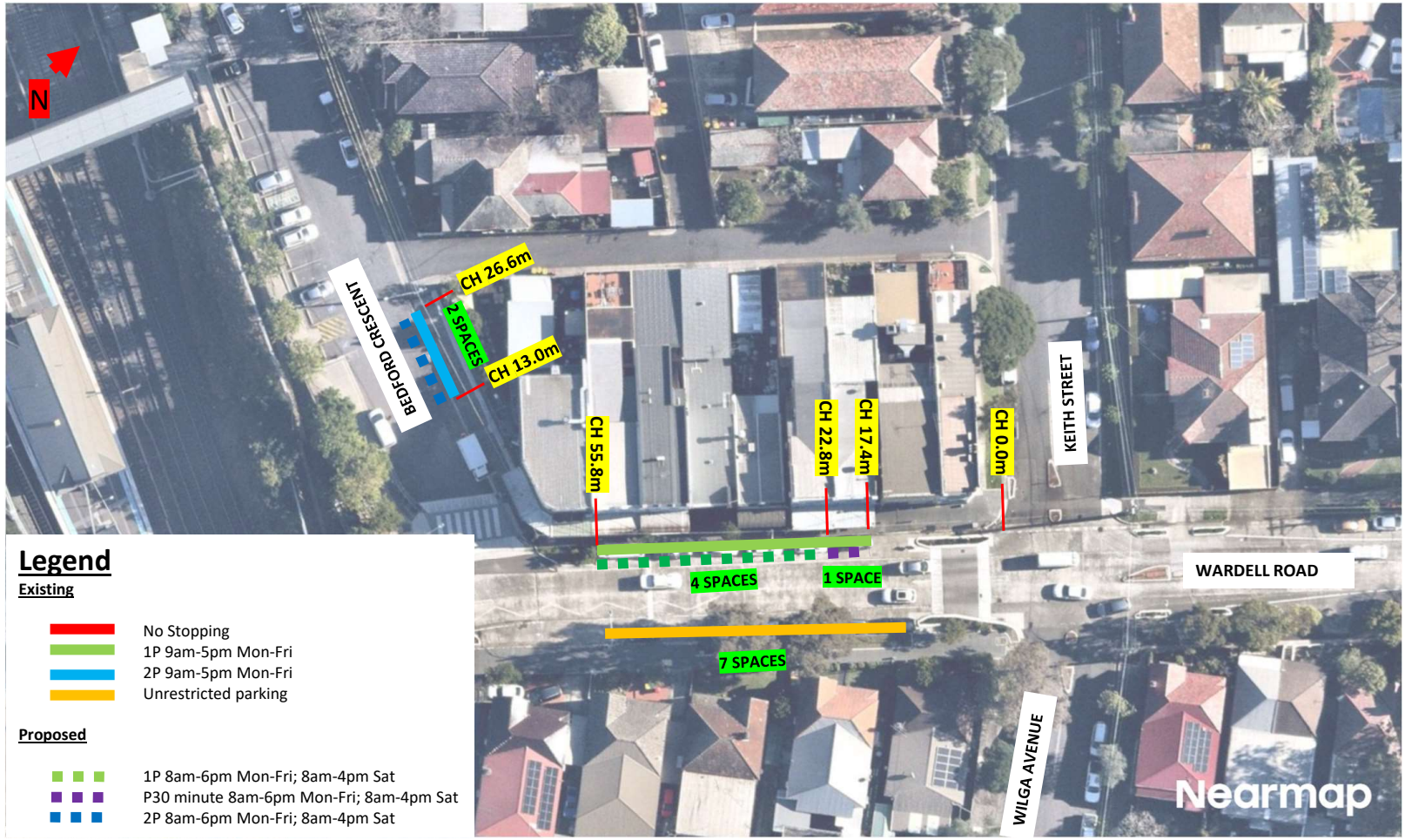


Legend
Existing

- No Stopping
- 2P 8.30am-6pm Mon-Fri Permit Holders Excepted Area M3
- Bus Zone
- Unrestricted parking
- Loading Zone 8.30am-6pm Mon-Fri; 8.30am-12.30pm Sat
- Bus Zone

Legend
Proposed

- Motorcycle parking
- Bus Zone
- 1P 8am-6pm Mon-Fri; 8am-4pm Sat
- Loading Zone 8am-6pm


N
BEDFORD CRESCENT
CH 26.6m
2 SPACES
CH 13.0m
CH 55.8m
CH 22.8m
CH 17.4m
CH 0.0m
KEITH STREET
4 SPACES
1 SPACE
WARDELL ROAD
7 SPACES
WILGA AVENUE
Nearmap
Legend
Existing
No Stopping
1P 9am-5pm Mon-Fri
2P 9am-5pm Mon-Fri
Unrestricted parking
Proposed
1P 8am-6pm Mon-Fri; 8am-4pm Sat
P30 minute 8am-6pm Mon-Fri; 8am-4pm Sat
2P 8am-6pm Mon-Fri; 8am-4pm Sat

Item No: **LTC1224(1) Item 14**

Subject: **DOUGLAS LANE, STANMORE - PROPOSED 'NO PARKING' AND 'NO STOPPING' RESTRICTIONS (DAMUN-STANMORE WARD/NEWTOWN ELECTORATE/INNER WEST PAC)**

Prepared By: James Nguyen - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That:

a) **'No Parking' restrictions on both sides of Douglas Lane between Percival Lane West and Bruce Lane East, Stanmore be installed,**
b) **An 8.5 metre 'No Stopping' restriction on the northern side of Douglas Lane, east of Bruce Lane East be installed,**
c) **A 10 metre 'No Stopping' restriction on the northern side of Douglas Lane, west of Percival Lane West be installed,**
d) **A 6 metre 'No Stopping' restriction on the southern side of Douglas Lane, west of Percival Lane West be installed,**
e) **A 10 metre 'No Stopping' restriction on the southern side of Douglas Lane, east of Bruce Lane East be installed,**
f) **A 10 metre 'No Stopping' restriction on the eastern side of Bruce Lane East, south of Douglas Lane be installed, and**
g) **7. Council officers carry out a community consultation on a proposal to extend the Area M17 Resident Parking Scheme to the northern side of Douglas Street between no. 40 and no.64 Douglas Street, Stanmore.**

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report discusses parking and access issues in Douglas Lane, Stanmore and proposes parking restrictions in Douglas Lane to improve access and parking for households on Douglas and Temple Streets. In addition, it also recommends further consultation be completed on a proposal to install timed permit parking restrictions on Douglas Street to improve parking opportunities for households with limited or no-off street parking.

BACKGROUND

Council has received requests for consideration of 'No Parking' and 'No Stopping' restrictions on both sides of Douglas Lane, Stanmore due to vehicles repeatedly parking close to the intersection and opposite driveways, blocking laneway and road access to Douglas Lane.

DISCUSSION

Douglas Lane, Stanmore is approximately 4.9 metres wide and provides rear access to households of Temple and Douglas Streets. Most of the laneway consists of driveways which provides access to garages for off-street parking. There are short sections of kerb in Douglas Lane, which is currently being utilised for parking, some of which are opposite driveways. There is already a short section of 'No Parking' restriction across a length of kerb on the northern side of Douglas Lane to prevent parking that would obstruct the opposite driveway.

It is also understood that households are using their own driveways for parking, opposite an existing driveway. In addition, some driveways are located within proximity to the intersections and vehicles are parking at this location as well.

Council officers have received feedback that the current parking conditions in Douglas Lane have become unmanageable and long-term parking is affecting driveway access to the laneway. In addition, laneway access into and out of Douglas Lane is being compromised by vehicles parking too close to the intersection.

Council officers consulted on a proposal to install 'No Parking' and 'No Stopping' signs on both sides of Douglas Lane, whilst retaining a single unrestricted parking space, as shown in Attachment 1. The 'No Parking' restrictions seek to deter long-term parking by residents across their driveways that would obstruct the opposing driveway, and the 'No Stopping' restriction seeks ensure access to Douglas Lane via the adjacent laneways (Bruce Lane East and Percival Lane West). Both proposals would improve compliance with the NSW Road Rules.

The retention of this parking space was proposed acknowledging the high parking demand within the Stanmore area. Furthermore, a 3.0m wide through lane can be maintained with a vehicle parking in this location as shown in the Figures 1a,b,c below which shows a 3.1m wide through lane. The space also has adequate clearances to opposite driveways as shown in Figure 2 below.





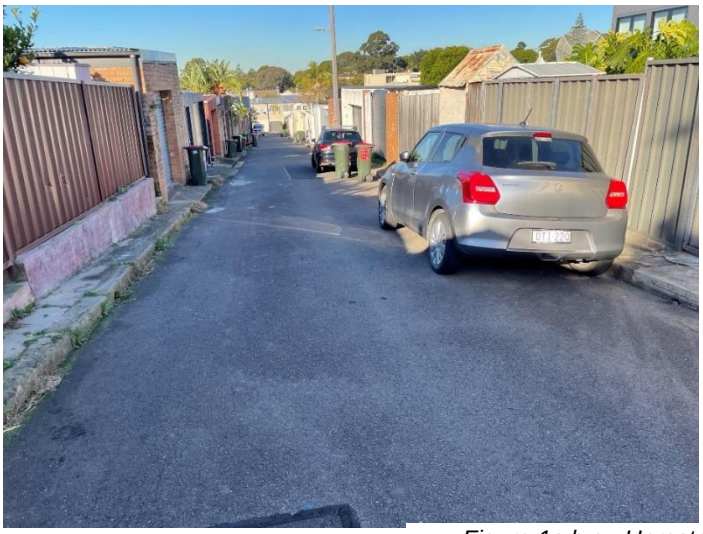


Figure 1a,b,c - Unrestricted parking space assessment



Figure 2 - Unrestricted parking space assessment

PUBLIC CONSULTATION

A letter outlining the proposal (Attachment 1) was mailed out to 50 properties in Douglas and Temple Streets, Stanmore, requesting residents' views regarding the proposal. There were 21 submissions received with five (5) responses supporting, sixteen (16) responses objecting to the proposal.

Type	Resident's comments	Officer comments
Support	• Cars park in the laneway opposite driveways frequently which limits access to rear garage • Laneway is too narrow to have cars parking • Cars are parking too close to the intersection and make it difficult to turn into and out of the lane • Cars, trailers and caravans are parking in the laneway	Noted
Object	• Households have no off-street parking or parking in front of their homes on Douglas Street • Driveways are utilised by households to drop off elderly and newborn family member where the restrictions are being proposed • The 'No Parking' proposal has impacts to trade people who use the laneway to park and complete works • Commuter parking on Douglas Street is causing difficulty to find parking on Douglas Street, forcing residents to park in Douglas Lane across their own driveways	• Council officer's will investigate extending the resident permit parking scheme M17 area to Douglas Street • Households dropping off passengers need to consider the Road Rules for 'No Parking' or stopping across driveways which permits two (2) minutes. • Households can obtain trade or carers parking permits that exempts a vehicle from the parking time limits on Temple Streets. • Three metres can be maintained for a vehicle to pass in the proposed unrestricted

	• Parking in Douglas Lane is safer than parking on Douglas Street • Households will be unable to use the laneway to wash their cars with the 'No Parking' restrictions • Remove the proposed unrestricted space as the laneway is too narrow to provide parking as 3m through access cannot be provided • Introduce permit parking scheme on both sides of Douglas Street • Support 'No Stopping', do not support 'No Parking' as this would impact households with multiple cars, car washing, unloading, trades people, visitors • Support 'No Stopping' and 'No Parking with exemption for trades and delivery vehicles that need to park in the laneway to complete work inside homes.	space – see photos in the discussion section above. • 'No Parking' restrictions are necessary to ensure access to the laneway and driveways. Currently, households cannot access driveways • Households can obtain trade parking permits that exempts a vehicle from the parking time limits on Douglas and Temple Streets. • The 'No Parking' proposal seeks to address long-term parking issues that have been raised where residents are unable to access their driveways or the laneway.

FURTHER ASSESSMENT AND INVESTIGATION POST-CONSULTATION

Following a review of the feedback received by households during community consultation, Council officers completed a parking occupancy survey to assess whether the parking utilisation exceeds the required 85 per cent threshold for consideration of a resident parking scheme on Douglas Street.

Parking surveys were completed on Thursday 22 August 2024 at 10am and 2pm. The parking occupancy survey results is shown in Attachment 2. The average parking occupancy rate in the unrestricted spaces on both sides of Douglas Street between Percival Lane West/Gordon Crescent and Bruce Lane East is 88 per cent and exceeds the 85 per cent threshold for consideration of a resident parking scheme. Given the proximity of this section of Douglas Street to Stanmore Station, these parking spaces may be occupied by commuter parking.

Accordingly, the extension of the existing Area M17 permit parking area to Douglas Street may improve parking opportunities for households that have limited to no-off street parking and subsequently forced to park within the rear laneways which may affect access and obstruct driveways.

In addition, Council officers also requested to Transport for NSW to remove the 'No Parking' restrictions on the northern side of Douglas Street between house no. 26 and no.40 Douglas Street to gain an additional seven (7) parking spaces. However, due to concerns about traffic delays at the signalised intersection at the intersection of Percival Road, this was not supported.

CONCLUSION

Following a review of the community consultation feedback and further parking investigations the following actions are recommended:

- Install ‘No Stopping’ and ‘No Parking’ restrictions on both sides of Douglas Lane and remove the single unrestricted parking space in Douglas Lane that was originally proposed to be retained in the consultation plan (Attachment 1).
- Reduce the proposed ‘No Stopping’ restriction on the southern side of Douglas Lane from 9.5-metres to 6-metres, by extending the ‘No Parking’ restriction further to allow for the household to drop-off and pick-up at their driveway. Given the ‘No Parking’ restriction, commences immediately after the ‘No Stopping’ restriction, access to this laneway can be maintained, as a vehicle would not be permanently parked at this location, and if an obstruction does occur, the vehicle can be moved by the occupier who should be present. However, if there are future access issues to this laneway with this arrangement, Council will consider extending the ‘No Stopping’ restriction to the originally proposed 9.5 metres.
- Council has received further feedback from households on Bruce Street requesting for a ‘No Stopping’ restriction on the eastern side of Bruce Lane East, south of Douglas Lane due to vehicles parking opposite a driveway. Accordingly, it is proposed to install an additional ‘No Stopping’ restriction on the eastern side of Bruce Lane East, 10 metres south of Douglas Lane.
- Complete a community consultation to extend the Resident Permit Parking Scheme (RPS) area M17 to the northern side of Douglas Street between Percival Lane West/Gordon Crescent and Bruce Lane East due to high parking utilisation on Douglas Street obtained from the parking survey.

FINANCIAL IMPLICATIONS

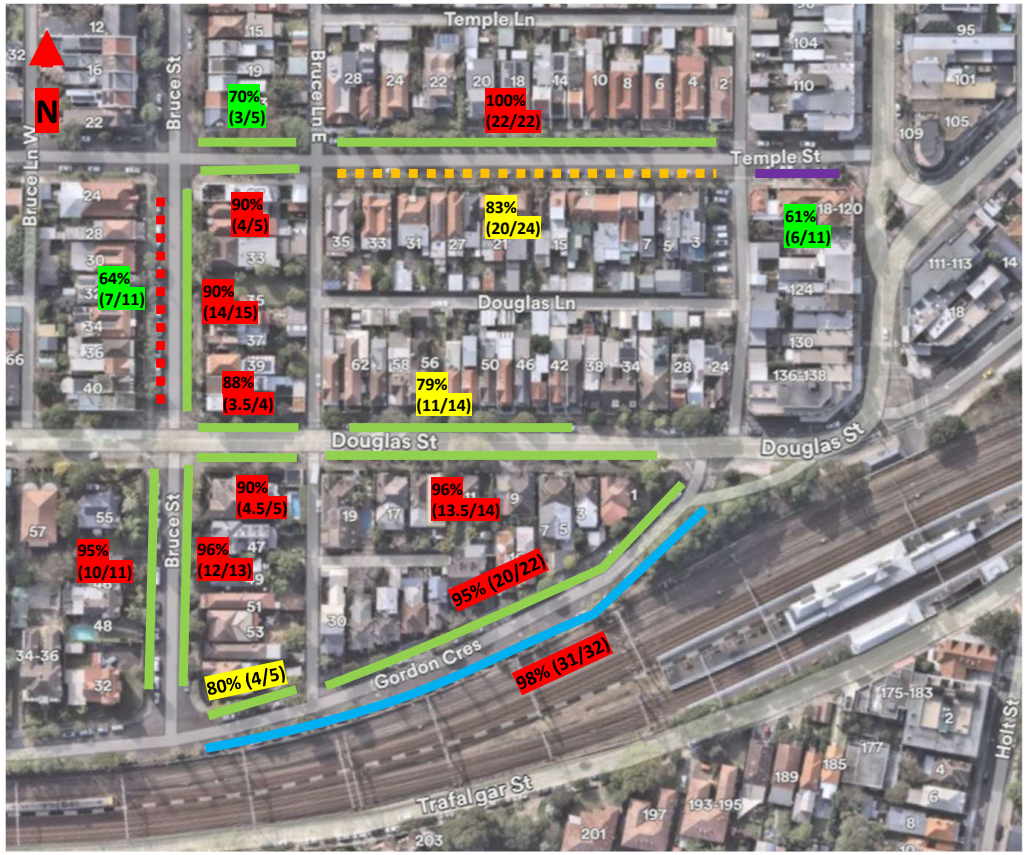
The cost of installation of new restrictions as recommended can be funded within Council’s signs and line market budget.

ATTACHMENTS

1.⇩ Consultation plan
2.⇩ Parking occupancy survey
3.⇩ Final parking proposal


TEMPLE STREET
N
8.5m
21.5m
6.8m
97.7m
10m
4.9m
Douglas Ln
10m
27m
5.4m
92.6m
9.5m
Percival Ln W
Percival Ln W
DOUGLAS STREET
Legend
No Stopping (proposed)
No Parking (proposed)
Unrestricted parking (existing)
No Parking (existing)
Sun Feb 25 2024
nearmap

Parking survey – Thursday 22 August 2024 (average occupancy of 10am and 2pm)



Legend

- Unrestricted
- No Parking 7am-7pm Motor Vehicles Under 4.5t GVM Excepted
- 2P 8am-10pm Mon-Fri Permit Holders Excepted Area M17
- 2P 8AM-10PM PERMIT PARKING EXCLUDED AREA M5
- 2P 8:30 AM - 6:00 PM MON - FRI; 8:30 AM - 12:30 PM SAT, 90 DEGREE



Legend

- No Stopping (proposed)
- No Parking (proposed)
- No Parking (existing)
- Investigate reallocation of unrestricted parking to '2P 8am-10pm Mon-Fri Permit Holders Excepted Area M17' (proposed)
- Unrestricted parking (existing)

Item 15

Item No: **LTC1224(1) Item 15**

Subject: **GRIFFITHS STREET, TEMPE - REQUEST FOR EXTENSION OF EXISTING M18 RESIDENTIAL PARKING SCHEME - RESIDENT PARKING QUESTIONNAIRE SURVEY RESULTS (MIDJUBURI-MARRICKVILLE WARD/HEFFRON ELECTORATE/INNER WEST PAC)**

Prepared By: James Nguyen - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the proposal to implement Resident Parking Scheme (RPS) Restrictions '2P 8.30am-10pm Mon-Fri Permit Holders Excepted Area M18' on the eastern side of Griffiths Street, south of Station Street be approved.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report outlines a resident permit parking scheme investigation completed in Griffiths Street and surrounding streets near Tempe Station and assesses whether permit parking restrictions can be considered to address commuter/long-term parking problems. The investigation found that parking occupancy rates on Griffiths Street is approximately 85 per cent (84 per cent) with some level of commuter parking. Community consultation revealed strong support for timed permit parking restrictions on Griffiths Street. Concerns were raised by nearby streets such as Station and Nicholson Streets about redistribution of parking. The redistribution of commuter parking is estimated to be low, and adjacent streets can also formally request for Council officer's to investigate further timed permit parking restrictions. Accordingly, timed permit parking restrictions are recommended on Griffiths Street to improve parking opportunities for households.

BACKGROUND

A petition signed by 12 residents in Griffiths Street, Tempe was received requesting for consideration of a Resident Parking Scheme in Griffiths Street, due to concerns about commuters parking on Griffith Street to access Tempe Station.

DISCUSSION

Council officer's completed a parking survey in Griffiths Street to determine if they exceed the required 85 per cent threshold required to carry out further community consultation. Council officer's also completed a parking survey in the adjacent Nicholson and Station Streets to assess parking utilisation in these streets. The parking survey was completed on Thursday 21 March 2024 at two (2) hour intervals between 7am and 5pm. Table 1 and Figure 1 below provide the results from the parking survey.

Table 1 – Parking occupancy rates

Street	Section	Side	Restriction	Supply	Parking occupancy							
					7:00	9:00	11:00	13:00	15:00	17:00	Average	Average (%)
Griffiths Street	Station Street and dead-end	E	Unrestricted	18	14	15	15	18	15	14	15	84%
Nicholson Street	Station Street to dead-end	E	Unrestricted	18	11	10	10	8	9	10	10	54%
Nicholson Street	Station Street to dead-end	W	Unrestricted	18	16	15	17	17	16	17	16	91%
Station Street	Griffiths Street to Nicholson Street	N	Unrestricted	3	3	3	3	3	3	3	3	100%



Figure 1 – Parking occupancy rates

To warrant consideration of a permit parking scheme implementation the parking occupancy in the precinct under consideration should consistently reach 85 per cent of the available parking spaces during the period of proposed parking restriction. Such utilisation being contributed to by parking demand generated from sources external to the neighbourhood.

Accordingly, the recorded average parking occupancy on Griffiths Street of 84 per cent is just under the required 85 per cent, however, this is within acceptable limits of the required 85 per cent.

Council engineer's also assessed whether the parking demand is generated from sources external to the neighbourhood (commuter parking to access Tempe Station). A duration of stay survey was completed to estimate the number of spaces that may be utilised by commuters.

The duration of stay survey is shown below in Table 2.

Table 2 – Duration of stay survey – Griffiths Street

Parking Space	7:00	9:00	11:00	Possible Parking profile
1	VEH1	VEH1	VEH1	Resident
2	VEH2	VEH2		Resident
3	VEH4	VEH4	VEH4	Resident
4	VEH5	VEH6	VEH6	Commuter
5		VEH7	VEH7	Commuter
6		VEH8	VEH8	Commuter
7	VEH9	VEH9	VEH9	Resident
8	VEH10	VEH10	VEH10	Resident
9		VEH12	VEH12	Commuter
10	VEH13	VEH13	VEH13	Resident
11	VEH14			Resident
12	VEH15			Resident
13	VEH17		VEH17	Resident
14	VEH18	VEH18	VEH18	Resident
15	VEH19	VEH19	VEH19	Resident
16	VEH20	VEH20	VEH20	Resident
17		VEH21	VEH21	Commuter
18	VEH22	VEH22	VEH23	Resident

Based on Table 2 above, the following assumptions were made to differentiate between a resident and commuter vehicle:

- Should a vehicle occupy the same parking space between 7am and 11am, this vehicle would likely be a resident vehicle;
- Should the space be vacant after 7am, this would likely be a resident vehicle; and
- Should there be a change of parking between 7am and 9am, and no change between 9am and 11am, this vehicle would likely be a commuter vehicle

Accordingly, Table 3 below presents the estimate of resident and commuter parking on Griffiths Street. Most of the parking spaces are occupied by resident parking and there may be some commuter parkers. Based on these results, the parking utilisation in Griffiths Street may be contributed to by parking demand generated from sources external to the neighbourhood, and combined with the high parking utilisation rate, a resident parking scheme may be

beneficial. A parking proposal was subsequently developed, and consulted with nearby residents, and shown in Attachment 1.

Table 3 – Parking profile – Griffiths Street

User	Parking	%
Resident	13	72%
Commuter	5	28%
Total	18	100%

PUBLIC CONSULTATION

A total of 32 letters were sent to households on Griffiths, Nicholson and Station Streets. The response rate for Griffiths Street was 67 per cent and support rate was 100 per cent. Both metrics meet the minimum required thresholds outlined in Council's Parking Policy for a permit parking scheme (30 per cent response rate with a 65 per cent support rate).

There was high opposition to the proposed permit parking restrictions on Griffiths Street by households on Station and Nicholson Streets due to concerns about redistribution of commuter parking to these streets. Furthermore, it should be noted that only households on the western side of Nicholson Street were surveyed, and it is likely that the opposition rate may likely be higher.

Table 4 - Consultation results

	Street		
	Griffith Street	Station Street	Nicholson Street
No. of properties	**12**	8	12
No. of responses	**8**	5	4
No. of responses from eligible properties	**6**	0	0
No. of eligible properties	**10**	0	0
No. of support	**8**	0	0
No. of object	**0**	4	4
No. of neutral	**0**	1	0
Overall response rate	**67%**	63%	33%
Overall support rate	**100%**	0%	0%
Overall oppose rate	**0%**	80%	100%

Table 5 - Consultation feedback

Street	Resident comments	Officer comments
Griffiths Street	• Parking is being occupied by commuters, long stay vehicles, residents who 'reserve parking' at front of house. • T3 Bankstown line closing will put parking pressure on unrestricted parking • Support proposal, difficult to find parking, commuters take parking; parking is available from 6.30pm • Request restriction is extended from 8am-10pm	The existing timed permit parking restrictions on Edgar Street, Tempe is signposted as '2P 8.30am-10pm Mon-Fri Permit Holders Excepted Area M18. Any expansion to the Area M18 resident parking scheme needs to be consistent with existing restrictions if supported.

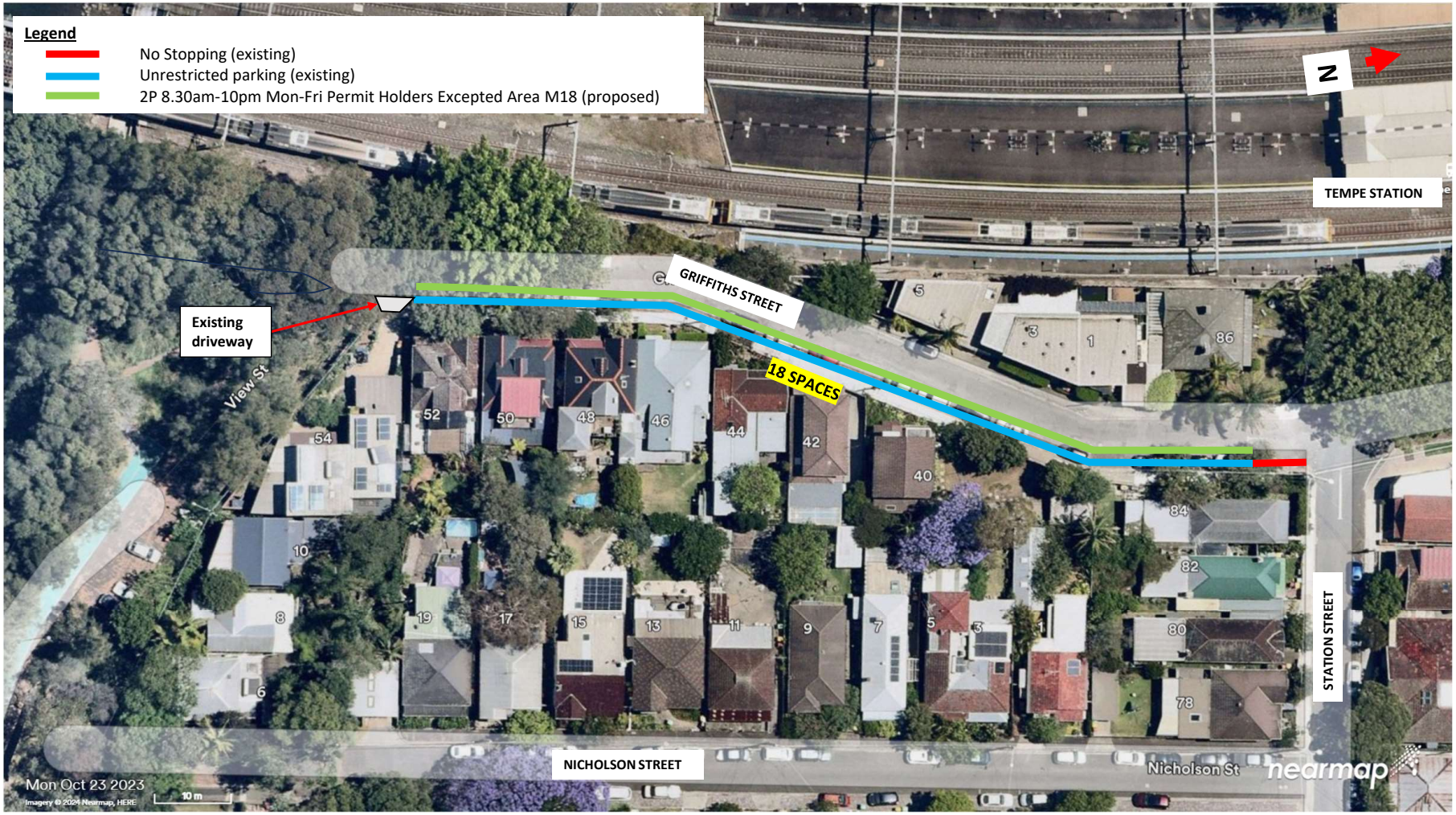
Street	Resident comments	Officer comments
	• Difficult to find parking near home • Suggested changing parking restriction to 8am-8pm as it suits residents better	
Nicholson Street	• Concerned about redistribution of commuter parking from Griffiths Street to Nicholson Street, making parking more difficult for residents in Nicholson Street; • Does not want RPS and accompanying 'No Stopping' restriction • Proposal serves to push commuter parking to other streets. Suggest Council discuss with Woolworths, Aldi at Wolli Creek to provided restricted parking, so that commuters do not park near Tempe Station • Residents who have two cars should get three permits, to enable an unregistered vehicle at their home a permit • Transport for NSW should increase parking at station, large areas are unused.	Commuter parking redistribution to nearby streets is expected to be low (up to 5 vehicles). Should there be a redistribution of commuter parking from Griffiths Street to Nicholson Street, Council officers can investigate further timed permit parking restrictions in Nicholson Street upon receipt of signatures from 10 households.
Station Street	• Support proposal, however would like RPS expanded to Station Street to assist residents in finding parking close to home • Proposal will reshuffle parking and push commuter parking in Station and Nicholson Street. Residents of Nicholson and Station Streets would be forced to park in Griffiths Street • 2P restriction is not supported, would support a 4P restriction. 2P is not long enough for residents and visitors. • Premature, considering residents are yet to experience the parking impacts by the T3 Bankstown line shut down	Commuter parking redistribution to nearby streets is expected to be low (up to 5 vehicles). Should there be a redistribution of commuter parking from Griffiths Street to Station Street, Council officers can investigate further timed permit parking restrictions in Station Street upon receipt of signatures from 10 households.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

ATTACHMENTS

1.⇩ Consultation plan


Legend
No Stopping (existing)
Unrestricted parking (existing)
2P 8.30am-10pm Mon-Fri Permit Holders Excepted Area M18 (proposed)
N
TEMPE STATION
GRIFFITHS STREET
Existing driveway
View St
18 SPACES
NICHOLSON STREET
STATION STREET
Nicholson St
Mon Oct 23 2023
Imagery © 2024 Nearmap, HERE
10 m
nearmap

Item 16

Item No: **LTC1224(1) Item 16**

Subject: **LINCOLN STREET, STANMORE - PROPOSED ANGLE PARKING (DAMUN-STANMORE ELECTORATE/NEWTOWN ELECTORATE/INNER WEST PAC)**

Prepared By: James Nguyen - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the conversion of two parallel parking spaces to five (5) 90 degree angle parking spaces, and the 'No Stopping' restrictions (for a length of 15m from Salisbury Road) adjacent to Bain Playground on Lincoln Street, Stanmore be approved as per *Attachment 2.*

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

This report outlines a parking investigation completed in Lincoln Street, Stanmore to assess parking conditions. The investigation revealed adequate parking capacity in Lincoln Street, however, nearby parking generators such as Bain Playground may affect parking opportunities. Accordingly, the conversion of some parallel parking spaces to angle parking is proposed. Following community consultation, this proposal was further refined to minimise household impact. Subsequently, five (5) angle parking spaces are proposed, gaining two (2) parking spaces on Lincoln Street. In addition, 'No Stopping' restrictions are proposed at the dead-end to provide a turnaround area for motorists.

BACKGROUND

Council has received a petition from households in Lincoln Street, Stanmore, requesting the conversion of some parallel parking spaces on Lincoln Street to angle parking spaces to increase parking capacity due to concerns about commuter parking and park-users at the nearby Bain Playground.

DISCUSSION

Lincoln Street, Stanmore is approximately 13 metres wide, and is estimated to have less than 1000 vehicles per day. Both criterias meet Council's Parking Policy and the Australian Standards (AS) 2890.5 which requires a minimum road width of 11.6 metres, and daily traffic volumes of less than 1000 vehicles per day.

Council officers completed a parking occupancy survey to determine whether parking utilisation exceeded the 85 per cent threshold to warrant an increase in parking supply on Lincoln Street, Stanmore. Parking surveys were completed on Wednesday 22 May 2024 at two (2) time periods at 10am and 3pm. The parking survey results are presented in Table 1 below:

Table 1 - Parking occupancy survey results

Street	Between	Side	10am (% occupancy)	3pm (% occupancy)	Average (%)
Lincoln Street	Rosevear Street and Salisbury Road	Eastern	91 %	78%	85%
		Western	70%	78%	74%
Total average			80.5%	78%	79%

The parking occupancy rates recorded are slightly below the 85 per cent threshold required for consideration of angle parking. However, given the proximity to the nearby Bain Playground, angle parking may have benefits particularly on weekends where parking demand may be higher.

Accordingly, Council officers developed a parking proposal to convert five (5) parallel parking spaces to 10 angle parking spaces, gaining an additional five (5) parking spaces on the western side of Lincoln Street. A 'No Stopping' restriction is also proposed adjacent to the last angle parking space to ensure vehicles can turn around at the partial road closure end on Lincoln Street. The proposal is shown in Attachment 1. However, following public consultation, the proposal was adjusted so that subsequently, five (5) angle parking spaces are proposed adjacent to Bain Playground, gaining two (2) parking spaces on Lincoln Street.

PUBLIC CONSULTATION

Consultation was conducted between 11 September 2024 and 29 September 2024. There were 39 letters sent with two (2) responses received supporting and one (1) response opposing the proposal. The responses are noted in Table 2 below.

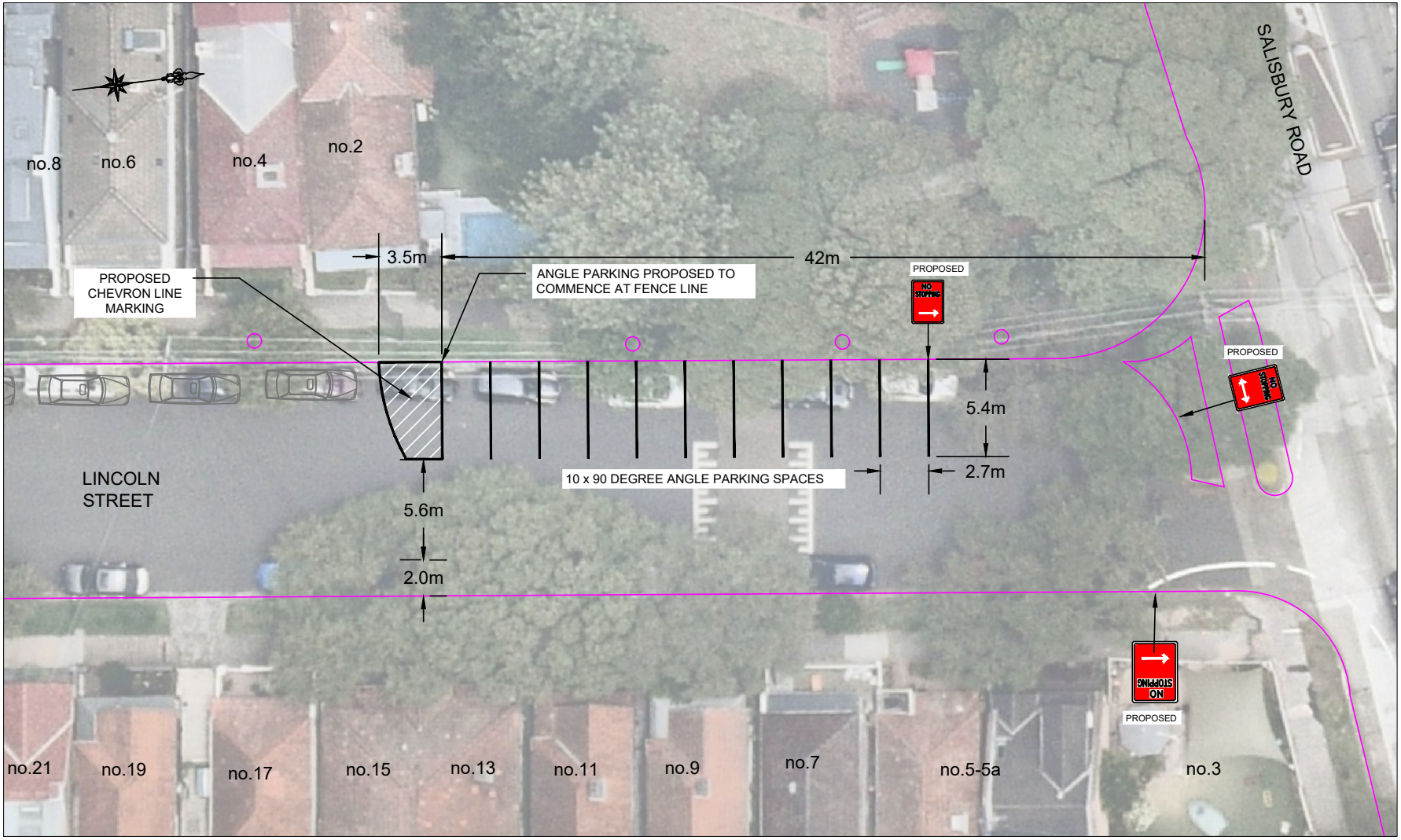
Resident responses	Officer response
There are a lot of people parking their cars and then hop on a bus to go to work. There is not enough parking for residents	Noted
Concerns were raised by the impact of the angle parking on household amenity, particularly where angle parking is proposed in front of houses. Concerns include impact caused by car lights, impact to parking caused by the chevron line marking Feedback was provided that the angle parking should terminate at the boundary of Bain Playground and the commencement of no.2 Lincoln Street.	The parking proposal has been revised, with angle parking confined to the front of the Bain Playground to minimise impacts to households, whilst still providing some additional parking spaces. This revised proposal gains an additional two (2) parking spaces on Lincoln Street. The final proposal is shown in Attachment 2.

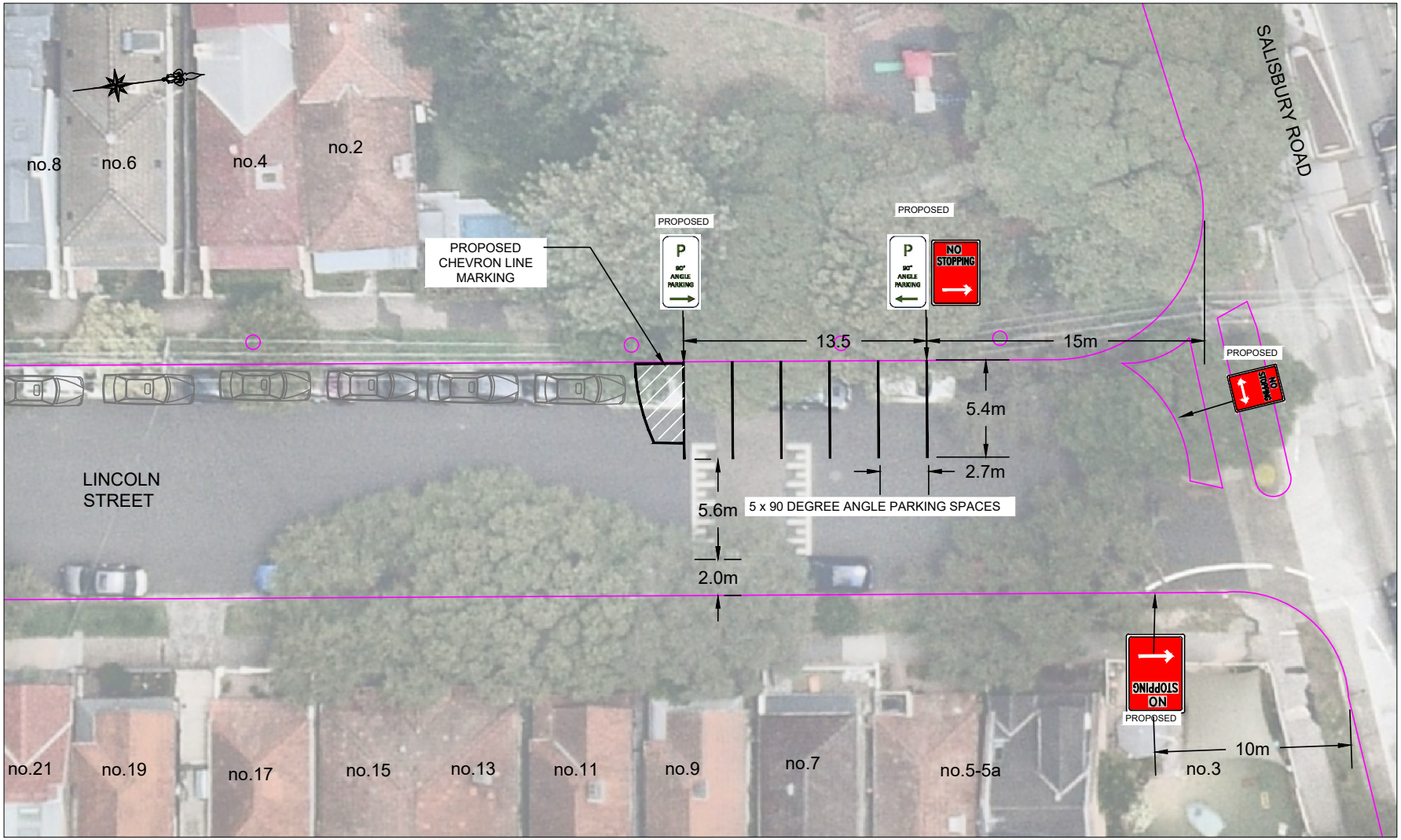
FINANCIAL IMPLICATIONS

The line marking works will be funded under Council's signs and line marking budget.

ATTACHMENTS

1.⇩ Consultation plan
2.⇩ Final proposal


SALISBURY ROAD
no.8
no.6
no.4
no.2
3.5m
42m
PROPOSED CHEVRON LINE MARKING
ANGLE PARKING PROPOSED TO COMMENCE AT FENCE LINE
PROPOSED
NO STOPPING
PROPOSED
NO STOPPING
5.4m
2.7m
LINCOLN STREET
10 x 90 DEGREE ANGLE PARKING SPACES
5.6m
2.0m
PROPOSED
NO STOPPING
no.21
no.19
no.17
no.15
no.13
no.11
no.9
no.7
no.5-5a
no.3


no.8
no.6
no.4
no.2
PROPOSED
CHEVRON LINE
MARKING
PROPOSED
P
90° ANGLE PARKING
PROPOSED
P
90° ANGLE PARKING
NO STOPPING
SALISBURY ROAD
13.5
15m
PROPOSED
NO STOPPING
5.4m
2.7m
LINCOLN
STREET
5.6m
5 x 90 DEGREE ANGLE PARKING SPACES
2.0m
NO STOPPING
PROPOSED
10m
no.21
no.19
no.17
no.15
no.13
no.11
no.9
no.7
no.5-5a
no.3

Item No: **LTC1224(1) Item 17**

Subject: **FREDBERT STREET, LILYFIELD - RESIDENT PARKING SCHEME REMOVAL (BALUDARRI-BALMAIN WARD/BALMAIN ELECTORATE/LEICHHARDT PAC)**

Prepared By: Felicia Lau - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the removal of '2P 8am-1pm Sat, Permit Holders Excepted Area LY' on both sides of Fredbert Street, Lilyfield be approved.**

2. **That it be noted that a 24-month Resident Parking Scheme investigation moratorium period will be in effect for Fredbert Street, Lilyfield.**

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

The residents of Fredbert Street, Lilyfield have raised concerns regarding the parking restriction in their street. They have submitted a petition stating that the existing parking restriction '2P 8am-1pm Sat, Permit Holders Excepted Area LY' is too restrictive for their visitors and have requested for the removal of the restrictions.

BACKGROUND

The '2P 8am-1pm Sat, Permit Holders Excepted Area LY' was implemented in August 2022 as a Resident Parking Scheme (RPS) covering the surrounding streets of the Orange Grove Market Day, which was one of the recommendations from the Lilyfield Precinct Parking Study. Eligible residents were allocated a resident parking permit and a visitor parking permit. The area of the Orange Grove Market Day Resident Parking Scheme is shown in *Figure 1*.

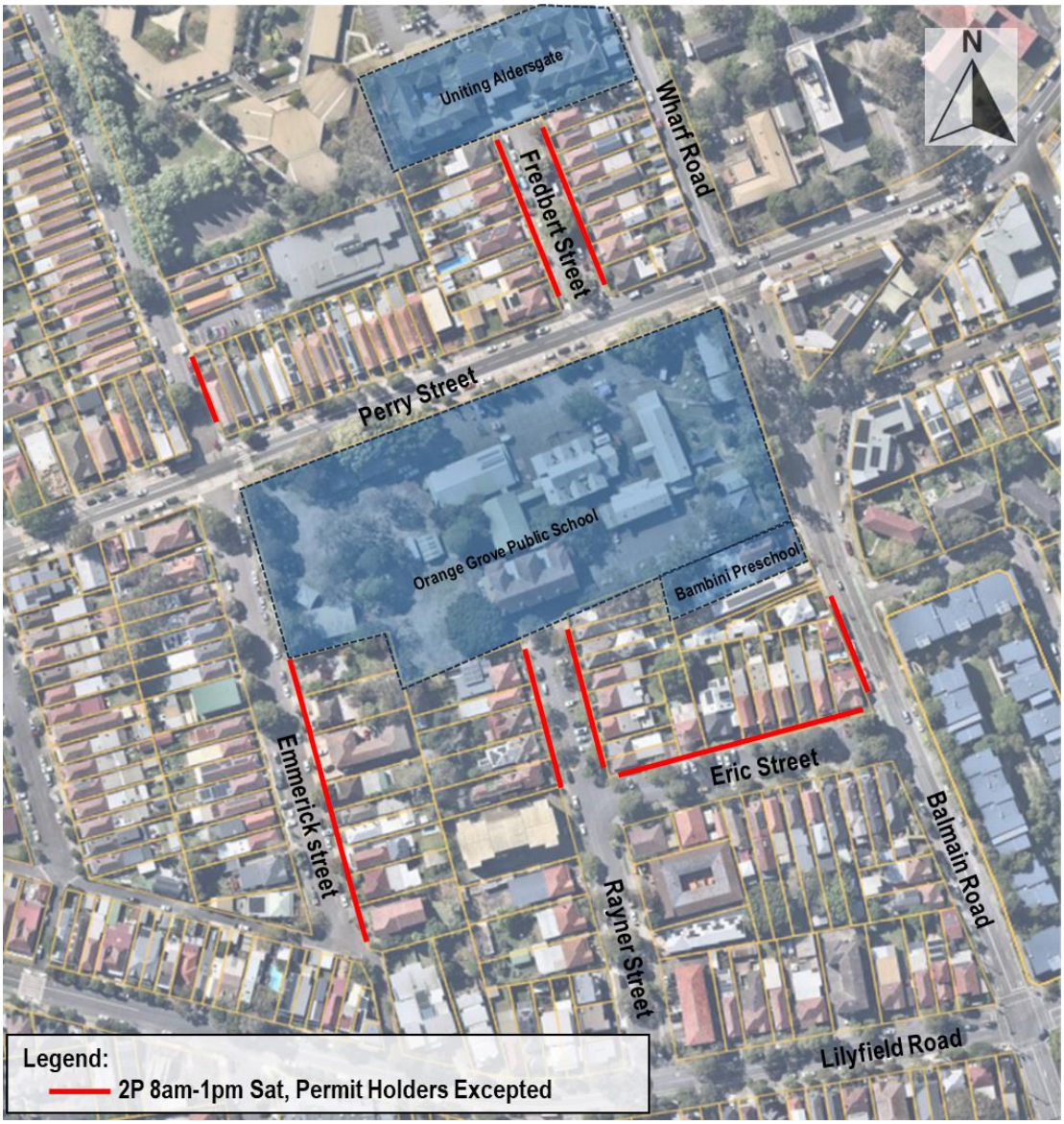


Figure 1: Orange Grove Market Day Resident Parking Scheme

Council has received a petition from the residents of Fredbert Street, Lilyfield for the removal of the parking scheme in their street. The residents have expressed that the impact from the Orange Grove Markets is minimal and hence the permit scheme is not required.

DISCUSSION

In response to the petition, Council conducted a Community Engagement to seek independent opinions from residents regarding the removal of the existing Orange Grove Market Day RPS, currently signposted as '2P 8am-1pm Sat, Permit Holders Excepted Area LY' on both sides of Fredbert Street. Letters were distributed to residents and businesses in Fredbert Street and properties in the immediate vicinity.

At the close of the Community Engagement, 13 responses were received, indicating a response rate of 76%. Out of the responses,10 (59%) have supported the removal of the restrictions, with three (3) not supporting the removal of the restrictions.

Key concerns from the responses have been summarised below:

- The RPS is too restrictive for visitors and is not beneficial for residents, supports removal.

- Mixed comments regarding parking impact by market patrons, those who support the removal mention the parking impact is minimal. Those who object to the removal has concerns that the market vendors will park in their street which will result in reduced parking availability for residents and their visitors.

Based on the resident's feedback and majority residents have supported for the removal of the Orange Grove Market Day RPS, it is recommended that the subject parking scheme on both sides of Fredbert Street be removed. It is noted that Council will impose a 24-month moratorium period for any further RPS investigation for Fredbert Street, Lilyfield as per the Inner West Council Public Domain Parking Policy.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the implementation of the proposed recommendations outlined in the report.

ATTACHMENTS

Nil.

Item No: **LTC1224(1) Item 18**

Subject: **REVIEW OF PROPOSED RESIDENT PARKING SCHEME IN CROYDON (GULGADYA-LEICHHARDT WARD & DJARRAWUNANG-ASHFIELD WARD/SUMMER HILL ELECTORATE/BURWWOD PAC)**

Prepared By: Boris Muha - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

1. **That the following streets (or sections of streets) proposed for a Resident Parking Scheme in Croydon, with the one side of the streets as shown in *Attachment 1*, not be supported.**

   (a) Walter Street, between Thomas Street and Heighway Avenue,
   (b) Heighway Avenue, between Edwin Street (South) and Frederick Street,
   (c) Paisley Road, between Edwin Street (South) and Paisley Lane,
   (d) Bastable Street, between Elizabeth Street to dead end,
   (e) Elizabeth Street, between Etonville Parade and Croydon Road,
   (f) Anthony Street, between Croydon Road and Etonville Parade,
   (g) Anthony Street, between Edwin Street (North) and Croydon Road,
   (h) Croydon Road, between Anthony Street and Hunt Street,
   (i) Edwin Street (North), between Anthony Street to dead end,
   (j) Edwin Street (North), between Elizabeth Street and Anthony Street; and
   (k) College Street, between Hennessy Street and Elizabeth Street.

2. **That the following streets (or section of streets) proposed for resident parking in Croydon, on the one side of the street, be supported and signposted as '2P 8am – 6pm Mon – Fri, Permit Holders Excepted.**

   (a) Edwin Street (South), between Thomas Street and Paisley Road (west side),
   (b) Etonville Parade, between Elizabeth Street and Anthony Street (west side); and
   (c) Croydon Road, between Elizabeth Street and Anthony Street (west side).

3. **That the statutory 10 metre length of 'No Stopping' restrictions to corners, and 'No Stopping' restrictions of varied lengths to corners extending over driveways, next to carpark exits, or around dead-end locations of streets for sight view and manoeuvrability as shown in Diagram Annexure 2, be supported.**

4. **That it be noted that no further review will be carried out for at least a period of 24 months for a Residential Parking Scheme in the subject streets of Croydon, unless substantial land use changes occur to re-visit a scheme beforehand, as per the Inner West Council Public Domain Parking Policy 2020.**

STRATEGIC OBJECTIVE

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

Council has received requests from residents to review and consider introducing a Resident Parking Scheme (RPS) in various streets of Croydon around the Ashfield Aquatic Centre, Croydon Station, and the major school being the Presbyterian Ladies College (PLC).

A recent occupancy survey has identified varied streets or sections of streets, (14 in all as shown in *Attachment 1*) with high occupancy levels, to be considered under a proposed Resident Parking Scheme (RPS) for Croydon.

Under the current Public Domain Parking Policy for the Inner West Council which identifies eligibility criteria for an RPS; Section 7.20 Parking Scheme Investigations and Development-Level of Support- advises as follows:

Council will generally not proceed with implementation of a parking scheme or changes to an existing parking scheme in isolation from a precinct wide parking study unless at least 65% of
respondents, from different households within the proposed zone, support the proposal and provided a minimum response rate of 30% of households is achieved to Council's survey.

A survey of responses is therefore tabled in *Attachment 2*. The overall response rate for an area wide inclusion of all the streets under the proposed RPS in this report was low around 17%. Submissions received in support over non-support was around 53%, however the level of support overall was relatively low around 9.1%, showing a low level of support (in the surveyed community) for an area wide RPS. An overall RPS in the area could not be supported.

However, a separate street by street analysis in response and support rate identified that (3) streets or street sections had achieved both sufficient response and support rates or were marginally identified and were weighed up by either a higher response rate or support rate.

These streets, as shown tabled in *Attachment 2*, namely:

- Etonville Avenue (west side) between Elizabeth Street and Anthony Street (having 55% response rate and 60% support rate)
- Croydon Road (west side) between Elizabeth Street and Anthony Street having (33% response rate and 83% support rate)
- Edwin Street (South) (west side) between Thomas Street and Paisley Road (having 25% response rate and 75% support rate)

are therefore recommended for resident parking in the Croydon Area.

The above supported street sections of Etonville Avenue and Edwin Street (South) will be captured under and form as part of an extension of an existing RPS Area 6 which currently has two (2) streets to the north of the railway line, that being Horden Parade and Railway Street. Edwin Street South will be captured under RPS Area 2 to the south of the railway Line. *Attachment 3* shows the above streets relative to the nearby existing RPS streets.

Furthermore section 7.20 of the policy quotes that:

A minimum of 24 months will elapse before Council revisits consideration of parking scheme proposals, unless substantial land use change has subsequently occurred permanently impacting on-street parking in the neighbourhood.

The proposal also included introducing statutory 'No Stopping' restrictions to corners of intersections where such restrictions do not exist.

'No Stopping' with varied lengths are also proposed to corners extending over driveways, next to carpark exits, or around dead-end locations of the street for vehicular sight view and manoeuvrability. It is recommended these restrictions proceed to be implemented to control parking in the area irrespective whether resident parking is implemented or not.

BACKGROUND

Council at its meeting on the 25 February 2020 (through recommendation of its Local Traffic Committee on 3 February 2020) approved not to proceed with an initial proposed introduction of a Resident Parking Scheme (RPS) in Croydon, as recommended under a Croydon Parking Study conducted by GTA Consultants in 2019. The final study report was provided and attached to the Traffic Committee report dated 3 February 2020.

Community engagement was carried out in late 2019 on streets recommended for RPS under the Croydon Parking study. Consultation was carried out within the region of Croydon bounded by Parramatta Road, to the north, Frederick Street to the east, Liverpool Road to the south and the council boundary area with that of Burwood Council to the west.

The response results indicated that the community in general did not support the proposed strategy with a 73.6% non-support rate. The views of the community on the proposed RPS areas indicate that whilst there was generally a desire to change the current parking management, concerns were raised with the proposed permit policy which has been used in other RPS areas in the Inner West.

In view of the high level of objections, it was recommended that the proposed Croydon Strategy not be supported at this time and further consideration for street specific RPS for the Croydon area cease for a period of 24 months until February 2022. Additionally, it was recommended that parking conditions be monitored on streets surrounding the Ashfield Aquatic Centre after its reopening in 2020. Any parking review is to be undertaken with reference to the Croydon Parking Study.

Although it is acknowledged that a review of the RPS is well overdue, a parking occupancy survey was carried out early in 2022 in streets as identified under the Croydon Parking Study on a Thursday (20 January& 10 March) and Saturday (22 January) during the summer school holidays (between the hours of 8am-6pm), when a high level of users attended the new Ashfield Aquatic Centre.

The investigation period was still amid covid, with train commuter and schooling activities being affected. The Ashfield Aquatic Centre was going through modifications with timed parking and driveway access within the carparks to properly accommodate and encourage user parking in the carparks. These activities were considered to attribute to abnormal on-street parking behaviour at the time, and it was therefore considered that additional time be required for all activities to settle down prior to a reviewing an RPS in the area.

DISCUSSION

The following points are raised in reference to the current revised methodology and policy guidelines for reviewing a Resident Parking Scheme in Croydon.

- The current Public Domain Parking Policy for the Inner West Council, containing information on eligibility for RPS, was not adopted till 9/6/2020. Prior to this all three former Councils that amalgamated into the Inner West Council (i.e. Ashfield, Leichhardt and Marrickville) had operated on separate RPS policies.

- The survey area for the current proposal has been reduced around the streets proposed for RPS under this report, near to parking generators mainly contributed by the Presbyterian Ladies College (PLC), Croydon Station and the Ashfield Aquatic Centre.

  The survey area is bounded by Hunt/Queen Street to the north, Frederick Street to the east, Thomas Street to the south and the boundary line with Burwood Council to the west. This is aimed to limit the number of properties in the survey area, inviting only residents living in streets or street sections proposed for RPS to participate in the

scheme, with view to obtaining a higher response and support rate. Non-residing or outer area residents would not be tallied in the responses, but their comments are captured under the heading of CONSULTATION.

- The streets, or sections of streets and sides of the streets with proposed RPS zones under this review are similar as reported under the Croydon Parking Study and shown in *Attachment 1*. Additional street or street sections next to the Ashfield Aquatic Centre are also included namely:
  - Etonville Parade, between Elizabeth Street and Anthony Street (west side),
  - Elizabeth Street, between Croydon Road and Etonville Parade (north side) and,
  - Bastable Street (west side) off Elizabeth Street.

- Statutory 'No Stopping' restrictions to corners of intersections where such restrictions do not exist are proposed to control illegal parking in line with the resident parking scheme.

  'No Stopping' with varied lengths are also proposed to corners extending over driveways, next to carpark exits, or around dead-end locations of the street for vehicular sight view and manoeuvrability.

  These 'No Stopping' zones are shown in *Attachment 1.*

- The main criteria for permit eligibility were conveyed to residents through the distributed consultation letter (shown in Annexure 4), and with additional information as provided under the 'Your Say Inner West' on Council's website.

  It should be noted that permits would only be provided, subject to eligibility to residents residing in the section of street selected and signposted for resident parking, irrespective which side they live on.

- Resident feedback (with officer response) is shown tabled under the heading of CONSULATATION. The list of the streets or section of streets, with results of the survey are tabled in *Attachment 2*.

- Parking occupancy observations to the Ashfield Aquatic Centre carparks generally established that the carparks together adequately cater for the demand for patronage to the Centre. It was observed that when the carpark next to Frederick Street is near or at full capacity, ample parking is provided at the second carpark next to Bastable Street (up to 60-65 percent occupancy). Any spill over into the streets may be on occasional weekends, with street parking not taken up by PLC or train commuters, and when other restrictions on-street do not operate thereby freeing up parking.

FINANCIAL IMPLICATIONS

The cost of the installation for signposting for streets recommended for resident parking in the Croydon area is to be funded from Council's operating budget for signs and line marking.

CONSULTATION

528 letters were issued to 362 (council rated) properties within the survey area, with the results in response and support rate, both area wide and street by street shown in *Attachment 2*.

62 (council rated) property responses were received.

8 responses were received from non-residents (PLC staff inclusive). These were not tallied in under the tabled responses *Attachment 2*, but comments have been added below and addressed.

Key or common theme concerns raised by the residents in support or non-support, with officer response, are shown in the table below. Certain comments have been grouped under a common theme.

Residents Comments	Officers Response
This scheme has been rejected in the past; it has been proposed in the past; nothing has changed (2 residents).	A review of the RPS has been undertaken in line with the current developments in the area, and the new Ashfield Aquatic Centre since being well-established and in full operation.
• multi-generational living/ large families require off street parking/Off street parking is relied upon (8 residents). • RPS should be signposted or why aren't both sides of the street signposted for RPS? (8 residents). • The proposed RPS will push problem into other streets (2 residents).	The RPS is placed to one side of the street in fairness and balance to provide users ineligible of permits to park longer periods of time in the unrestricted parking side, or they can park short periods of time in the RPS zones. Outside the RPS times, parking is unrestricted. The provision of RPS to one side of the street is intended also to minimise the push or knock- on affect to parking onto other streets.
• Revenue raising, waste of money. Public funds should be used elsewhere (5 residents). • There is no parking problem (4 residents). • Council will create an 'admin burden/nuisance'. Residents will have to apply and reapply for permits (2 residents).	There has been requests from residents for an RPS in the area. Council manages various resident parking schemes in its Local Government Area (LGA), to provide permits to residents with no or lack of off-street parking, in relief to parking on-street. Properties may change in time and residents are required to re-apply for permits. Developmental changes may end up providing off-street parking, or conditions under the policy may result in residents no longer being offered permits.
Council's policy regarding off street parking is disputed, disagree with permit allocation. Allow more permits (2 residents).	The current Inner West Council 'Public Domain Parking Policy' takes on similar conditions applied under the Former Ashfield Council resident parking policy in that permits are issued to residents with no or lack of off-street parking. The purpose of the RPS is to prioritise residents that have no or limited access to off-street parking. If eligibility criteria were loosened and applicable to all residents, this would eliminate the purpose of a RPS where the number of permits issued would outweigh the supply of parking spaces. Residents living in sections of street with a resident parking zone area can view the Public Domain Parking policy for other entitled permits.
RPS will restrict the use of public transport – 2 hours is not enough time to go to city and back- parking will stop people from enjoying the local amenities such as the pool and other businesses.	2-hour period parking is generally the normal period assigned to RPS near to town centres and transport hubs (e.g. Railway stations.) Users' ineligible for permits can use the side of the street unrestricted of parking. The Ashfield Aquatic Centre is considered to have ample parking capacity offering 2 or 4-hour period parking.
Residents should be able to use their garages how they please (1 resident)	Garages designed and built for the purpose of housing vehicles and used for storage does not serve as a reason to obtaining a permit.

The proposal should have taken place after TOD SEPP changes (2 resident).	The TOD SEPP is a proposal by State Government to increase density around the Croydon Station. (Transit Orientated Development). The TOD SEPP is currently under review and not confirmed with a commencement date. Due to the lack of imminency and form any future TOD around Croydon Station will take, it is not considered reasonable to await for a future policy of an unknown form for this scheme.
Residents on southern side of Anthony Street are disadvantaged. (1 resident).	The south side of Anthony Street will remain unrestricted.
Unfair that tandem car spaces are considered 2 spaces/disagree with Council's criteria that determines off street parking (3 residents).	Tandem parking (i.e. one vehicle in front of the other) within property driveways of single household dwellings, or property driveways leading up to the front of garages, or other off-street areas, which are capable of parking vehicles in tandem, is deemed to park 2 vehicles.
RPS will cause disruption to existing living arrangements (1 resident).	The RPS is designed to offer relief to those residents with no or lack of off-street parking to park on-street but allows general short- term parking in the resident parking zone, or unrestricted parking to the other side, with intent to minimise disruption to the community living in the area.
PLC carpark has been taken over by demountable classes; PLC should provide their own parking for staff and students (1 resident).	The demountable classrooms would have been approved under the State and Environmental Planning Policy (SEPP) Transport and Infrastructure, which Council has no control. Parking can be assessed under Council's Development Control Plan, but no application has been made by the school for additional parking at this point of time.
RPS would only help create a few extra spaces (1 resident).	The side of the street proposed for RPS provides as much parking space as possible. Residents with permits may need to compete for these spaces.
One vote per household unfair (1 resident).	One vote is only counted from each household (e.g. single dwelling and strata units) to spread and equally gauge the overall community reaction (within the survey area) for RPS.
• Heighway Avenue has problems with commuters and illegal parking (1 resident). • No rangers have ever visited these streets /not enforced (1 resident). • Place physical barriers at corners (1 resident). • Ban parking in short distances between driveways and on corners (1 resident). • Remove no stopping restriction due to loss of parking (2 residents). • RPS seeks to reduce available parking (1 resident).	• Irrespective if the street is selected for RPS or not, council cannot deny commuters from parking on the street, provide they do so legally. Residents can call Council Rangers if there is suspected illegal parking. • The RPS will have added enforcement in the area. • Physical barriers (e.g. kerb islands) are not proposed in this case to corners, as there is a need for corners to be used to clearly manoeuvre vehicles around the intersections. • No Stopping restrictions are required to prevent illegal parking to corners and control parking for sight view and manoeuvring. Short distance between driveways permits smaller cars or other motorised vehicles (e.g. motor scooter/cycles) in using the space. • No legal parking is removed under the RPS proposal.

• Enforce No stopping to corners as visibility is poor (2 residents). • 'No Stopping' will further increase parking difficulties/remove or shorten 'No Stopping' due to loss of parking (4 residents)	See also above.
There should be no cost for permits (5 residents).	The first residential parking permit is free and a second permit is at a cost as governed under the Council's fees and charges.
Council should not expand RPS- The road is not private land (1 resident).	The streets are 'Public Road' and Council can carry out RPS inclusion or expansion if there is sufficient support from the community.
The proposal has not considered the cycleway/walkway connection to the bay via canal (bay Run) (1 resident).	Any cycleway/walkway connection is considered of a separate project to work in with any RPS in the area.
Consider line markings/signage at 144 Edwin St- large vehicles block access to driveways (1 resident).	Driveway lines is a separate issue. The resident or building strata manager, in case of a unit property can arrange to paint driveway lines with specification drawings provided by Council. Residents can obtain drawing information via the Council's website and search for Public domain works – Council standard drawings - Inner West Council (nsw.gov.au). or call council on 9392 5000.
• Restriction times should be extended e.g. just as with Dawn Fraser Baths Mon-Sun 8am-10pm (2 residents). • Propose changing restriction to MON-SUN 8am-10pm (2 residents). • Proposed RPS restrictions should match Ashfield Pool/extend hours Mon-Sun 8am-6pm, to include weekends (2 residents). • Make signposts seasonal as they do in Olympic Park (1 resident). • Parking issues derive from PLC and Ashfield Pool/staff from PLC, Ashfield pool and commuters, take most of our parking (7 residents). • PLC staff and students park from 8am-4pm, during this time parking is available due to residents leaving for work/ plenty of street parking. (4 respondents)	The RPS restrictions are only proposed from 8am-6pm Mon-Fri at times to mainly address PLC, commuter parking and even town centre shopping activity during the day. The Ashfield Aquatic Centre carparks are considered to adequately cater for its pool patrons. These times are consistent with times of other existing RPS zones in the area.
• Residents on Edwin St and Edwin St Nth leave multiple vehicles on street and do not move them (2 residents). • Businesses in Etonville Parade, use the street as a dumping ground (1 resident). • Remove boats and trailers/long stay vehicles (2 residents.)	• Apart from illegal parking, Council Enforcement has been given additional powers to take appropriate action for unattended vehicles, boats or trailers parked in the one place for 28 days or more. If this is the case, Council Rangers can be called upon to investigate the matter. • Council can be called upon if illegal dumping is suspected on the street.
• Residents with driveways should be excluded from the RPS (1 resident).	• See sample consultation letter Attachment 4 or refer to the Public Domain Parking Policy about off-street parking and eligibility of permits.
• Will there be an increase in illegal parking? Will	• 'No Stopping' restrictions will be proposed to corners

there be an increase in overall traffic? Will PLC or the primary school have sufficient onsite parking for their staff? PLC should add more parking when expanding the site.	which do not have such existing restrictions in place to control illegal parking irrespective if RPS goes in or not. • *The schools should manage any off-street parking for staff. If further expansion is made by the schools, off-street parking is determined either by Council's Development Control Plan (DCP) or the State Environmental Planning Policy (SEPP).
• Whole of Edwin St Should be included in RPS to make the scheme fair (1 resident).	Edwin Street north of the Railway Station and south back to Thomas Street in vicinity of the town centre, are proposed and have been included under the survey. Edwin Street further south of Thomas Street is outside of this survey area influenced and affected by the combined activities of the PLC, Station (commuters) and Ashfield Aquatic Centre.
• Croydon Road, between Elizabeth Street and Anthony Street, should be signposted on Eastern side-fairer and safer (1 resident).	The western side of Croydon Road, between Elizabeth Street and Anthony Street has been factored in to providing added capacity to park vehicles without being interfered by driveways. This side was similarly chosen under the initial proposed RPS under the Croydon Parking Study.
<u>Non-resident or outer area resident</u> comments or concerns. • PLC Staff believe that the issue that the residents have is with school swimming & gymnastic communities, not with staff and students (2 respondents) • PLC staff have difficulties commuting to work without a car (3 respondents) • PLC staff rely on street parking (4 respondents) • Role of teacher is critical (2 respondents) • Council has not supported PLC in creating more on - site parking (1 respondent)	• The RPS does not wholly remove unrestricted parking. Unrestricted parking for longer term use by non-residents, or resident's ineligible of permits is provided to one side of the street. Short term parking up to 2 hours is permitted for non-residents or resident's ineligible of permits to park in the RPS zones. • Council cannot insist PLC to create more on-site parking unless expansion of the school requires PLC to do so under the DCP or SEEP. See above *

CONCLUSION

(14) streets or sections of streets were proposed under this Resident Parking Scheme (RPS) for Croydon, is shown in *Attachment 1*.

The relative response, support/non-support rates received and analysed under the criteria for a RPS in Croydon, are shown in *Attachment 2.*

The overall response rate for an area wide inclusion of all the streets under the proposed RPS in this report was low around 17%. Submissions received in support over non-support was around 53%, however the level of support overall was relatively low around 9.1%, showing a low level of support (in the surveyed community) for an area wide RPS. An overall RPS in the area could not be supported.

A separate street by street analysis in response and support rate identified that the (3) of the (14) streets sections had achieved both sufficient response and support rates or were marginally identified and were weighed up by either a higher response rate or support rate, shown again in *Attachment 2.*

These street sections are namely:

- Etonville Avenue (west side) between Elizabeth Street and Anthony Street (having 55% response rate and 60% support rate)

- Croydon Road (west side) between Elizabeth Street and Anthony Street having (33% response rate and 83% support rate)
- Edwin Street (South) (west side) between Thomas Street and Paisley Road (having 25% response rate and 75% support rate).

These streets will be allocated and form part of an extension to existing RPS AREA 2 and 6 as shown in *Attachment 3.*

It should be noted that no further review is proposed to be carried out for at least a period of 24 months for a Residential Parking Scheme in the subject area of Croydon, unless substantial land use changes occur to re-visit a scheme beforehand, under the Inner West Council Public Domain Parking Policy 2020.

This report also proposes within the surveyed area statutory 'No Stopping' to corners where restrictions do not exist, and 'No Stopping' with varied lengths to corners extending over driveways, next to carpark exits, or around dead-end locations of the street for vehicular sight view and manoeuvrability, as shown in *Attachment 1.*

It is recommended these restrictions proceed to be implemented to control parking in the area irrespective whether resident parking is implemented or not.

ATTACHMENTS

1.⇩ Proposed Residential Parking Scheme (RPS) in Croydon.
2.⇩ Results on response and support rates to the Croydon RPS.
3.⇩ Allocation of selected street sections to existing RPS AREA 2 and 6.
4.⇩ Copy of consultation letter sent out to residents.

PROPOSED RESIDENTIAL PARKING SCHEME (RPS) IN CROYDON.



LEGEND:	
	Proposed Resident parking - '2P 8.00am-6.00pm Mon-Fri. Permit Holders Excepted '
	Existing 'No Stopping' restriction to corners (shown only at locations adjacent/opposite to proposed resident parking zones)
	Intersection corners with proposed statutory 10m 'No Stopping' restrictions.
13m	Location of proposed (varied length) 'No Stopping' restrictions extending over driveways to corners, next to carpark exits, or around dead- end locations of the steet for vehicular sight view and manouverablity.
	Existing mobility (disabled) parking zones to be maintained.
	Proposed 32m length of mixed zone restriction outside premises No. 31-33 Croydon Road. The school Bus stop is maintained at this location with resident parking restrictions placed outside the times that the school bus stop operates. Zone is to be signposted reading: '2P 8.00am-2.00pm Mon-Fri. Permit Holders Excepted., Bus Zone 2.00pm-4.30pm School Days only'
	Residential properties eligible to participate in the Residential Parking Scheme. Further determinaion will be made if properties highligted are excluded under development type.

RESPONSE AND SUPPORT RATES

Reqiured criteria:	minimum 30% response rate and 65% support rate

*See diagram Attachment 1 for location and sides of streets for RPS

Street Name	Section of Street	Number Properties (A)	Number Responses (B)	Number in support (C)	Number non-support	Response Rate (B)/(A)x100 [%]	Support Rate (C)/(B)x100[%]	Achieved Criteria Response	Achieved Criteria Support	Street recommended for Resident parking	REMARKS
Walter Street	Thomas Street to Heighway Ave.	4	0	0	0	0%	0%	NO	NO	NO	
Heighway Ave	Edwin Street South to Frederick St.	57	11	2	9	19%	18%	NO	NO	NO	
Edwin Street (Sth)	Thomas Street to Paisley Road.	16	4	3	1	25%	75%	Marginal	YES	YES	*(1)
Paisley Road	Edwin Street South to Paisley Lane.	8	0	0	0	0%	0%	NO	NO	NO	
Bastable Street	Elizabeth Street to dead end.	7	0	0	0	0%	0%	NO	NO	NO	
Elizabeth Street	Croydon Road to Etonvile Parade.	27	5	3	2	19%	60%	NO	Marginal	NO	*(2)
Etonville Parade	Elizabeth Street to Anthony Street.	9	5	3	2	56%	60%	YES	Marginal	YES	*(3)
Anthony Street	Croydon Road to Etonvilie Parade.	13	2	1	1	15%	50%	NO	NO	NO	
Anthony Street	Edwin Street North to Croydon Rd.	Resident votes of side bounded properties were registered to their frontage streets. This section applicable only if area wide criteria was achieved.									
Croydon Road	Anthony Street to Hunt Street.	67	9	5	4	13%	56%	NO	NO	NO	
Croydon Road	Elizabeth Street to Anthony Street.	21	7	6	1	33%	86%	YES	YES	YES	
Edwin Street (Nth)	Anthony Street to dead end.	94	11	7	4	12%	64%	NO	Marginal	NO	*(4)
Edwin Street (Nth)	Eizabeth Street to Anthony Street.	33	6	3	3	18%	50%	NO	NO	NO	
College Street	Hennessy Street to Elizabeth St.	6	2	0	2	33%	0%	Marginal	NO	NO	*(5)
AREA WIDE	**TOTAL:**	362	62	33	29	17%	53%	NO	NO	NO	

LEVEL OF SUPPORT AREA WIDE: 9.1%
(C)/(A)x100[%]

***REMARKS:**
*(1) weighed by higher support rate
*(2) lower response rate
*(3) weighed by higher support rate
*(4) low response rate
*(5) No support

Response and support rate for proposed area wide and street Resident Parking Scheme in Croydon.



Allocation of selected street sections to extend existing Resident Parking Schemes AREA 2 and 6

12 July 2024 BM:MW: 39381877

<First last name>
<Address 1>
<Address 2>
<Suburb NSW 1234>

Dear Resident/Occupier

Have your say
Proposed Resident Parking Scheme in various streets of Croydon

Council has received requests from residents consider introducing a Resident Parking Scheme (RPS) in various streets around the Ashfield Aquatic Centre, Croydon Station, and the Presbyterian Ladies College (PLC).

Council has conducted a recent parking study which showed high occupancy levels in these streets.

What is being proposed?
An introduction of resident parking restrictions in sections shown in the enclosed plan and outlined below:

- Resident Parking restrictions reading '**2P 8.00am-6.00pm Mon-Fri, Permit Holders Excepted**' are proposed and will only apply to one side of the street.
- Statutory 'No Stopping' restrictions will be applied to corners of intersections where such restrictions do not exist.
- 'No Stopping' with varied lengths are also proposed to corners extending over driveways, next to carpark exits, or around dead-end locations of the street for vehicular sight view and maneuverability.

Who is eligible to participate?
Residents whose property fronts or has a side boundary to the street or section of the street, that has the proposed resident parking zone.

Inner West Council
innerwest.nsw.gov.au
02 9392 5000
council@innerwest.nsw.gov.au
PO Box 14, Petersham NSW 2049

How does Council determine whether RPS will be implemented?

- A minimum of **65% support and 30% response rate** from properties in the subject section are required for consideration to implement an RPS.
- Each property will be entitled to a single preference only – please note that multiple submissions will be counted as one.

If the proposal succeeds, who can apply for a resident parking permit?

A resident parking permit is issued to a vehicle of an eligible resident provided the property has no on-site parking available for that vehicle.
The eligibility criteria and permit allocation are shown in the table below.

No. of off-street parking spaces	No. of vehicles registered (or used) at property	No. of resident permits allowed
0	2 or more	2 (maximum allocation)
0	1	1
1	2 or more	1
1	1	0
2 or more	No resident parking permits issued	No resident parking permits issued

- Proof of vehicle registered at the property is required for resident parking permit application.
- For suburbs under the Former Ashfield Council Area (Croydon included) units and townhouses approved after 30 June 1997 are developments excluded from the Permit Parking Scheme. Under the overall Inner West Council, the following developments are also excluded from the Permit Parking Scheme:
    - Additional lot created by subdivision, or
    - New dual occupancy, multi-unit residential developments & boarding houses, or
    - New multi-unit commercial developments, or
    - Excluded by condition of development consent; or
    - Alterations and Additions or Change of Use that creates an additional business or residence on the original lot.

Inner West Council
innerwest.nsw.gov.au
02 9392 5000
council@innerwest.nsw.gov.au
PO Box 14, Petersham NSW 2049

- Visitor parking permits will be offered per eligible property. Visitor permits will be single use, one-day permits. The annual allocation of visitor permits for eligible households will be up to 30 one-day permits.
- Parking permits are not available for boats (on trailers), box trailers, caravans, buses and trucks (i.e. vehicles greater than 3 tonnes GVM).

Have your say

Let us know your thoughts on this proposal:

- Online via your yoursay.innerwest.nsw.gov.au/localtraffic and click on Croydon Resident Parking Scheme tile or scan the QR Code below to head directly to the project page.
- By post to PO Box 14 Petersham NSW 2049 c/o Daniela Kiproff
- By phone 02 93925321
- Via email to daniela.kiproff@innerwest.nsw.gov.au

Feedback closes on Sunday 18 August 2024

What happens next?

A report, including feedback from the community, will be considered by the Local Traffic Committee. Everyone who provides feedback will be notified when the report is considered by the Committee.

Enquires

If you have any questions about this proposal, please contact Daniela Kiproff on 02 93925321 or email daniela.kiproff@innerwest.nsw.gov.au

Yours faithfully

| Engineer -**Traffic Services**

Inner West Council
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Item 19

Item No: **LTC1224(1) Item 19**

Subject: **WEST STREET AND RAILWAY TERRACE INTERSECTION, PETERSHAM – TRAFFIC AND PEDESTRIAN SAFETY REVIEW - C0924(1) ITEM 38 NOTICE OF MOTION – (DAMUN-STANMORE WARD / NEWTOWN ELECTORATE / INNER WEST LAC)**

Prepared By: Jennifer Adams - Traffic Engineer

Authorised By: Manod Wickramasinghe - Traffic and Transport Planning Manager

RECOMMENDATION

That the report be received and noted.

STRATEGIC OBJECTIVE

This report supports the following strategic directions contained within Council's Community Strategic Plan:

2: Liveable, connected neighbourhoods and transport

EXECUTIVE SUMMARY

At the Council Meeting held 3 September 2024 a Notice of Motion for West Street and Railway Terrace Intersection (Item C0924(1) Item 38) was resolved. Part 3 was that Council, noting that both roads concerned are state and regional roads, write to Transport for NSW (TfNSW) in relation to a number of traffic and pedestrian safety improvements at the signalised intersection. This report provides TfNSW's response in regard to Council's letter sent to TfNSW.

BACKGROUND

At the Council Meeting held on 3 September 2024, Council resolved the following:

1. *That Council note long-standing concerns of and advocacy by local residents and the Petersham Public School P&C about pedestrian safety at the West Street and Railway Terrace intersection.*

2. *That Council note works that were completed by council in this term to improve safety, including kerb expansion and installation of fencing around the intersection.*

3. *That Council, noting that both roads concerned are state and regional roads, write to Transport for NSW:*
    a) *advocating that the speed limit on Railway Terrace to be reduced to 50km/h;*
    b) *requesting consideration of a scramble crossing at the intersection to provide additional and clearly marked pedestrian crossing options;*
    c) *requesting a review of safety and performance of traffic light signals; and*
    d) *consideration of other measures to help improve pedestrian safety at the intersection.*

4. *That Council receive a report back to the Traffic Committee on the above.*

On 16 September 2024 Council sent a letter to TfNSW requesting their consideration to the following:

a) advocating that the speed limit on Railway Terrace to be reduced to 50km/h;
b) requesting consideration of a scramble crossing at the intersection to provide additional and clearly marked pedestrian crossing options;
c) requesting a review of safety and performance of traffic light signals; and
d) consideration of other measures to help improve pedestrian safety at the intersection.

The letter noted that Council, local residents and the Petersham Public School P&C have all held long-standing concerns about pedestrian safety at the West Street and Railway Terrace intersection in Petersham. It also noted that Council has undertaken works to improve safety at this intersection as part of the Regional Route 7 cycleway which links Lewisham and Newtown.

These works have included kerb expansion and installation of fencing around the intersection.

On 23 October 2024 TfNSW responded to Council's letter of 16 September 2024. This report notes TfNSW's response to each point raised.

DISCUSSION

TfNSW has provided the following responses to Council's questions:

a) advocating that the speed limit on Railway Terrace to be reduced to 50km/h:

On 19 September 2024 Transport reduced the speed limit of several key main roads to 50km/h within the Inner West Council LGA between Parramatta Road in Petersham, Old Canterbury Road in Lewisham, and the Princes Highway in Sydenham including:

- *Railway Terrace and Gordon Street between Old Canterbury Road and New Canterbury Road, and*
- *West Street between Parramatta Road and New Canterbury Road.*

TfNSW noted that the new 50 km/h speed limit will enhance safety for cyclists and pedestrians.

Benefits:

- *Lower speeds decrease the likelihood and severity of incidents, benefiting vulnerable road users such as pedestrians and cyclists.*
- *Increased driver reaction time to unexpected events, reducing collision risks.*
- *Safer streets encourage walking and cycling, reducing reliance on cars.*

Other State roads which were also reduced to 50 km/h included Livingstone, Sydenham Road, Railway Parade, Buckley Street, Gleeson Avenue and Marrickville Road (refer to figure 1).

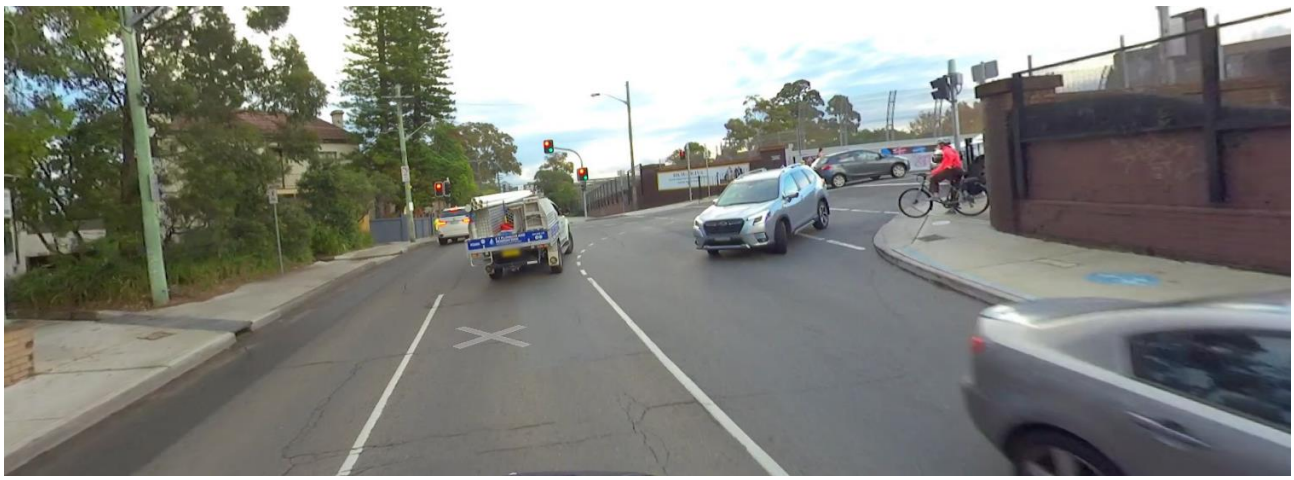


Figure 1 – State Roads reduced to 50 km/h

b) requesting consideration of a scramble crossing at the intersection of West Street and Railway Terrace, to provide additional and clearly marked pedestrian crossing options:

The signalised T-intersection of Railway Terrace and West Street has pedestrian crossings on the western leg of Railway Terrace and the northern leg of West Street. Transport investigated the installation of the missing pedestrian crossing on the eastern leg of Railway Terrace however, due to the brick wall on the northeastern corner obstructing the sight distance of West Street southbound drivers turning left into Railway Terrace, the installation of a pedestrian crossing at this location was not considered safe for pedestrians.

Since pedestrian crossings are not installed on all legs of the intersection and Transport's Traffic Signal Design Guidelines advises that scramble crossings should not be installed at T-intersections, the request to install a scramble crossing at the intersection of Railway Terrace and West Street cannot be supported.

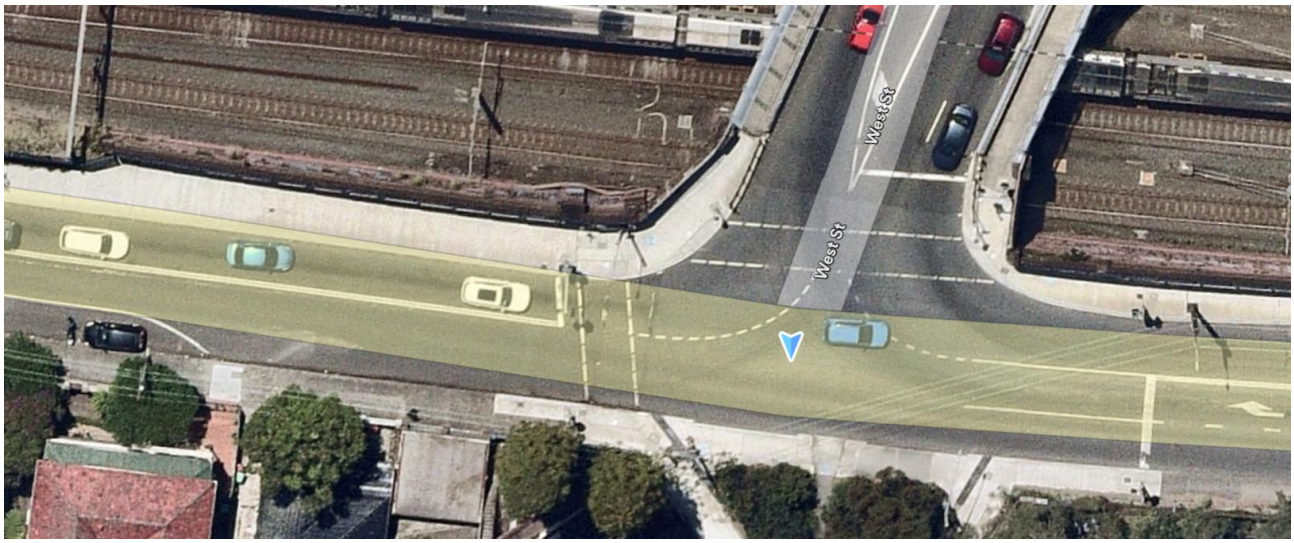


c) requesting a review of safety and performance of traffic light signals at the intersection of West Street and Railway Terrace:

To improve safety for all road users, Council (with Transport's support) upgraded the signalised intersection of Railway Terrace and West Street in 2022 as part of the Regional Bike Route 7 project.

Upgrades to the intersection included widening of the northern footpath of Railway Terrace to provide a shared path, installing red arrow lanterns to hold conflicting turning traffic movements while pedestrians and bike riders cross the road, installing wider kerb ramps, pedestrian fencing and pedestrian and bike lanterns for the two crossings, moving the crossing in West Street further south towards the intersection, and restricting the left turn from West Street into Railway Terrace for vehicles longer than 9 metres. Transport made further safety improvements to the signalised intersection in early 2024 with the installation of a wider Stop line and 'Do Not Queue Across Intersection' sign on the eastern leg of Railway Terrace; additional line marking through the intersection to guide turning traffic; and adjustments to signal phasing to improve safety and reduce delays for pedestrian and cyclist safety.

A CCTV camera has also been installed for traffic monitoring at the intersection and Transport has requested the NSW Police Force to increase enforcement. In addition, the vegetation that was overgrowing on the southern footpath of Railway Terrace was trimmed to improve pedestrian access and line of site for traffic approaching the intersection. Transport will continue monitoring the performance of the intersection to ensure that it is operating safely for all road users.



d) consideration of other measures to help improve pedestrian safety at the intersection:

Transport has funded an independent road safety assessment of the intersection. They are also currently in the process of reviewing the assessment and potential options to further improve road safety and will be reaching out to Council staff to discuss this further.

The Inner West Council is part of the Local Government Road Safety Program which is a partnership between Council and Transport, to support behavioural road safety initiatives. The program co-funds a Road Safety Officer within council and provides project funding for approved projects. For the current year, a pedestrian safety project has been approved which will provide <LOOK> stencils at appropriate locations, engagement with seniors groups around pedestrian safety and involvement in site reviews of high risk locations. Transport will work with the RSO to determine whether pedestrian safety stencils are appropriate at these locations.

CONCLUSION

That TfNSW's responses to Council's concerns be noted.

ATTACHMENTS

Nil.