



NSW Department of Education
Marsden Park New Primary School
Preliminary Construction Traffic Management Plan

July 2019

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GHD otherwise disclaims responsibility to any person other than the NSW Department of Education arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report, GHD disclaims liability arising from any of the assumptions being incorrect.

1. Introduction

1.1 Overview

This Preliminary Construction Traffic Management Plan has been prepared by GHD Pty Ltd on behalf of Schools Infrastructure NSW (SINSW) (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD-9809) for the Marsden Park New Primary School at the corner of Northbourne Drive (to the east) and a proposed future road (to the north) within the Elara Estate, Marsden Park (the site). The site is legally described as Lot 2889 in Deposited Plan 1230906. The development footprint does not include a portion of the site to the west as this is reserved for a future alternative use.

The proposed Marsden Park New Primary School will cater for 1,000 primary school students at completion. The proposal seeks consent for:

- Construction Stage 1 (Temporary School): a temporary school facility constructed within the western portion of the development site located on the future sports grounds. This temporary school facility is to accommodate a maximum of 500 students at any given time. Should the permanent school progress as per the program, the temporary school will not be required.
- Construction Stage 2 (Construction of Permanent School Facility): a permanent consolidated two storey courtyard building with capacity to accommodate a maximum of 1,000 students. This new school building is to comprise
 - 40 teaching spaces
 - A canteen
 - Library
 - Multipurpose hall
 - Office and administration space
 - Staff and student amenities
 - Out of school hours care accommodation
- Multi-purpose sporting facilities and outdoor play spaces
- Associated site landscaping and public domain improvements;
- An on-site car park for 48 parking spaces and a drop-off and pick-up area
- Construction of ancillary infrastructure and utilities as required.

This report has been prepared to present the construction related traffic and pedestrian management arrangements for the proposed development.

1.2 Purpose of this report

This report is structured, as follows:

- Section 1: provides the study introduction and assumptions / limitations
- Section 2: describes the existing road network and transport facilities serving the site
- Section 3: provides details of the Preliminary Construction Traffic Management Plan (CTMP), outlining the management of construction vehicles, pedestrians and site contact details to assist to guide future contractors in the overarching principles for the proposed construction traffic management for the project.

NOTE: A Detailed CTMP is to be developed by the engage contractor prior to construction commencement in consultation with governing authorities such as local council, state road and transport authorities (where required). Such Detailed CTMP is to encapsulate the principles outlines in this Preliminary CTMP and provide detail of the implementation and include appropriately certified Traffic Control Plans (TCPs) to inform motorists of construction activities and management of vehicles, pedestrians and cyclists around the areas impacted by the works.

1.3 Site Location

The proposed Marsden Park New Primary School site is currently a greenfield site located within the Marsden Park Precinct approximately 40 km to the north-west of the Sydney CBD.

The site is located to the west of Northbourne Drive and approximately 400 m to the west of Richmond Road, as shown in Figure 1-1. The site also has frontage along Beale Street and Enmore Street to the west and south respectively. The site is located within the Blacktown City Council Local Government Area.



Figure 1-1 - Subject Site Location

Source: Google Maps (2019), modified by GHD

1.4 Assumptions and limitations

This report is limited by the following:

- Construction information, including construction activities and staging of works have been provided by SINSW
- This CTMP is preliminary and does not include detailed Traffic Control Plans (TCP) for the proposed works
- Staff numbers and work times have not been provided
- The turning path plans are based on an aerial photograph. It must be noted that aerial photography is subject to potential errors due to the angle of the photograph.

2. Existing Conditions

2.1 Road Network Characteristics

2.1.1 Richmond Road

Richmond Road is a 23.5 km arterial road which links Blacktown (in the south) to Richmond (in the north). It passes through the suburbs of Woodcroft, Marayong, Doonside, Quakers Hill, Dean Park, Glendenning, Hassall Grove, Colebee, Marsden Park, Windsor Downs, and Berkshire Park; and connects Marsden Park Precinct to other regional centres.

In proximity to the proposed Marsden Park New Primary School, Richmond Road has the following characteristics:

- North of Elara Boulevard, it is a two-way road with one traffic lane in each direction with the provision of turning lanes and painted medians at intersections.
- South of Elara Boulevard, is a two-way road with two traffic lanes in each direction, with the provision of turning lanes at the intersections.
- It has a posted speed limit of 80 km/h.

The signalised intersection of Richmond Road and Elara Boulevard was constructed in 2014 to facilitate access/egress to the Marsden Park Precinct.



Figure 2-1 – Richmond Road north of Elara Boulevard (facing south)

Source: Google Street View



Figure 2-2 – Richmond Road south of Elara Boulevard (facing north)

Source: Google Street View

2.1.2 Northbourne Drive

Northbourne Drive functions as a collector road, which is approximately 1.3 km long and runs in an approximately north / south alignment within the Marsden Park Precinct. As shown in Figure 1-1 the northern section of Northbourne Drive is directly connected to the proposed Marsden Park New Primary School.

Northbourne Drive has the following characteristics:

- A single traffic lane and parking lane provided in each direction
- A two-way single carriageway with a width of approximately ten metres

The default speed limit for local urban roads of 50 km/h applies.

2.1.3 Beale Street, Enmore Street and Donnelly Street

Beale Street, Enmore Street and Donnelly Street are local roads located adjacent to the proposed school site. The proposed low-density residential development which will be accessed from these roads has not yet been constructed, as shown in Figure 1-1.

These local roads have a width of nine metres, enabling a parking lane and travel lane in either direction. An urban default speed limit of 50 km/h applies.

2.2 Public Transport

2.2.1 Train Services

Riverstone Station is the closest station to the Marsden Park New Primary School and is served by the T1 Western Line and T5 Cumberland Line.

Riverstone Station is located approximately 3.8 km from Marsden Park New Primary School which exceeds typical walking catchments.

The 757 and 6508 bus services operate as a feeder route between the Marsden Park Precinct and Riverstone Station and can provide utility to construction workers seeking to access the school via public transport.

2.2.2 Current Bus Services

The nearest public bus stops from Marsden Park New Primary School are located along Elara Boulevard. The nearest bus stop, as shown in Figure 2-3, is located approximately 800 m from the proposed school.

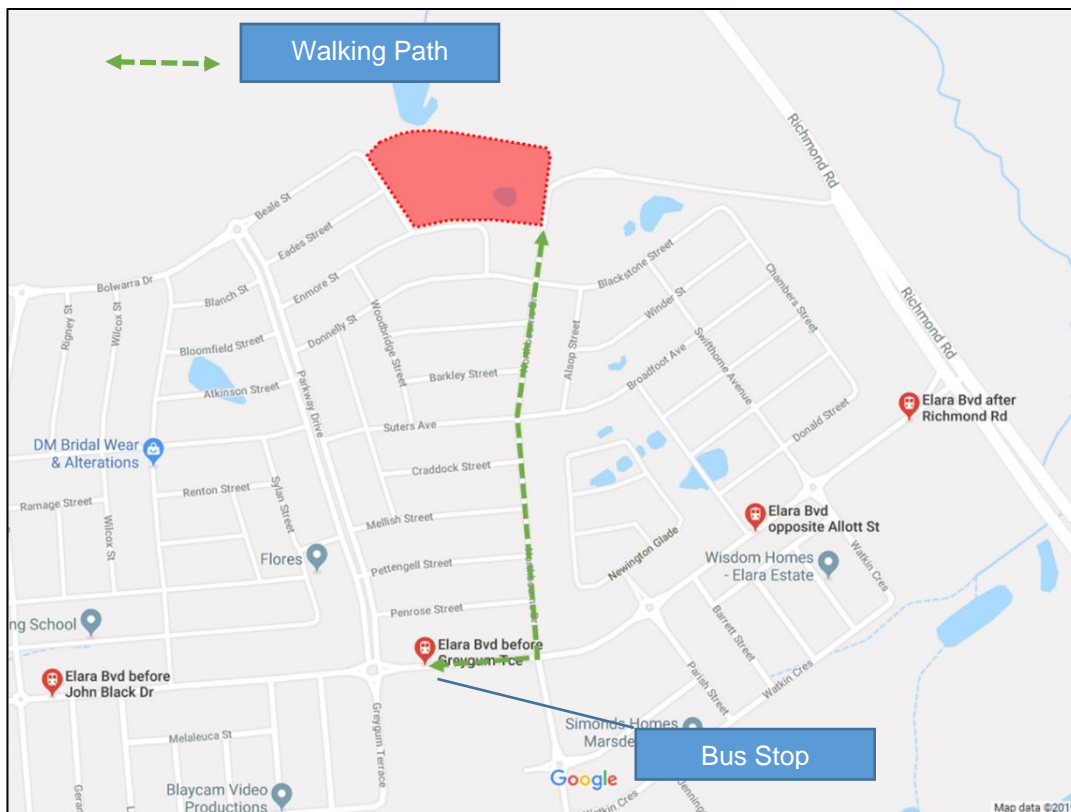


Figure 2-3 - Distance from Marsden Park New Primary School to the nearest bus stop

Source: Google Maps modified by GHD

A summary of the bus routes operating from these bus stops and their approximate frequency is provided in Table 2-1.

Table 2-1 - Bus Routes and Frequencies

| Bus Route | Origin – Destination | Frequency (minutes) | |
|-----------|--|---------------------|----------|
| | | Peak | Off-peak |
| 747 | Rouse Hill to Marsden Park via Riverstone | 60 | 60 |
| 757 | Mt Druitt to Riverstone via Rooty Hill Road North and Marsden Park | 60 | 60 |

The intersection of Elara Boulevard and Richmond Road has been constructed with a bus lane for buses travelling northbound on Richmond Road.

2.3 Active Transport

2.3.1 Existing Pedestrian Facilities

As the Marsden Park Precinct is still undergoing development, there are currently no zebra crossing or signalised pedestrian crossings provided in the vicinity of the proposed school site.

There are currently footpaths on Northbourne Drive south of Donnelly Street.
There are no footpaths on Northbourne Drive north of Donnelly Street or other roads adjacent to the proposed school.

2.3.2 Existing Bicycle Facilities

As shown in Figure 2-4, there is currently no bicycle network provided in the vicinity of Marsden Park New Primary School site.

A bi-directional shared path has been constructed on the western side of Richmond Road, south of Elara Boulevard.

The Blacktown City Council Bike Plan identifies Richmond Road as an existing cycleway which is consistent with the provision of the shared path.

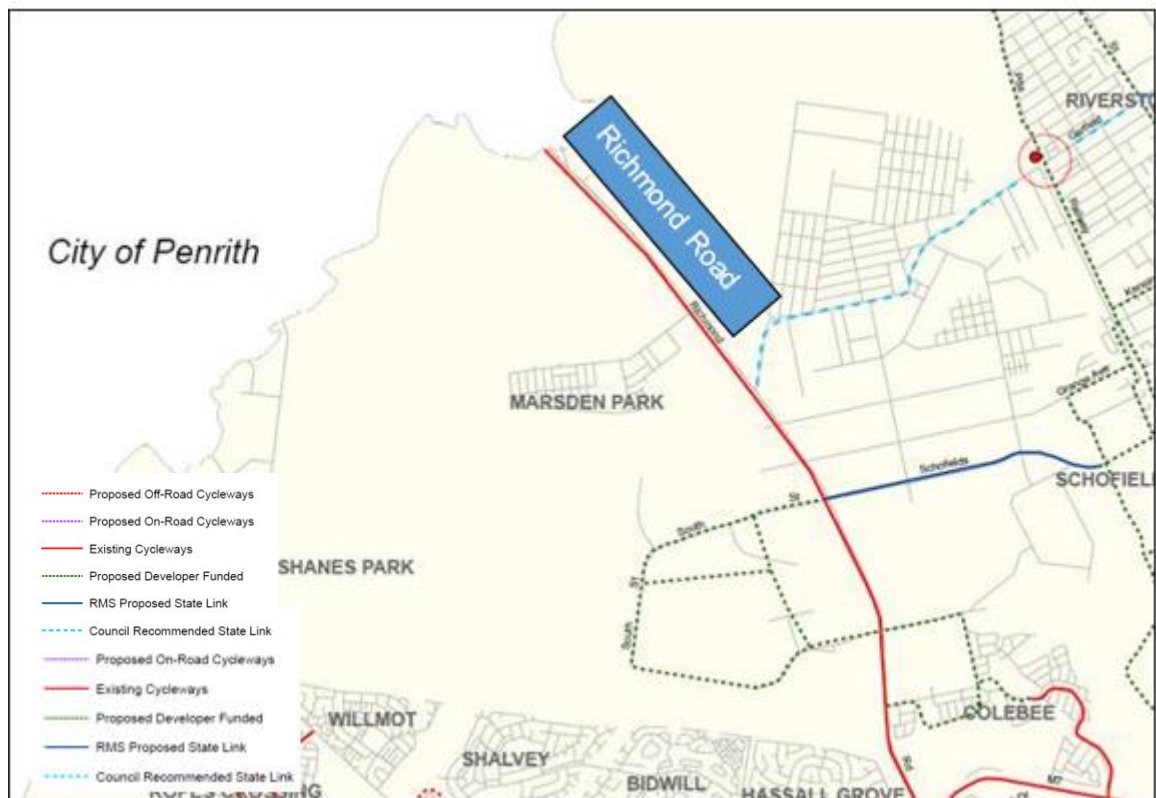


Figure 2-4 – Blacktown Bike Plan 2016

Source: https://www.rms.nsw.gov.au/maps/cycleway_finder modified by GHD

The Blacktown City Council Bike Plan identifies Richmond Road as an existing cycleway and does not identify any specific bicycle infrastructure within the Marsden Park Precinct.

3. Preliminary Construction Traffic Management Plan

3.1 Objectives

The Preliminary CTMP aims to facilitate the safety of all workers and road users within the vicinity of the construction site. The following outlines the primary objectives:

- To minimise the impact of the construction vehicle traffic on the operation of the adjoining road network.
- To facilitate the continuous, safe and efficient movement of traffic for both the general public and construction workers.
- Identify appropriate advance warning signs to inform users of the changed traffic conditions.
- To facilitate the establishment of a safe pedestrian environment in the vicinity of the site.
- To provide a description of the types of vehicles and estimated vehicle volumes during each stage of construction.
- To provide information regarding the access arrangement and a description of the proposed routes for vehicles accessing and egressing the construction site.

3.2 Construction staging

The construction will be carried out over a number of weeks which will generate different vehicles and volumes, depending on the stage of the project. Table 3-1 and Table 3-2 outline the stages involved throughout the course of the following two project options:

- Option 1 - Temporary school.
- Option 2 - Permanent school (for this option, a temporary school is not required)

Table 3-1 Option 1 – Temporary school construction staging

| Stage / Phase | Completion date |
|---|-----------------|
| Stage 1 – Site office and temporary school construction | December 2020 |
| Stage 2 – Permanent school construction | April 2021 |
| Stage 3 – Temporary School Removal | May 2021 |
| Stage 4 – Sports field construction | July 2021 |
| Stage 5 – Landscaping construction | July 2021 |
| Stage 6 – Site office removal | July 2021 |
| Stage 7 – Final landscaping construction | July 2021 |

Table 3-2 Option 2 – Permanent school construction staging

| Stage / Phase | Completion date |
|---|-----------------|
| Stage 1 – Site office and new school construction | August 2020 |
| Stage 2 – Landscaping construction | November 2020 |
| Stage 3 – Site office removal | May 2021 |
| Stage 4 – Final landscaping construction | July 2021 |

The hours of operation for each project option is:

- Monday to Friday – 7:00 am to 5:00 pm
- Saturdays – 7:00 am to 1:00 pm

No work will occur on Sundays or public holidays.

3.3 Construction vehicle types and volumes

Heavy Vehicle Types

The works activity will involve the use of various types and volumes of vehicles in relation to allocated construction tasks. The project involves excavation of the site and the construction and fit-out of school buildings.

The excavation and construction phases of the proposed school are expected to use 40.5 tonne 19.5 metre 'Truck and Dog' combination (articulated) vehicles, while the fit out phase will utilise trucks of up to 12.5 metres in length (Heavy Rigid Vehicles) in accordance with Australian Standard vehicle types.

A vehicle swept path analysis has been carried out for the largest construction vehicle (19 metre Truck and Dog) at the proposed roundabouts located on Elara Boulevard and also at an indicative site access location (see Appendix A). The turning path plans are based on aerial photograph only as no plans are available. It must be noted that aerial photography is subject to potential errors due to the angle of the photograph. However, based on the aerial photography, the analysis shows that the heavy vehicle would be able to satisfactorily manoeuvre through the roundabouts and local road network in order to access the school site.

However, as parallel parking is permitted on Northbourne Drive, this prevents concurrent bi-directional heavy vehicle movements. Opposing vehicle movements may, therefore, need to give way to heavy vehicle movements before continuing to travel along Northbourne Drive.

At the site access location on Northbourne Drive, the proposed site access location would occur at the cul-de-sac to allow the largest vehicles to enter and exit the site as shown in Figure 3-1.



Figure 3-1 Site access

Source: Nearmaps modified by GHD

Traffic Generation

It is anticipated that the site works will typically generate up to 20 truck movements inbound and outbound per day during day to day activities. The number of truck movements is considered low and would fall within typical fluctuations of daily traffic movements and therefore not adversely alter the existing operation of the road network.

However, to minimise any potential impacts on the performance and safety of the local road network from construction vehicles:

1. All deliveries will be within the approved work hours, with emphasis made on deliveries to be outside peak periods of road network activity where possible in order to reduce the impacts on traffic flows and safety to drivers.
2. Deliveries of materials to the site will be staggered over the course of a working day so that any queuing of vehicles occurs within the work site. The access road to the site from Northbourne Drive will need to provide sufficient capacity to accommodate queued vehicles within the site boundaries and construction vehicles are not expected to tailback and impede traffic flow on the adjoining road network (i.e. Donnelly and Blackstone Streets).

It is noted that the proposed works will occur within a newly developed residential area that may have construction activities operating parallel to the school construction. Within the context of the broader road network, construction traffic activity associated with the proposed school will be spread throughout each day. It is therefore unlikely to cause notable impacts to the operation of

This signage will be provided to advise motorists of changes in road network conditions / operation or the expected vehicle movements to/from the site.

TCP's are to be developed during the development of the Detail Construction Traffic Management Plan and be coordinated with the onsite staging requirements. TCP's are to be developed by authorised Roads and Maritime accredited personnel prior to the commencement of construction.

During construction, the contractor shall each morning, prior to work commencing, ensure all signage is erected in accordance with the TCP and clearly visible. Each evening, upon completion of work, the contractor is to ensure signage is either covered or removed as required.

Any variation to the layout of the TCP on site is to be recorded and certified by authorised Roads and Maritime accredited personnel. The associated TCP road signage will inform drivers of works activities in the area including truck movements in operation.

3.7 Pedestrian and Cyclist Management

Site access will be restricted to authorised personnel only. It is anticipated that the pedestrian and cyclist activity in public areas surrounding the site will be low due to the relatively new residential development area located away from the site and the lack of formalised active transport facilities surrounding the site.

However, a traffic controller shall be monitoring the site at all times and ensuring that pedestrians and cyclists in the vicinity of the site are protected from heavy vehicles entering and leaving the site.

3.8 Road Closures

Road closures are not proposed on the road network for the duration of works.

3.9 Works Zones

Works zones are not proposed on the road network for the duration of works.

3.10 Roadwork Speed Zone

As the proposed works are anticipated to be contained within the boundary of the site, no Roadwork Speed Zones are proposed adjacent to the site access. Should the proposed works include road work activities, the Roadwork Speed Zone may be reviewed in accordance with the Roads and Maritime Traffic Control at Worksite manual to assist in the safety in proximity to the road work activities.

Applications of the Roadwork Speed Zone are to be submitted to the Roads and Maritime for approval, with notifications given to Council and the local police.

The Roadwork Speed Zone is not to be implemented without prior approvals.

Inspections and records of implementation of the Roadwork Speed Zone is to be maintained in accordance with Roads and Maritime Traffic Control at Worksite manual and Australian Standards (AS 1742.3 – Traffic Control Devices for Works on Roads).

Roadwork Speed Zone signs (R4-212 and T4-216) are to be covered during periods on non-work activities.

3.11 Access to Adjoining Properties

Access to all adjoining properties will be maintained for the duration of works.

3.12 Site Cranes

No tower crane / mobile cranes are proposed to be used during construction and will be located within the worksite to facilitate the loading and unloading of materials. Specific Traffic Control Plans and applications (if required) will be made by the specialist contractor for these operational deliveries.

3.13 Environmental Control

Notwithstanding the environmental requirements specified in the EIS and other project documents, the following environmental requirements are to be adhered to:

- All vehicles transporting loose materials will have the entire load covered and / or secured to prevent any large items, excess dust or debris depositing onto the roadway during travel to and from the site including but not limited to construction rumble strips/wheels wash at the site egress location.
- The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles, to maintain the safety of all road users.
- Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration.
- No tracked vehicles will be permitted on paved roads.
- Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.
- All subcontractors must be inducted by the lead contractor to encourage that all the relevant procedures are met.

3.14 Method of Communicating Traffic Changes

Prior to the commencement of works on site, the contractor is to inform neighbouring properties of proposed works, impacts and site contact information as per the Community Liaison Plan (to be developed prior construction). Notification can be provided by various mean including, but not limited to:

- Letterbox distribution
- Local newspaper
- Council website.

TCPs developed in accordance with Australian Standards (AS 1742.3 – Traffic Control Devices for Works on Roads) and Roads and Maritime Traffic Control at Worksites manual will identify appropriate signage (and location) to advise motorists of upcoming changes in the road network.

3.15 Monitoring of Traffic Control Plans (TCP)

During construction the contractor shall each morning, prior to commencing work, ensure all signage is erected in accordance with the TCP and is clearly visible to motorists. Each evening, upon completion of work, the contractor is to ensure signage is either covered or removed as required.

A review of the TCPs can be undertaken as required in order to determine any potential need for future amendments.

Any variation to the layout of the TCP on site is to be recorded and certified by accredited Roads and Maritime personnel.

3.16 Occupational Health and Safety

Any workers required to undertake works or traffic control shall be suitably trained and hold the required accreditation to carry out works on-site and will also be site inducted. All traffic control personnel will be required to hold Roads and Maritime accreditation in accordance with Section 2.4 of Roads and Maritimes' Traffic Control at Worksites manual

3.17 Above Ground Electrical Services

Should above-ground power lines be located close to the construction site, construction vehicles traversing under the power lines along the site access road are to be limited to a maximum height of 4.3 metres so that appropriate safety clearance is maintained to the overhead electrical services at all times. Drivers and workers are to be made aware of the height limitation via tool box talks and site induction process.

Additionally, a hazard height clearance bar set at 4.3 metres is to be provided at the site access road entrance to further advise drivers of the height restriction.

3.18 Certificates and Approvals

Approval is to be obtained from Blacktown Council and other relevant authorities as required. Approvals that may need to be obtained for items such as but not limited to:

- Roadwork Speed Zone
- Council Road opening permits
- Road occupancy approvals
- Hoarding / fencing approvals
- Crane and barricades
- Oversize and Articulated Vehicle use on local roads

3.19 Staff Induction

All staff and subcontractors engaged on site will be required to undergo a site induction. The induction will outline the requirements on the CTMP including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities and vehicle height restriction under the power lines.

Additionally, the Site Manager will discuss CTMP requirements regularly as a part of toolbox talks.

3.20 Contact of Emergency Services

In the event of an emergency related construction traffic incident on the public road network, it will be the responsibility of the Site Manager to ensure that emergency services are notified. The emergency services include but are not limited to:

- Fire
- Ambulance
- Police

Phone “000” in cases of emergency.

Furthermore, it is the responsibility of the Site Manager to advise the emergency services of any restriction of vehicular access to the public and private areas (1) one week prior to its implementation.

4. Conclusion

A Preliminary Construction Traffic Management Plan has been prepared for the proposed Marsden Park New Primary School. outlining the management of construction vehicles, pedestrians and site contact details to assist to guide future contractors in the overarching principles for the proposed construction traffic management for the project.

A Detailed CTMP is to be developed by the engage contractor prior to construction commencement in consultation with governing authorities such as local council, state road and transport authorities (where required).

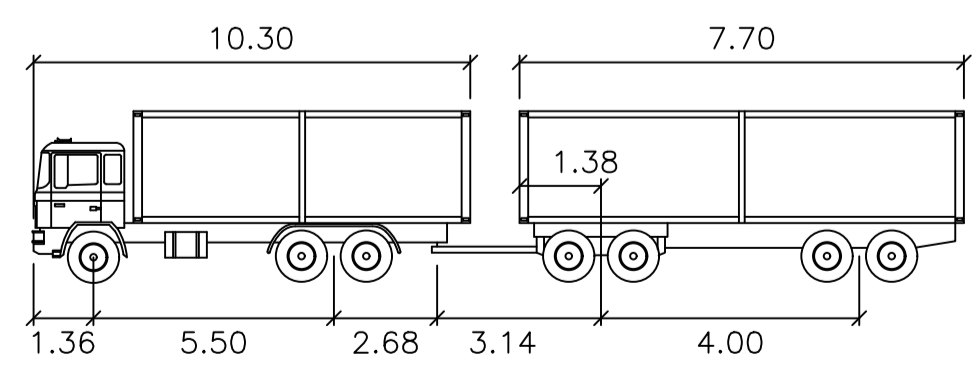
It is expected that construction works will occur in a safe and efficient manner in accordance with the criteria identified in this report.

Appendices

Appendix A - (Swept Paths)

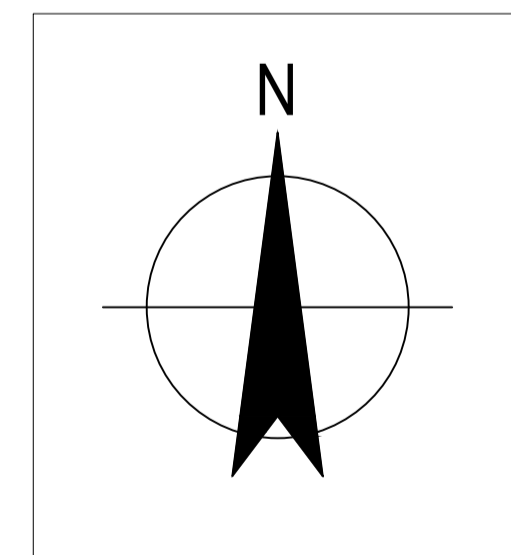
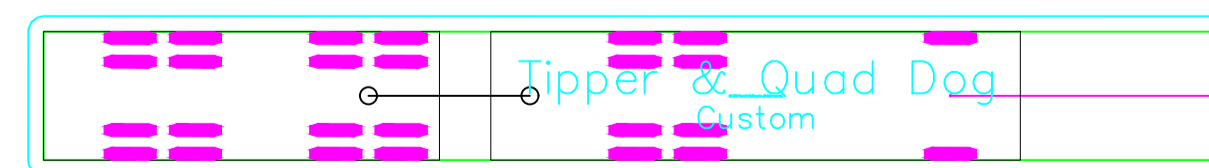


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Direction
of
travel →

Body Clearance 300mm



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NBRS Architecture
Marsden Park Public School
SWEPT PATH ANALYSIS - 19m Truck and Dog
Construction access / egress route

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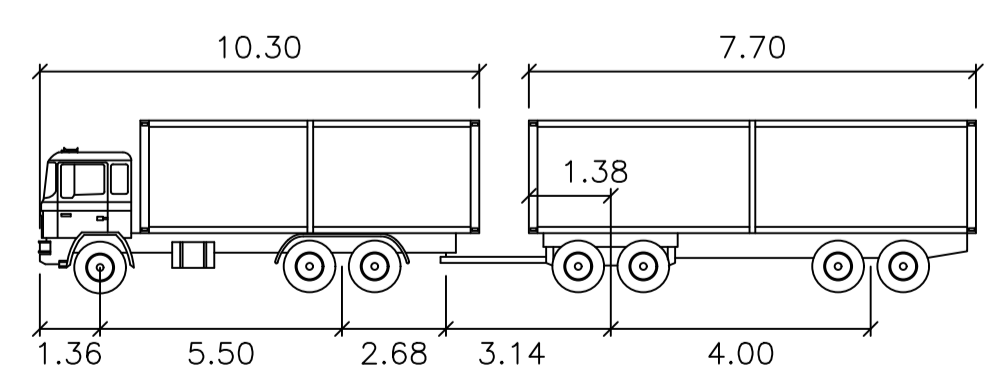
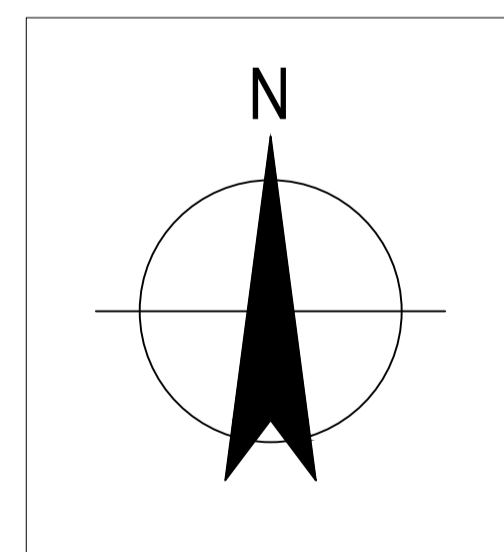
Tipper & Quad Dog

meters

| | | | |
|------------------|--------|--------------------|--------|
| First Unit Width | : 2.50 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 2.50 | Steering Angle | : 41.4 |
| First Unit Track | : 2.50 | Articulating Angle | : 70.0 |
| Trailer Track | : 2.50 | | |

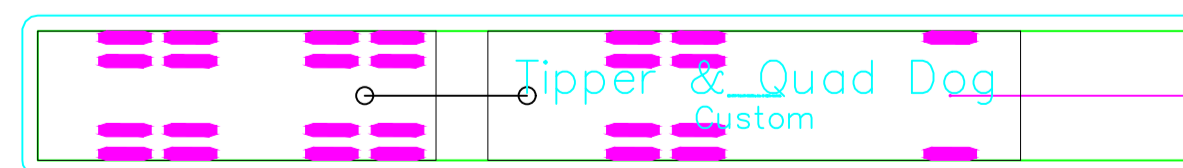


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Direction
of
travel →

Body Clearance 300mm



Tipper & Quad Dog

| | | | |
|------------------|--------|--------------------|--------|
| | 10.30 | 7.70 | |
| First Unit Width | : 2.50 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 2.50 | Steering Angle | : 41.4 |
| First Unit Track | : 2.50 | Articulating Angle | : 70.0 |
| Trailer Track | : 2.50 | | |

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NBRS Architecture

Marsden Park Public School

SWEPT PATH ANALYSIS - 19m Truck and Dog

Construction access / egress route

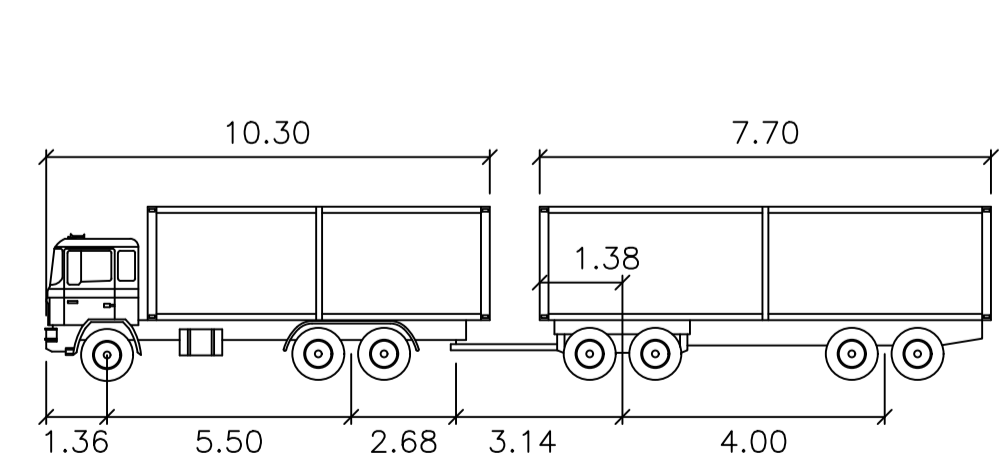
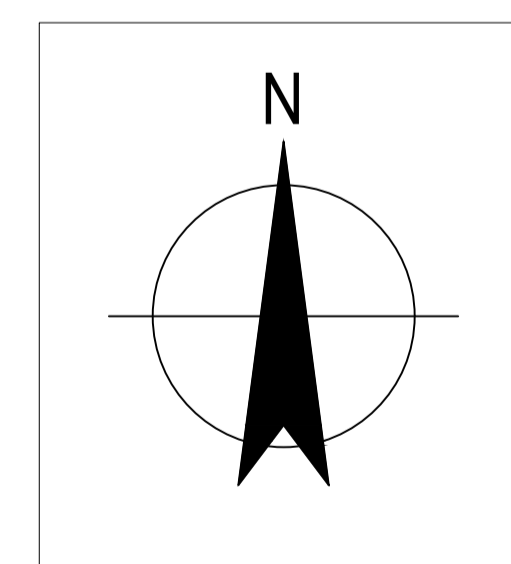
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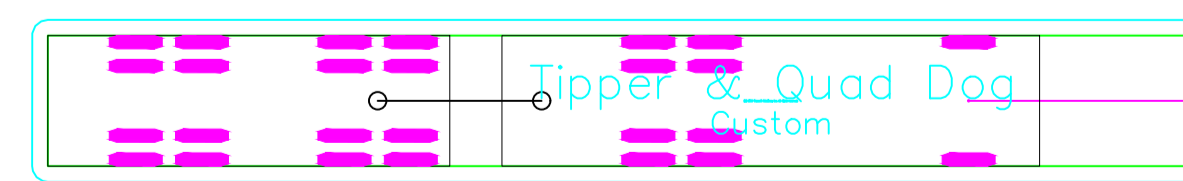


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Direction of travel →

Body Clearance 300mm



Tipper & Quad Dog

| | | | |
|------------------|--------|--------------------|--------|
| | 10.30 | 7.70 | |
| | 1.36 | 5.50 | 2.68 |
| | | 3.14 | 4.00 |
| | | | 1.38 |
| | | | |
| First Unit Width | : 2.50 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 2.50 | Steering Angle | : 41.4 |
| First Unit Track | : 2.50 | Articulating Angle | : 70.0 |
| Trailer Track | : 2.50 | | |

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NBRS Architecture
Marsden Park Public School
SWEPT PATH ANALYSIS - 19m Truck and Dog
Construction access / egress route

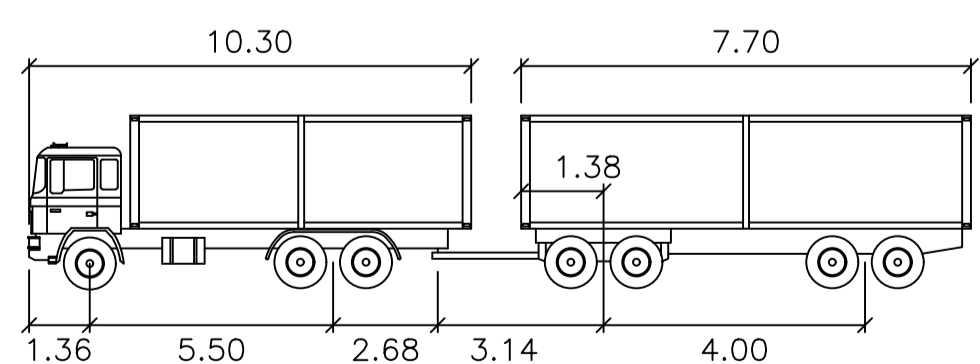
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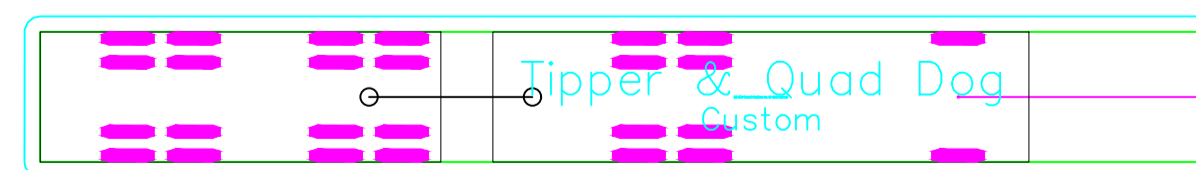
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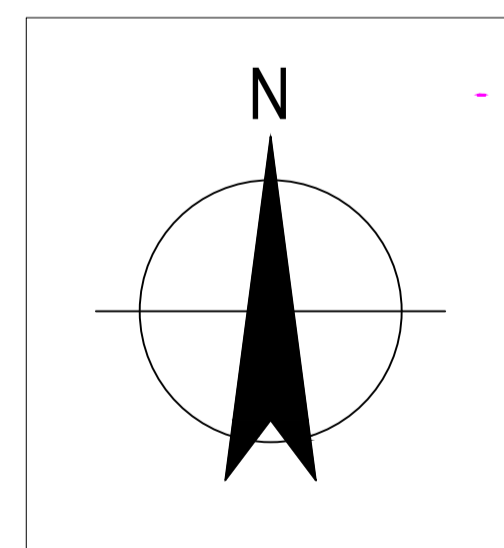


Direction of travel → Body Clearance 300mm



Tipper & Quad Dog

| meters | |
|--------------------|--------|
| First Unit Width | : 2.50 |
| Trailer Width | : 2.50 |
| First Unit Track | : 2.50 |
| Trailer Track | : 2.50 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 41.4 |
| Articulating Angle | : 70.0 |



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SWEPT PATH ANALYSIS - 19m Truck and Dog
Construction access / egress route

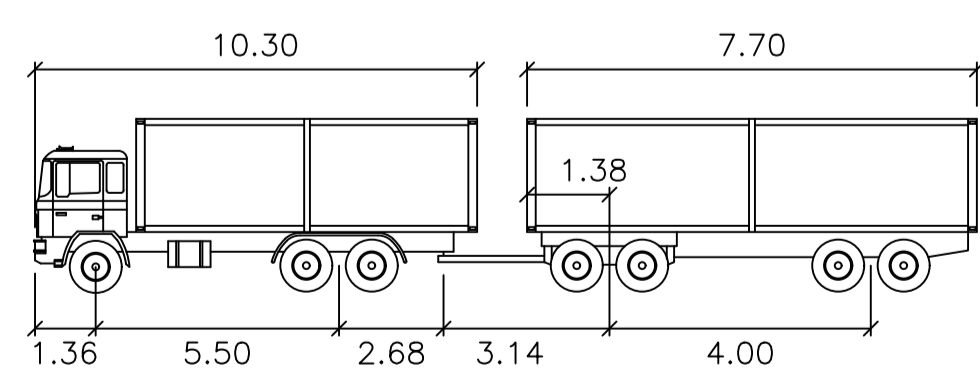
21-28414-SK04

REV A

15/07/2019

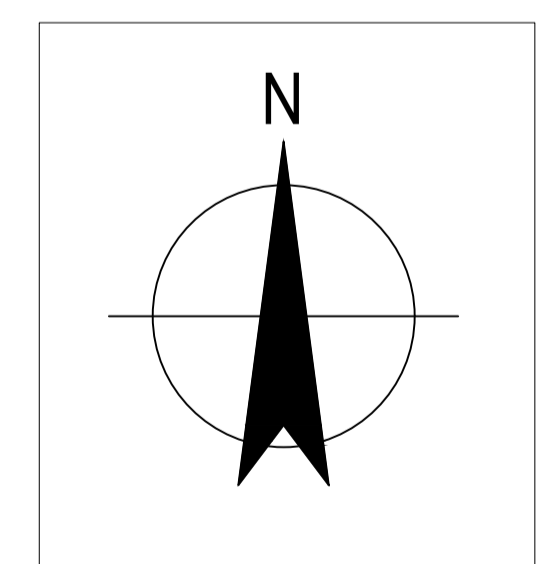
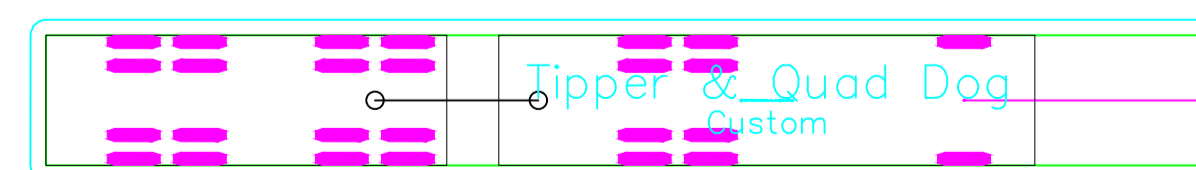


Nearmaps_EPSG28356_Date20190407_Lat-33.691966_Lon150.82



Direction of travel →

Body Clearance 300mm



DRAFT

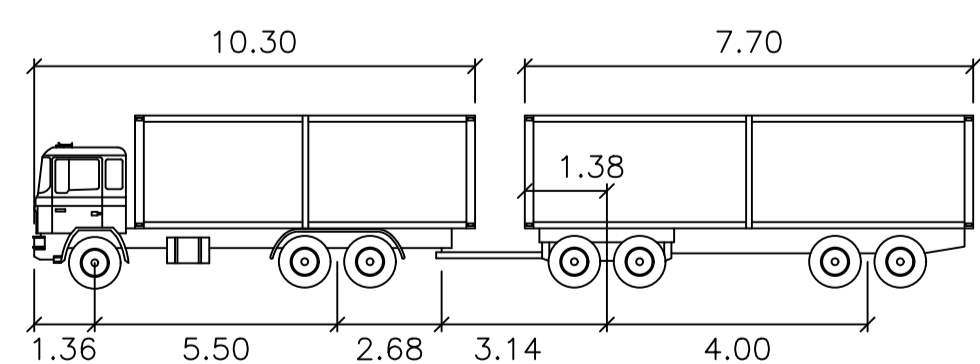
NBRS Architecture
Marsden Park Public School
SWEPT PATH ANALYSIS - 19m Truck and Dog
Construction access / egress route
21-28414-SK05 **REV A** **15/07/2019**

Tipper & Quad Dog

| meters | |
|--------------------|--------|
| First Unit Width | : 2.50 |
| Trailer Width | : 2.50 |
| First Unit Track | : 2.50 |
| Trailer Track | : 2.50 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 41.4 |
| Articulating Angle | : 70.0 |

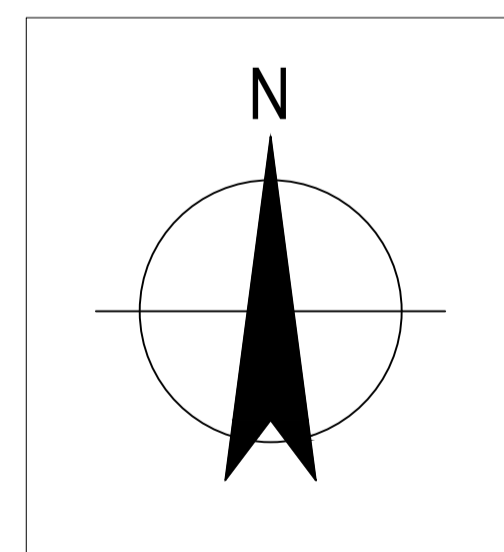
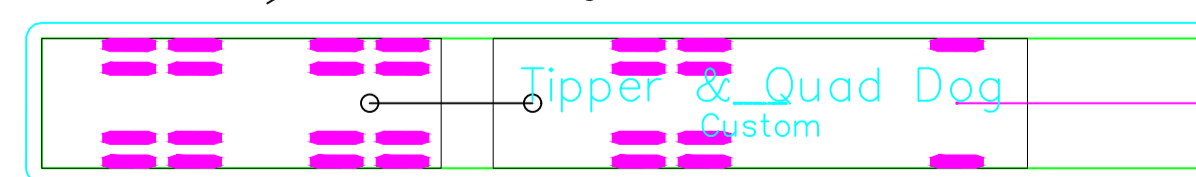


Nearmaps_EPSG28356_Date20190407_Lat-33.691966_Lon150.823039_Mpp0.299



Direction of travel →

Body Clearance 300mm



DRAFT

NBRS Architecture
Marsden Park Public School
SWEPT PATH ANALYSIS - 19m Truck and Dog
Construction access / egress route

21-28414-SK06

REV A

15/07/2019

Tipper & Quad Dog

| meters | |
|--------------------|--------|
| First Unit Width | : 2.50 |
| Trailer Width | : 2.50 |
| First Unit Track | : 2.50 |
| Trailer Track | : 2.50 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 41.4 |
| Articulating Angle | : 70.0 |

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Document Status

| Revision | Author | Reviewer | | Approved for Issue | | |
|----------|--------|------------|-----------|--------------------|-----------|-----------|
| | | Name | Signature | Name | Signature | Date |
| Draft A | SQ | Mark Lucas | On file | S. Clarke | On file | 17/7/2019 |
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