Liverpool Hospital Redevelopment

Main Works

Construction Traffic and Pedestrian Management Plan







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Liverpool Hospital Redevelopment

Main Works

Construction Traffic and Pedestrian Management Plan

Client: Lendlease on 12/10/2021 Reference: N170566 Issue #: A

Quality Record

ssue	Date	Description	Prepared By	Checked By	Approved By	Signed
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1. INTRODUCTION





1.1. Background

Lendlease has been contracted to undertake the Liverpool Hospital Redevelopment Main Works design and construction package. The redevelopment involves the construction of a new multi-storey Integrated Services Building (ISB) providing new treatment and support services that will integrate with the existing hospital. The works also include the refurbishment of certain existing hospital facilities.

Lendlease has engaged GTA, now Stantec to prepare a Construction Traffic and Pedestrian Management Plan (CTPMP) to examine the impacts of the construction works on the surrounding road network and to detail the proposed construction traffic and pedestrian management measures.

Specifically, this CTPMP seeks to address Condition B12, B15 and B19 of the project approval (SSD 10389). The condition requirements and the location where the requirements have been addressed are outlined in Table 1.1. This CTPMP functions as a sub-plan to the broader Construction Environmental Management Plan which has been prepared by others to address Condition B10 and B11 of the project approval (SSD 10389).

Condition	Condition requirements	Document reference	
	 The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following: (a) be prepared by a suitably qualified and experienced person(s) 	Section 1.1	
B12	(b) be prepared in consultation with Council and TfNSW	Section 1.2	
	 (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services 	Section 4.1, 4.2, 4.3, 4.4	
	(d) detail heavy vehicle routes, access and parking arrangements.	Section 3.3, 3.4, 3.7	
B15	 A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following: (a) minimise the impacts of earthworks and construction on the local and regional road network (b) minimise conflicts with other road users (c) minimise road traffic noise (d) ensure truck drivers use specified routes. 	Section 5	
B19	Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy to the satisfaction of the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be submitted to the Planning Secretary for information.	Section 6	
	Prior to the commencement of relevant construction works, compliance with the following requirements must be submitted to the Certifier:(a) all vehicles must enter and leave the site in a forward direction	Section 3.4	
B27	(b) the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, must be in accordance with the latest version of AS 2890.2	Appendix A	

Table 1.1: Consent condition requirements



Condition	Condition requirements	Document reference	
	(c) the safety of vehicles and pedestrians accessing adjoining properties, where shared vehicle and pedestrian access occurs, is to be addressed.	Section 3.4, 4.1, 4.2	
C14	All construction vehicles are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site or an approved on-street work zone before stopping unless directed otherwise by traffic control.	Section 3.5	
C16	The public way (outside of any approved construction works zone) must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances.	Section 3.5	

This report sets out an overview of the following with regard to the proposed construction methodology:

- site accesses
- requirement for work zones
- anticipated heavy vehicle movements
- heavy vehicle routes to and from the site
- construction worker parking and transport
- proposed methods for managing pedestrians, cyclists, public transport and general traffic.

This report has been prepared by engineers who hold the Transport for NSW (TfNSW) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited engineers are as follows:

- Mackenzie Brinums Certification No. 0051848769
- Brett Maynard Certification No. 052374425.

1.2. Consultation

In accordance with the requirements of the Consent Conditions, Condition B12(b) this CTPMP must be developed in consultation with TfNSW and Liverpool City Council (Council).

This CTPMP has been prepared and has been submitted to TfNSW and Council for review and comment. Following receipt of comments, this report will be updated and reissued for endorsement.

Lendlease will continue to liaise with TfNSW and Council throughout construction to satisfy any concerns with the proposed construction methodology and/ or materials handling.

1.3. References

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

- Traffic Control at Work Sites manual, TfNSW, October 2020.
- Australian Standard AS1742.3:2019 Manual of Uniform Traffic Control Devices Traffic control for works on roads.
- other documents and data as referenced in this report.



2. EXISTING CONDITIONS





2.1. Location

Liverpool Hospital is located to the east of Liverpool CBD and generally involves the land bounded by Elizabeth Street to the south, Goulburn Street to the west, Campbell Street to the north and the railway and Scrivener Street to the east. More broadly, the Hume Highway is aligned to the north and west of Liverpool, while Newbridge Road bounds Liverpool on its southern side.

The surrounding properties to Liverpool Hospital predominantly include residential, educational and industrial uses, while commercial and retail uses are located further towards the Liverpool CBD to the west.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

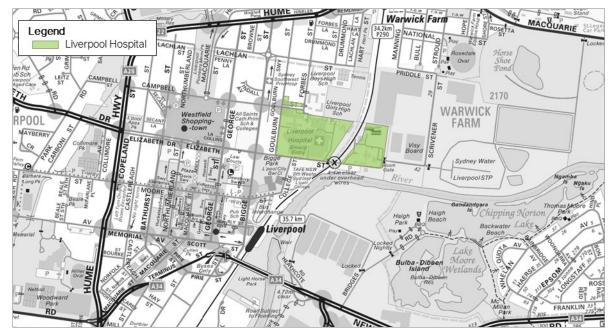


Figure 2.1: Subject site and its environs

Base image source: Sydway

2.2. Transport Network

2.2.1. Road Hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions, and throughout the State. Transport for NSW (TfNSW) is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the Roads Act 1993, and the regulation to manage the road system is stated in the Australian Road Rules.



TfNSW defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

Arterial Roads – Controlled by Roads and Maritime, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or Roads and Maritime under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

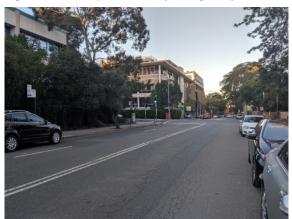
2.2.2. Surrounding Road Network

Campbell Street

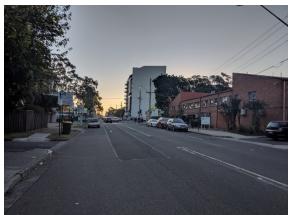
Campbell Street is a local road aligned in an east-west direction close to the northern boundary of the site. It is a two-way road with one lane in each direction, set within an approximately 13 metre carriageway. Near the site, 2P and accessible parallel parking is permitted on both sides of the road. Campbell Street is signposted as a 40km/h high pedestrian activity area at its eastern end and also involves a school zone near Liverpool Girls High School.

Campbell Street is shown in Figure 2.2 and Figure 2.3.

Figure 2.2: Campbell Street (looking east)







Goulburn Street

Goulburn Street is a collector road aligned in a north-south direction to the west of the site. It is a two-way road configured with one lane in each direction, set within an approximately 12.5 metre carriageway. Near the site, 1P parallel parking is permitted on both sides of the road. Campbell Street is signposted as a 40km/h high pedestrian activity area adjacent to the hospital and is a key north-south route through Liverpool, connecting with the Hume Highway to the north.

Goulburn Street is shown in Figure 2.4 and Figure 2.5.







Figure 2.5: Goulburn Street (looking south)



Elizabeth Street

Elizabeth Street is a collector road aligned in an east-west direction to the south of the site. It is a two-way road configured with one lane in each direction, set within an approximately 12.5 metre carriageway. Near the site, 1P parallel parking is permitted on both sides of the road. Elizabeth Street is signposted as a 40km/h high pedestrian activity area near the hospital.

Elizabeth Street is shown in Figure 2.6 and Figure 2.7.

Figure 2.6: Elizabeth Street (looking east)







Forbes Street

Forbes Street is a local road aligned in a north-south direction to the north of the site. It is a two-way road configured with one lane in each direction, set within an approximately 12.5 metre carriageway. Unrestricted kerbside parking is permitted on both sides of the road outside of school pick-up and drop-off times. An approximately 70-metre-long school bus zone is located on the eastern side of the road at its southern end. Forbes Street is signposted as a 40km/h high pedestrian activity area and also involves a school zone outside of Liverpool Girls and Boys High School.

Forbes Street is shown in Figure 2.8 and Figure 2.9.





Figure 2.8: Forbes Street (looking north)





2.3. Public Transport

Liverpool Hospital is well serviced by public transport, with an extensive bus network servicing the bus stops located on Elizabeth Street, immediately east of Goulburn Street. This includes Transdev NSW, Interline and Transit Systems, with more than 20 different bus routes utilising these stops. No bus routes travel along Goulburn Street adjacent to the hospital, with the majority travelling east-west along Elizabeth Street and either using Bigge Street or College Street to travel north-south. Liverpool and Warwick Farm stations are also located within walking distance of the hospital and provide frequent T2 Inner West and Leppington Line, T3 Bankstown Line and T5 Cumberland Line services.

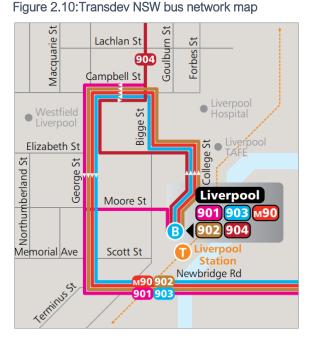


Figure 2.11:Interline bus network map



Source: https://interlinebus.com.au/img/Network_Map.jpg

Source:

https://www.transdevnsw.com.au/uploads/18638_Region_13_Network_Map_201802 12_web.pdf





Figure 2.12:Transit Systems bus network map

Source:

 $\frac{https://static1.squarespace.com/static/5a668f1080bd5e34d18a7e76/t/5b06206e88251b0847afd7a2/1527128181142/17620_TS_R3_network_map_20171126.pdf$

2.4. Walking and Cycling Infrastructure

Liverpool Hospital is well serviced by surrounding walking infrastructure, with footpaths provided on both sides of most surrounding roads. The existing Elizabeth Street pedestrian (zebra) crossing is a key pedestrian facility along this route as it serves as a safe crossing point when travelling between Liverpool Station and the Liverpool Hospital main entrance.

The intersection of Elizabeth Street/ Goulburn Street is also the only unsignalised intersection between the hospital and the CBD, however a pedestrian (zebra) crossing is provided on the northern leg of the intersection to improve pedestrian amenity and safety at this location.

There is also a strong desire line between the hospital campus and the Health Services Building/ Ingham Institute across Campbell Street between Forbes Street and Goulburn Street, with this section of Campbell Street also a key route for students and staff associated with the Liverpool Girls and Boys High Schools.

Signalised pedestrian crossings are generally provided on all legs of surrounding signalised intersections near Liverpool Hospital, further improving the safety of pedestrians surrounding the Precinct.

There are marked shared paths along the eastern side of Goulburn Street (north of Campbell Street), which then changes to the western side of Goulburn Street (south of Campbell Street) to divert cyclists away from the hospital frontages. The lower 30km/h CBD speed limit and wide carriageway widths of most surrounding roads are also ideal for encouraging cycling (for more confident riders).



3. OVERVIEW OF CONSTRUCTION ACTIVITIES





3.1. Description of Construction Activities

The Liverpool Hospital Redevelopment project involves the construction of a new multi-storey ISB providing new treatment and support services that will integrate with the existing hospital. The works also include the refurbishment of certain existing hospital facilities.

The expected duration of the works is 64 months or around 5.5 years, with the project expected to commence in August 2021 and be completed by November 2026. The key milestones for the project are shown in Table 3.1 corresponding to the staging plan in Figure 3.1.

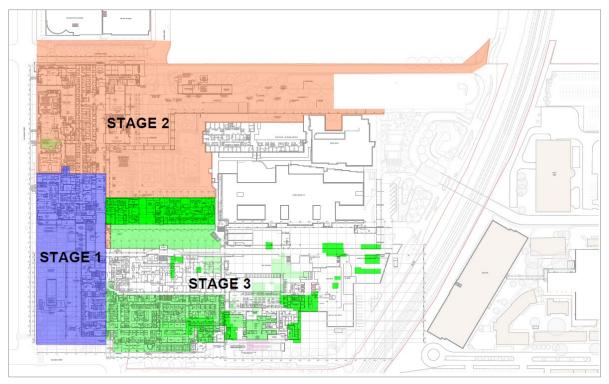
Stage	Description	Start Date	End Date	Duration
	Site establishment	August 2021	August 2021	1 month
	Demolition	August 2021	November 2021	4 months
Stage 1 - ISB	Excavation	October 2021	December 2021	3 months
5	Structure	November 2021	September 2022	11 months
	Fit-out and public domain works	July 2022	July 2023	13 months
	Site establishment	August 2023	September 2023	2 months
	Demolition	September 2023	March 2024	7 months
Stage 2 - ISB	Excavation	March 2024	May 2024	3 months
	Structure	May 2024	March 2025	11 months
	Fit-out and public domain works	December 2024	December 2025	13 months
Stage 3 - Refurbishment	- August 2021 November 2026		64 months	

Table 3.1: Stages of the project



OVERVIEW OF CONSTRUCTION ACTIVITIES

Figure 3.1: Staging plan



Source: Lendlease

3.2. Work Hours

In accordance with Conditions C4 to C9, construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

- Monday to Friday 7:00am and 6:00pm
- Saturday 8:00am and 1:00pm
- Sunday/ public holiday no work.

Construction activities may be undertaken outside of the hours outlined above if required:

- by the Police or a public authority for the delivery of vehicles, plant or materials
- in an emergency to avoid the loss of life, damage to property or to prevent environmental harm
- where the works are inaudible at the nearest sensitive receivers
- for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is
 provided to the Planning Secretary and affected residents at least seven days prior to the works
- where a variation is approved in advance in writing by the Planning Secretary or his nominee if appropriate justification is provided for the works.

Notification of such construction activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

Concrete finishing works may be undertaken outside of the hours outlined above (including the use of a helicopter float), unless directed otherwise by the Planning Secretary, with these activities restricted to the following times (over and above the hours outlined above):



OVERVIEW OF CONSTRUCTION ACTIVITIES

- Friday 6:00pm and 10:00pm
- Saturday 1:00pm and 10:00pm.

Concrete finishing works permitted during the extended work hours must only be undertaken where managed by an Out-of-Hours Work Protocol, prepared in consultation with the EPA and Council, and approved by the Planning Secretary.

Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

- Monday to Friday
 9:00am and 12:00pm, and between 2:00pm and 5:00pm
- Saturday 9:00am and 12:00pm.

Lendlease will be responsible for instructing and controlling all sub-contractors regarding the hours of work.

3.3. Construction Worker Parking

It is anticipated that there will be on average up to 160 workers on-site at any given time during construction activities, with a maximum of 350-400 workers on-site during peak Stage 1 activities between May to November 2022 and 400-450 workers on-site during peak Stage 2 activities between October 2024 and April 2025. An indicative profile of the number of construction workers expected for the duration of the project is provided in Figure 3.2.



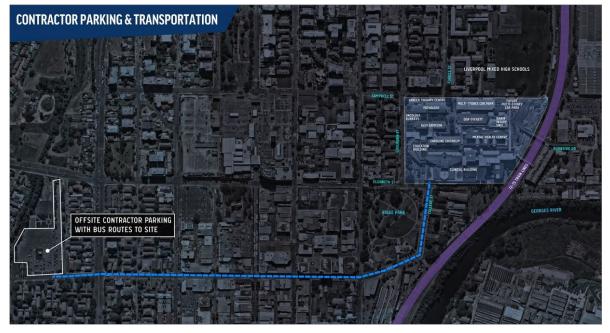
Figure 3.2: Expected number of construction workers for duration of the project

Given the existing high demand for hospital car parking, no on-site parking will be provided for construction workers. Off-site contractor parking will be available at the Collimore Park car park, which is located outside of Liverpool CBD and is serviced by frequent bus services connecting with the hospital as shown in Figure 3.3.



OVERVIEW OF CONSTRUCTION ACTIVITIES

Figure 3.3: Off-site contractor parking



Source: Lendlease

Given the site's proximity to high frequency and wide-ranging public transport services, workers will be encouraged to use public transport to access the site where practical. During site induction, workers will be informed of the existing bus and train network servicing the site. Appropriate arrangements will be made for any equipment/ tool storage and drop-off requirements.

3.4. Construction Site Access

All loading/ unloading relating to the construction works will take place wholly within the bounds of the construction site or within approved work zones as discussed further in Section 3.5. The construction site access arrangement for Stage 1 and Stage 2 will generally be consistent throughout the duration of the works. A summary is presented as follows.

For Stage 1, four construction accesses are proposed as follows:

- Gate 1: Two-way driveway on Goulburn Street in the same location as the existing access to the Alex Grimson loading dock. This access will only be used at the beginning of Stage 1 during demolition and civil works, with the remaining Gates 2, 3 and 4 being used for the remainder of Stage 1.
- Gate 2: One-way entry driveway on Goulburn Street.
- Gate 3: One-way exit driveway on Goulburn Street.
- Gate 4: Two-way driveway on Elizabeth Street in the same location as the existing hospital main entrance driveway.

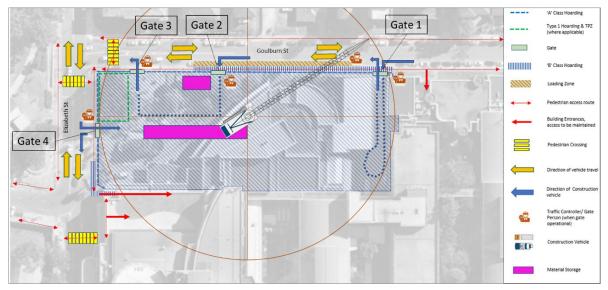
For Stage 2, a single construction access is proposed on Campbell Street near Forbes Street in a similar location to the existing hospital access.

The proposed site access arrangements for Stage 1 and 2 are shown Figure 3.4 and Figure 3.5 respectively.



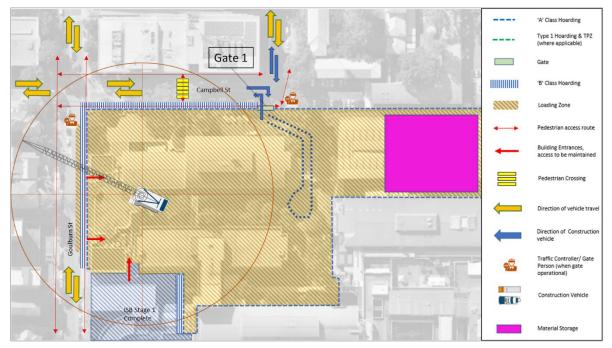
OVERVIEW OF CONSTRUCTION ACTIVITIES

Figure 3.4: Stage 1 construction site layout



Base image source: Lendlease

Figure 3.5: Stage 2 construction site layout



Base image source: Lendlease

Site accesses will be used by vehicles up to and including 12.5-metre heavy rigid vehicles and 18.1-metre truck-and-dog combinations in size, while larger vehicles including 19-metre articulated vehicles will be required to load/ unload from work zone(s) located on Goulburn Street. Swept paths have been completed for the anticipated vehicles accessing the site and are provided in Appendix A. Swept paths along the approach routes to the site indicate some constraint for articulated vehicles at the Bigge Street/ Campbell Street and Campbell Street/ Goulburn Street intersections, whereby these construction vehicles would temporarily be required to cross the centreline of the road when turning at the intersections. To manage this



impact, deliveries by 19-metre articulated vehicles will be scheduled and traffic management will in place to temporarily hold traffic in the opposing direction while these construction vehicles are turning.

It is noted that Gate 4 for Stage 1 on Elizabeth Street will be in the same location as the existing access to the main entrance pick-up and drop-off area and ramp down to Car Park 1, however it is proposed that this access (and the hospital main entrance) be closed to general traffic and will only be used by construction vehicles. General vehicles seeking to pick-up and drop-off passengers will be directed to use other drop-off areas around the hospital near Entrance N, L and/or J, while modifications will be completed in the basement to allow two-way access into Car Park 1 from Car Park 3.

Accredited site personnel will be positioned at all site accesses when in use, to manage pedestrian movements when construction vehicles are entering/ exiting the site. All vehicles will enter and exit the site in a forward direction in accordance with Condition B27 of the Consent Conditions. Queuing or marshalling of construction vehicles will not be permitted on the road network, with call-up procedures to be put in place to manage arrivals.

3.5. On-Street Works Zone

It is proposed to provide on-street work zones along the eastern side of Goulburn Street for both Stage 1 and 2, as shown in Figure 3.4 and Figure 3.5. For Stage 1, the work zone will commence south of Gate 1 and extend for a length of approximately 70 metres. For Stage 2, the work zone will be shifted further north on Goulburn Street and commence south of the existing bus zone, also extending for a length of approximately 70 metres. The work zones will accommodate vehicles up to 19-metre articulated vehicles and will allow for loading and unloading activities.

The work zones will result in the temporary loss of approximately 12 on-street car parking spaces, which are currently subject to 1P parking restrictions. The work zones will be operational for the approved work hours. Outside work zone periods, existing kerbside parking restrictions will be retained.

The public way (outside of any approved work zones) will not be obstructed by any materials, vehicles, refuse, skips, etc. throughout the construction works in accordance with Condition C16 of the Consent Conditions.

3.6. Construction Vehicle Volumes

The site will have various types of construction vehicles accessing the site. The largest construction vehicles will include 12.5-metre heavy rigid vehicles, 18.1-metre truck-and-dog combinations and 19-metre articulated vehicles.

It is expected that there will be on average around 40 trucks per day, or up to eight trucks per hour. During peak construction vehicle activity which is expected to occur on concrete pour days, up to 80 trucks per day or 15 trucks per hour could be expected.

3.7. Construction Vehicle Routes

Generally, construction vehicles will have origins and destinations from a wide variety of locations throughout Sydney. However, all construction vehicles will be restricted to the State and Regional road network where practicable. Broadly speaking, vehicles would approach the hospital from the Hume Highway and require use of local roads to reach the relevant site access point. The construction vehicle routes are detailed below and shown in Figure 3.6 and Figure 3.7. These are generally consistent with that approved as part of the



OVERVIEW OF CONSTRUCTION ACTIVITIES

Infrastructure Works phase of the project. No queuing or marshalling of construction vehicles will be permitted on public roads.

Approach Routes

• North/ South: Hume Highway, Bigge Street, Campbell Street, Goulburn Street/ Elizabeth Street

Departure Routes

• North/ South: Goulburn Street, Campbell Street, Bigge Street, Hume Highway or Goulburn Street/ Elizabeth Street, Bigge Street, Hume Highway

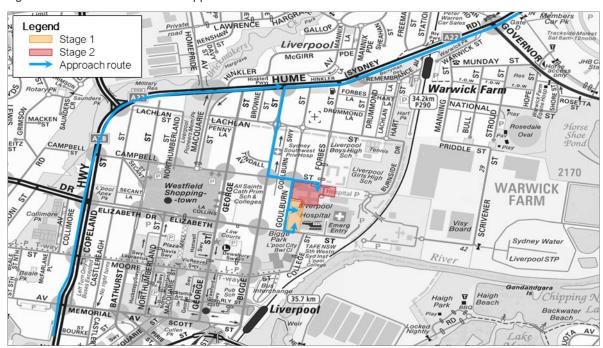


Figure 3.6: Construction vehicle approach routes

Base image source: http://www.street-directory.com.au/



OVERVIEW OF CONSTRUCTION ACTIVITIES

HARGR ENCE Car Pk Legend GALLO HOMEN Stage 1 Liverpool Stage 2 STP N. A.Y McGIRR 4 MUNDA Approach route 2 NKLER ST ST ST HUME HINKL So 3 Warwick Farm 9 ORBES 34 5T 5 2km 290 LACHLAN ON 15 ING NATIONAL 5 LEWIS HLAN MOND GRIMSOA Har Pk MANN STROU MACKEN BULL Shoe Pond SWY Oval 5 ST EITZ . PRIDDLE ST AMPBEL . PLNOALL ST 50 2170 LBURN^{GOI} WARWICK ECA P FARM E E 1000 COLI ELL GOUI DR ELIZABETH Entry PSI Visy Board SCRII Bigg Park E ST Sydney Water AGH e River LiverpoolSTP Is Chipping 9 Haigh 35.7 km V Haigh Park Liverpool Backwater 1 Beach 1 MA AV Lake

Figure 3.7: Construction vehicle departure routes

Base image source: http://www.street-directory.com.au/



4. CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT





CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT

4.1. Traffic Guidance Schemes

Detailed information for work site operations is contained in the Traffic Control at Work Sites manual (TfNSW, 2020). The control of traffic at work sites must be undertaken with reference to SafeWork requirements and any other relevant Workplace Health and Safety manuals.

The proposed traffic guidance schemes (formerly known as traffic control plans) which have been prepared by Commercial TC Pty Ltd and are provided in Appendix B, include the following considerations:

- Construction vehicle activity, including the loading/ unloading of trucks to be conducted within the work site or work zone.
- Pedestrians and all passing vehicles will maintain priority.
- Clear definition of the work site boundary to be provided by erection of A and B Class hoardings around the site boundaries.
- All signage will be clean, clearly visible and not obscured.
- All construction vehicle activity will be minimised during peak periods, where possible.

4.2. Pedestrian Management

Pedestrian movements will be maintained through the provision of a mixture of A-Class hoarding/ fencing and B-Class hoarding along the perimeter of the site to the extent shown in Figure 3.4 and Figure 3.5. For Stage 1, B-Class hoarding will be located along the footpath adjacent to the work zone and Gate 1, as well as near the relocated hospital main entrance on Elizabeth Street. For Stage 2, B-Class hoarding will be located along the Goulburn Street and Campbell Street frontages of the work site. A-Class hoarding/ fencing will be located around all other boundaries of the work site.

Considering the above, pedestrian and cyclist movements are generally not expected to be impacted along the site frontages. Notwithstanding, should any footpaths need to be closed temporarily, appropriate measures will be put in place to divert pedestrians to the footpath on the other side of the road. Traffic guidance schemes have been prepared in the event that the Goulburn Street or Campbell Street footpaths need to be closed and are provided in Appendix B.

4.3. Public Transport

The construction activities are not expected to impact existing public transport services near the site.

4.4. Traffic Impacts

Some minor increases in average delay to vehicles at surrounding key intersections such as on Bigge Street can be expected at times during the construction period as is typical for large construction sites. That said, truck movements will be minimised as much as possible during road network peak hours.

As part of any site induction, drivers should be specifically alerted to the pedestrian activity associated with the broader hospital, with appropriate care and safety on both approach and departure.



4.5. Main Entrance Closure

As mentioned in Section 3.4, the main hospital entrance will be closed during construction works, with people directed to enter via Entrance N, L and/or J and/ or use the pick-up and drop-off areas associated with these entrances. A detailed wayfinding/ signage strategy has been developed to direct pedestrians and vehicles from the existing main entrance to these accesses and pick-up and drop-off areas during the construction works, with the diversion routes summarised in Figure 4.1.

Traffic surveys completed on Tuesday 9 April 2019 at the main entrance access from Elizabeth Drive indicate the existing pick-up and drop-off area in this location currently generates up to 43 vehicles in the AM peak hour and 61 vehicles in the PM peak hour. With the closure of this access and pick-up and drop-off area, this demand will be redistributed to the other pick-up and drop-off zones around the hospital. A summary of the anticipated redistribution of these vehicles is provided in Figure 4.1.

Traffic controllers are proposed to be positioned at these pick-up and drop-off zones for at least the first week after the main entrance closure to monitor demand and ensure vehicles are not parking for an extended period of time, with campus security consultation to agree feasible resource allocation to these areas on an ongoing basis throughout the duration of the works. Should capacity constraints be apparent, particularly around the Entrance J pick-up and drop-off zone, there is potential for the time limit of short term parking near this entrance to be reduced (and/or signage improved) to increase capacity.

Overall, the above measures demonstrate the main entrance closure can be effectively managed throughout the construction works to minimise any associated pedestrian and traffic impacts.

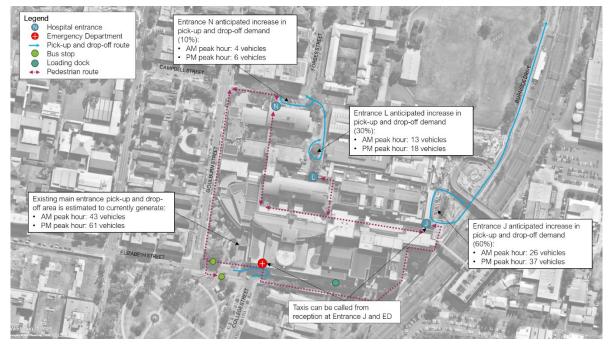


Figure 4.1: Main entrance closure pedestrian and vehicle diversion routes

Base image source: Nearmap



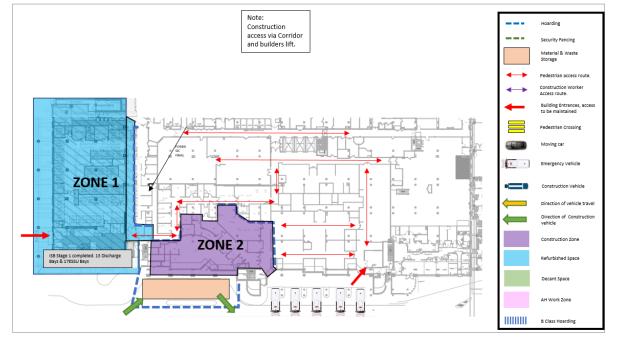
CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT

4.6. Emergency Vehicle Access

Access to the subject site and adjacent buildings by emergency vehicles would not be affected by the works as road and footpath frontages would be unaffected. Emergency protocols on the site would include a requirement for suitably accredited site personnel to assist with emergency access from the street.

Further, construction vehicle approach and departure routes to/from the primary site access gates avoid Elizabeth Street and the primary ambulance approach routes to the Liverpool Hospital Emergency Department. The temporary pick-up and drop-off area would be monitored in order to avoid queuing that could impede ambulance access to the hospital on Elizabeth Street.

Construction works within the Emergency Department will be staged so as to limit any associated impacts. Works around the existing Emergency Department pick-up and drop-off area will commence following completion of Stage 1, including the associated new pick-up and drop-off area as shown in Figure 4.2. Similarly, works around the existing ambulance parking area will commence following completion of the new ambulance parking area in the current location as the existing Emergency Department pick-up and drop-off area, as shown in Figure 4.3.





Source: Lendlease



CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT

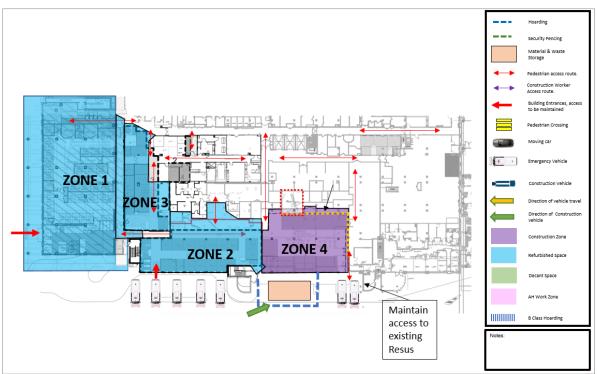


Figure 4.3: Phase 2 of Emergency Department construction works

Source: Lendlease

Consequently, any potential impacts on emergency access would be effectively managed throughout the works.

Liaison would be maintained with the police and emergency services agencies throughout the construction period and a 24-hour contact would be made available for 'out-of-hours' emergencies and access.

4.7. Existing and Future Developments

Construction of the Liverpool Hospital Multi-Storey Car Park (MSCP) project will also be occurring concurrently between August 2021 and January 2022. Lendlease will liaise with the appointed contractor for the new MSCP (ADCO Constructions) and monitor the cumulative impact of the two sites to ensure any traffic impact is minimised. As part of minimising such impacts, the proposed heavy vehicle approach and departure routes for the Main Works project seek to maintain separation between those being used as part of the MSCP project.

In addition, construction is currently underway for upgrades to the Warwick Farm commuter car park and is expected to be completed in early 2022. Heavy vehicles accessing this site would typically use Remembrance Avenue to/from the Hume Highway and are therefore separated from Liverpool Hospital Main Works construction traffic.

No other existing or future developments of significance are known to be occurring concurrently in the immediate area surrounding the site.



4.8. Traffic Movements in Adjoining Council Areas

No adverse effects are expected from the movement of heavy vehicles through adjacent council areas.

4.9. Site Inspections and Record Keeping

The construction work would be monitored to ensure that it proceeds as set out in the Construction Management Plan provided by Lendlease. A daily inspection before the start of the construction activity should take place to ensure that conditions accord with those stipulated in the plan and there are no potential hazards. Any possible adverse impacts would be recorded and dealt with if they arise.

4.10. Site Induction

All staff employed on the site by Lendlease (including sub-contractors) would be required to undergo a site induction.

The induction would include permitted access routes to and from the construction site for site staff and delivery vehicles, limited parking arrangements, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures. The approved work hours must be included as part of this induction.



5. DRIVER CODE OF CONDUCT





5.1. Context and Purpose

The following Driver Code of Conduct seeks to address Condition B15 of SSD 10389, as reproduced below:

- B15: A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following:
 - (a) minimise the impacts of earthworks and construction on the local and regional road network
 - (b) minimise conflicts with other road users
 - (c) minimise road traffic noise
 - (d) ensure truck drivers use specified routes.

5.2. Aims and Strategies

All construction delivery drivers to and from the site are to strictly comply with this Driver Code of Conduct.

Delivery drivers will be provided with this CTPMP which reference the following items:

- Drivers must comply with the haulage routes identified in this CTPMP. This ensures vehicles adhere to main roads to minimise impact on suburban streets and road network.
- Drivers are to comply with all regulatory speed limits and road rules when approaching and leaving the site.
- All drivers are to ensure they hold the relevant licenses for the vehicles they are driving in accordance with Statutory requirements.
- Speed limits are to be complied with at all times.
- Noise minimisation techniques are encouraged when approaching and leaving the site to reduce the impact on residents, occupants of the Hospital buildings and surrounding businesses
- Any truck loads are to be covered prior to leaving the site to minimise dust.
- There is to be no parking up trucks outside the construction site.
- All trucks leaving and entering the site are to do so in a forward motion, unless specifically outlined within an approved traffic management plan and traffic control measures in place.
- Additional care is to be taken by drivers in wet weather to ensure the safety of other vehicles, pedestrians and themselves.
- There is zero tolerance to drug and alcohol on site, and drivers may be subject to random testing which is carried out by the site.
- All deliveries will be booked in with the Site Manager/ Foreman for a dedicated time slot agreed 24 hours in advance. Any deliveries not pre-booked will not be accepted and instructed to return to their respective yard.
- Delivery drivers are to ensure that work and rest period requirements as set out by the National Heavy Vehicle Regulator and their fatigue management process are followed.
- Any special deliveries such as Stage 2 steel over bunkers will be wide loads and require special escort(s). Prior approval with TfNSW, Traffic Management Centre (TMC) and/or the National Heavy Vehicle Regulator will be sought and dedicated transport routes agreed.



- Community updates on any delivery changes from the agreed CTPMP will be communicated by the Lendlease Stakeholder Community Manager via a letter drop or email notification.
- Any complaints received by residents or other drivers must be forwarded to Lendlease to capture within the project complaints register. This includes implementing required actions and reporting as required to relevant authorities per the projects SD requirements. Drivers will hold Community Contact Cards for referring any community contact directly to Lendlease.

This code of conduct will be communicated to the delivery drivers via the subcontractors engaged for the works, and also provided to drivers as they enter the construction gate.

Monitoring of Driver Code of Conduct will be by the following:

- Positive or negative feedback received by the residents, and other key stakeholders.
- Analyses during subcontractor audits for EHS performance.



6. CONSTRUCTION WORKER TRANSPORTATION STRATEGY





6.1. Context and Purpose

The following Construction Worker Transport Strategy seeks to address Condition B19 of SSD 10389, as reproduced below:

B19: Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy to the satisfaction of the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be submitted to the Planning Secretary for information.

6.2. Aims and Strategies

The following Aims and Strategies will be implemented for the project.

6.2.1. Public and Active Transport

Aim

• Construction workers will be encouraged to use public and active transport to access the site.

Strategy

- Site induction to include limitations on parking on-site and in surrounding streets.
- Public transport connection information to be made available to workers as well as acknowledgement of the pedestrian connections between the site and Liverpool/ Warwick Farm Stations.
- Lead representatives from subcontractors to be asked to coordinate their respective worker travel arrangements (including shuttle/ car-pooling as appropriate, subject to Government health advice).

6.2.2. Parking on Public Roads

Aim

• Encourage workers not to park on local public roads.

Strategy

- Include in Site Induction restrictions on parking on local public roads and reinforce in toolbox talks.
- Treat as "CBD site" with no parking available in immediate vicinity of work.
- Advise suitable alternatives away from the site including Collimore Park car park that limit impact on surrounding residents and schools.
- Encourage car-pooling (subject to Government health advice) to reduce number of cars parking in the designated parking area on-site.
- Request that subcontractors with a significant number of workers implement shuttle bus and/or carpooling arrangements (subject to Government health advice).
- Encourage site staff and management to work remotely where practicable.
- Monitor surrounding streets periodically and issue warnings if workers found to be using on-street parking.



CONSTRUCTION WORKER TRANSPORTATION STRATEGY

6.2.3. Deliveries and Equipment storage

Aim

• Reduce the need for workers to access site with personal vehicles.

Strategy

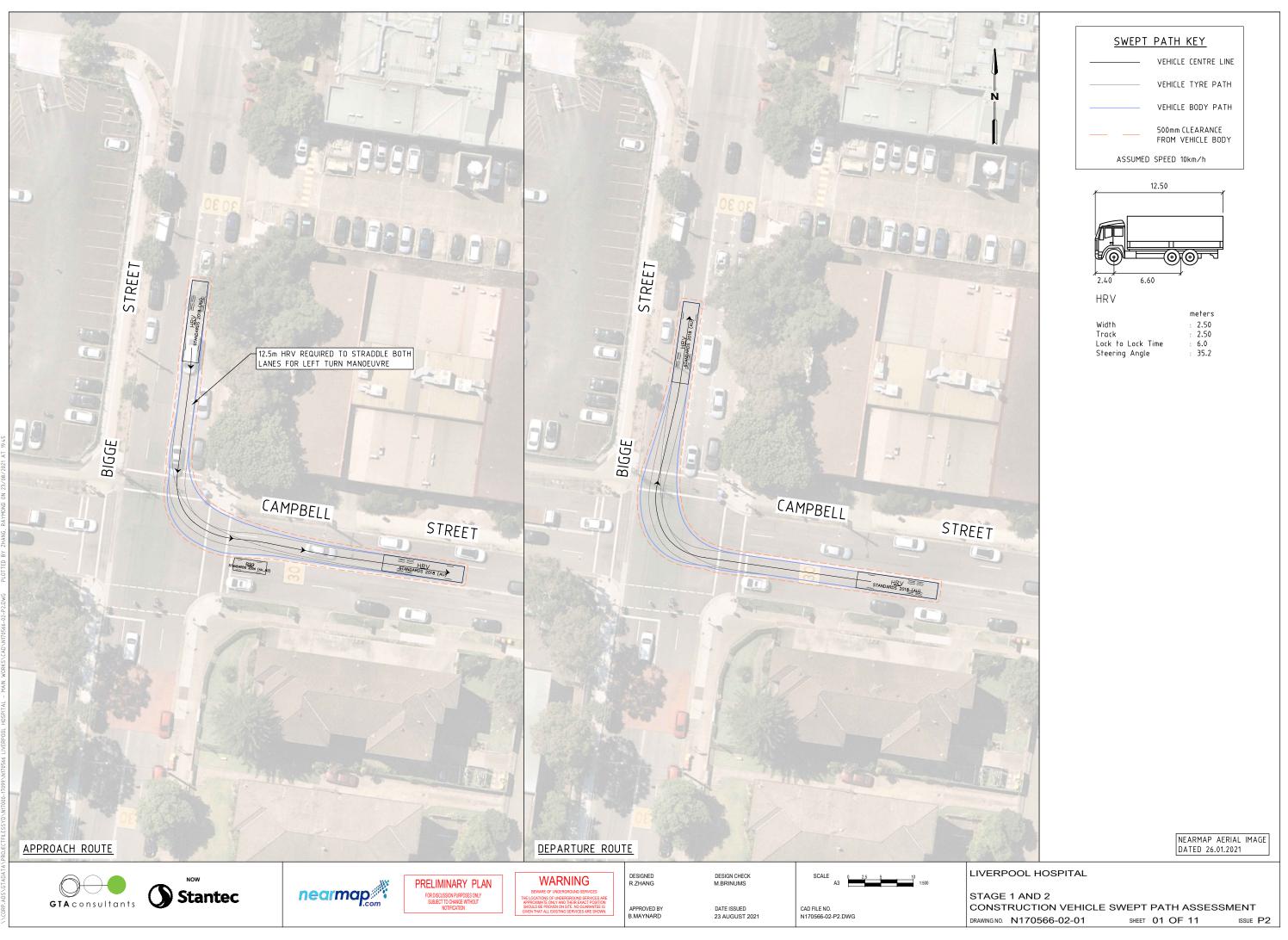
- Secure areas to be made available within site to allow storage of materials, tools and equipment, reducing vehicular activity to the site.
- Equipment and tools to be modularised in shipping containers where practical to reduce multiple small deliveries in personal vehicles.
- Where small deliveries are required, dedicated "drop-off" and "pick-up" zones within site to be identified to reduce on-site parking.



A.SWEPT PATH ASSESSMENT



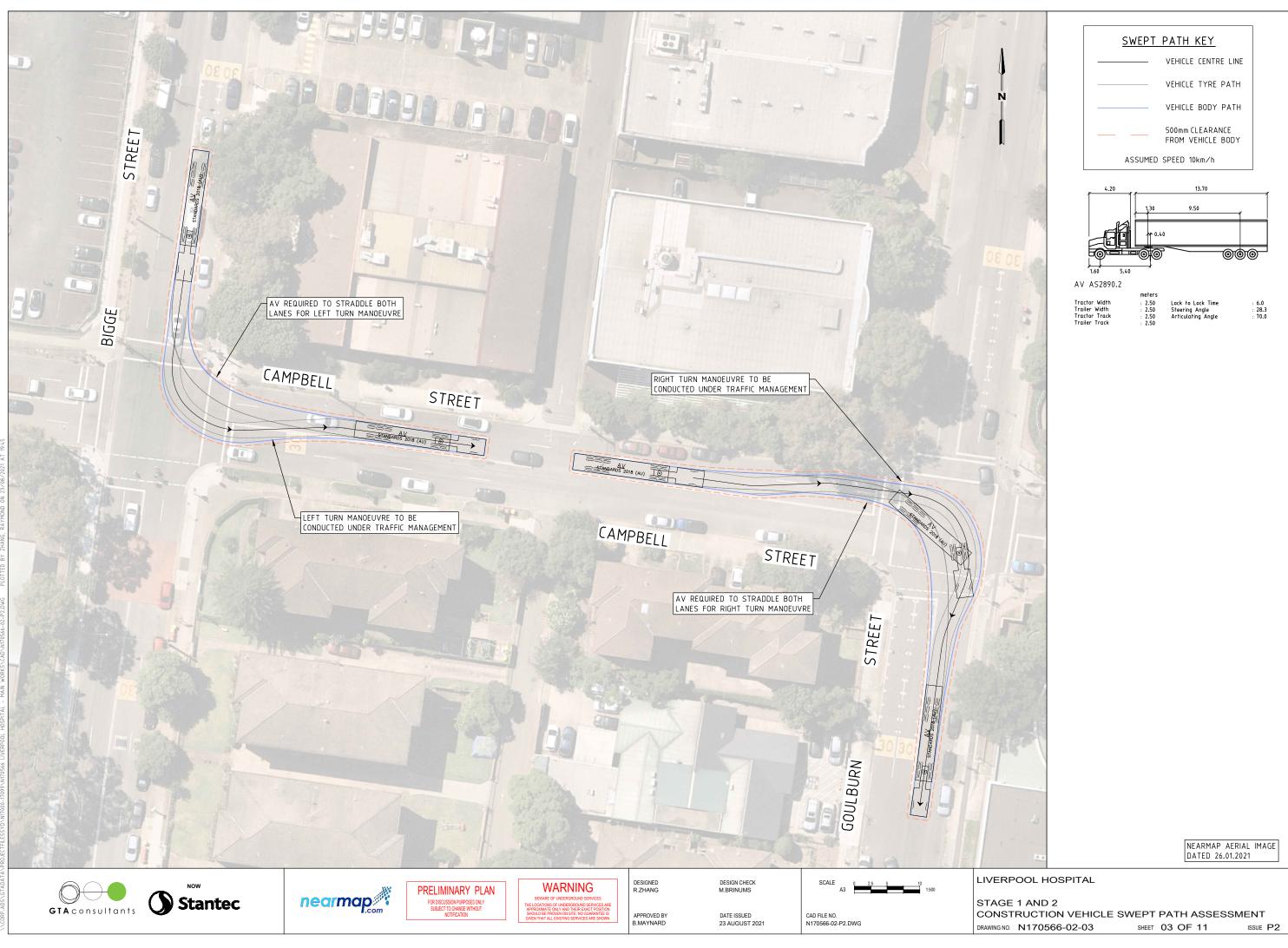




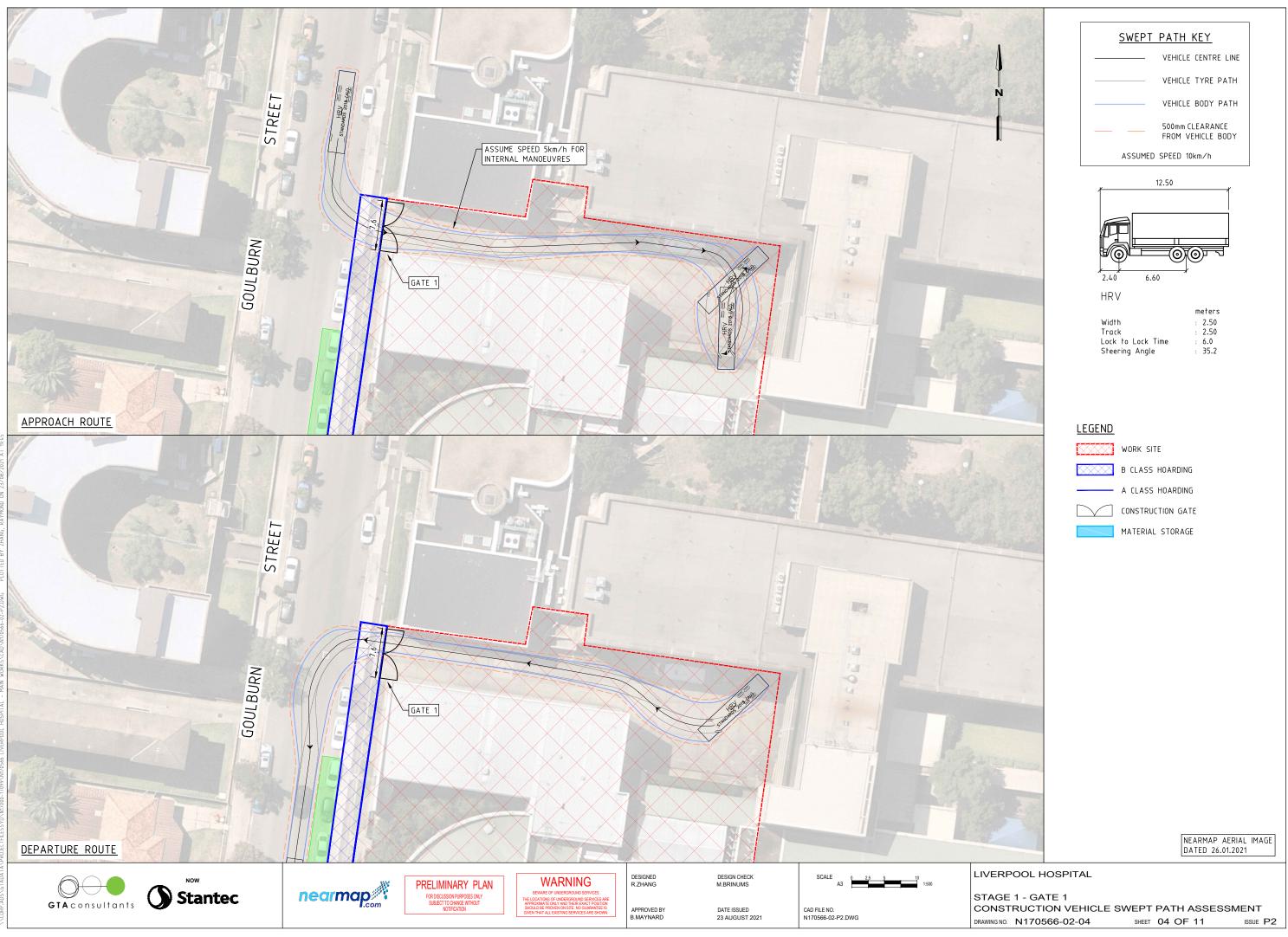
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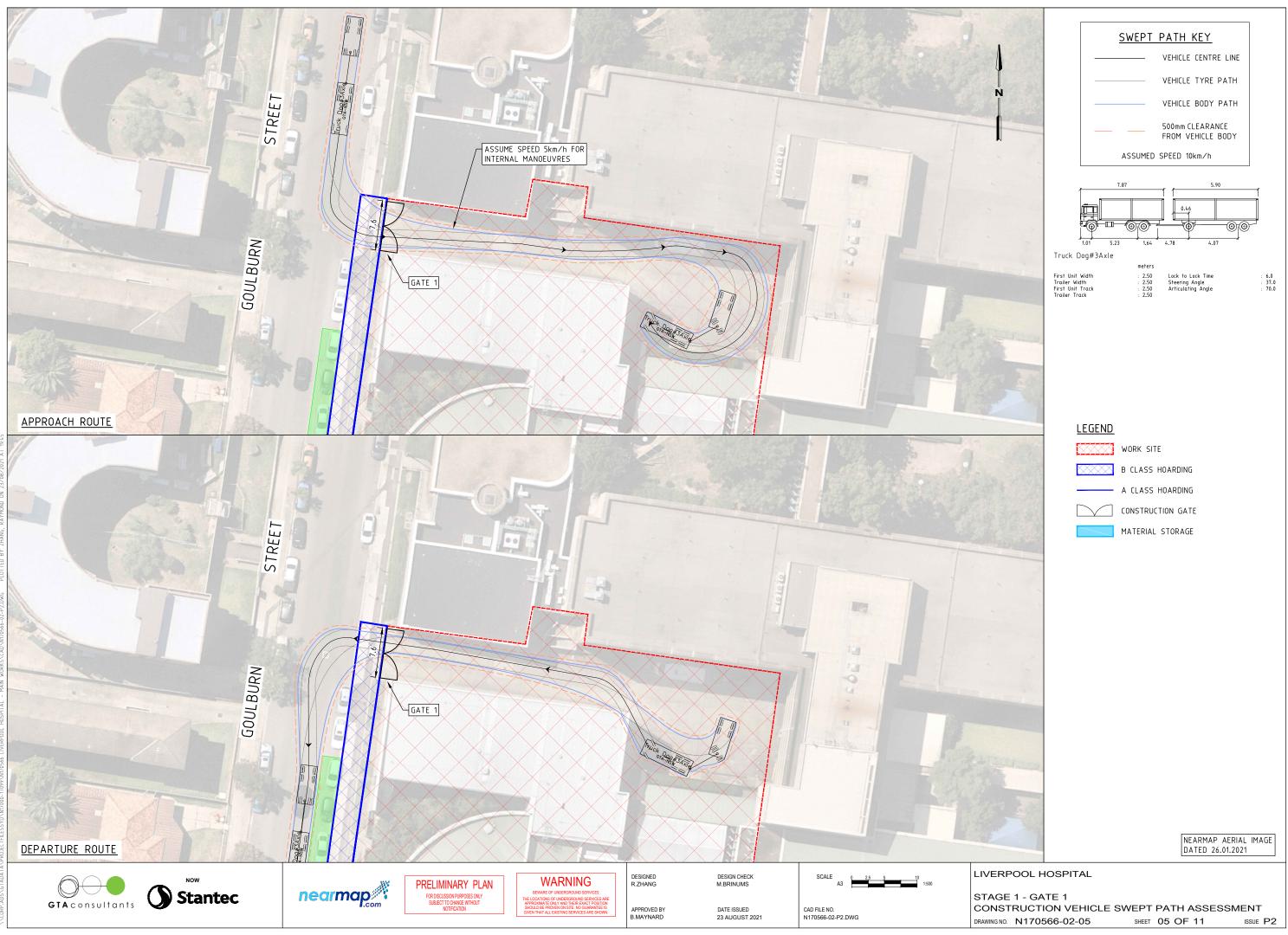


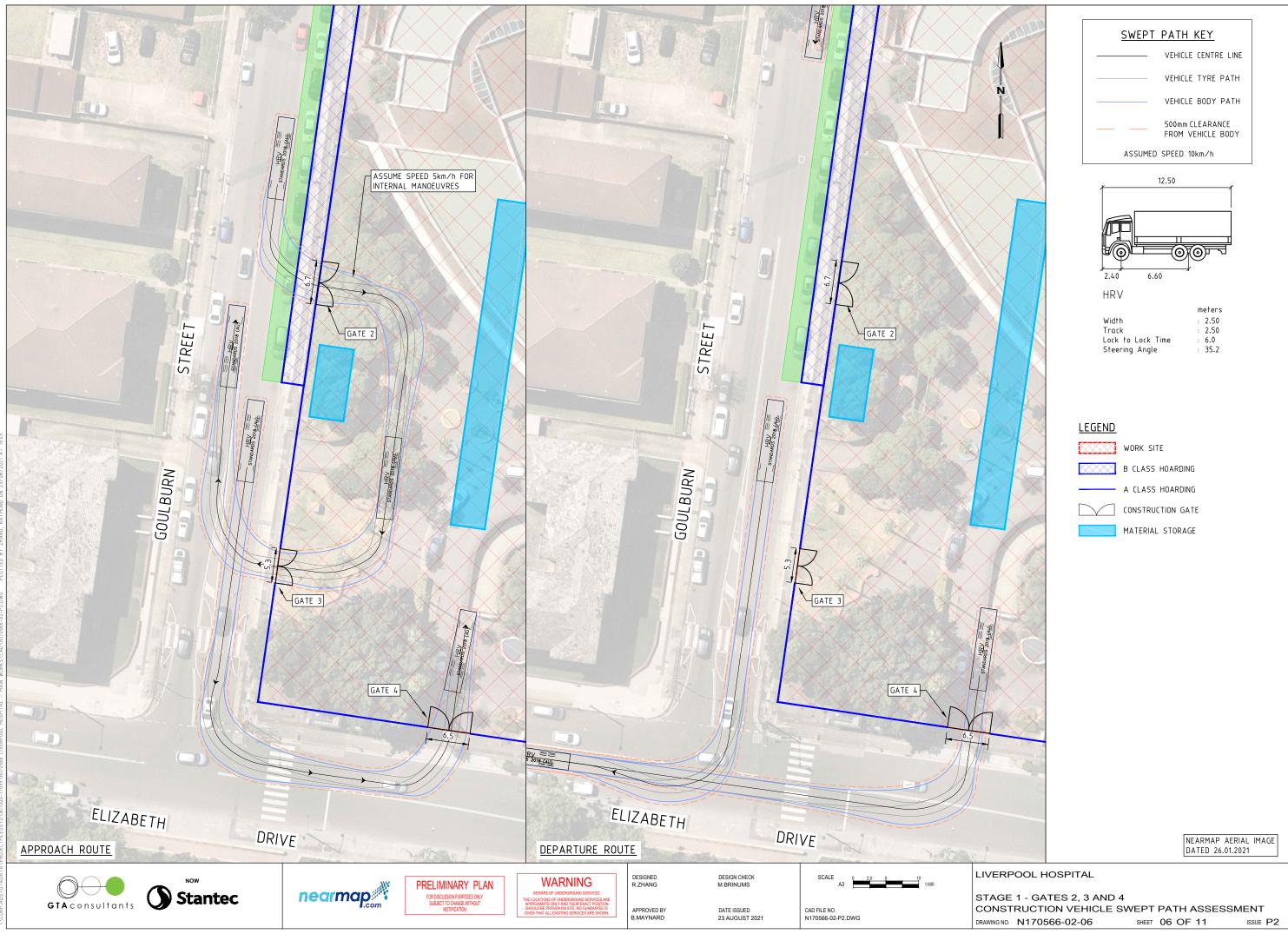
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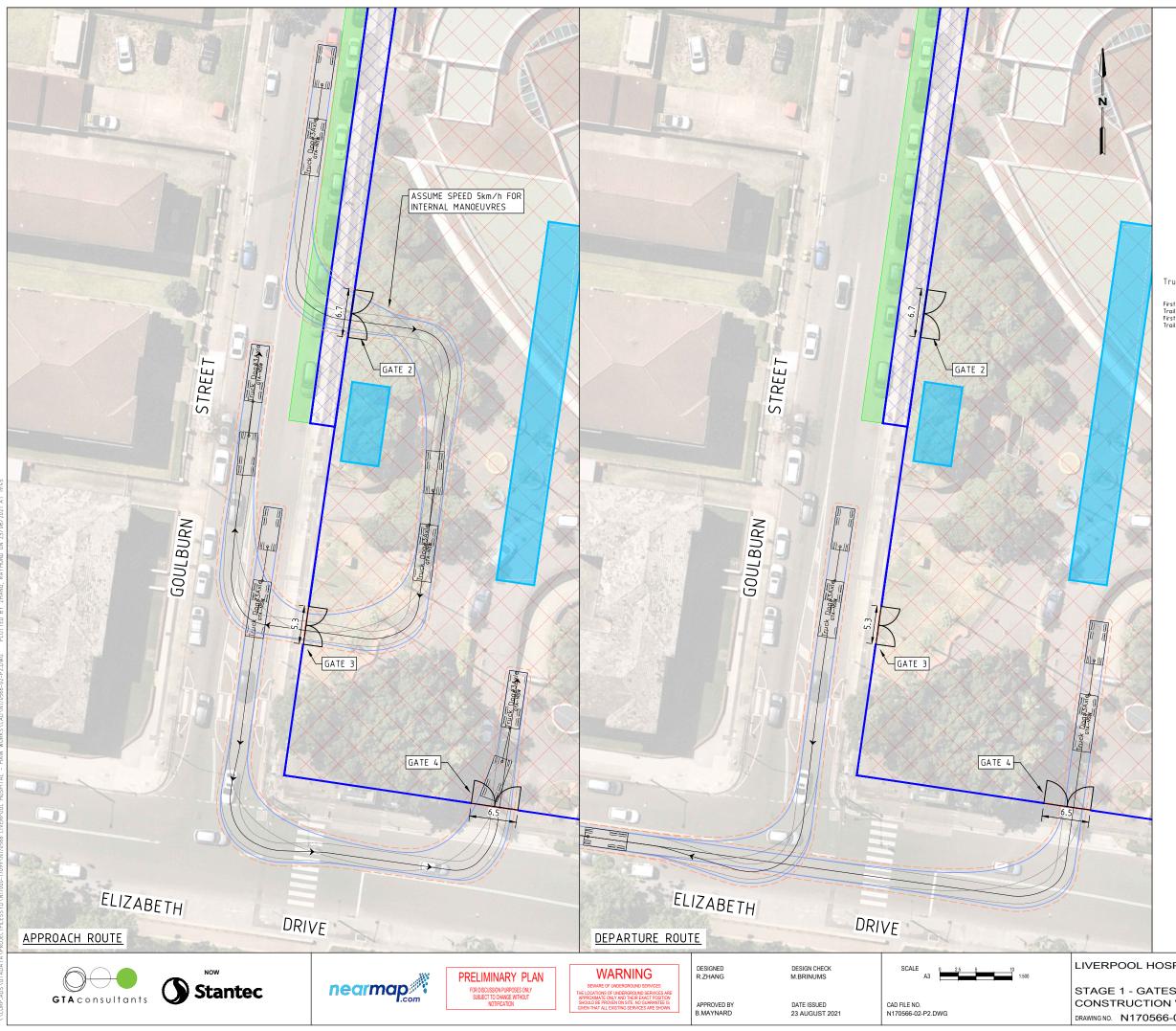
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STAGE 1	- GATES 2, 3 AND 4			
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	<u>SWEPT</u>	PATH KEY	
-		VEHICLE CENTRE LINE	
-		VEHICLE TYRE PATH	
-		VEHICLE BODY PATH	
-		500mm CLEARANCE FROM VEHICLE BODY	
	ASSUMED	SPEED 10km∕h	
	7.87	5.90 0.46 4.78 4.07	
Truck Dog# First Unit Width Trailer Width First Unit Track Trailer Track	3Axle meters : 2.50 : 2.50 : 2.50 : 2.50	Lock to Lock Time Steering Angle Articulating Angle	: 6.0 : 37.0 : 70.0

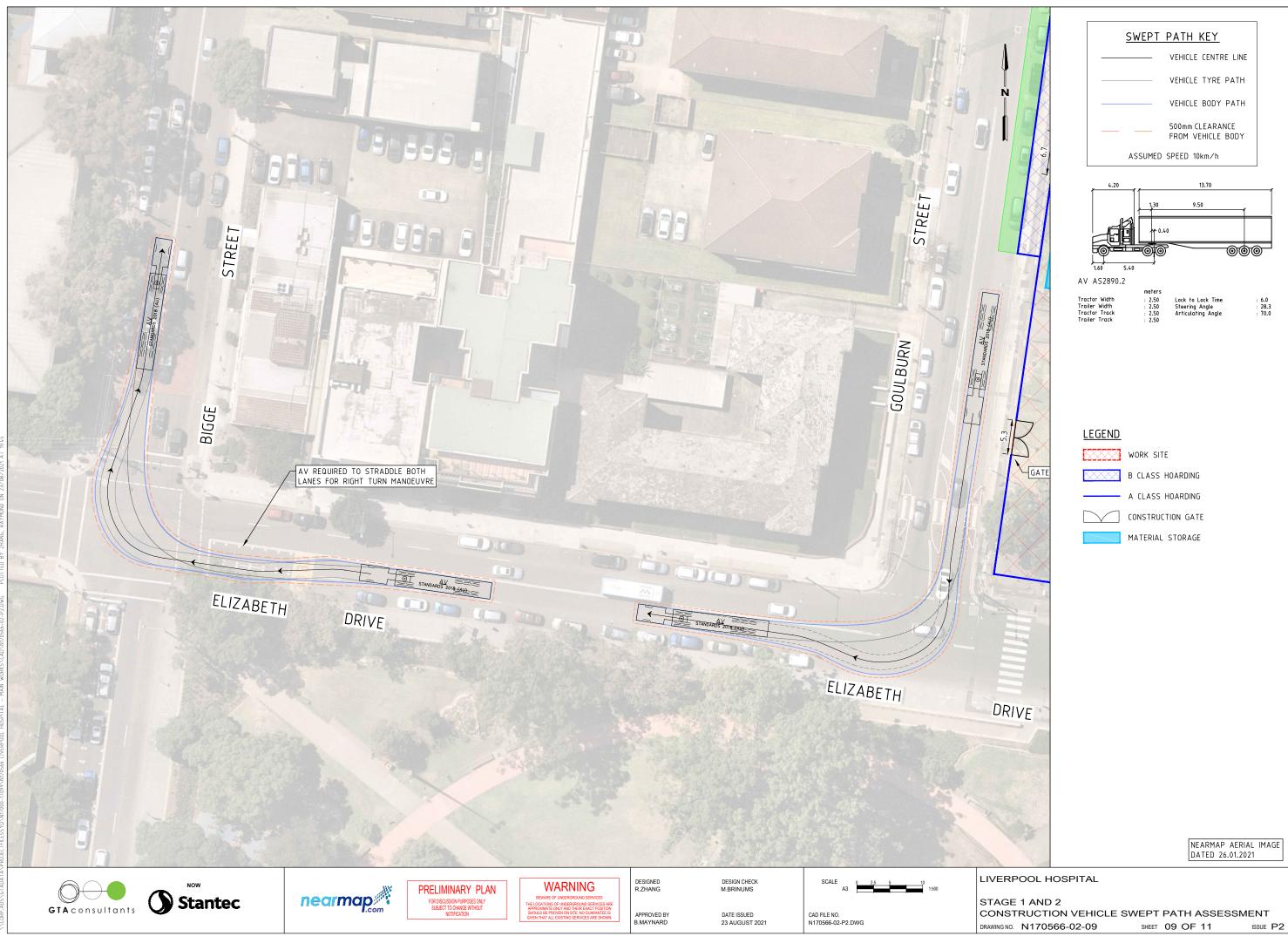
<u>LEGEND</u>	
	WORK SITE
	B CLASS HOARDING
	A CLASS HOARDING
	CONSTRUCTION GATE
	MATERIAL STORAGE

NEARMAP AERIAL IMAGE DATED 26.01.2021

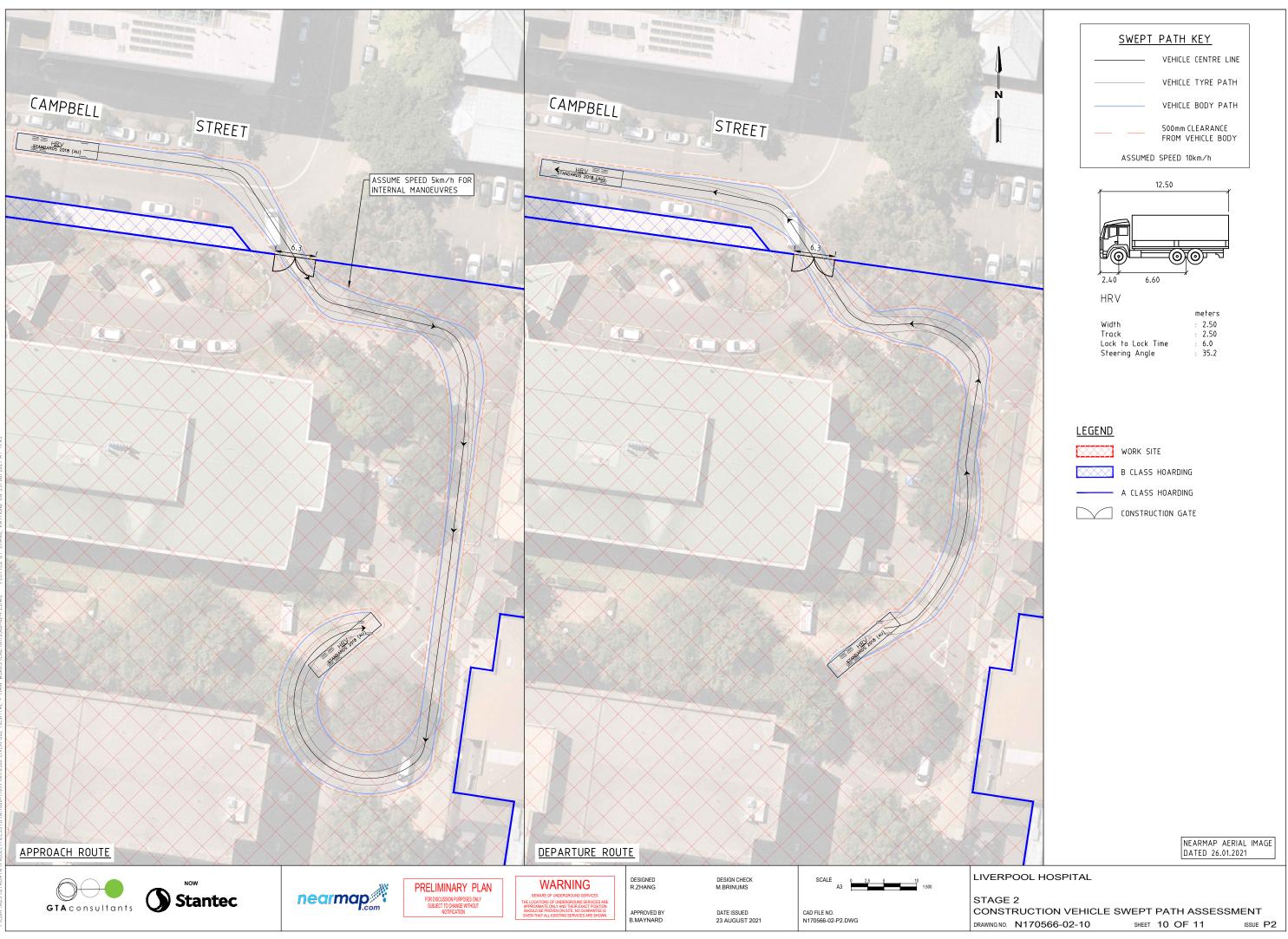
LIVERPOOL HOSPITAL

TAGE 1 - 0	GATES 2, 3 AND 4					
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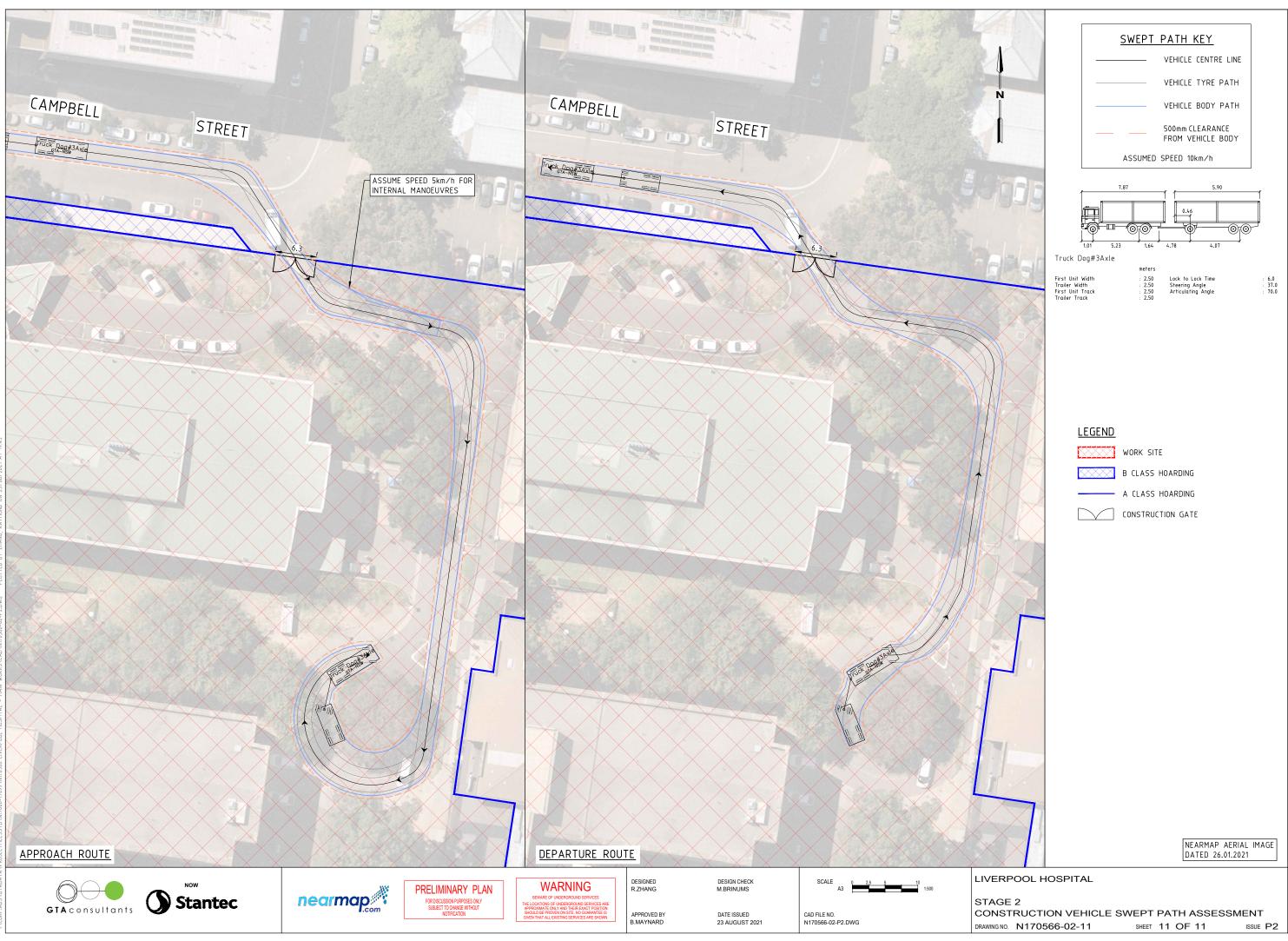




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CONSTRUCTION VEHIC	CLE SWEPT PATH ASSESS	MENT
STAGE 1 AND 2		



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CONST	RUCTION VEHICLE	SWEPT	PATH	ASSE	SSMENT
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B.TRAFFIC GUIDANCE SCHEMES





N170566 // 12/10/21 Construction Traffic and Pedestrian Management Plan // Issue: A Liverpool Hospital Redevelopment, Main Works

