Western Sydney University Bankstown

Construction Management Plan
Revision 4

EXECUTIVE SUMMARY

The Western Sydney University (WSU) Bankstown Campus development is to be constructed by Built for our client Walker Corporation. This Construction Management Plan (CMP) has been developed to document the proposed construction methodology and management systems to be adopted to complete the design and construction of the proposed development.

The CMP sets out the anticipated construction methods to be utilised providing details of the major items of plant and equipment proposed for use during construction. It details how delivery of the project will interface with key stakeholders inclusive of neighbours and the public around the site.

The CMP will serve as an active plan on how the construction works will be undertaken and outline the planning aspects of the works to be completed inclusive but not limited to the following items:

- Provision of the planned construction methodology
- Detail the site establishment planning for the project
- Detail the project logistics planning and provide explanation for decisions.
- Outline the sequence of the works
- Outline areas of public interaction and the associated management processes to be adopted, including traffic and pedestrian management

In addition, the CMP specifically addresses the requirements of the following Consent Conditions within the sections listed below:

B15 – Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary. The CEMP must include, but not be limited to, the following:

a) Details of:
   i. hours of work;
   ii. 24-hour contact details of site manager;
   iii. management of dust and odour to protect the amenity of the neighbourhood;
   iv. stormwater control and discharge;
   v. measures to ensure that sediment and other materials are not tracked onto the
   vi. roadway by vehicles leaving the site;
   vii. external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting; and
   viii. community consultation and complaints handling;

b) an unexpected finds protocol for contamination, asbestos or other unexpected finds and associated communications procedure; and

c) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure.

B17 - Construction Traffic & Pedestrian Management Plan – Appendix 1

B24 - Construction Parking - Appendix 1

B25 - Construction Worker Transportation Strategy - Appendix 1

DOCUMENT REVIEW AND AUTHORISATION

This CMP has been reviewed and authorised for issue by the Project Manager.

Future documentation and changes to previously issued documents shall also be approved by the Project Manager.

Revision Details		Approval	
Revision:	Rev 2	Position: Project Manager	
		Name: Shane Tozer	
Date Issued:	March 2021	Signature:	

Controlled Copy Details	
Rev 1 – Ongoing development incorporating internal review process	

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1. PROJECT DESCRIPTION

The Western Sydney University (WSU) Bankstown City Campus (BCC) project is an 18-storey mixed use tertiary education facility and a key component of the University of Western Sydney's 'Western Growth Program' which presents an opportunity to contribute to the regeneration and activation of the Bankstown Central Business District, creating an iconic landmark for Bankstown.

The BCC will expand upon the public services and facilities in Bankstown's Civic Precinct, providing a new educational facility and enhanced public domain to complement the existing cultural and civic facilities of the Knowledge Hub, Bryan Brown Theatre, Council administrative facilities and public open space.

The WSU Bankstown City Campus comprises of the following fundamental elements:

- Two (2) levels of basement car park including bicycle storage, a loading dock, back-of-house storage, end-of-trip facilities, Building management office and all associated plant rooms.
- Ground floor retail areas, lobby with multi-purpose tiered space and showcase areas.
- Levels 1 through to 18: Educational facilities including
    - 'Specialist Services' and 'Student Services' areas
    - 'Student Hub
    - Library
    - 'Workplace', 'High Degree Research' and 'Shared Learning' spaces
    - Conference facilities; an
    - University and education spaces
    - Note: Base build works that form part of the Subcontract are limited to services capped at the core
- Roof: Building Services Pathway including PV Solar Panels
- DA Working Hours Monday – Friday 7am – 6pm, Saturday 8am – 5pm

Note: Bulk Excavation done by others engaged by the client directly. BUILT will take possession of the excavation at handover.

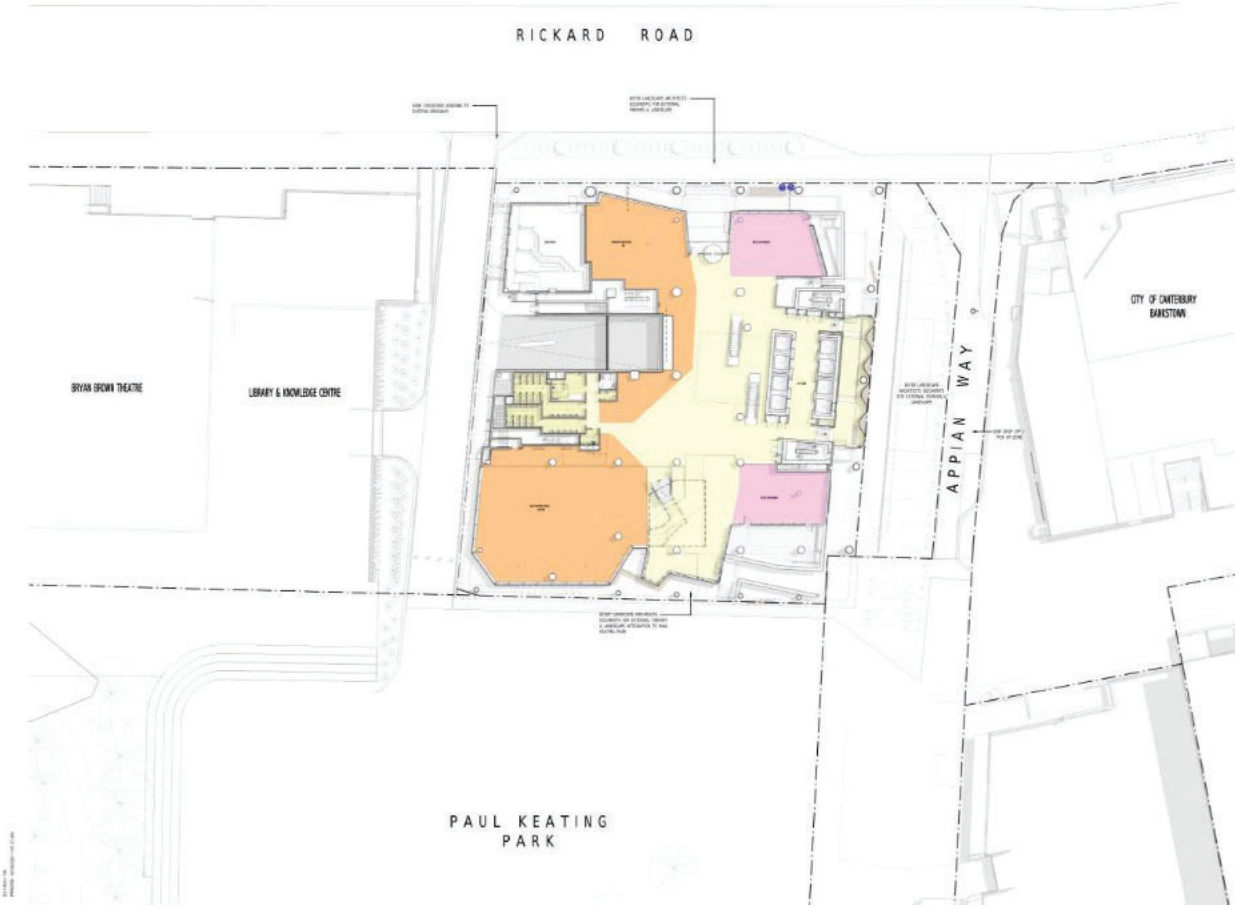


Figure 1-1: Site location plan

2. PRE-CONSTRUCTION ACTIVITIES & ENABLING WORKS

2.1 Dilapidation Survey

Built are in receipt of the dilapidation survey report completed by Mainland Civil as part of the early works and bulk excavation scope. This document covers not only areas adjacent the site but a detailed video road survey to capture haulage routes determined as part of the bulk excavation scope. Built will separately complete a site dilapidation survey prior to commencing the main works coinciding with the completion of the early works.

The survey will be completed by an independent 3rd party entity and will be used to satisfy DA conditions B7 & B8.

2.2 Construction Traffic & Pedestrian Management Plan

Built have engaged the services of ARUP to complete a comprehensive Construction, Pedestrian and Traffic Management Plan for the delivery of the WSU Bankstown Campus and specifically to address each of the requirements of Consent Condition B17 (Parts a to e),,B24.& B25

Each of these conditions is referenced in its entirety in the attached CTPMP. (Appendix A)

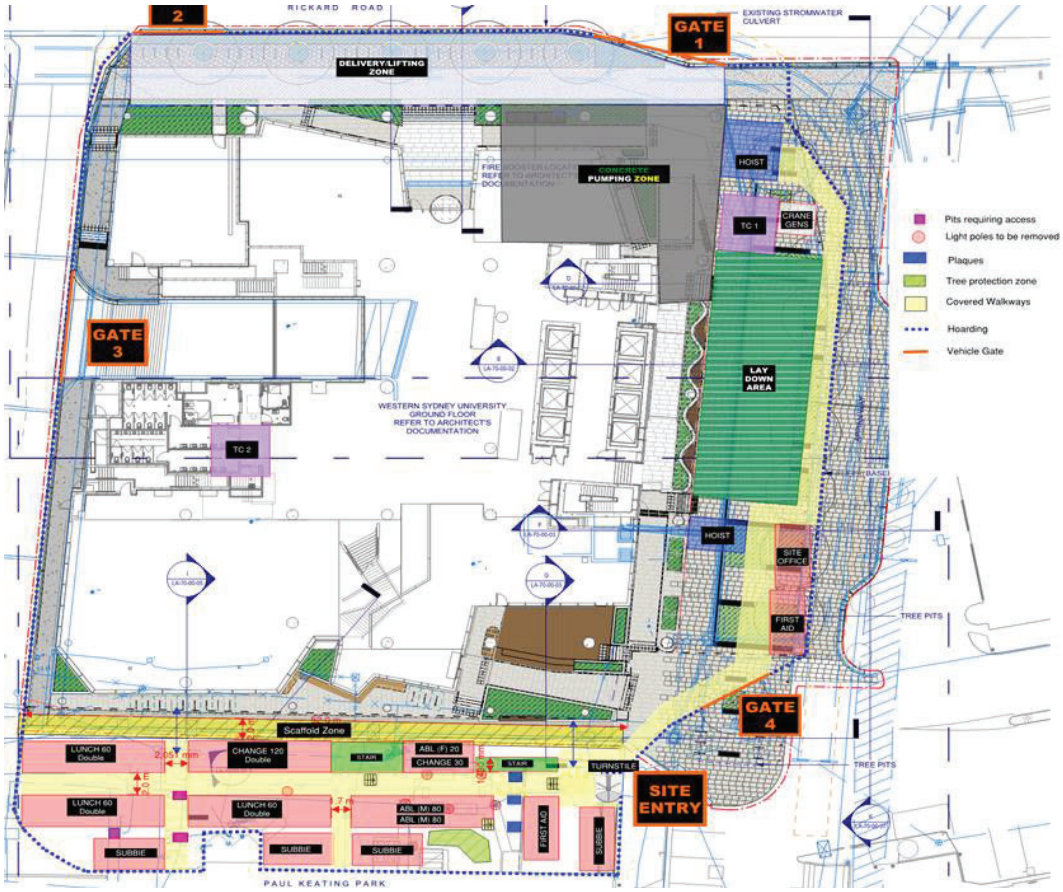
ARUP were previously engaged directly by the client in the preparation of the preliminary CMP. The history & relationships already formed between Council & Arup will be important in executing this element of the planning.

To date, Walkers have involved the City of Canterbury-Bankstown (Council) with traffic and pedestrian management proposals that have been submitted as part of the DA submission. Built will not require a primary construction zone as part of the works and has indicated this to council during our first consultation meeting in December 2020. The use of the nature strip between Rickard Rd & the basement excavation instead will be utilised as a temporary hall road for delivery vehicles.

3. MOBILISATION AND SITE ESTABLISHMENT

3.1 Overview

Upon site possession Built are handed over the site at bulk excavation level by Mainland on behalf of Walker. Built will proceed the installation of the temporary site accommodation on the south of the WSU – BCC project site as seen in the below. The temporary accommodation is to remain in place until Level 4 FRP of the structure is complete and the accommodation relocated into a purpose-Built area on Level B1 of the construction site.



Existing A - class hoarding which has been installed by the early works contractor, note that there will be minor modifications to suit the projects requirement which will be coordinated with required authorities. The current A - class hoardings will remain in place with a minor modifications to the southern boundary upon site possession by Built. As well as B – class hoardings to be installed along the Rickard Road northern face footpath and over BLaKC Laneway.

Access for the site accommodation will be through the south east turnstile adjacent Appian Way and Paul Keating Park. The pedestrian path up to the site accommodation will have chain and mesh fencing as a means of protection and delineation from site and site accommodation.

Built will pour a portion of ground floor permanent structure earlier to use as a concrete pumping zone for the remainder of the project. As well as utilizing this area for unloading materials and materials handling when not pouring concrete. The concrete pumping zone will be constructed to a loading of 20kPA.

Built are proposing to alter the kerb along Appian Way as shown in figure 3-1 to maintain easier access between the proposed hoarding to the adjoining neighbours.

3.2 Hoardings & Fencing

There is site perimeter solid A Class hoarding currently located to the north, east and western perimeters of the WSU BCC Project (See Figure 3.1). As noted above in Section 3.1 upon site possession the southern boundary hoarding will be modified to suit the project site amenities, as well as B-Class hoarding along the Rickard Road northern face footpath and over BLaKC Laneway to b installed.

The B-Class along Rickard road and BLaKC laneway will be of 10kpa rated as overhead protection, to maintain access for pedestrians and vehicles which share the sites boundaries. `

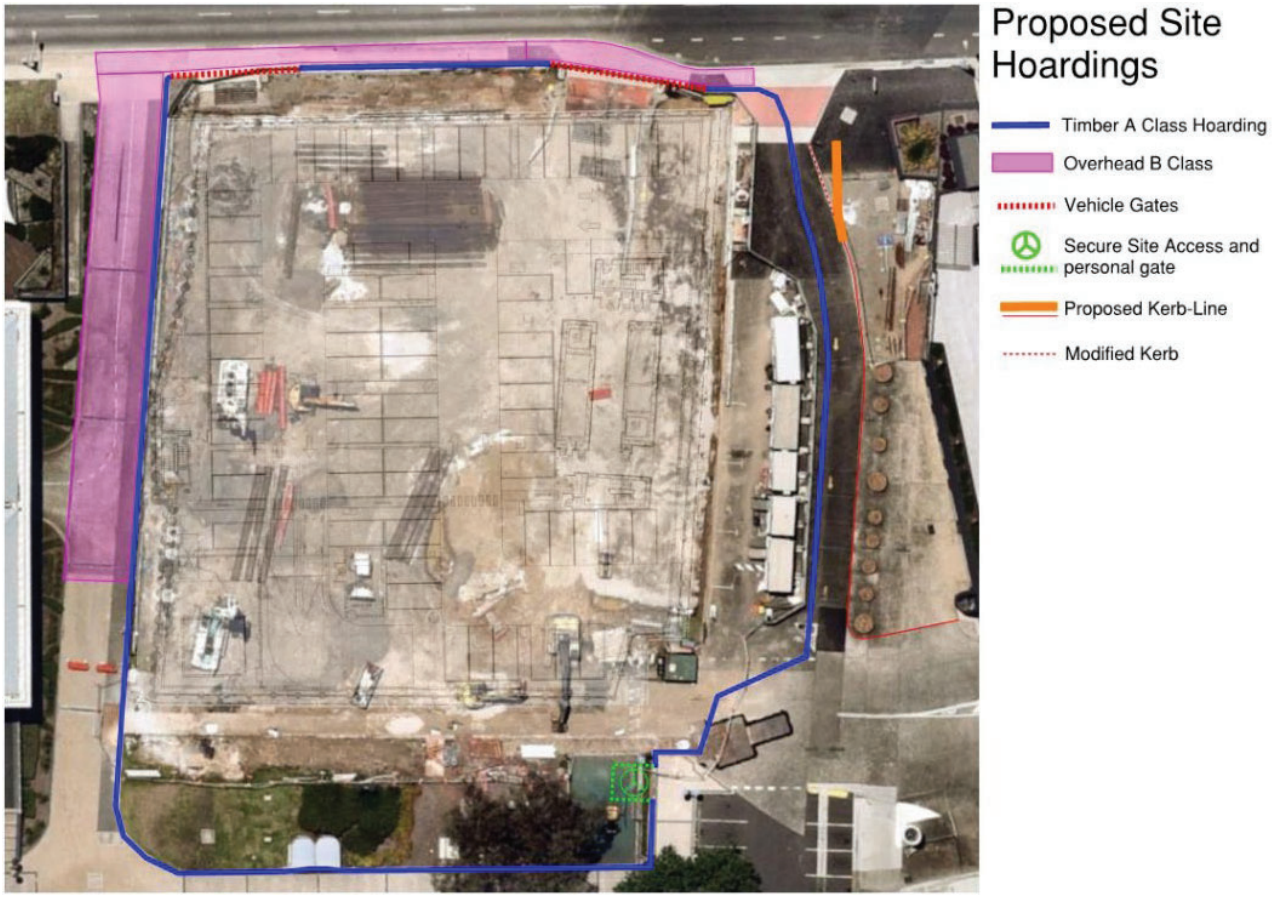


Figure 3-1: Hoarding Plan

All works relating to the above mentioned hoarding plans will be coordinated in consultation with Canterbury Bankstown Council as required.

3.3 Temporary Services

Power

Currently there is no power provided to the site. The project will be supplied from temporary generators in the initial phases. The existing kiosk substation located across Rickard Road will be utilised to provide (limited) temporary power to the WSU – BCC project. This dedicated feed for WSU – BCC will have a circuit breaker fitted into the switchboard to allow 400A. Upon commissioning of the substation temporary power will transition to permanent power and site temporary power will be run from the substation.

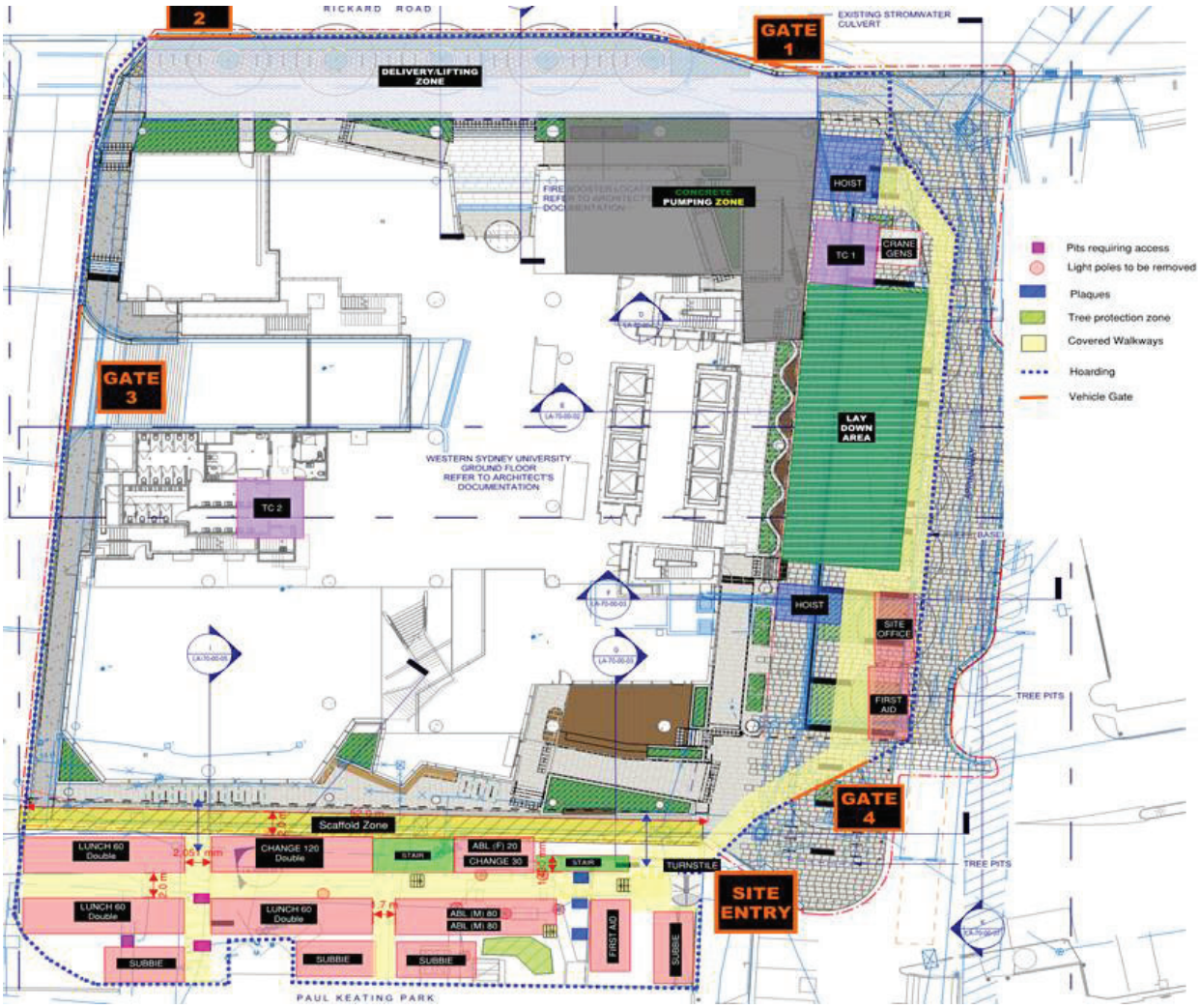
Water

The existing temporary 50 dia water supply is fed from Rickard Road. The permanent 150 dia water supply is being installed through Rickard Road and will provide the water mains connection into the site as well as connection for fire protection services.

Sewer main running east west adjacent Paul Keating Park has been installed and will be utilized during the construction process. As the project is constructed, these connections will be utilised to cater for additional amenities as required by the construction workers along the southern face and then into the basement.

3.4 Site Accommodation

Site accommodation will initially be located on the southern end of site adjacent Paul Keating Park. This initial set up will be single height portable sheds to facilitate 150 workers (both male and female). Elevated pathways will be constructed between all sheds, with over head roof to ensure access from the site entry and between sheds is weather protected. The roofing will be extended from the site accommodation area to the nearby hoist to maintain weather protected pedestrian access.



The site accommodation will be relocated into the Basement structure at the completion of stripping of underside of Basement levels. The initial Basement installation will be capable of housing an estimated 200 workers with planning in place to increase the number of operatives housed subject to the awarding of integrated fitout.

It will be required that all site accommodation is constructed to all statutory code requirements and the current design / proposal attached is designed as such refer figure 3-3 for basement layout/design.

The Built project site office will be located at 41-45 Rickard Road, Bankstown. The office space will be fit out to include workstation style office space, fully serviceable kitchen, meeting rooms, reception areas and team building spaces. This will be the location of site inductions and visitor attendance sign in.

3.5 Site Cranage

Built has carefully analysed the craneage requirements for the project. We have worked closely with our internal materials handling specialists and engaged with three major crane companies to optimise and select the most appropriate cranes and their locations for the project. Specifically, to the site in Bankstown being located in close proximity to Bankstown Airport and having restricted airspace requirements. The building is intended to be constructed using 2 cranes. These cranes are summarised below: The craneage for the project is split into several stages, this staging methodology is detailed below and depicted on the attached staging plans.

Option 1

Table 3-5: Built Crane Summary

Crane No	Proposed Model	Approx Radius (m)	Start date	Last lift	Duration	Max Height of Tower (m)
TC1	370 EC-B 12	50	29/03/2021	28/07/2022	60wk	136
TC2	172EC-B 8 Litronic	40	08/09/2021	11/05/2022	26wk	125

See below elevation showing all cranes at their maximum height.

The craneage for the project is split into several stages, this staging methodology is detailed below and depicted on the attached staging plans.

3.5.1 Tower Crane Staging

The craneage for the project is split into several stages, this staging methodology is detailed below and depicted on the attached staging plans.

Stage 1

Initially TC 1 will erected to RL 69400 at a free standing height of 70m to the top of the crane, it will be positioned external to the buildings boundary on the eastern face between grids 2 & 3. TC 1 will be erected with the use of a mobile crane set up on Rickard Road or within site TBC (refer mark ups below). TC1 will be supported by a crane base further reinforced by concrete piles below.

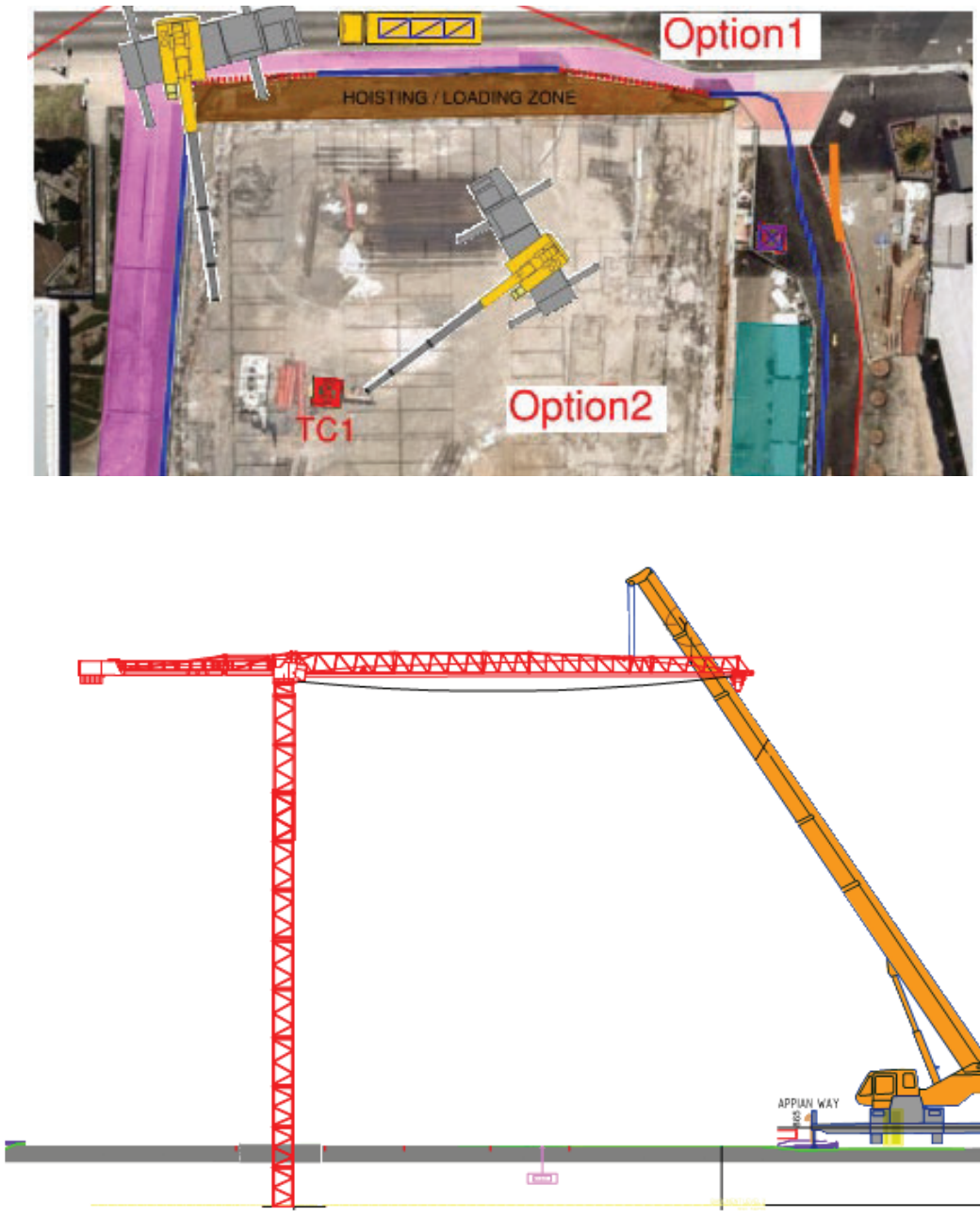


Figure 3-7: Stage 1 – Crane set up plan and elevation

Stage 2

TC2 will be erected using TC1 and will free stand at RL67700 at a height of 68m to the top of the crane, it will be positioned within the building on the western side along grids B & D below Grid 5. TC2 will be supported by a crane base within the ground works further reinforced by ground anchors or gravity pad.

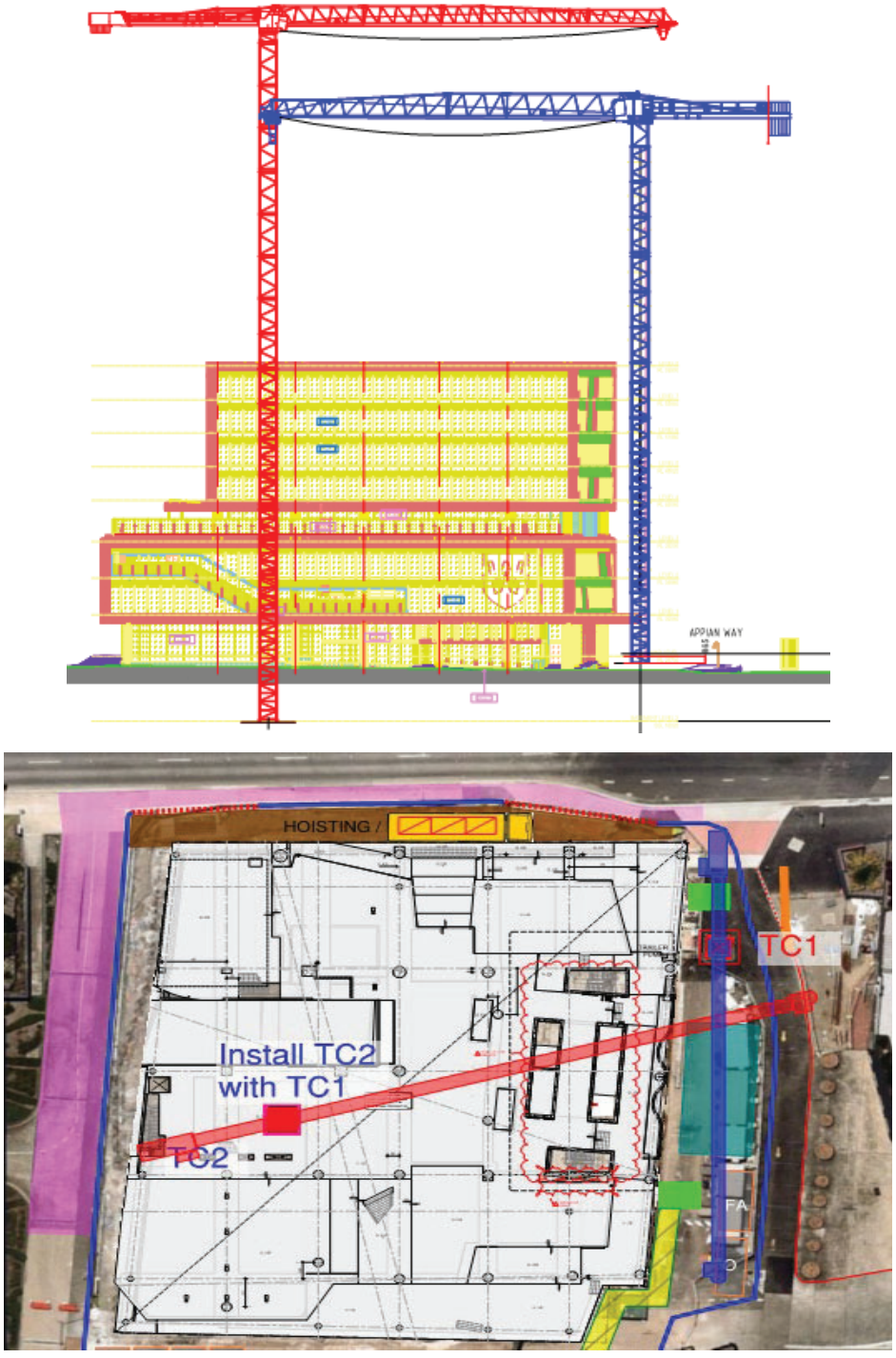


Figure 3-8: Stage 2 – TC2 Crane installation

Stage 3

These 2 hammerhead tower cranes will climb once through the tower construction, for offloading materials for the main concrete structure, steel structures, façade and finishes.

During TC1 stage 3 it will remain at a height of 136m at RL135.391, the crane will be assisted by a single crane tie. TC2 at its final stage will remain at a height of 125m at RL124.306 also assisted by a single crane tie.

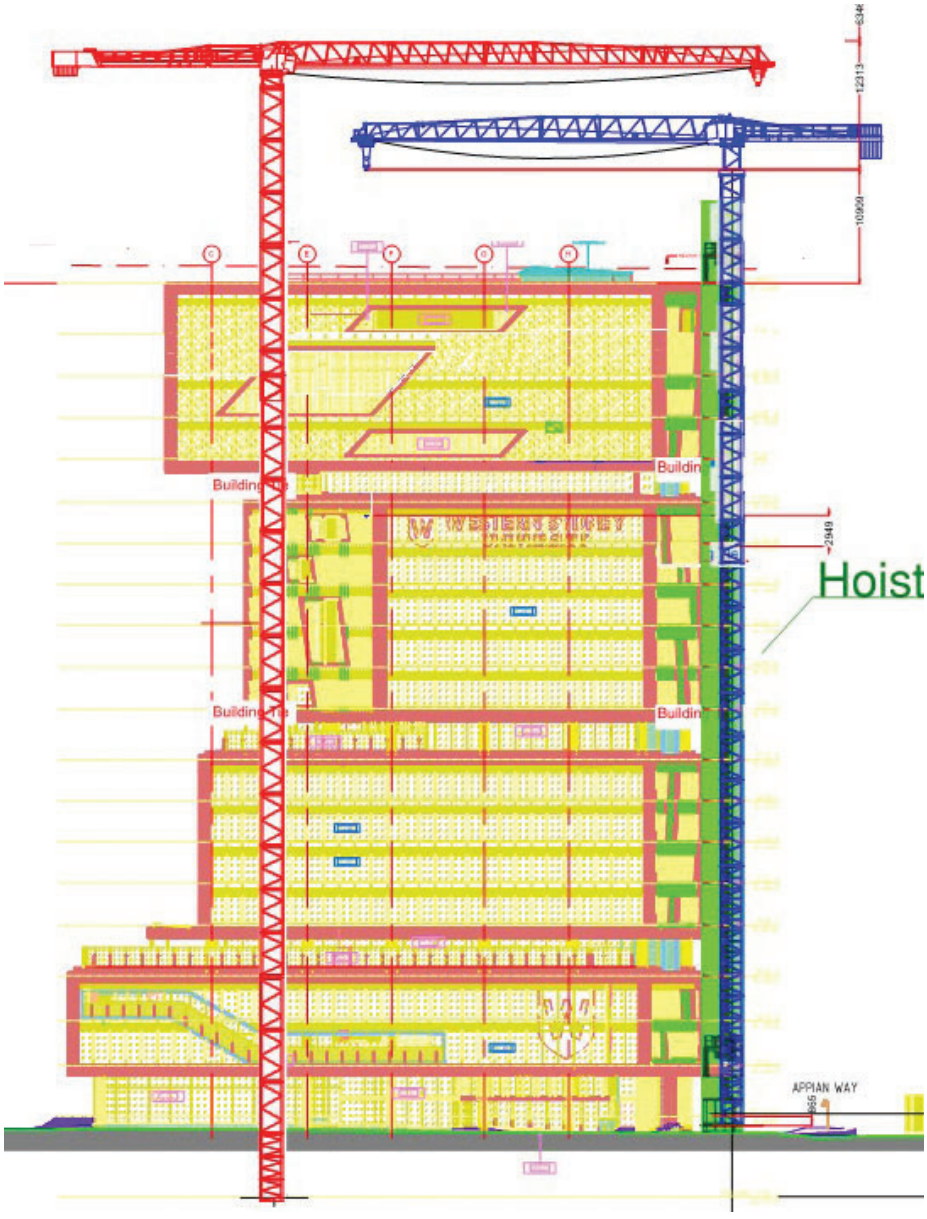


Figure 3-9: Stage 3 – TC1 & TC2 Climb to final position

Stage 4

TC1 and TC2 will continue to feed the tower structure and load the floor plates with façade, services and finishes. When the tower core tops out, either crane will assist in the jumpform dismantle. Upon jumpform dismantle completion TC1 will assist in the dismantle and removal of TC2 once TC2 climbs itself down to its initial stage 1 height.

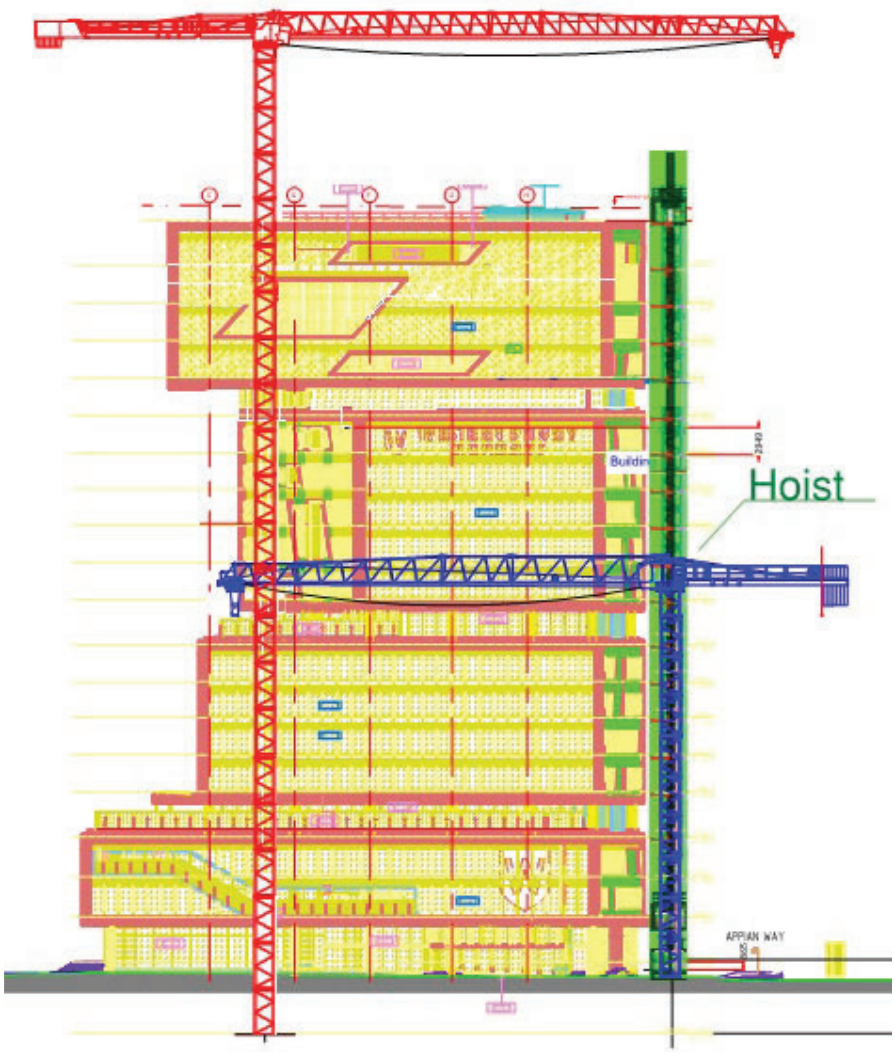


Figure 3-9: Stage 4 – Jumpform and TC2 Dismantle and removal

Stage 5

When the floor plates have been sufficiently loaded with services and finishes and the roof construction is complete, the external TC1 crane climbs down to its stage 1 height of 70m, where it is dismantled with a mobile crane from the material handling zone OR Rickard Road.

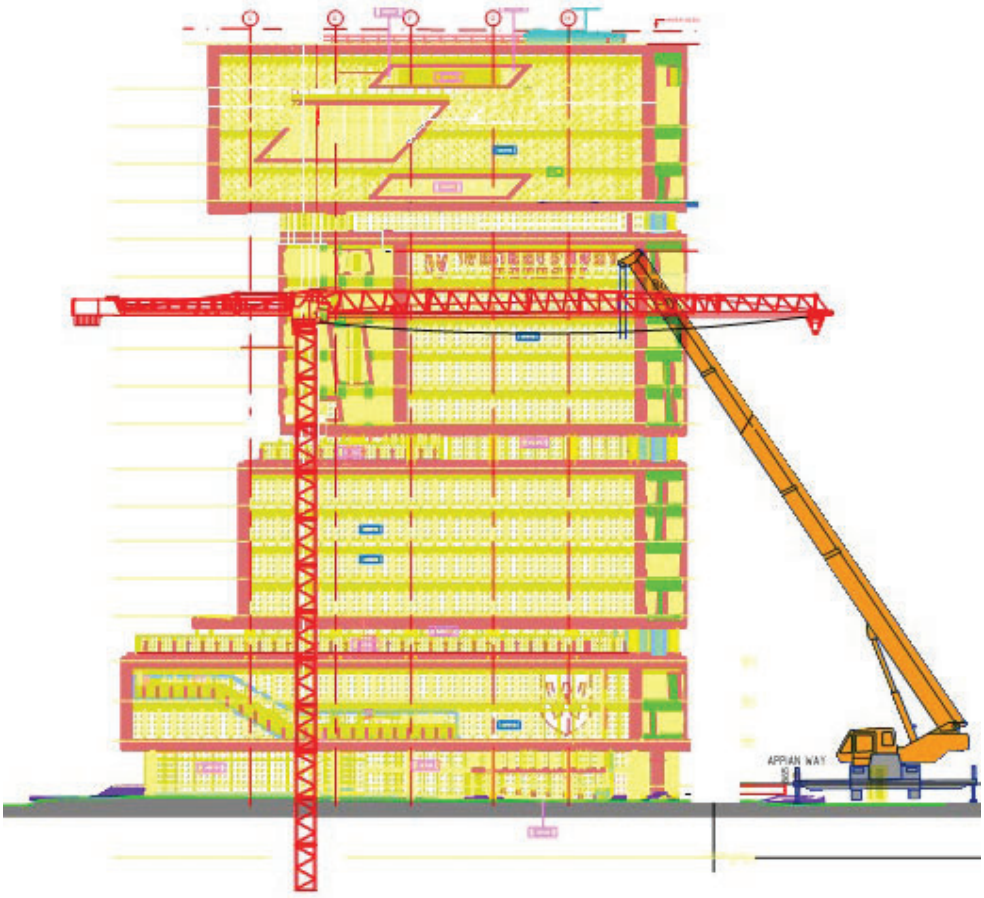
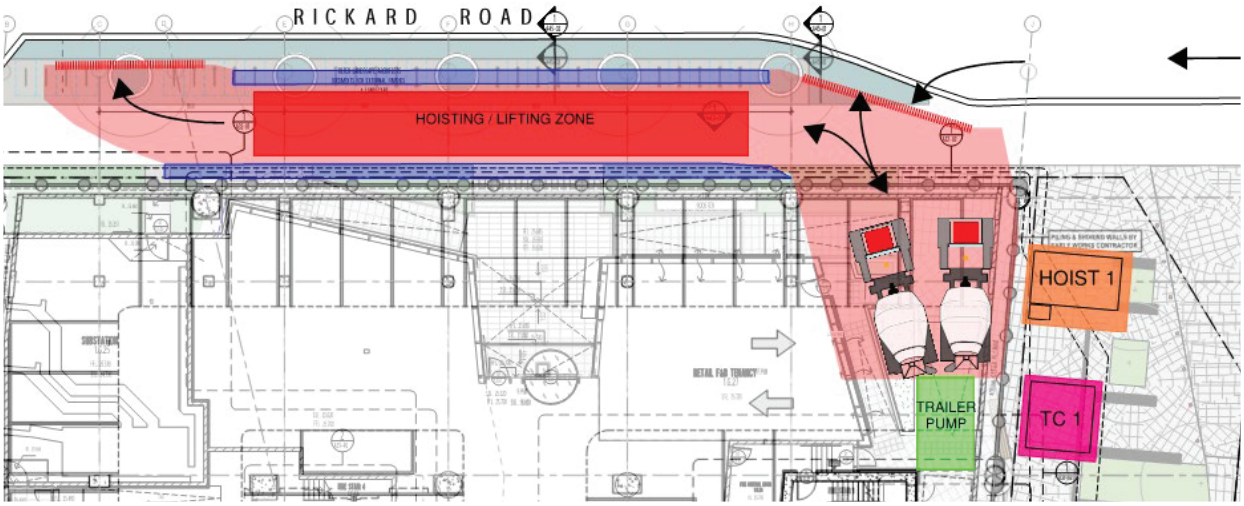


Figure 3-10: Stage 5 – TC1 Dismantle

3.6 Work Zones

Due to Rickard Road being an RMS/semi arterial road the opportunity to operate a full-time work zone is not permissible. The alternate solution is to have an internal work zone set up within the northern frontage (on future nature strip) of the project within the A class Hoarding adjacent Rickard Road. Built will utilize this area for structure, façade and finishes deliveries for all trades.

The work zone will also facilitate in the construction process in providing access for concrete trucks to drive in and out of site for concrete pours.



3.7 Scaffolding / Slab Edge Protection

Built has reviewed numerous options to provide suitable edge protection for the project. Based upon the projects staggered design and use of cantilevers, the projects requirements have been determined to include a combination of scaffolding, slab edge fencing/mesh and perimeter screens will be required to adequately meet the project's needs. Key considerations in determining the best solution include;

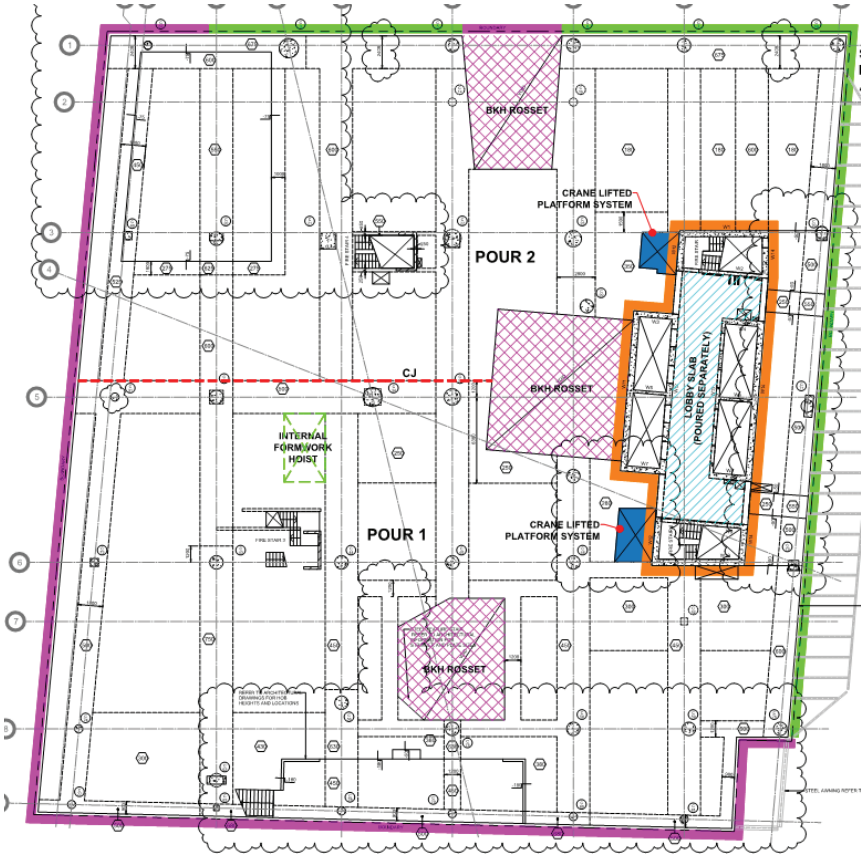
- Fully enclosed adjacent perimeter to stop thrown objects.
- Fall protection for workers during the structure and façade works. This is a typical safety management coordination requirement for high-rise projects.
- Provision of access, egress and installation space.
- Time and cost efficiencies.

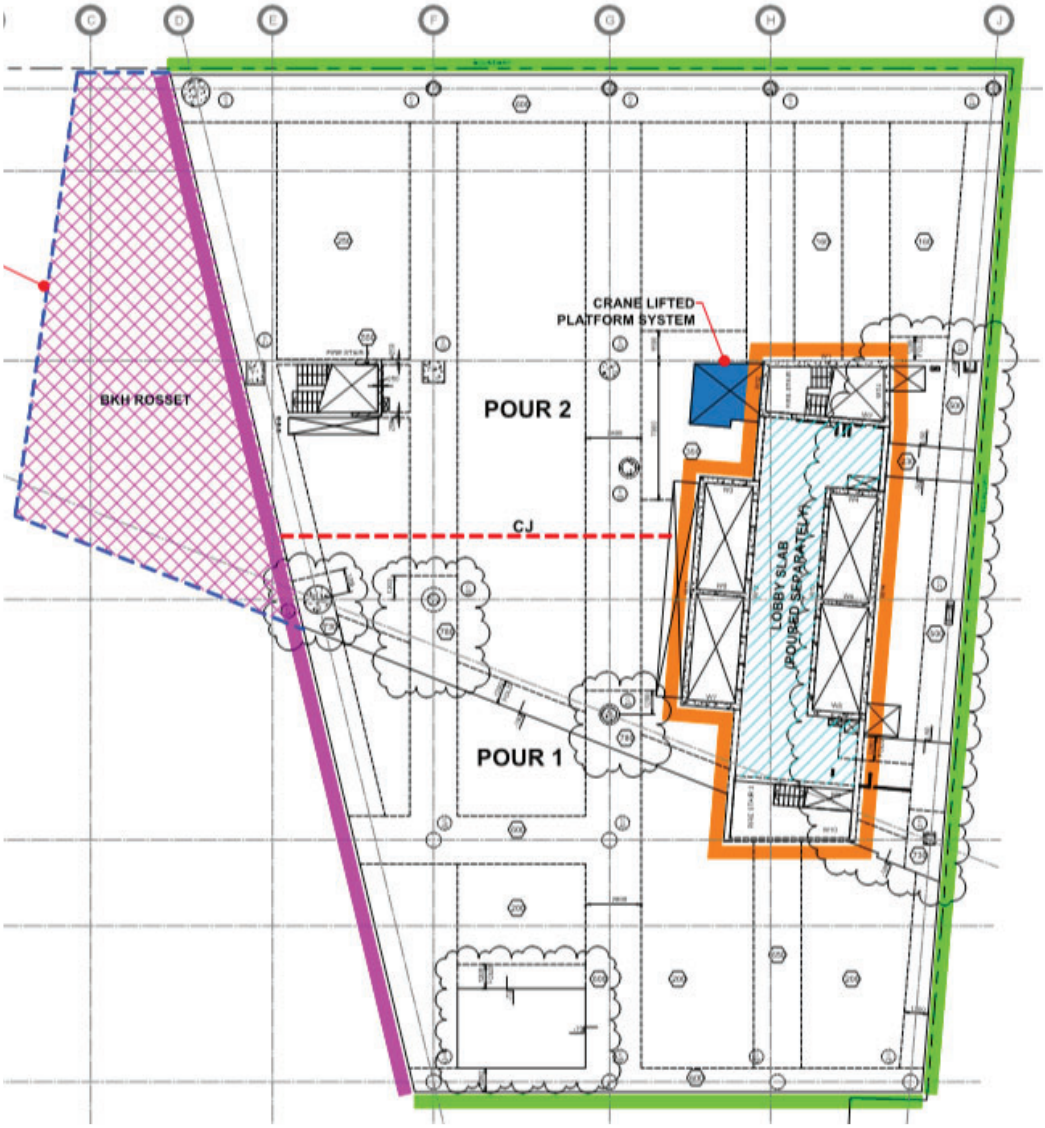
During Basement construction edge protection is to be provided by the Formwork Subcontractor in the way of handrails to working decks. BUILT will provide two stretcher stairs into the excavation.

Main scaffolding/edge protection required for the project works is as follows:

- Scaffold Rosette in raft for jumpform establishment
- Scaffold and Edge protection through internal atriums and voids
- L1- L3 Rosette edge protection to the west and southern boundaries
- L4 – L8 Rosette edge protection to the north west boundary
- L9 – L14 Rosette edge protection to whole western boundary
- L15 – 19 Rosette edge protection to whole west and southern boundaries
- All other faces will have hydraulic screens as edge protection.

Rosette Edge protection system shown pink and Hydraulic screens shown in green in mark up below.





The edge protection strategy for the tower will be hydraulic screens and Rosette scaffolding. The hydraulic screens will be launched from level 1 to the roof level on applicable elevations. The screens will include plywood flaps / returns to bridge the gap between formwork for slabs and concrete slabs and the vertical / main screen panels. Behind the top level of the screen system, formwork installation, reinforcement fixing, post tensioning and concrete placement activities will occur. Behind the last level of the screen system, perimeter handrails will be installed prior to the jumping of the screen system to provide edge protection once the screens have jumped.

In addition to perimeter screens and handrails, BUILT will deploy full height debris meshing to the whole perimeter elevation of the building to prevent any falling objects. These mesh screens will be installed from the top of the handrail to the concrete soffit and provide a fully enclosed elevation.

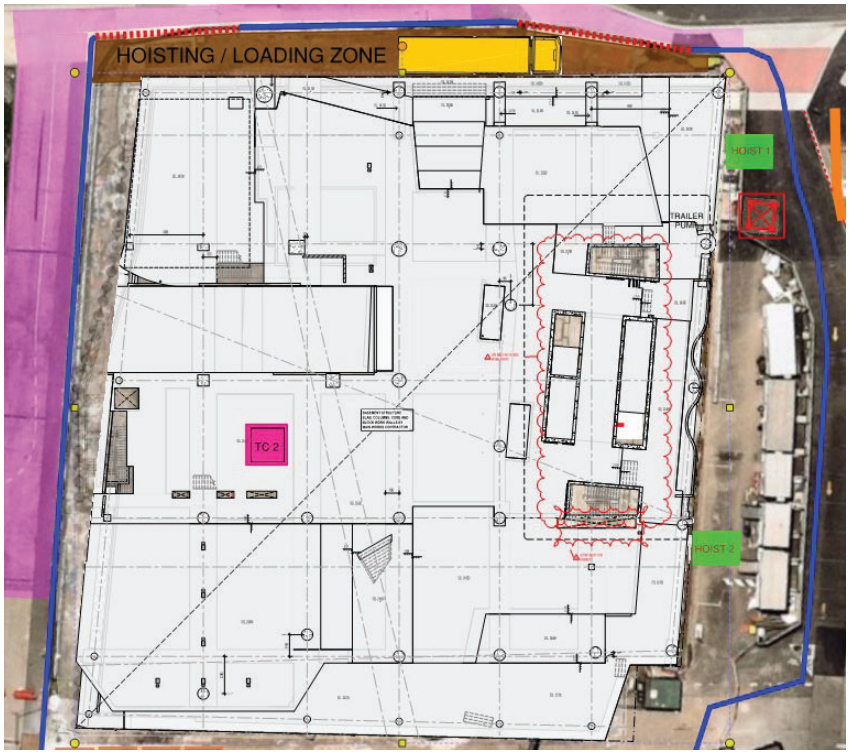
3.8 Hoists

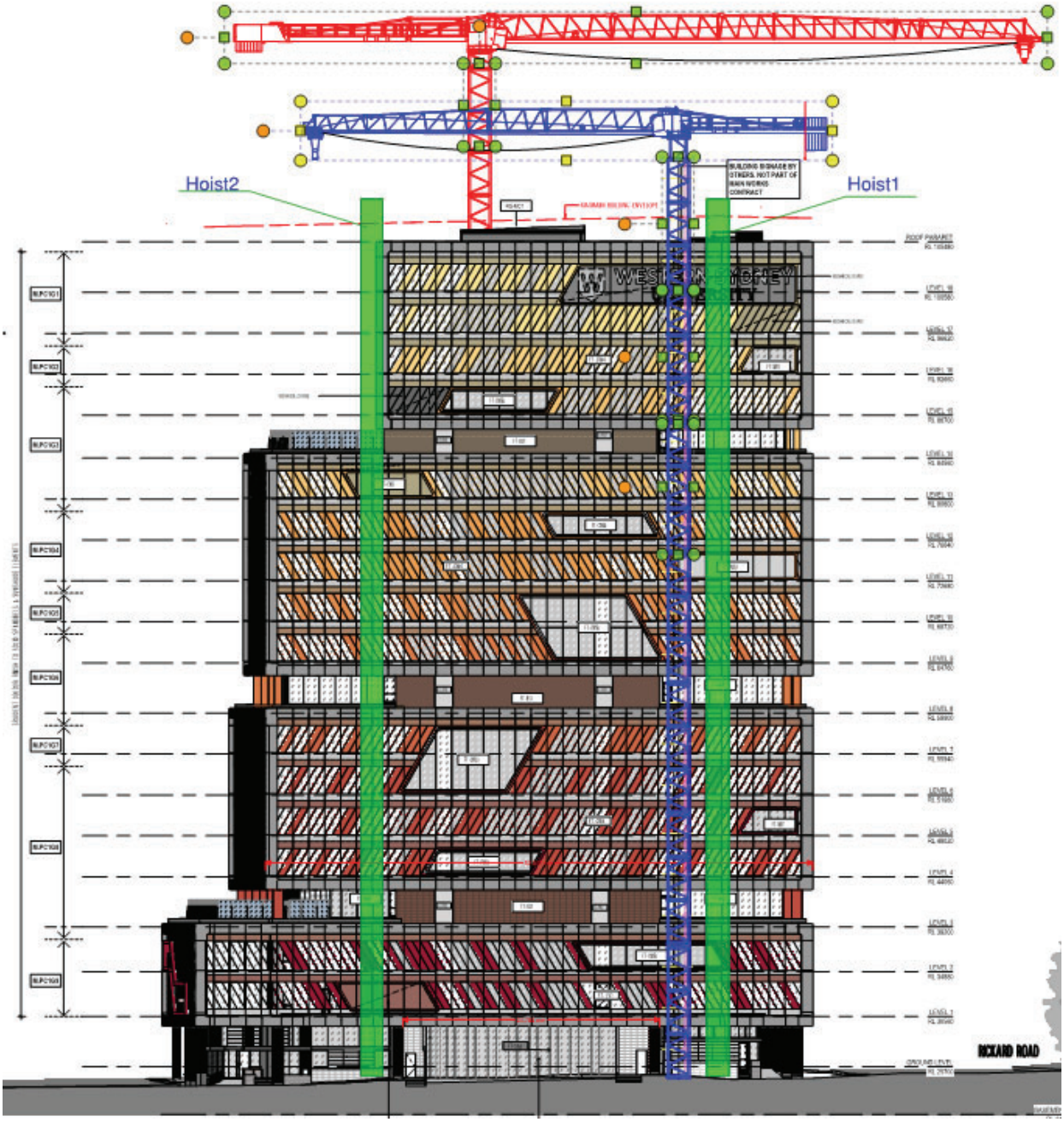
Built has consulted with our internal materials handling specialists and several specialist hoist companies and determined that 2 man and materials hoists will be required to adequately service the project. This is a function of the size of the project, the machines that are available for use, and the available craneage. See below summary and plan of hoists for the project:

Hoist no.	Start date	End date	Duration	Comment
1	August 2021	June 2022	43wk	External Single Hoist North
2	August 2021	June 2022	43wk	External Single Hoist South

Hoist 1 - Hoist 1 is an external single man hoist located on the eastern face on the north, used to transport men, small materials and equipment to the tower floor plates. These hoists are mid speed to maximise productivity and reduce waiting time for workers. This hoist climbs to L19 and remains to service the upper floors until the tower builders lift comes online, at which point it is removed with TC1.

Hoist 2 - Hoist 2 is an external single man hoist located on the eastern face on the south, used to transport men, small materials and equipment to the tower floor plates. These hoists are mid speed to maximise productivity and reduce waiting time for workers. This hoist climbs to L19 and remains to service the upper floors until the tower builders lift comes online, at which point it is removed with TC1.

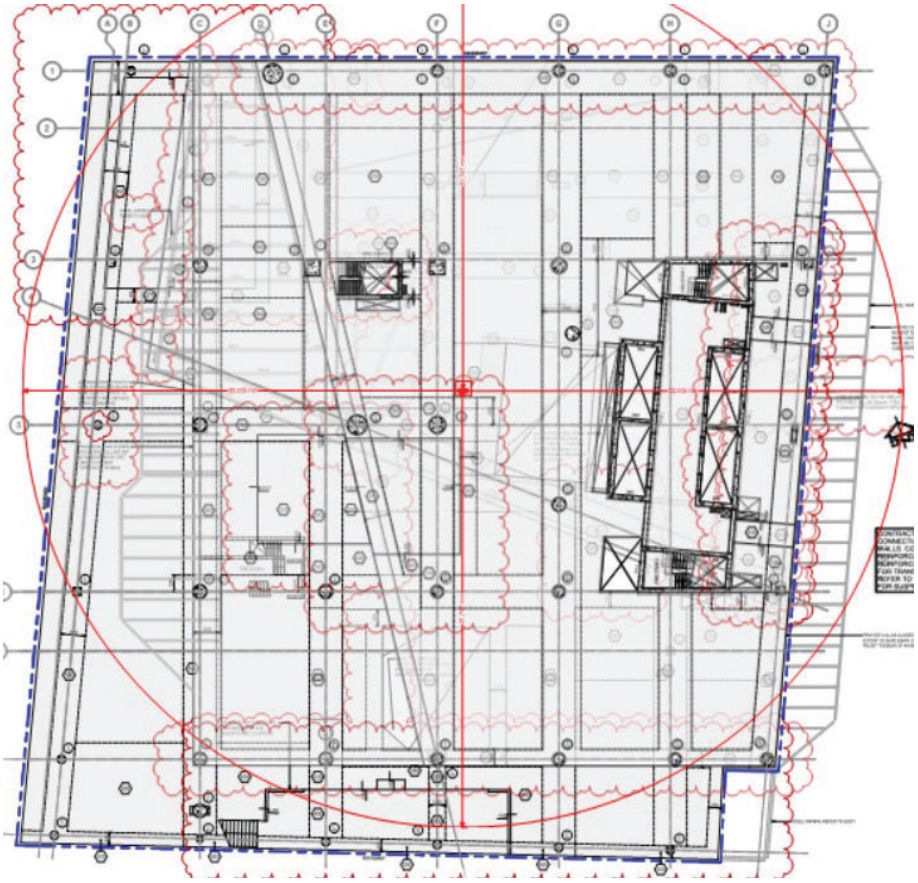

HOISTING / LOADING ZONE
HOIST 1
TRAILER PUMP
TC 2
HOIST 2



Both hoists have been installed as singles to ensure continuity of access to work zones for all trades during scheduled maintenance and hoist climbs. There will be no requirement for penetrations to be left as the hoists are set up outside the building's boundary.

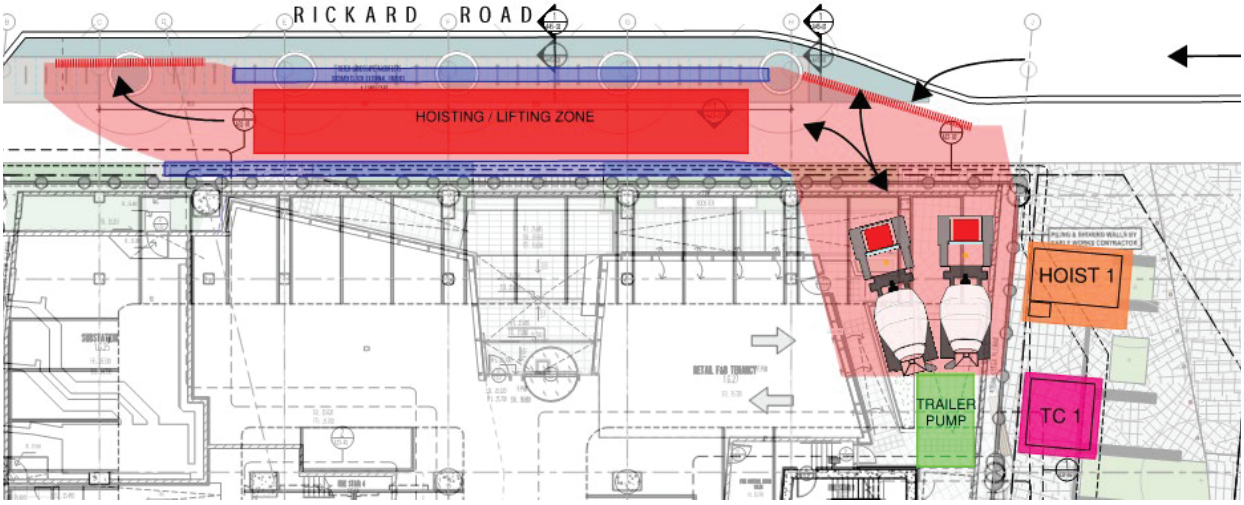
3.9 Concrete Pumping

During the construction period for the initial temporary works, basement works and then the construction of the rest of the tower, Built will pour concrete from 2 locations. Initial pours will be completed from the work zone along Rickard Roard within the sites boundary. Post pouring of the ground floor north east corner, this will become the projects pumping zone. Most pours will use a stationary trailer pump with a static line fixed to the ground floor slab travelling vertically up the core along to the tower boom which will run up the building as the tower boom climbs..



The main structure will be serviced by a single concrete tower placing boom installed from basement 2. The tower boom will be situated in the centre of the slabs to reach all pours and jumpform core walls with the assistance of a longer rubber should it be required.

The location of the concrete placing boom can be seen in the above plan layout along with the concrete pumping zone shown below.

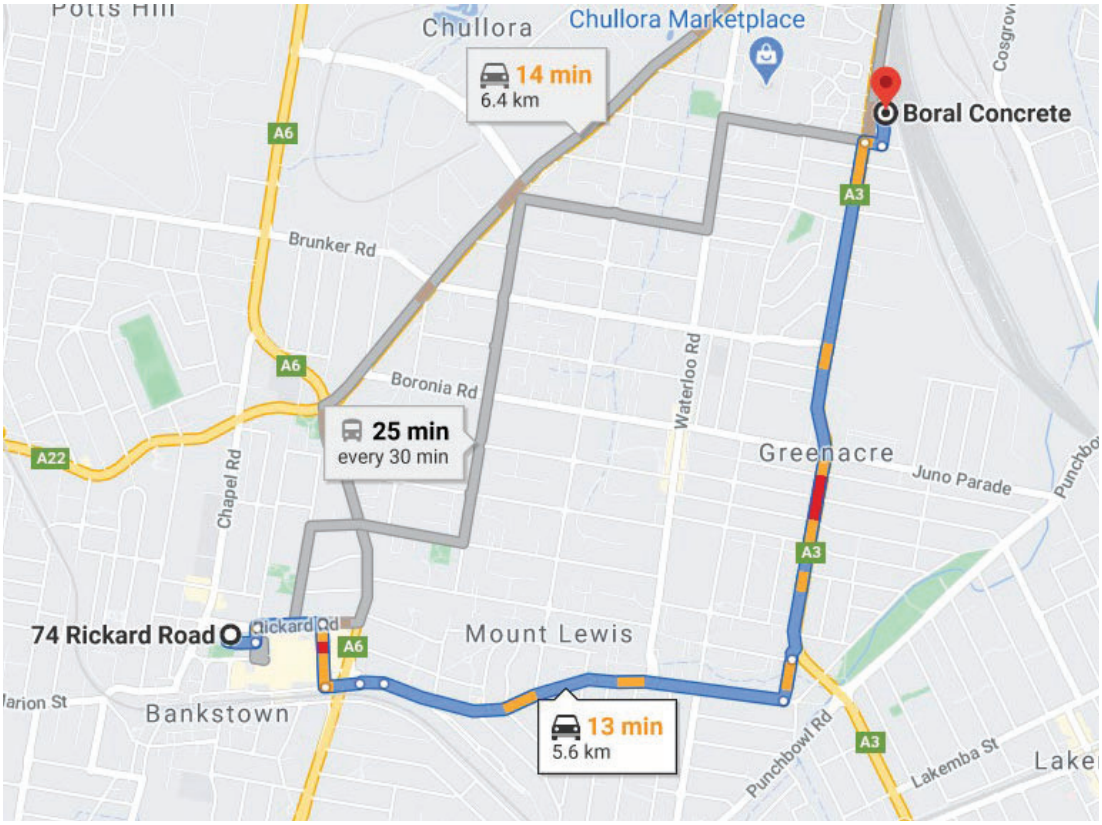


It is proposed that the concrete batching plant to supply the site will be Boral located at Enfield with Granville and Smithfield as back up options if required. This batching plant has the capability of producing 100 cubic metres per hour.

Concrete trucks that operate out of the Enfield, Granville and Smithfield plants come in 3 sizes being 6, 8- and 10-wheel configurations.

Should there be any issues with Boral supply Concrite batch plant facilities are available to supply out of Auburn and Moorebank batch plants.

Please see map below for the route from the batching plant to the site.



3.10 Loading Platforms

A single loading platforms will be provided to each floor as per figure 3.10.1. The loading platforms will be applied to 5 consecutive levels at a time and cycled up as required.

The loading platforms will be located on the northern face of the project above the projects work zone.

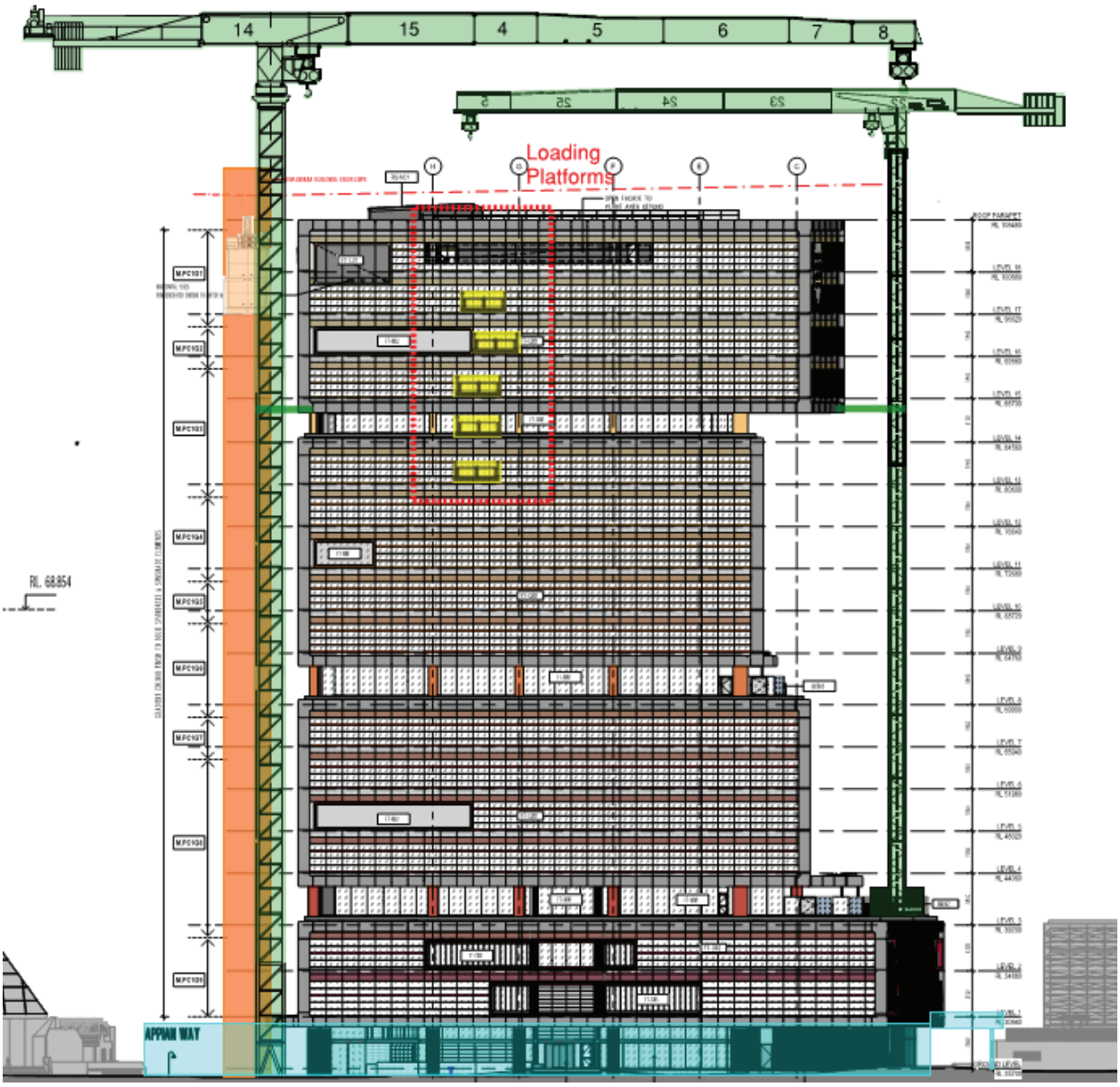


Figure 3-10.1 Loading Platform Location

4. CONSTRUCTION WORK

4.1.1 Excavation/Piling/Jump Form Establishment

Walker has undertaken the bulk excavation and provided Built with a site to BEL. From this point Built will take on the detailed excavation onto the FRP stages and into the structure. To achieve Built's proposed programme a start date of 22 of march has been agreed with the client.

The first critical activities on site are primarily driven towards the establishment of the jumpform system to progress the basement slabs. Firstly, the core raft and associated waterproofing must be completed and initial kickers to assemble the jumpform system. The erection of the jumpform system signals the commencement of the main structure.

Whilst we establish the jumpform, the western portion of site footings will be running concurrently. Built will pour the foundations through to slab on grounds and B1 suspended slabs on the west as to keep to programme until the jumpform surpasses the ground floor and the cycle can then commence.

4.1.2 Unexpected finds protocol

Contamination that may not have been detected during previous investigation works may be discovered during the course of excavation works. Such contamination may be discovered due to observations such as:

- odour
- discolouration or staining of soil or rock
- seepage of unusual liquids from soil or rock
- unusual odours or sheens on groundwater
- unusual metal objects
- presence of underground storage tanks
- presence of oil
- presence of waste or rubbish above or below ground
- potential asbestos containing material
- unusual colour in soil
- unusual colour in groundwater.

During removal of building slabs and other site coverings inspection of the underlying soil should be undertaken to identify potential evidence of contamination, such as staining/discolouration, odours, presence of anthropogenic inclusions (for example asbestos-containing material, ash, slag, bitumen, etc.) or oil or hydrocarb on sheen. If any evidence of contamination or materials different from those previously encountered at the site are found further consideration will be undertaken to identify any necessary assessment or actions.

If such contamination is discovered, the following procedure will be implemented:

- excavation will cease in the vicinity of the discovery
- the Principal Contractor will be informed immediately of the event
- excavation should stop and a suitably experienced environmental consultant should undertake an assessment of any unexpected finds and determine any further actions required e.g. sampling and/or validation of material, potential for remediation and/or management
- excavation will not recommence until the extent of the contamination has been assessed and, if necessary, additional controls have been implemented
- the material will be separated from other materials and stockpiled for assessment
- sampling of the materials will be undertaken in accordance with the relevant guidelines
- samples will be analysed for a range of analytes as required
- laboratory results will be assessed to determine the appropriate waste classification of the material
- depending on the classification, material already excavated and stockpiled will be transported to an appropriate waste facility that is licensed to accept waste of the relevant classification or beneficially reused if appropriate.

Any unexpected finds should be documented in the validation report to be prepared at the completion of the work.

4.1.3 Accelerated Structure

To facilitate the concrete pumping for the whole project and opening up the work zone for other deliveries, Built will accelerate the north east ground floor slab area to accommodate a concrete pumping zone. These areas will be prioritised, leaving the suspended basement slabs behind which will be followed on upon the jumpform climbing past ground floor. Note an engineered structural steel solution for back propping over the pumping zone for level 1 will be required for pours up to level 4 to accommodate the above mentioned concrete pumping zone.

4.1.4 Tower Structure

The main tower levels will be constructed using table-form systems to the band and edge beams with Bondek infills for the slab areas.

The current planning for the tower structure is based upon a 6/7 day cycle. In order to achieve the 6/7 day cycle, the typical floor plate will be broken into 4 pours per floor for the basements to level 3, and 2 pours per floor for levels 4 – 14. Levels 15 – Roof will be single pours should continuity of the trades across the floor plate not be an issue.

The jump form system will be established with trailing shutters to include the north and southern fire stairs and will cycle ahead of the typical floors to a maximum of 4 levels above the lead deck. The advantage of including the fire stairs within the jump is in providing stretcher stair access to the working deck via the permanent fire stair within the core.

Our methodology anticipates using a table-form formwork system for the band beams that can be quickly recycled up the building. As the table-form system is recycled up the building, temporary

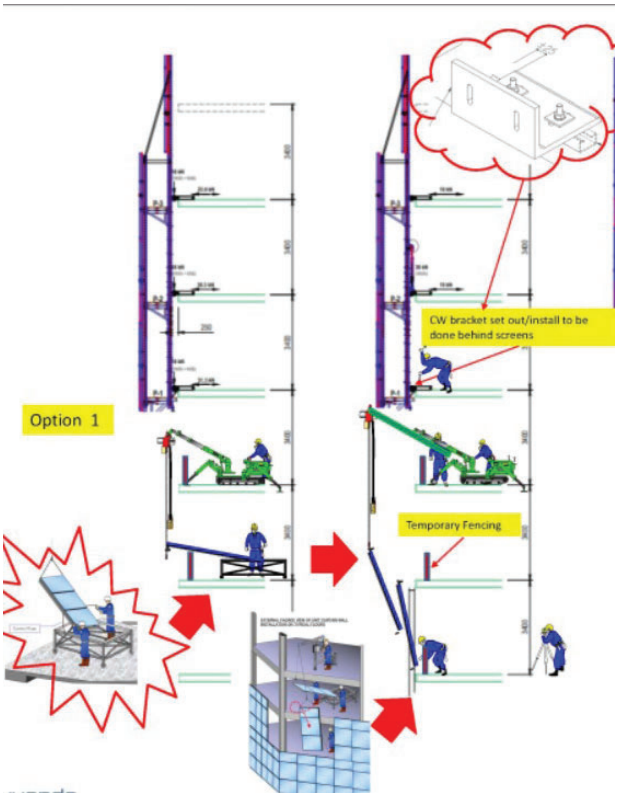
propping will be installed and then progressively removed once the slabs have achieved required concrete strength.

Materials handling and concrete pumping will take place from the North side work zone and north east pumping zone mentioned above on the GF slab. The man and materials hoists can be used to supplement the tower cranes for material handling to the typical floor plates. Retractable loading platforms will be used and cycled up the building to allow the loading of materials during the structural and finishes stages. These platforms will be located on the northern elevation of the building to maximise the efficiency of the tower cranes loading and unloading operations.

4.1.5 Tower Façade

Once the building structure has sufficiently advanced, formwork stripped, and edge protection screens/scaffold stripped up to L6, the installation of the tower curtain wall will commence. Façade panels are loaded onto the floor plates on approved stillages through lifting onto loading platforms with the tower crane to transport them up the floors.

The main curtain wall will be installed using mobile lifting equipment and monorail beams, fixed off to brackets cast-in and post fixed (where required) into the structure. The use of hoists for material movement and lifting equipment/monorail beams for installation will free up the tower cranes for other activities. As the screens climb up the building, Workrite handrails will be installed below them to provide edge protection to the perimeter of the building, these will be removed by the façade contractor and loaded onto stillages to recycle as the curtain wall is installed.



Extract - Tower façade installation

An important part of the process will be in the development review and approval of a façade prototype/VMU. It is planned that the VMU prototype be fast-tracked to avoid delays in the approval and sign-off of the tower façade manufacture. The ground floor façade shall also be a key focus in terms of procurement and stakeholder sign off.

Due to the complexity of the installation procedure to the underside of L15 – 19 cantilever, critical design reviews shall be used to establish and review key interfaces and design elements so that we can get the most buildable solution while maintaining the architectural intent.

The installation of the façade itself will be using lifting equipment/monorail beams along with mobile access equipment i.e. maeda, star 10's etc… Built plans to install the façade using mobile access equipment, without the need for excessive birdcage scaffolding where possible. Certain areas such as the escalator void works will require scaffolding to complete works

Curtain wall installation with mobile lifting equipment.

4.1.6 Key Milestone Dates

- Main Works commencement 22nd March 2021
- Ground floor slab pour 29th September 2021
- Core structure top out 25 February 2022
- Permanent power online 30th May 2022
- Structure top-out (level 18) 30th May 2022
- Façade Completion 28th September 2022
- Project handover 12th October 2022

4.1.7 Separable Portions

The project has one effective handover date with 2 separable portions. One being the public domain and the other being the building. Once integrated fitout is awarded separable portions are to be re-assessed.

5. MANAGEMENT SYSTEMS

5.1 Noise and Vibration Management

BUILT will implement work methods and controls to address the anticipated construction generated noise and vibration that will occur during the project and the measures to mitigate these incidences. A project specific Noise and Vibration Management Plan has been prepared by Acoustic Logic, see Appendix B.

Noise and vibration generation activities that will occur during construction which may cause disruption to residents, businesses and the public may include the following:

- Tower & mobile crane operations;
- Operation of generators and air compressors;
- Operation of concrete pumps and associated concrete delivery trucks;
- General truck movements in and around the site;
- Saw cutting, demolition and concrete core drilling

5.2 Site Safety Management

A stand-alone Project Safety Plan will be developed by BUILT to demonstrate the commitment of the project to Workplace Health & Safety (WHS). The plan is required to identify the scope of work to be undertaken, the hazards associated with the work and the risk assessment processes and risk control measures to be used in the execution of the plan.

All site personnel, without exception, will be required to undergo a site-specific site induction that will encompass primarily safety, but also the general site rules and requirements. This will include aspects of all the management plans to be observed and in addition, will encourage the use of local public transport including buses and trains to minimize street parking by site workers.

The objectives of the Site Safety Plan include the following:

- Maintain lost time injury reporting and review positive performance indicators;
- Report all incidents and near misses and develop corrective action plans;
- Conduct Senior Management and WHS Group reviews;
- Develop required WHS resources;

- Formalise regular senior management reviews of WHS systems and implement relevant improvements;
- Continually develop WHS systems, policies, procedures and WHS Plans to comply with statutory requirements and industry best practice;
- Maintain an Audit Programme to comply with system's requirements;
- Ensure all corrective actions and Non-Conformances are closed out;
- Meet or exceed the requirements of AS 4801 certification and Federal Safety Commission accreditation;
- Adopt a zero-tolerance safety philosophy;
- Provide Safety Awareness and other appropriate WHS training;
- Continue to implement ongoing induction procedures on all projects;
- Hold regular Consultative Committee meetings, maintain minutes and record actions;
- Issue Safety Alerts to all staff and other stakeholders according to requirements;
- Conduct weekly toolbox talks on site;

The plan requires that the project ensure that the key responsibilities are addressed by the Contractor to attain the above objectives.

A statement of responsibilities by the Contractor will identify who will be responsible for the following:

- Undertake audits to ensure appropriate implementation of the WHS Plan occurs;
- Coordinate WHS training;
- Establish, implement and maintain procedures for controlling all relevant documents and data required;
- Implement WHS matters in construction design and planning;
- Make all reasonable endeavours to ensure that the WHS management system is established, implemented and maintained on the project;
- Monitor and constantly review risk management to the site;
- Ensure all High-Risk Work Method Statements have been received on site prior to the commencement of work;
- Review all High-Risk Work Method Statements for their accuracy and relevance;
- Review any safety incidents and where applicable prepare relevant incident reports, notifications and preventative actions;
- Maintain the management of safety on site, including the setup of regular site safety inspections by a nominated WHS committee;
- Administer the issue of Safety Non-Conformance Notices to companies or individuals not adhering to relevant safety standards;

- Make all reasonable endeavours to ensure safe work procedures and job safety analysis requirements are enforced;
- Correct improper work practices;
- Maintain good housekeeping practices;
- Communicate, negotiate and listen effectively;
- Review follow-up on non-compliant items from hazard inspections;
- Monitor safety performance;
- Review incident reports and investigations.

In addition, the plan will specifically address the following:

- WHS training – identification of WHS training needs of all personnel, induction training, refresher training, attendance of WHS committee personnel at consultation training etc;
- Incident management – identifies who will be available during and outside normal working hours to prevent, prepare for, respond to and recover from illness/ injury and incidents;
- Site safety rules – As a minimum will include induction and safety training, PPE, Site access and security, emergency procedures, illness and injury, protection of personnel and the public, work at elevated areas, safe working, hazardous materials and dangerous goods etc;
- Safe Work Method Statements – All activities assessed as having high WHS risks require a SWMS to be prepared and implemented.

5.3 Waste Management

BUILT will prepare a project specific Waste Management Plan and implement the details described below as part of the Waste Management strategy to be adopted on the project to address the creation, disposal and minimization of waste created by the construction of the project and to ensure the effective disposal of such waste in accordance with all legislated requirements and to reach the re-use targets nominated in the project reports.

The objectives of the Waste Management Plan include the following:

- Address the waste management requirements for the project;
- Specific attention to the identification, separation, collection and disposal of environmental waste i.e. hazardous materials, asbestos etc;

- Waste minimisation from demolition and construction activities;
- Increase economic feasibility of the project through effective waste separation, recycling and re-use measures.

All concrete, steel and metal will be recycled for re-use and along with other miscellaneous materials, will be recorded for compliance with the quantities set as targeted volumes documented in the Construction Waste Management Plan.

Separation of different demolition waste materials will be undertaken by the contractor and the process of removing all hazardous materials from the building and obtaining clearance certificates will ensure that such materials cannot be intermingled with non-hazardous demolition items. Preventing such contamination will ensure that the re-use is maximized.

All hazardous materials will be disposed of at licensed facilities approved to accept such goods and, along with the non-hazardous demolition materials, records will be kept tracking disposal location, vehicle details, quantities and the like.

During construction, waste will be deposited into skip bins for disposal by licensed companies who will be engaged to sort and separate different materials off-site. This will also include the requirement for the disposal contractor to issue regular recycling reports to verify the proportion of re-use achieved from each bin. These reports, along with the disposal dockets, will be maintained in a register to quantify and verify all waste disposal details at the completion of the project.

The main goal in construction will be to reduce the total volume of waste produced, which will be achieved by effective materials procurement, management and supply. Project managers, engineers, builders and subcontractors will play a key role in achieving on-site waste reduction targets on a day-to-day basis.

The following waste management measures will be undertaken during construction:

- Disposal of waste that cannot be recovered, reused or recycled and requires land filling is to be safely recovered and disposed to licensed landfills;
- All documentation of materials disposed, landfill receipts, contracts, waste plans, etc. will be retained and maintained to meet the data collection requirements of this project. Appropriate storage arrangements to guard against product degradation or damage from weathering or moisture are to be established;
- Prefabricated materials are to be purchased where possible;

- Materials are to be delivered by suppliers only when needed. This reduces the opportunity for waste through error or change in estimate, permits on-site measurement rather than from drawings and provides for any modifications that the client may request;
- Packaging is to be minimised for building supply materials;
- Litter management will be implemented on site to address air borne litter and litter entering the storm water system.

As well as updating and fulfilling the requirements of the Plan, specific requirements for consideration include:

- If under any circumstances any material becomes contaminated so as to deem it unfit for recycling due to the practice of the contractor, the contractor will be liable for the cost of landfill for this material;
- The contractor must provide notification of any asbestos or hazardous waste that is uncovered during the works. A time frame for the removal of this waste should also be provided;
- Any contractor being used for recycling on this project must provide a facility/service license or similar certification within two weeks of tender and prior to proceeding with any site works;
- Contractors will be held responsible if known hazardous waste is mixed with recyclables (e.g. contaminated concrete disposed with concrete to be recycled);
- The contractor will be liable for any material that is unjustifiably 'dumped' or not dealt with as per the recycling schedule outlined in this report;

5.4 Environmental Management Plan

This plan has been developed by the Contractor to address the environmental issues that will occur during construction and will define the project scope, supporting documents and contacts including Council, Environmental Agency and emergency services.

The objective of the plan is to identify the occurrences of activities that will, and may, occur during construction and the measures to mitigate these occurrences in accordance with the provisions of the Development Consent, Construction Certificate and relevant legislation. With an expectation that some form of hazardous materials will be experienced during the demolition process, appropriate investigations with certified contractors will be undertaken to ensure compliant removal and enclosure processes are adhered to.

Environmental issues and controls that will occur during construction include the following:

- Management of hazardous and dangerous materials;
- Noise and dust control (refer previous comments on this item);
- Storm water and sediment control (Refer to Appendix B: Construction Soil & Water Management Plan (CSWMP)
- Waste disposal, reduction and recycling (refer to previous comments on this item);
- Return of excess materials, cleaning of site and paths of delivery and exit;
- Other environmental related issues;
- Regular review, audit and reporting.

6. APPENDICES

A	Construction Pedestrian and Traffic Management Plan – Prepared by Arup
B	Construction Soil & Water Management Plan (CSWMP) – Prepared by Warren Smith & Partners

APPENDIX A

Construction Pedestrian and Traffic Management Plan

Prepared by Arup

Built Pty Ltd

Bankstown City Campus

SEARs (SSD 9831) - Construction Pedestrian and Traffic Management Plan

Issue | 16 March 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 263785

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Contents

Appendices

1 Introduction

1.1 Background

This report details the Construction Pedestrian and Traffic Management Plan (CPTMP) for the Bankstown City Campus Development (BCCD). The project is a transformative project for the Bankstown CBD and from a transport and traffic perspective, will respond to improvements in public transport access that are planned with the introduction of Sydney Metro services from 2024.

This CPTMP responds to Consent Condition B17 for SSD 9831. The purpose of this CPTMP is to assess the proposed access and operation of construction traffic associated with the construction works only with respect to safety and capacity.

This CPTMP details the management needed to control construction traffic, while minimising effects on the surrounding developments and allowing for appropriate access at all times.

1.2 CPTMP requirements

The CPTMP requirements as outlined in the project Conditions of Consent are included in Table 1 along with the section of this report where it has been responded.

Table 1: Consent Conditions CPTMP requirements

Requirement	Section
Be prepared in consultation with Council and TfNSW (B17b)	See section 4
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 (B17c)	See section 3
Detail heavy vehicle routes, access and parking arrangements (B17d)	See section 3.1, section 3.2 and section 3.3
Detail measures to prohibit construction vehicles from using Civic Drive, the BLaKC driveway, and the Appian Way (excluding areas within the site) (B17e)	See section 3.2
Prior to the commencement of construction, the Applicant must provide sufficient parking facilities on-site, including for heavy vehicles, to ensure that construction traffic associated with the development does not utilise public and residential streets or public parking facilities (B24)	See section 3.7
Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy (CWTS) to the satisfaction of the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in	See section 3.7

Requirement	Section
order to minimise demand for parking in nearby public and residential streets, or public parking facilities and to ensure construction workers do not use the nearby ALDI carpark (B25)	

2 Description of proposed works

2.1 Location and site description

The proposed site is located in Bankstown City Centre, north of Bankstown Station and west of Bankstown Central shopping centre (see Figure 1). The existing use of the site is at-grade car parking and green space.

The site is situated within the Canterbury-Bankstown Local Government Area (LGA) and is bounded by Bankstown Library and Knowledge Centre to the west, Bankstown Civic Tower to the east, Rickard Road to the north and Paul Keating Park to the south. It is well connected to the public transport network, with both a rail and bus interchange located within 400m of the site.

Figure 1: Site location of BCCD

2.2 Description of the works

The proposed BCCD will have a GFA of approximately 29,266 m^2. The building will be 19 levels above ground with two basement levels. A site plan of the BCCD is presented in Figure 2.

The primary use of the building will be for tertiary education (accommodating the relocation of WSU from their Milperra campus). The campus will also have ancillary retail.

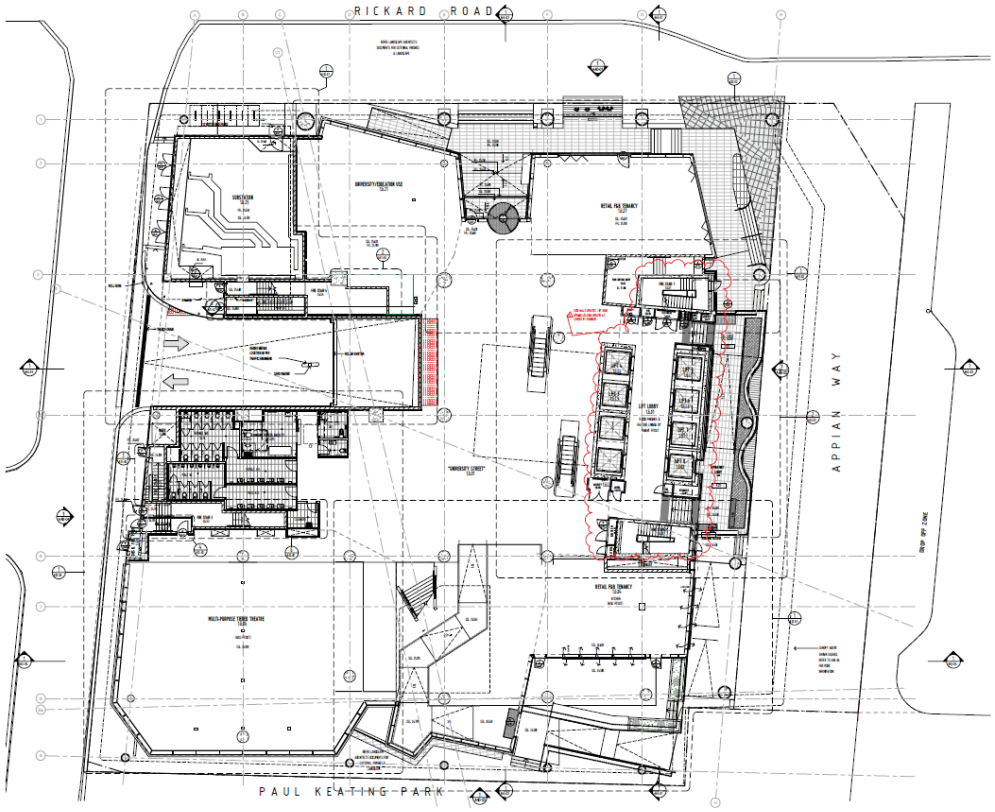


Figure 2: BBCD site plan
Source: Lyons, 2021

The early works have commenced in mid-2020 with the main works proposed to commence in early 2021 to target a project completion date of late-2022.

Early site preparation works will be subject to a separate development application and assessed by Canterbury-Bankstown Council (Council). Early works not the subject of this CPTMP include:

- Erection of site hoardings;
- Demolition, including tree removal;
- Bulk excavation;
- Shoring, including temporary anchors;
- Disconnection and/or diversion of services; and
- A new lay-back along Rickard Road leading into Appian Way.

The proposed new layback between Rickard Road and The Appian Way will be constructed within the early works package so as to allow the safe manoeuvring of construction traffic into the site.

The timeline of the key construction works relating to the BCCD is presented in Table 2.

Table 2: Timeline of construction works

Activity	Start Date	Finish Date
Early Works	Mid 2020	End 2020
Main Works	March 2021	Late 2022

2.3 Vehicle types expected

2.4 Hours of operation

Main site working hours are governed by the SSDA consent conditions, which are as follows:

- Mondays to Fridays inclusive: 7am–6pm
- Saturdays: 8am–5pm
- Sundays and public holidays: no work

Works may also be undertaken outside these hours where approvals are gained.

3 Proposed measures and impact

3.1 Truck routes and controls

The effective management of haulage operations is not only critical to the success of the project but is also necessary to minimise the impact on the road network and to maintain the safety of pedestrians.

Truck routes have been selected on the basis that trucks are to utilise state and regional roads first before travelling on local roads. The primary arrival and departure haulage routes are listed below and illustrated in Figure 3.

Primary arrival routes

- From the north/south – via Stacey Street > Rickard Road

Primary departure routes

- To the north – via Rickard Road > Chapel Road (outside of school hours)
  – via Rickard Road > Meredith Street (during school hours)
- To the south – via Rickard Road > Chapel Road > Marion Street > Meredith Street -> Rickard Road -> Stacey Street.

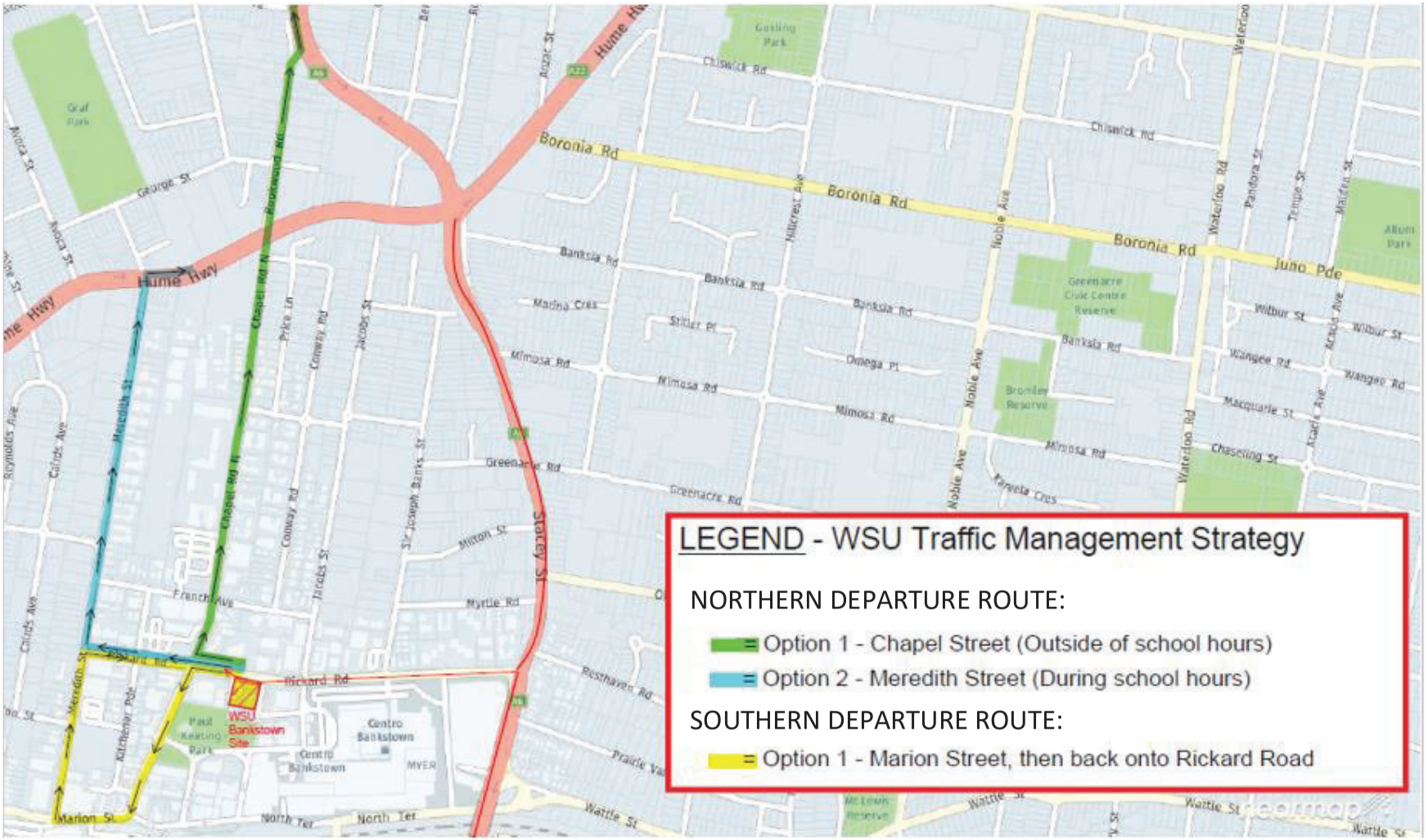


Figure 3: Truck arrival and departure routes

3.2 Construction vehicle access and traffic staging plan

Vehicular access to site to enable delivery of large plant, material and equipment will be through the northern boundary of the site, via Rickard Road.

This vehicular access will accommodate large material and plant deliveries including steel, concrete, external elements. Vehicles such as AS2890.2 19m Articulated Vehicles (AV), 12.5m Heavy Rigid Vehicles (HRV) and 8.8m Medium Rigid Vehicles (MRV) are expected to access the site. These include deliveries by semi-trailer, tabletop truck and concrete trucks respectively.

Smaller deliveries will also occur by smaller utility vehicles. The single-entry point will necessitate close monitoring and coordination of vehicular movements to ensure they do not encumber access for the adjoining properties and existing pedestrian thoroughfares.

The proposed construction methodology ensures that the basement and tower will be constructed without affecting access to the existing Bankstown Library and Knowledge Centre laneway and The Appian Way from Rickard Road. Vehicle access will be managed by traffic controllers and may have expandable barriers to control pedestrian activity.

Large AVs and HRVs will enter from the eastern Rickard Road driveway, remain in the hoisting/lifting zone and continue out through the western Rickard Road driveway.

Concrete trucks will access the site considering two different approaches:

- Approach 1 (Rickard road frontage closed): Concrete trucks will enter the site via the Rickard Road entrance and continue into the hoisting/lifting zone before reversing into the concrete pumping zone. Once pumping is complete, concrete trucks will exit via the Rickard Road entry point (to allow simultaneous loading to occur at the hoisting/lifting zone). In this approach, the whole area in front of the site, including the footpath, will be used. The footpath on Rickard Road is already closed in association with the early works. With this approach, the Contractor will provide enhanced pedestrian measures when compared to the current temporary arrangement.
- Approach 2 (maintaining the pedestrian footpath at the site frontage): One of the concrete trucks will directly reverse into the site via Rickard Road. certified traffic controllers are to be in place at site access and egress point to stop Rickard Road's traffic for this manoeuvre. The other truck will enter the site via Rickard Road entrance and continue into the hoisting/lifting zone before reversing into the concrete pumping zone.

The recommended access and egress routes (approach 1) and associated traffic management is presented in Figure 4 below.

A swept path of the vehicle accesses for both approaches is included in Appendix A. A 19m AV has been used as the design vehicle.

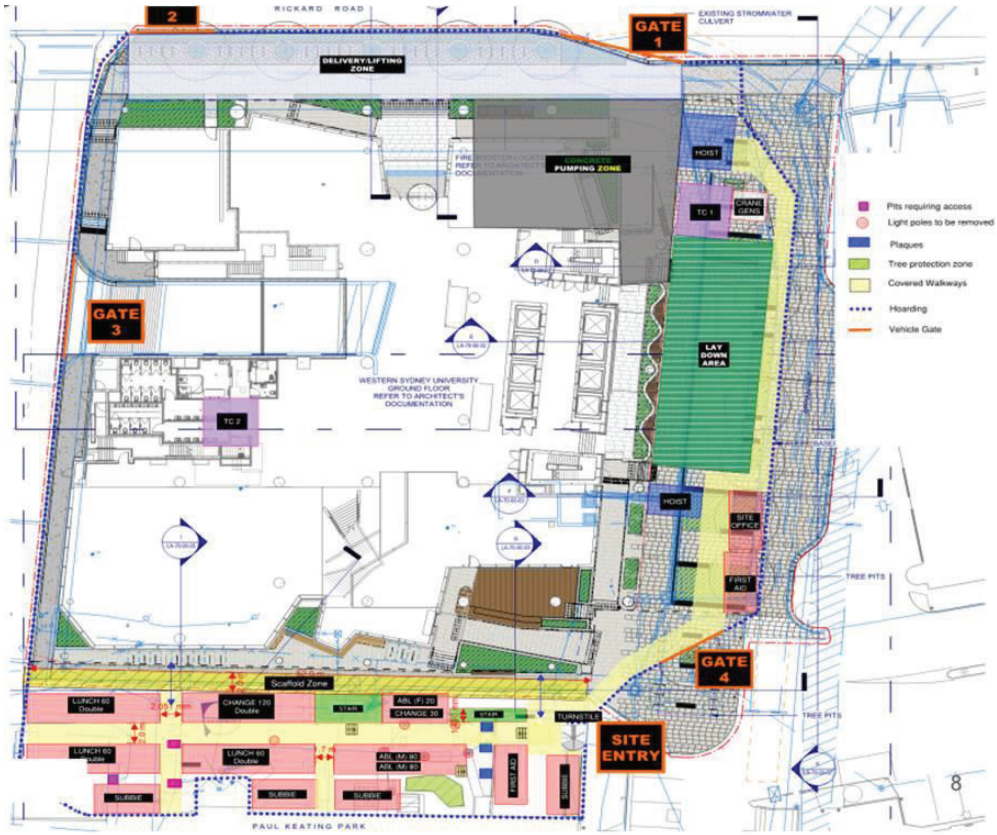


Figure 4: Construction access and egress route
Source: Built, 2021

Other key points in relation to construction vehicle access include:

- As much as possible, truck movements to and from the site will be scheduled to minimise traffic disruption in the surrounding road network;
- Oversized vehicles will be transported to/from the site in strict accordance with Transport for NSW (TfNSW) guidelines and Council requirements to minimise traffic disruption during normal business hours;
- The designated haulage routes will be communicated to all truck drivers to ensure truck movements to/from the site are as efficient as possible;
- The loading and unloading of trucks would be planned to ensure each individual truck haulage capacity is fully utilised reducing the number of truck movements;
- The need for construction vehicle marshalling areas outside of the site will be determined closer to the time of construction when there is more detailed information available regarding the origin of construction vehicle trips. If required, potential areas will be identified, and their suitability discussed with the relevant stakeholders;

- All delivery vehicles associated with the site will be parked wholly within the site in designated off-street parking areas. Construction vehicles associated with the subject site must not park in any on-street parking spaces; and
- On-site parking would not be made available for construction workers. Workers would be encouraged to use public transport when travelling to/from the site, hence minimizing traffic impacts on the surrounding road network.

In terms of traffic staging and pedestrian access, the following has been considered:

- Considering the first approach (Rickard road frontage closed) outlined above, temporary closure of the footpath on the southern side of Rickard Road (i.e. diversion of pedestrians to the northern side of Rickard Road via the adjacent signalised pedestrian crossings). Once the footpath is re-opened, pedestrian access along both sides of Rickard Road will be maintained. Jacobs Street, The Appian Way and along the northern boundary of Paul Keating Park will remain open to pedestrians throughout the construction programme;
- Continued vehicle access to the Bankstown Library and Knowledge Centre car park;
- Continued function of The Appian Way for both vehicles and pedestrians;
- Continued access to Civic Drive, including vehicle access to the Council car park and any remaining parking spaces;
- Traffic controllers will ensure the safe interaction between pedestrians and construction vehicles at the following locations. If required, expandable barriers will be in place at these locations to temporarily hold pedestrians while construction vehicles are entering and exiting only
    - At the site entry (at Rickard Road)
    - At the exit from site (at Rickard Road)

Traffic control plans will be prepared by the Traffic Control Contractor once appointed.

3.3 Construction traffic volumes

It is anticipated that the site will generate approximately 75 trucks per day during peak activity which equates to approximately 8 vehicles per hour over the course of the day, including during peak times.

During other construction stages, the vehicle generation is expected to be approximately 40 trucks per day.

The busiest period in terms of construction traffic volumes is likely to be during construction of the structure when arrival of concrete agitator trucks are heavily scheduled. This has been allowed for above in the peak activity.

Occasionally larger vehicles may need to access the site for specific purposes (e.g. delivery of cranes etc.). These types of movements will be infrequent and will be planned to occur outside of peak traffic periods with limited lifting operations on weekends. These operations would be subject to a separate application for partial road closure with TfNSW, Council and emergency services, as required, where a Road Occupancy Licence will be issued.

3.4 Pedestrian and cyclist access

It is proposed to maintain pedestrian and cycle access on all streets surrounding the site, with the exception of the footpath on the southern side of Rickard Road in the first approach (temporarily). TfNSW accredited traffic controllers are proposed to guide pedestrians to adjacent pedestrian crossings to then use the footpath on the northern side of Rickard Road instead.

When the southern footpath re-opens, expandable barriers will be in place at the entry and exit points to the site to temporarily hold pedestrians while construction vehicles are entering and exiting only. This will improve the safety of these driveways and ensure pedestrians are not crossing as vehicles enter or exit.

Existing pedestrian crossing facilities are to be maintained at all nearby signalized intersections and mid-block locations on Jacobs Street and Chapel Road. Pedestrian access on all sides of the site are maintained, this includes The Appian Way, Paul Keating Park footpath and the Bankstown Library and Knowledge Centre laneway.

Suitable signage including “Watch for Pedestrians” signs will be provided at egress points for construction vehicles to maintain pedestrian safety when pedestrians travel across the proposed vehicular crossings.

3.5 Emergency vehicle access

Access to the site and neighbouring sites by emergency vehicles will not be affected by the works as the main roads and footpath frontage will be unaffected. Emergency protocols on the site will include a requirement for suitably accredited site personnel to assist with emergency access from the street.

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

3.6 Public transport

No changes to bus stops or services are proposed during the BCCD construction activities. Changes are, however, anticipated as part of the Sydney Metro works due to need for rail replacement services. A summary of Temporary Transport Plan is presented in Figure 5.

The temporary transport bus stops would use areas that are currently allocated car parking, bus layovers, loading zones and special events bus zones.

The construction methodology takes into consideration any impacts of the Sydney Metro works.

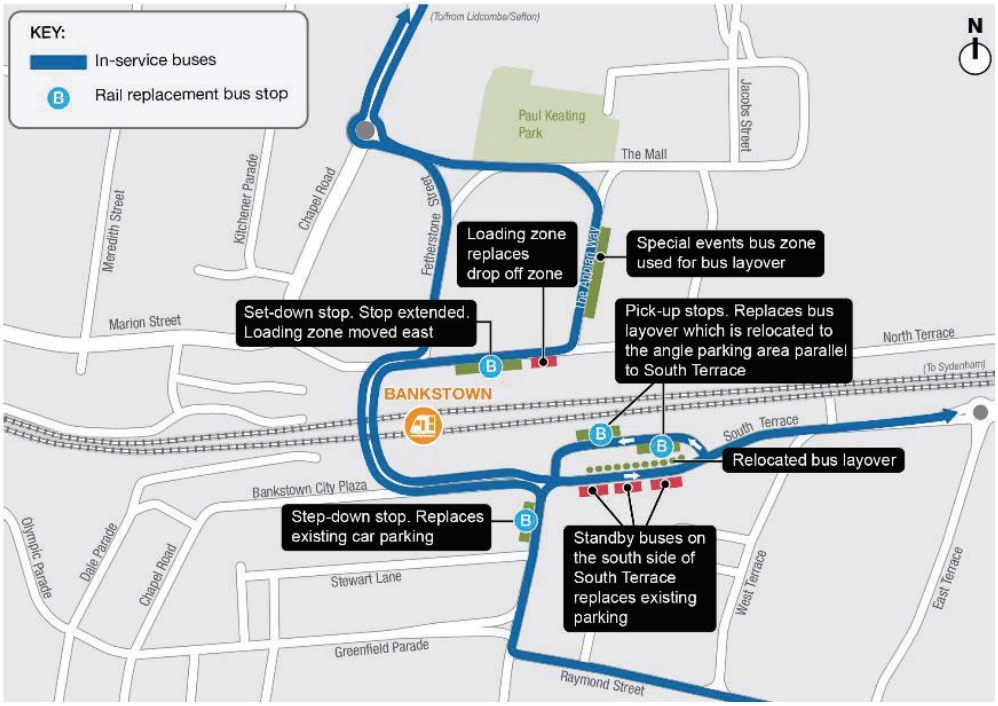


Figure 5: Bankstown Temporary Transport Plan
Source: Sydney Metro City and Southwest EIS (Sydenham to Bankstown)

3.7 Construction worker parking

A key consideration of the development is the potential increase in vehicle parking during the construction works. In general, no parking will be provided for construction workers and visitors to the site. Given parking is restricted in surrounding streets and the site's proximity to several buses and Bankstown train station, it is expected most workers will travel by public transport to the site. This is common for construction sites adjacent to major transport interchanges, given workers will be able to store their tools on-site. A detailed consultation process

between Walker and CBC has been underway for permissible access for construction worker parking within the Council-owned Meredith Street car park. These recommendations will form part of the construction worker induction process.

3.8 Concurrent construction projects

3.8.1 Sydney Metro

The main construction works taking place within 400m of the site will be the Sydney Metro works. The proposed construction haulage routes into the sites to be used during the Metro construction works are presented in Figure 6. Stacey Street is identified as the primary Haulage Route, with Rickard Road and Meredith Street as secondary routes.

The Sydney Metro City and Southwest Environmental Impact Statement (EIS) anticipates that 10 heavy and 10 light vehicles would be generated in the AM and PM peak hours.

While the BCCD project also uses Stacey Street and Rickard Road as the primary haulage route, the cumulative peak period volumes will not be significant, and no issues are anticipated given the additional capacity to be added to Stacey Street as part of the TfNSW Pinch Point Program.

Figure 6: Metro construction routes
Source: Sydney Metro City and Southwest EIS (Sydenham to Bankstown)

In addition to the construction traffic volumes generated by the Sydney Metro works, temporary road and lanes closures will occur at the following locations:

- Stacey Street Overbridge (6 months of weekend works (half-lane closures) and 4 weeks of half lane closures);

- North Terrace to South Terrace Underbridge (6 months of weekend works (half-lane closures) and 4 weeks of half lane closures); and
- Chapel Road Overbridge (no lane closures).

Sydney Metro will also be implementing a comprehensive Temporary Transport Plan during rail line possession works which will include temporary rail services, temporary bus services and supporting infrastructure.

3.8.2 Bankstown Central

A transformative redevelopment of the Bankstown Central shopping centre has been announced by the owners, Vicinity Centres, however as no development application has been submitted to date, the cumulative impact of any construction activities cannot be considered.

3.8.3 Bankstown Complete Streets

The Bankstown Complete Streets project has been developed in response to growing traffic congestion issues and looks to promote active transport and public transport as a way to move large volumes of people (mass transit) safely to and within the Bankstown CBD.

The Bankstown Complete Streets project was adopted by Council on October 22, 2019, following public consultation. It will be progressively implemented over the next 20 years.

Of the projects having ‘high priority’, the conversion of The Appian Way to a shared space between Bankstown Station and Rickard Road is identified as being a number 1 priority. The northern portion of the works on The Appian Way will be delivered as part of the BCCD works. This will create a strong link between the BCCD and the train / metro station.

4 Consultation

Early consultation on the principals of the CPTMP was undertaken by the Principal (Walker) with a number of stakeholders which include:

- Canterbury-Bankstown Council; and
- Transport for New South Wales (TfNSW).

Formal consultation of the draft CPTMP with Council was undertaken on 12 March 2021 with the Contractor and key contacts between both parties have been established. Consultation will continue throughout the site establishment phases of the project.

Walker and CBC have an agreed access license regarding site surrounds and Council's neighbouring properties.

5 Summary

This CPTMP has been prepared for the construction of the Bankstown City Campus Development. Key features of the plan are summarised below:

- The proposed construction vehicle access is at the northern boundary of the site, via Rickard Road (entry and exit – one-way route). This arrangement minimizes disturbances to existing accesses;
- Initially, no on-site parking will be provided for construction staff. Construction staff will be encouraged to use public transport. Any staff driving will need to avail of public parking in the surrounding area;

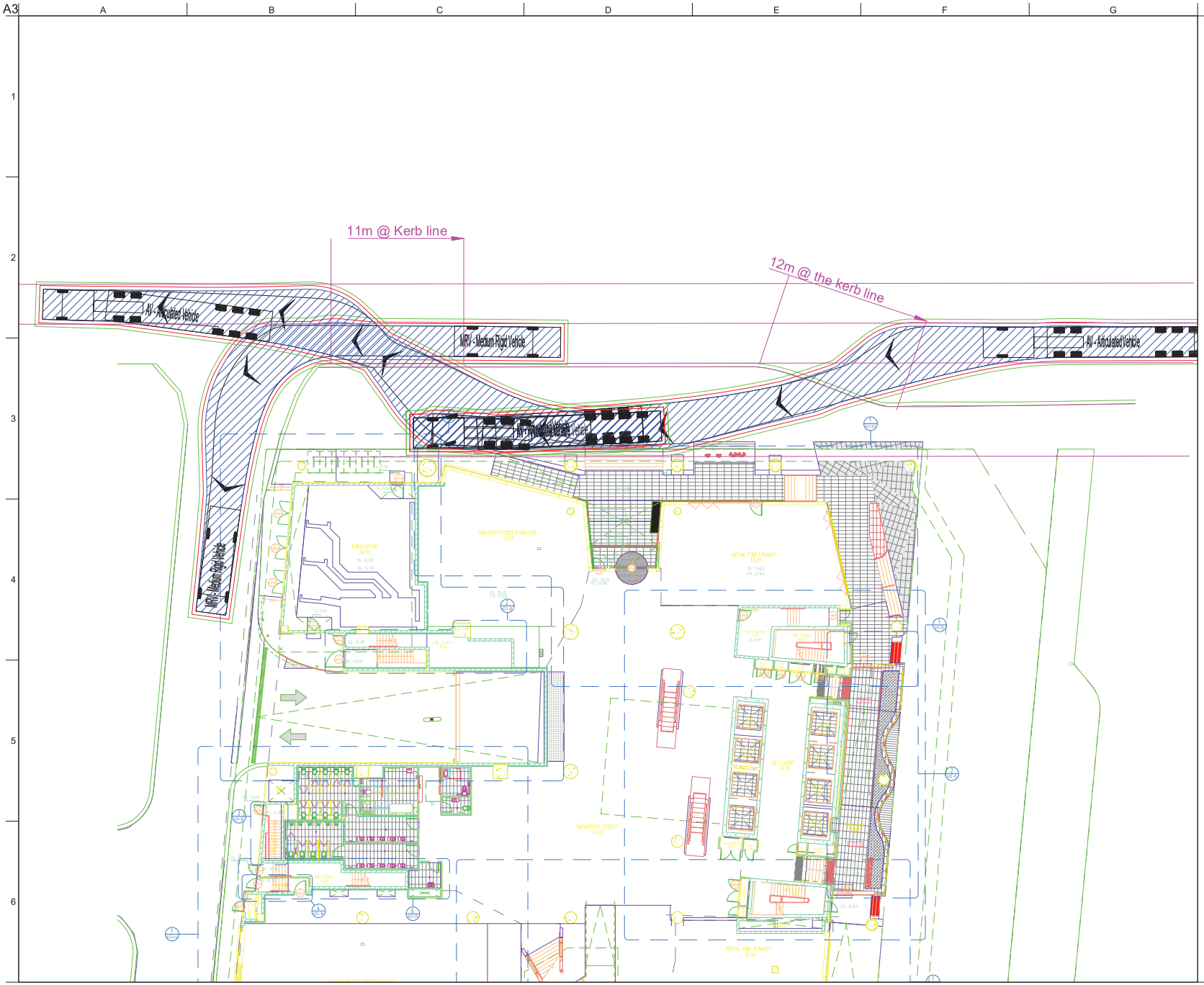
  A detailed consultation process between Walker and CBC has been underway for permissible access for construction worker parking within the Council-owned Meredith Street car park. This agreement, along with the encouragement to use public transport, will be recommended during the construction worker induction process.;
- The access road to the Bankstown Library Knowledge Centre and The Appian Way/Civic Drive will continue to be operational as per the existing situation (subject to the appointed Contractors staging and methodology). Appropriate approvals will be obtained during public domain works;
- If the first approach is accepted to proceed, temporary closure of the footpath on the southern side of Rickard Road is required to facilitate concrete truck access;
- TfNSW certified traffic controllers are proposed be in place at site access and egress point to ensure the safe interaction of pedestrians and construction traffic; and
- Construction vehicle traffic generation is expected to be approximately 75 trucks per day during the peak construction stages and 8 trucks per hour. This reduces to approximately 40 trucks per day during other stages.

Appendix A

Construction Vehicle Access

Option 1

the alternate footpath strategy around the site with Rickard road frontage closed to permit vehicles manoeuvring within the site



Legend

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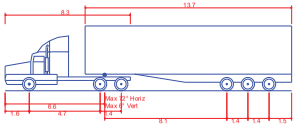
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Issue	Date	By	Chkd	Appd
B	03/03/21	LK	SZ	SZ
A	12/08/20	SZ	JT	JT

For Information

ARUP

Arup, Level 5, 151 Clarence Street
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Built

Job Title
WSU BCC

Drawing Title
Construction vehicle access

Scale at A3 1:300

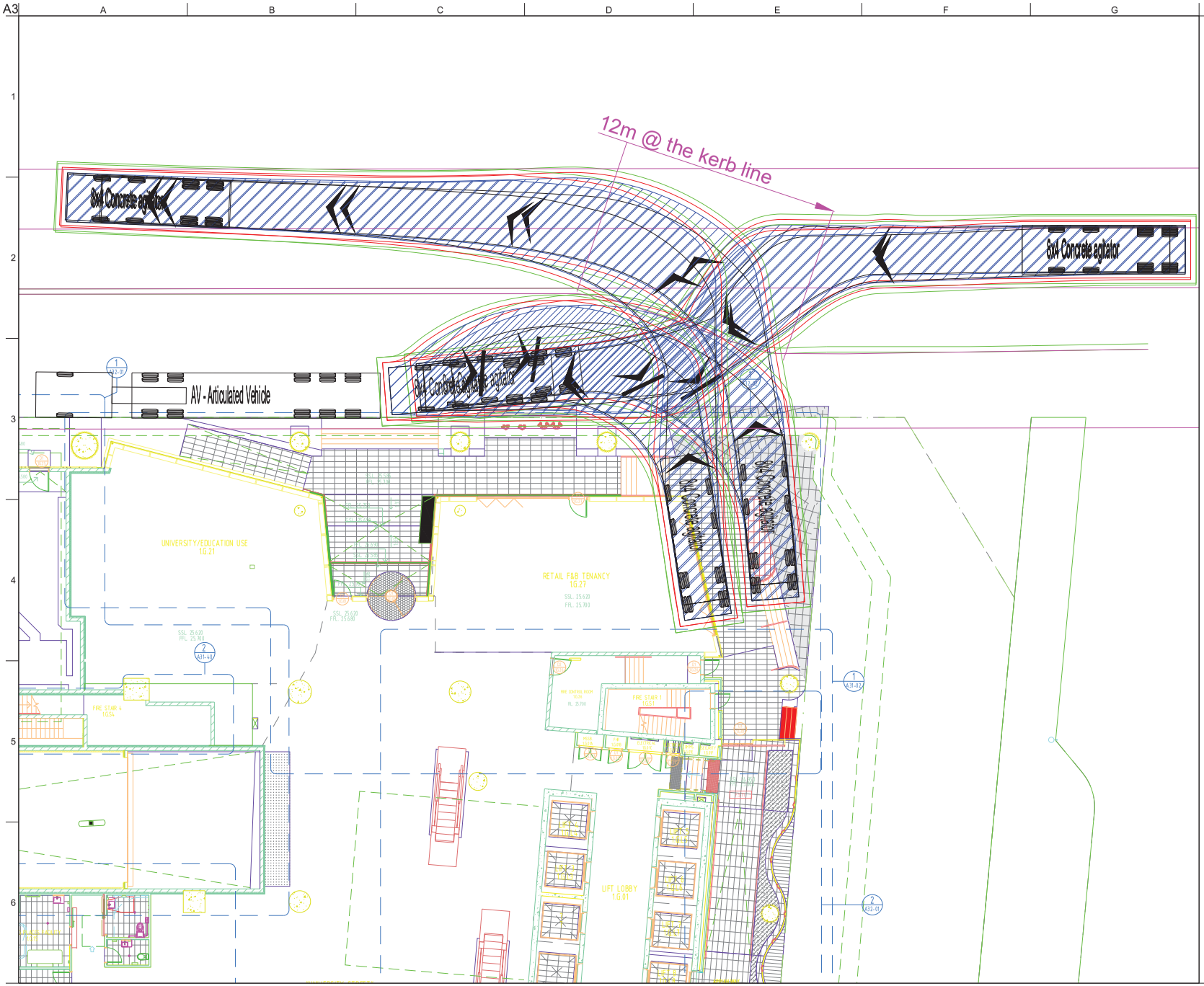
Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT001**	**B**

Do not scale

© Arup



Legend

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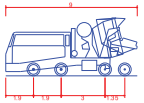
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



8x4 Concrete agitator

Overall Length	9.000m
Overall Width	2.600m
Overall Body Height	3.965m
Min Body Ground Clearance	0.296m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.500m

Issue	Date	By	Chkd	Appd
D	11/03/21	LK	SZ	SZ
C	09/03/21	LK	SZ	SZ
B	03/03/21	LK	SZ	SZ
A	12/08/20	SZ	JT	JT

For Information

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www.arup.com.au

Client
Built

Job Title
WSU BCC

Drawing Title
Construction vehicle access
Recommended Option

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT002**	**D**

Do not scale

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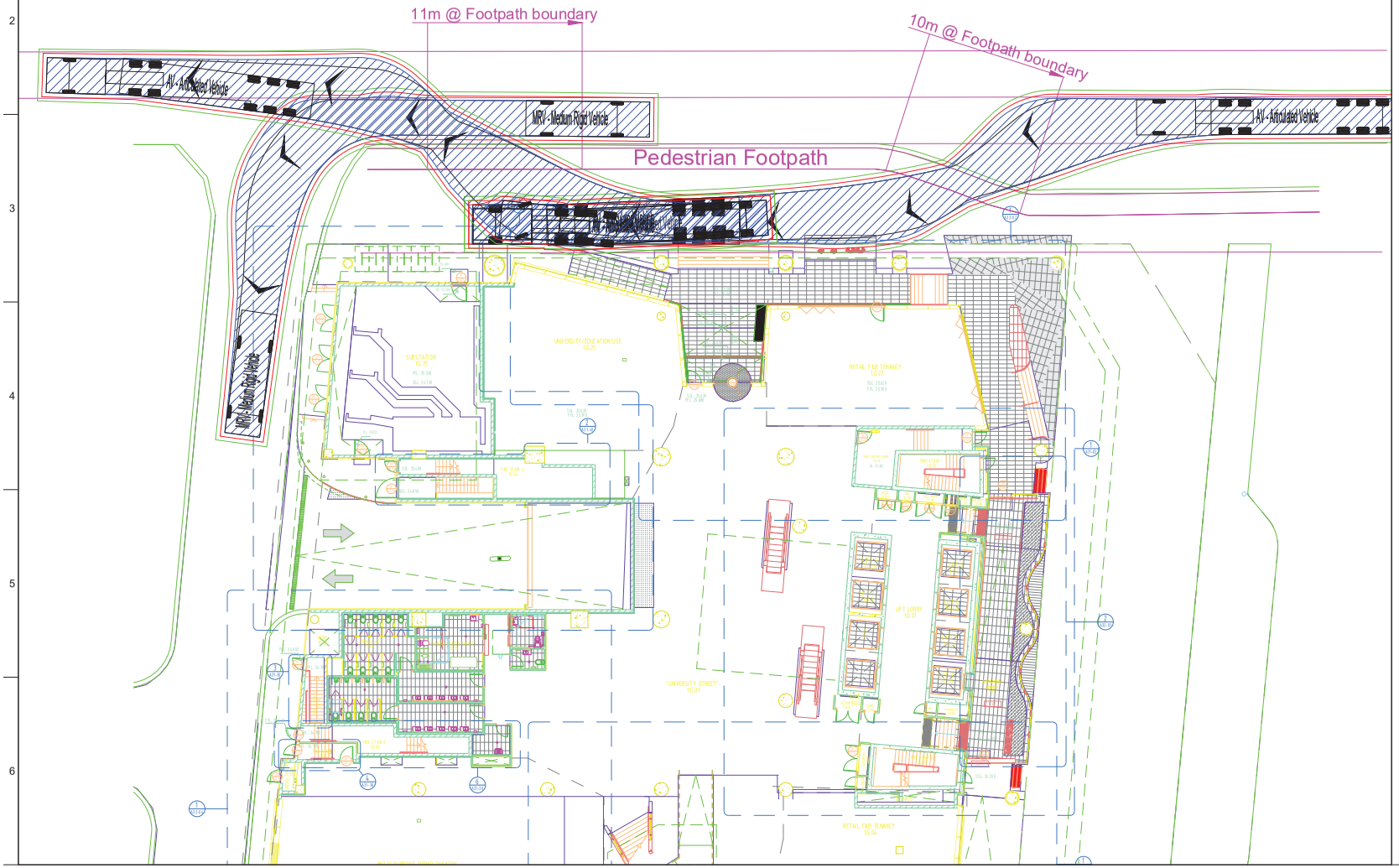
Option 2

halting traffic to permit concrete trucks reversing into gate 1 and maintaining the footpath throughout the project

A3



Legend

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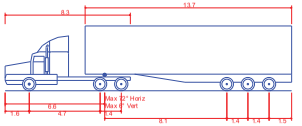
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



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Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Issue	Date	By	Chkd	Appd
B	03/03/21	LK	SZ	SZ
A	12/08/20	SZ	JT	JT

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www.arup.com.au

Client
Built

Job Title
WSU BCC

Drawing Title
Construction vehicle access

Scale at A3 1:300

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT003**	**B**

Do not scale

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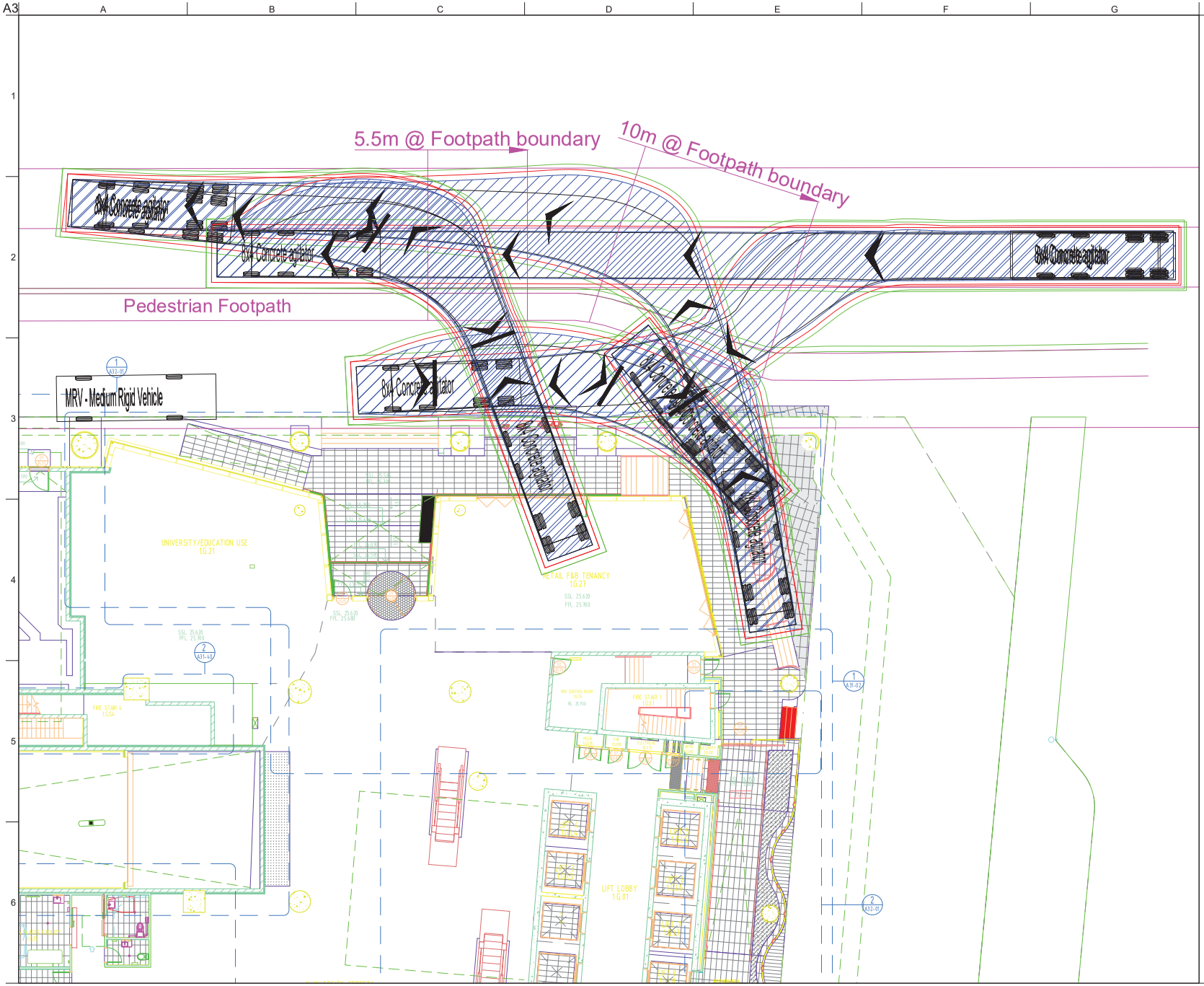
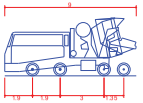


Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



8x4 Concrete agitator

Overall Length	9.000m
Overall Width	2.600m
Overall Body Height	3.965m
Min Body Ground Clearance	0.296m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.500m

Issue	Date	By	Chkd	Appd
D	11/03/21	LK	SZ	SZ
C	09/03/21	LK	SZ	SZ
B	03/03/21	LK	SZ	SZ
A	12/08/20	SZ	JT	JT

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Client
Built

Job Title
WSU BCC

Drawing Title
Construction vehicle access

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT004**	**D**

Do not scale

© Arup

APPENDIX B

Construction Soil & Water Management Plan (CSWMP)

Prepared by Warren Smith & Partners

This plan has been prepared to address each of the items outlined in the DA Consent below (Condition B20)

The Applicant must prepare a Construction Soil and Water Management Plan (CSWMP) and the plan must address, but not be limited to, the following

(a) be prepared by a suitably qualified expert, in consultation with Council;

(b) describe all erosion and sediment controls to be implemented during construction;

(c) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);

(d) detail all off-Site flows from the Site;

(e) prepared in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book; and

(f) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI).

SOIL AND WATER MANAGEMENT NOTES

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH DEVELOPMENT CONSENT B20 (SSD 9831) TO ADDRESS ITEMS RELATING TO PREPARATION OF A CONSTRUCTION SOIL & WATER MANAGEMENT PLAN.
2. IT HAS BEEN ASSUMED THAT SEDIMENT FENCING BE WILL PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/ EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
3. ALL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORM WATER "BLUE BOOK"
4. MINIMISE CLEARING OUTSIDE BASEMENT EXTENT.
5. SEDIMENT CONTROL FOR LANDSCAPED WORKS DOWNSTREAM OF THE BUILDING TO INCLUDE A SILT FENCE AND SANDBAGS AS REQUIRED. TO BE MANAGED AT A RATE OF 50L/s BY THE CONTRACTOR ON SITE. INSTALL CATCH DRAIN TO DIVERT UPSTREAM CATCHMENT AWAY FROM DISTURBED SOIL AREA.

SEDIMENT CONTROL CONDITIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES AS NEAR AS POSSIBLE TO THE SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO DESIGN/SIZE CONSTRUCT TEMPORARY SEDIMENT BASIN. WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE. ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

TEMPORARY LAYBACK

SANDBAGS OR SIMILAR ARE TO BE PROVIDED AT THE VEHICLE ACCESS POINT TO THE NOMINATED 1% FLOOD LEVEL IN THE EVENT OF A MAJOR STORM EVENT AND WARNING AS PER THE FLOOD EMERGENCY RESPONSE PLAN.

SITE HOARDING SHALL BE PROVIDED TO ENSURE OVERLAND FLOWS FOR EVENTS UPTO AND INCLUDING 1 IN 100 YEAR ARI DO NOT ENTER THE SITE AND EXCAVATION.

PROVIDE STEEL PLATE FOR TEMPORARY PROTECTION OF EXISTING STORMWATER PIPES FROM CONSTRUCTION VEHICLES

SANDBAGS OR SIMILAR ARE TO BE PROVIDED AT THE VEHICLE ACCESS POINT TO THE NOMINATED 1% FLOOD LEVEL IN THE EVENT OF A MAJOR STORM EVENT AND WARNING AS PER THE FLOOD EMERGENCY RESPONSE PLAN.

RICKARD ROAD

PROVIDE STEEL PLATE FOR TEMPORARY PROTECTION OF EXISTING STORMWATER PIPES FROM CONSTRUCTION VEHICLES

TEMPORARY LAYBACK

INDICATIVE CONSTRUCTION VEHICLE ACCESS POINT WITH GATE AND RAMP INTO BASEMENT.

MINIMUM HOARDING LEVEL (1% FLOOD) 25.70m AHD

MINIMUM HOARDING LEVEL (1% FLOOD) 25.50m AHD

MINIMUM HOARDING LEVEL (1% FLOOD) 25.50m AHD

INDICATIVE CONSTRUCTION VEHICLE ACCESS POINT WITH GATE AND RAMP INTO BASEMENT.

MINIMUM HOARDING (1% FLOOD) LEVEL 25.00m AHD

CONTRACTOR TO REVIEW ESC MEASURES ON SITE TO MITIGAE IMPACT ON CONSTRUCTION/ REGULAR TRAFFIC.

CONTRACTOR SHALL UTILISE SHAKER GRID OR WASH BAY AT SITE EXIT. IF A WASH BAY IS UTILISED, THE CONTRACTOR SHALL COLLECT ALL WASH RUNOFF, CLEANSE WATER TO CITY OF CANTEBURY BANKSTOWN COUNCIL & NSW EPA STANDARDS PRIOR TO DISCHARGE FROM THE SITE.

SEDIMENT FENCE

TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP AT SITE (TYP). LOCATION TO BE CONFIRMED ON SITE BY BUILDER.

MINIMUM HOARDING (1% FLOOD) LEVEL 24.90m AHD

PROVIDE STRAW BALE FILTERS TO EXISTING CULVERT INLET STRUCTURE. (TYP)

THE CONTRACTOR SHALL MAINTAIN THE EXISTING ONE WAY - LOCAL TRAFFIC (APPROX 4.6m WIDTH) AS WELL AS PEDESTRIAN ACCESS APIAN WAY. NOTE: TO BE USED FOR CONSTRUCTION TRAFFIC, STORMWATER CULVERTS ARE LOCATED WITHIN THIS APPROXIMATE AREA AND MAY REQUIRE PROTECTION FROM HEAVY VEHICLES.

MINIMUM HOARDING LEVEL (1% FLOOD) 24.85m AHD

TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP AT SITE (TYP). LOCATION TO BE CONFIRMED ON SITE BY BUILDER.

CONTRACTOR TO STAGE BULK EARTHWORKS EXCAVATION AND OR ALLOW TEMPORARY SHORING AS REQUIRED TO PROTECT TRUCKS DURING LOADING.

MINIMUM HOARDING (1% FLOOD) LEVEL 24.80m AHD

MINIMUM HOARDING (1% FLOOD) LEVEL 24.55m AHD

SITE SHED

BASE OF LIFT SHAFT TO BE USED AS SEDIMENT BASIN DURING CONSTRUCTION (REFER DETAILS)

MINIMUM HOARDING (1% FLOOD) LEVEL 24.50m AHD

SITE HOARDING SHALL BE PROVIDED TO ENSURE OVERLAND FLOWS FOR EVENTS UPTO AND INCLUDING 1 IN 100 YEAR ARI DO NOT ENTER THE SITE AND EXCAVATION.

PROVIDE GEOTEXTILE FABRIC OVER EXISTING GRATED INLET PITS (TYPICAL)

PROVIDE GEOTEXTILE FILTER FABRIC OVER EXISTING STRIP DRAINS

PROVIDE GEOTEXTILE FILTER FABRIC OVER EXISTING STRIP DRAINS

SITE ACCESS STAIRS

PEDESTRIAN SITE ACCESS SHED GATES

SITE HOARDING SHALL BE PROVIDED TO ENSURE OVERLAND FLOWS FOR EVENTS UPTO AND INCLUDING 1 IN 100 YEAR ARI DO NOT ENTER THE SITE AND EXCAVATION.

MINIMUM HOARDING (1% FLOOD) LEVEL 24.05m AHD

MINIMUM HOARDING (1% FLOOD) LEVEL 24.45m AHD

SANDBAG INSTALLED ON EXISTING PIT (TYP)

300mm WIDE GEOFABRIC MODULE FILLED WITH 5mm AGGREGATE TYPICAL

DISCHARGE TO COUNCIL STORMWATER SYSTEM

ANCHOR GEOFABRIC TO TOP OF SEEPAGE CONTROL BASIN TYPICAL

PLACE 300mm THICK, 5mm AGGREGATE WRAPPED IN A60 GEOFABRIC

CONCRETE PLINTH

BASIN TO BE LINED WITH A60 GEOFABRIC

SECTION S1 SCALE N.T.S.

4.0m
2.0m
2.0m
2.0m
4.0m

S1

CONSTRUCTION NOTES:
1. REFER TO THE SOIL AND WATER MANAGEMENT PLAN FOR BASIN MANAGEMENT AND WATER TREATMENT

TEMPORARY SEDIMENT BASIN DETAIL - PLAN

NOT TO SCALE

SEDIMENT AND EROSION CONTROL

- TEMPORARY CONSTRUCTION ACCESS
- TYPE A HOARDING
- SITE GATE
- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER - DROP INLET SEDIMENT TRAP
- SEDIMENT TRAP FOR KERB INLET - SAND BAGS
- SEDIMENT TRAP - HAY BALES
- TRACK LOADING AREA AS EARLY WORKS PROGRESS
- TEMPORARY STEEL PLATE
- WASH BAY

ISSUE FOR CONSTRUCTION CERTIFICATE

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

2.5 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:200 AT SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

REVISION	AMENDMENT	DATE
1	ISSUE FOR CONSTRUCTION CERTIFICATE	18/03/21

CLIENT
walker
WESTERN SYDNEY UNIVERSITY

PROJECT
BANKSTOWN CITY CAMPUS DEVELOPMENT

PREPARED BY
Warren Smith Consulting Engineers

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www.warrensmith.com.au
ACN 002 197 088 ABN 36 300 430 126
Hydraulic Fire Civil Utilities Infrastructure

TITLE
CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	N.G.	N.G.	M.C.	M.C.

JOB No. 7207000
DRAWING No. C2.01
ISSUE 1
DATE MARCH 2021
STATUS CONSTRUCTION CERTIFICATE