Construction Management Plan

Arthur Phillip High School and Parramatta Public School

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Prepared by:

Grimshaw Architects
Level 3, 24 Hickson Road
Sydney, 2000 NSW

T : +61 2 9253 0200
W: www.grimshaw-architects.com

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Construction Management Plan

1. Introduction

This Construction Management Plan (CMP) is a preliminary plan which has been prepared to define the minimum conditions of standards for site activities and works methodologies and address the impact of the demolition and construction works associated with the future redevelopment of Arthur Phillip High school (APHS) and Parramatta Public School (PPS) for the Department of Education NSW.
A Principal Contractor will not be appointed until after approval is granted for the Development Application. The objective of this CMP is to outline a high level framework within which future demolition and construction works shall be undertaken. Upon appointment and having developed a final detailed demolition and construction methodology, the Principal Contractor will prepare and submit an amended CMP containing an increased level of detail. The revised and expanded CMP will provide the Principal Contractor's preferred demolition and construction methodologies and project specific site management planning detail with the specifics of demolition and construction impacts of time, nature, location, extent and duration. The revised CMP shall incorporate as a minimum the following:

- A detailed Pedestrian and Traffic Management Plan;
- An Operational Health &Safety (OH&S) Management Plan; and
- A Waste Management Plan for Construction.

The planning and implementation of demolition and construction works will be completed in consultation with the following statutory authorities where applicable:

- Parramatta City Council
- NSW Heritage Office
- NSW Environment and Heritage
- Transport for NSW/Parramatta Light Rail
- Fire and Rescue NSW
- Sydney Water Corporation
- WorkCover Authority of NSW

This CMP is a preliminary plan which has been prepared to give an outline of the processes to be employed during the demolition and construction stages of this project.

2. Project Location and site description

The site of the development proposal is on the existing school sites to the north and south of Macquarie Street, between Smith and Charles Streets, Parramatta (80-100 and 175 Macquarie Street). The combined site area of the sites is about 3 ha, or 1.25 ha north of Macquarie Street (Arthur Phillip North site), and 1.75 ha south of Macquarie Street (approx. 1 ha for the Arthur Phillip South site and 0.75 ha for the Parramatta Public School site).
The site is surrounded by many existing and planned high density commercial and residential developments. The area is home to some large government agencies including the New South Wales Police Force, Sydney Water Corporation and Urban Growth NSW.
The site sits near Parramatta Square (previously known as Civic Place) which is a civic precinct located in the heart of the city, adjacent to Parramatta Town Hall. The area includes a new mixed use redevelopment of the Parramatta Civic Centre, which includes buildings for commercial, residential and community use. The site consists of playing fields, a gymnasium and 16 demountable buildings. The Arthur Phillip High School was established in 1960 and is located in buildings that have been continuously used as a school since 1875. The existing Arthur Phillip High School has about 1,500 students. Being split across two sites, there is significant pedestrian traffic across Macquarie Street by the high school students.

There is currently one-way vehicular traffic along Macquarie St. Barrack lane is a service route and little street is a cul-de-sac. Both Smith St and Charles St have two way traffic.

Fig 01. Existing configuration of APHS and PPS site

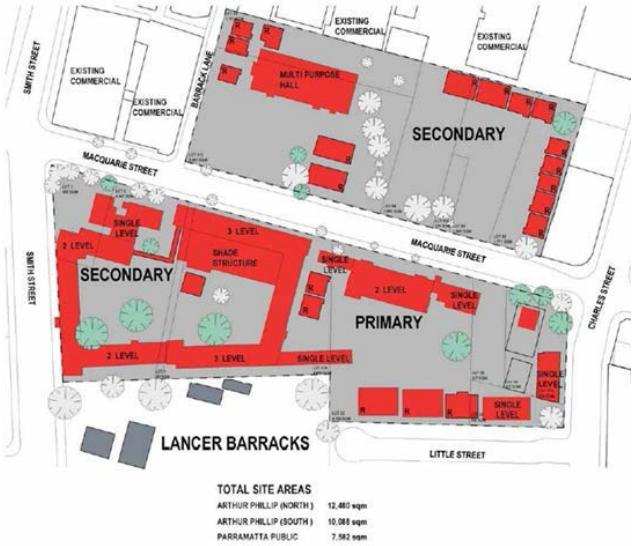


Fig 02. Plan of Existing buildings on subject site

2.1 Description of the Works

The APHS and PPS design proposal involves the redevelopment of the site indicated in *Image 01* to accommodate the redevelopment of a high school and primary school, school grounds and refurbishment of two existing heritage school buildings on-site. The scope of the proposal includes:

- Demolition of all existing buildings and structures and site remediation.
- Dismantling and removal of demountable school buildings
- Excavation, cut and fill to regrade the PPS site and APHS site – with an equal expected cut to fill ratio
- School Grounds (hard and soft landscape) works on both APHS and PPS site
- Security fence and soft scape along perimeter as interface to public domain
- Construction of a vertical high school which equates to 17 stories with a height of 67m RL: 73.7 comprising a vertical school building and gym hall with height of 9.36m and RL 21.16
- Construction of a U-shaped Primary school with a height of 17.2m and RL 21.16 connected to the existing heritage school building (heritage building A)
- Demolition of the adjoining buildings to heritage building B. Repurpose of existing building for community and school use.
- Retention of heritage listed trees and new landscaping

2.2 Staging Plan

Arthur Phillip High School (APHS): The Western Portion of the existing APHS site will need to remain operational throughout the construction phase of the new APHS and will be demolished and redeveloped as one of the final stages of the project works. The reason is that there are not enough teaching spaces in surrounding schools to accommodate the displaced students and teachers. Please refer to Appendix 02 document titled: “Staging Plan”. The detailed option in the above document is the preferred staging option to be considered as part of these projects.

3. Hours of Work

Building works are to be confined to the hours of 7am to 6pm, Monday to Friday and 8am to 5pm on Saturday. Works are not permitted outside of these hours and on public holidays other than upon special application to Parramatta City Council if required. However due to demolition and construction methods, authority requirements and certain safety issues, there may be occasions when works are completed outside normal working hours. On such occasions an “Out of Hours Permit” application shall be made.

If a temporary night shift is proposed then approval will be sought from Parramatta City Council.

The key objective for out of hour’s works shall be to mitigate impacts on sites adjacent and maintain good relations with authorities, community, businesses and neighbouring sites.

All applications shall address the following considerations in relation to the requested hour’s extension:

- Time, nature, location, extent and duration of work;
- Location of the wok in relation to ‘sensitive’ zones;
- Safety requirements such as risk mitigation to the public/workers;
- Sequential/timing issues;
- Traffic management procedures;
- Noise mitigation procedures;
- Potential complaints management;
- Requirements of other authorities and service providers (i.e. Parramatta light rail, WorkCover, RTA,Telstra); and
- Issues associated with public interest.

4. Permits

The following indicative permits and approvals may be applicable to the works:

- Consent for the development and use of the site;
- Construction and demolition certificate(s) for the construction/demolition work;
- Permit to erect a gantry, overhead protective awning over the road or footpath;
- NSW Heritage Act 1977 Section 140 permit;
- NSW National Parks and Wildlife Act
- 1974 Section 90 Aboriginal Heritage Impact Permit
- Permit to Occupy space on road or footpath or laneway;
- Permit to erect a hoarding (where it occupies Council space outside of an allotment whilst construction work is undertaken);
- Permit for a road opening;
- Permit for a road closure;
- Permit for a construction zone;
- Permit to use mobile cranes, travel tower or lift on or above a road;
- Permit for a rubbish skip; and
- Permit for legal point(s) of discharge and approval for modifications to street lighting.
- Parramatta City Council tree permit

All permits will be issued by the local authority, as part of the development consent or subsequent to it.

5. Public Amenity, Safety & Site Security

All construction and site procedures shall ensure the general public is adequately protected from activities occurring as a result of the construction activity. The contractor will document strategies to provide a safe and secure job site. Demand for occupation of the street and protection of Council assets is well managed. The building site is kept neat and tidy to maintain public safety and local amenity.

Consultation shall be undertaken with relevant stakeholders in the area as to what impact if any will the proposed works have on their rubbish/ waste collection services. Should the removal of stakeholder waste be adversely affected, alternative arrangements shall be agreed upon before a permit will be issued.

5.1. Site Establishment

The Principal Contractor will provide all necessary accommodation, material handling and secure storage for its operations.

The facilities to be provided and maintained by the Principal Contractor shall include:

- Site administration accommodation,
- Site amenities with all required equipment and facilities;
- First Aid facilities;
- Construction worker accommodation including toilets, lockers and showers;
- Storage sheds and compounds;
- Construction plant;
- Hoisting equipment and cranes;
- Scaffolding, platforms, access ladders, barriers, handrails;
- Barricades and hoardings (including B-class);
- Temporary driveways, road crossovers and construction zone;
- 24/7 emergency vehicle access;
- On-site hardstand areas for vehicle loading and unloading;
- Rubbish sorting areas;

Construction plant and site amenities will comply with the requirements of all relevant authorities. All construction plant and equipment will be progressively removed when no longer required.

First Aid facilities for the use of all workmen in the form of a fully provisioned first aid shed with lifesaving and safety equipment as required by relevant statues, authorities and awards will be maintained at all times by the Principal Contractor.

5.2. Site Fencing

Prevention of unauthorised access to the site shall be a very high priority and will be vigorously managed throughout the demolition and construction period. When the Principal Contractor is appointed, the site will be secured with non-climbable site barriers and hoardings in accordance with the final CMP. Any hoardings

and sign-boards to the perimeter of the site will comply with the requirements of the relevant authorities, Occupational Health and Safety Act and NSW WorkCover.

The type of required hoardings, scaffolding and fencing will vary over the duration of the works, depending on how the site activities potentially impact on the adjoining public domain and neighbourhood.

The contractor shall erect as minimum a single project signboard to the hoarding at the main entrance points to identify the sites.

Before and during building work, all excavations shall be fenced so they do not pose a danger to life or property to the satisfaction of the relevant building surveyor or authority.

Hoardings, barriers and other perimeter fencing shall be suitably lined not to limit public viewing of required sight lines or to designated viewing areas. This will ensure pedestrian flow is not impeded and adequate site-public interaction is accommodated.

Refer to Appendix 01 for the nominal site boundary and site perimeters.

5.3. Safety and Security

Any temporary or permanent changes to street lighting shall first be approved shall by Council's Engineering Services Group. Once approved by ESG applicant to arrange with relevant Authority. Temporary lighting shall provide an even lighting level and shall match or better existing lighting levels.

Security measures shall be in place at all times when the site is not in operation. This may include: Perimeter barriers, locks, surveillance systems, security lighting and motion detectors. Where a building site cannot be fully secured the use of a security service to prevent unauthorised access shall be engaged.

The Principal Contractor shall establish a Safety Committee at the commencement of works comprising the main trades. Weekly walks shall be carried out by the Safety Committee and any safety issues promptly addressed within a 24 hour period.

A noticeboard will be onsite that displays important safety notices and a 24 hour telephone number for complaints.

5.4. Public Domain

Any damage to the footpath, road, kerb and channel, stormwater drains and street furniture that results from excavation, demolition and building work shall be the responsibility of the Principal Contractor. Any damage which may impact on pedestrians, cyclists and motorists' safety shall be repaired immediately.

Trees shall be protected in compliance with Parramatta City Council Tree Preservation Order permit requirements where they are near proposed demolition, excavation and construction works. Heritage trees identified in Heritage Impact Statement and their root system must be protected from potential damage during construction.

The Principal Contractor shall ensure there are no tripping hazards from the hoarding or perimeter fencing on nearby footpaths. Electrical, plumbing and other services extending over footpaths shall be covered over, and pedestrian and disability access facilitated by a ramp. Ramps shall have a non-slip surface, a handrail, and a minimum gradient of 1:14 unless the existing topography of the street or road requires some variation to this ratio.

Where it is determined the street or footpath or part thereof needs to be occupied by Principal Contractor, above or below the public domain the general public shall be protected from demolition and construction activities including vehicle loading and off-loading within the public domain.

Precautions shall be fully specified and include the following measures:

- Restriction on the hours of operation of these activities (non-peak hours)
- The use of spotters and traffic controllers
- Restriction on the type of work being carried out (welding, etc.)
- Machinery to be used
- Security mesh or barriers to separate the public from the work area.

Skips and/or rubbish bins shall be kept clear of public thoroughfares, pedestrian and bicycle access areas to prevent disruption to public areas.

When using cranes or mobile lifting equipment the following steps to prevent disruption to public areas shall be considered:

- Ensure equipment does not restrict public thoroughfares and pedestrian access or, where restricted access is unavoidable, use gantries or other overhead protection
- Determine lifting zones for medium to long term use of the equipment
- Protect pavements and streets and conduct dilapidation surveys before and after works have taken place
- Implement procedures and lifting techniques to ensure safety on adjoining streets and footpaths
- Use traffic management controls and signage.

Unless otherwise permitted, all construction materials shall be stored onsite and not in the street or public space.

Pedestrian signs shall not be damaged, defaced, removed or altered in any way without Council approval. New pedestrian signs shall not be installed without Council approval.

5.5. Services relocations and temporary protection of Public Domain

Prior to any works commencing on site, detailed dilapidation reports will be carried out to properties and buildings adjoining the site. Further dilapidation reports will be carried out for footpaths, kerbs, road pavements and utility infrastructure features of the main access routes in immediate vicinity to the site.

The Principal Contractor shall provide protection to existing surrounding building elements potentially impacted by the works. Protection may be in the form of screened hoardings, scaffolding and fencing, taped drop sheets and the like, all installed prior to commencement of the works.

Enquiries and detailed services location investigations shall be carried out to identify any need for temporary protection of elements of existing utility infrastructure that are not to be diverted as part of the works.

All temporary protection shall be installed and maintained during the duration of the works until they are no longer required.

5.6. General Management

If building works are for demolition only and the site is to be left vacant, it shall be cleared of all unsightly debris, left in a clean state and fully fenced with solid hoarding. The Principal Contractor shall be responsible for the site after it has been vacated by the demolisher or sub-contractor.

Any precautions for public protection within the street/public domain shall comply with the Building Regulations, Parramatta City Council requirements and WorkCover NSW requirements and all other legislative requirements.

6. Health & Safety and Environment

6.1. Inductions

All employees and sub-contractors shall undertake an integrated environmental and health and safety awareness induction prior to commencement of work on the site or for works related to the development.

The induction shall have a major health and safety emphasis and will cover the following:

- Objective and purpose of the project;
- Contents of the revised CMP;
- Critical environmental protection procedures including spill responses, emergency procedures, hazardous substances and dangerous goods;

- The location of the CMP and other management plans during works; and
- NSW Work health and safety legislative requirements and other general obligations.

During the site inductions, all contractors working on the site will be informed of their responsibility to reduce waste where possible. All personnel will receive instruction on what waste materials can be recycled and where the appropriate bins are located.

Communication and education material on the air quality and dust controls and procedures shall be incorporated into the site induction program.

At completion of the induction, all employees, sub-consultants and sub-contractors shall sign the Principal Contractor's Site Induction Register acknowledging receipt and understanding of this CMP and other Plans.

Regular toolbox meetings shall include refresher training on CMP issues such as changes to controls, introduction of new procedures and controls and information on effectiveness of implementation of the CMP.

6.2. Hazardous and Dangerous Materials

A hazardous materials survey of the existing buildings shall be conducted before demolition to identify methods of safe demolition and disposal.

For any dangerous goods required as part of the works the following points below will be adhered to:

- Sub-contractors to provide list of hazardous chemicals and Material Safety Data Sheets (MSDS) to the Principal Contractor prior to bringing chemicals on site;
- No chemicals to come onto site unaccompanied by a suitable MSDS;
- MSDS, chemical inventory and copy of Emergency Response Plan be held at each storage facility;
- Designated hazardous substances or dangerous goods require the designated responsible Principal Contractor representative/manager approval prior to bringing on Site;
- Corrosive materials to be stored and handled in accordance with AS3780.8 (Class 8 substances – Corrosives);
- All fuel, oils and chemicals shall be clearly labelled;
- Transfer of bulk fuel and handling of hazardous chemicals to be conducted only by appropriately trained personnel;
- Spill clean-up kits including absorbent materials will be kept at each storage place.
- No permanent bulk oil storage areas would be permitted;
- All temporary fuel, oil, or chemical storage areas shall be bunded, have suitable fire protection, appropriate procedures for monitoring and clearing accumulated stormwater, and appropriate procedures for spill containment and clean up with equipment stored in close proximity ready for immediate use;
- Operational procedures for bulk oil or chemical handling, delivery, and disposal shall be documented and shall be in accordance with the relevant regulations and Australian Standards;
- Only personnel trained in the relevant procedures and in contingency action and spill clean-up procedures shall supervise the loading and unloading of bulk oil and chemicals (if any); and
- Appropriate quantities of spill containment material shall be available for immediate use

6.3. CMP Review

The Principal Contractor will ensure that controls outlined in this CMP are properly implemented and regularly monitored to ensure their effectiveness. The CMP shall be revised and refined as required to ensure it remains relevant to the Development Project and consistent with environmental regulatory requirements, the conditions of approval and all other legislative requirements.

Reviews will be undertaken as necessary as a result of any of the following:

- When there is a change in the scope of the Development Project that requires a change in controls;
- When there is a need to improve performance in an area of impact;
- At the completion of audits as required;
- As a result of changes in legislation applicable and relevant to the Development Project; and
- As required by Parramatta City Council, the Principal Contractor or Authorities.

7. Construction Preliminaries

7.1. Accommodation

Upon appointment, the Principal Contractor shall establish the requirements of site accommodation based on the peak workforce demands of the project for the various stages of demolition, excavation and construction identified in the Principal Contractor's construction programme.

The size, location and duration of the accommodation requirements shall be submitted as part of a revised Construction Management to Parramatta City Council for approval prior to the issuing of the "Construction Certificate".

7.2. Site Carparking

There is very limited public parking available within the site boundary and in the vicinity of the site. Accordingly all contractor site staff and construction workers will be encouraged to make use of the existing public transport provisions, which are convenient and optimum in any event.

Other options include car-pooling and small bus hire by the workers" companies for the purpose of transporting workers from and to the site will be made a high priority during the construction tender as well as each subcontract tender.

7.3. Cranes

Tower cranes shall be required to facilitate construction of the development. Within the school grounds a dedicated area will be used for the purpose of unloading the major loads. The use of mobile cranes if any will be minimise where possible.

7.4. Construction Zones and Material Loading Areas

There may be sufficient space on site for the setting down and picking up of goods being taken to or from the construction site. Therefore a Works zone is not yet proposed to be installed at this development.

It is not yet anticipated that any road closures will be required during the construction period of the development. However, shall the temporary closures be required then the relevant applications for approval will be made.

8. Waste Management

The Principal Contractor shall develop a project specific resource recovery and waste management plan, detailing the following:

- Efforts to minimise waste on site by avoiding over-estimation of purchasing requirements, minimising packaging materials, and buying environmentally approved and recycled content products;
- Procedures for the collection and sorting of recyclable construction materials;
- The type and quantity of materials that are to be re-used or recycled;
- Provision of containers for recyclable materials including cardboard, glass, metal, and plastic; and green waste;
- The re-use of timber, glass and other materials;
- The recycling of asphalt, metal, bricks, tiles, masonry, concrete, plasterboard, plastic, batteries, cardboard, carpet and other materials;
- Provisions for collection of daily rubbish from workers;
- Procedures for removal of waste (materials that cannot be reused or recycled) from the site;
- Procedures for removal of hazardous or dangerous materials from the site; and
- Buy environmentally approved and recycled content products.

Removal of hazardous or dangerous materials from the site shall be in accordance with State and Federal legislation including WorkCover requirements. Asbestos/soil waste will be removed (if applicable) according to WorkCover Guidelines, and placed in double lined bins before being disposed of at a licensed landfill by licensed transporter.

Temporary garbage chute shall be used in demolition and construction. At the base of chutes bulk bin shall collect the waste. The chutes shall be fitted with devices that hose down the garbage as it is dropped in to the chutes.

Waste material collected shall be stored on site neatly in appropriate bins or stockpiles, in such a manner that stormwater run-off does not come into contact with waste until removed Waste segregation areas and temporary storage locations for skips/waste for recycling/reuse/disposal shall be selected so as to reduce any safety risk to site workers and to minimise adverse impact on the visual amenity of the site. For outside bins, self-closing lids shall be installed to ensure waste does not become airborne.

Waste collection shall only occur during permitted hours.

Litter and debris 'trapped' against site fencing shall be regularly cleaned. Burning off on site is prohibited.

All waste disposed of (whether it be for recycling/reuse or landfill disposal) will be recorded on forms which will be part of the project record. Recycler and landfill disposal dockets will be used for confirmation of tonnages and proof of lawful disposal.

The Principal Contractor shall be responsible for reporting any incident which causes or threatens to cause material environmental harm or breaches approval requirements to Parramatta City Council as soon as possible.

Refer to APHS & PPS Construction Waste Management Plan for Demolition-Construction of the development approval submission for additional information.

9. Stormwater and Sediment Control

Sediment traps or filters shall be placed around any drain affected by demolition and construction works to prevent sediment entering the stormwater system. Sediment controls shall be checked daily to ensure they are properly in place. Sediment barriers may be required for fine materials.

Depending on the size/frequency of truck movements, the surface materials and site location, designated truck/vehicle/ equipment wash down areas may be required. Wash down areas shall be located near the site entrance and be designed to capture and treat water prior to discharge into the stormwater system. Wash down areas exceeding 3000 litres per day shall recycle water.

Stormwater will be directed to the lowest point at the site. At this point a pump out pit will be located.

The pit will be surrounded by a mound of blue metal and filter fabric. All waste and stormwater will pass through the filter fabric and blue metal prior to entering the pump-out pit. All pollution control devices will be regularly maintained. Any liquid wastes such as paints or similar chemicals will be retained for recycling and other liquids will be disposed in accordance with the requirements of Sydney Water.

Siltation barriers will be installed where necessary to prevent the generation of erosion and sediment during the demolition and construction period.

If the water contains only sediments, it can be filtered and pumped to stormwater. It shall have less than 50mg/L total suspended solids. Polluted water shall not enter the stormwater system and may be pumped to the sewer system with the appropriate approvals from the water authority. A liquid waste company may be required to collect contaminated water for disposal at a licensed treatment facility.

Waste material, including liquid wastes such as paint, concrete slurries and chemicals, shall not be discharged into a stormwater or sewer drains. Specific facilities to enable paint brushes, rollers and spray equipment to be cleaned without any discharge of by-product into the stormwater or sewer systems shall be provided.

Activities on site shall provide permanent water saving measures regulated in NSW. All hoses shall be in good condition and fitted with a trigger nozzle. High pressure water cleaning units are to be used for all wash-down activities.

A detailed "Erosion and Sediment Control Plan" shall be prepared specifically addressing the issues of the demolition and construction methodology and programme by the Principal Contractor and submitted for approval by Parramatta City Council prior to the issue of a Construction Certificate

9.1. Flood Control

The Principal Contractor will prepare and submit an amended CMP containing details of a Parramatta River 1 in 100 year flood exclusion or mitigation methodology (including site remediation)

The revised plan will address the risk profile of flooding relative to the construction programme and address possible measures such as site bunding or other means necessary to exclude water ingress into construction areas lower than the defined flood level for the 1 in 100 year return event.

10. Noise & Vibration

Different levels of information on noise and vibration management shall be required during each stage of a project. A proactive approach shall be adopted by the Principal Contractor from the project commencement, as well as flexibility methodologies to adopt mitigating methodologies and to respond to issues as they arise during works' stages.

The Principal Contractor shall endeavour to achieve a good relationship with the community and the Parramatta City Council as a foundation of the project planning. A clearly thought-out approach to noise management shall be developed to set reasonable expectations for the community and the Council, helping to minimise issues when works begin.

10.1. General Practices

General demolition and construction activities and procedures shall be generally undertaken to:

- Minimise metal-on-metal contact: Bins, skips and chutes shall be lined with material such as carpet, to deaden the sound of metal and other waste disposal;
- Use equipment sensibly by turning off equipment when not in use. Throttle settings shall be reduced where possible to reduce unnecessary noise;
- Encourage appropriate conduct of staff and ban loud radios and/or stereos outdoors during sensitive times.
- Use public address systems sensibly and in moderation.
- Manage truck noise through the enforcement of the Pedestrian and Traffic Management Plan

10.2. Contract Specification

The Principal Contractor shall upon appointment develop a summary of general practices for noise and vibration management and, if applicable, incorporate the requirements of the Noise and Vibration Management Plan within contract specifications. Additionally the Noise and Vibration requirements shall be clearly display this on site. Operating hours, delivery times, truck routes, and extra considerations for works during sensitive times shall be included in the summary. Workers should be reminded about these commitments regularly.

10.3. Plant and Equipment

The Principal Contractor shall endeavour to use low-noise, well-maintained equipment where feasible and reasonable. Consideration of equipment noise levels shall be part of each stage of project planning and contract specification.

10.4. Equipment Selection and Maintenance

A key commitment for the Project Development, which shall be included within contract specifications, is to ensure that all machinery and equipment is fitted with noise reduction fittings and mufflers and that:

- Equipment is not operated if maintenance or repairs would eliminate or significantly reduce a characteristic of noise resulting from its operation;
- Equipment shall be in good working order and where there is a fault or maintenance issue creating noise, it shall be where possible immediately rectified;
- The Principal Contractor shall regularly check the condition of mufflers, enclosures and air lines, for example, to make sure they are in good working order and that there are no gaps or leaks.
    - An ongoing inspection and maintenance process shall be further defined for the project upon appointment of the Principal Contractor; and

- Hired equipment that is causing excessive noise in a manner that is not typical for the equipment shall be returned to the supplier.

'Broadband' or 'quacker' alarms where able to be fitted or supplied with mobile equipment shall be utilised rather than traditional 'beeper' alarms that create a "noise nuisance" during projects where there is a lot of movement or if works are being conducted at night.

The use of these alternative technologies shall be:

- Determined by a competent person based on an assessment of the site and its conditions and on the machines involved;
- Compatible with the machines, and not adversely affect their operation;
- Accompanied by specific procedures for installation, maintenance etc., to ensure correct operation; and
- Communicated to all site staff to ensure they are aware of the new alarm and how it works.
- The requirements of the relevant Occupational Health and Safety legislation shall be complied with in all cases.

10.5. Site Planning

The Principal Contractor shall aim to locate plant and equipment away from sensitive sites such as Lancer Barracks and heritage items in order to maximising the distance from affected parties. When plant and equipment needs to be located close to noise sensitive areas, restricting the hours of operation shall be considered. Barriers shall be used where possible and appropriate to break the 'line of sight' between the noisy works and the noise sensitive areas (when looking towards the noise source from the location receiving the noise).

Barriers shall be located as close as possible to the noise source. Gaps or openings at joints in the barrier material and barriers need to be sufficiently dense.

Barriers shall be sufficiently high and wide, in order to reduce sound carry around the structure.
Acoustic sheds shall be considered for very noisy operations where it is possible to contain the plant and equipment.

10.6. Managing Noise from Trucks and Mobile Equipment

Generally the site layout shall be arranged to avoid the need for truck reversing. Drive-through parking and deliveries with a one-way thoroughfare shall be the preferred operations arrangement.
Site vehicle entrances should be located away from sensitive areas in order to minimise the impact of beeping and engine noise from truck movements in the early morning.

If appropriate, an area away from sensitive receptors shall be nominated for off-site/roadside truck parking when vehicles arrive before site opening hours. Traffic controllers shall be used to direct trucks that arrive out of approved times and instruct drivers to turn off their engines when stationary.

At an early stage, the Principal Contractor shall designate a truck route that minimises noise impacts and communicate clearly to drivers the requirements for arrival times, vehicle movements, idling reduction and general conduct, and/or include these requirements as a condition of contract.

Deliveries to the construction site shall be scheduled to occur only within the allowed times.
Management procedures shall be undertaken by the Principal Contractor to reduce noise impacts through providing fewer vehicles with larger loads, rather than a number of smaller vehicles. Options may be limited by site access and scale, in managing deliveries or waste removal.

Other considerations, such as safety and traffic impacts, will apply when defining truck access and truck routes.

10.7. Vibration

Upon appointment the Principal Contractor shall engage a suitably qualified acoustic consultant to undertake vibration assessments for projects that recognise the demolition, excavation and construction methodologies to be used for the works. The Principal Contractor shall amend the CMP to nominate any identified risks through the creation of vibration that negatively impacts on nearby buildings or infrastructure, or negatively affects people within nearby buildings. The report shall identify issues and

works methods associated with the work activity that could eliminate, reduce or mitigate the impacts for receptors.

Vibration assessments shall also be undertaken in response to a complaint or concerns expressed about damage to nearby buildings or infrastructure. Vibration assessments may include predictive analysis, assessments during trial operations, or ongoing monitoring.

11. Air and Dust Control

The Principal Contractor shall ensure that site works are conducted in a manner such that the ambient air quality complies with statutory requirements and the best practice environmental standards set for this project.

Where nuisance odours can be detected at the boundaries of the Site or where air quality fails to meet the required ambient air standards, the offending work will be modified so as to return the odour or air quality to within acceptable authority standards. The options for modification of work practices include partial cessation of work, alternative materials handling measures, or complete cessation of work in that area.

Control measures shall include:

- Minimise the potential for the generation of dust, odours and noxious vapours;
- Consider the prevailing weather conditions in determining the manner in which work is planned to be undertaken;
- No burning of any material at the Site during the works;
- Use plant and equipment having emissions which comply with NSW EPA criteria and which will not contravene the ambient air quality standards; and
- All areas where potentially odorous or dry soil is being stockpiled will be covered.

11.1. Dust Suppression

All earth disturbed areas and earth stockpiles shall be stabilised as soon as practicable to prevent or minimise wind-blown dust. Additionally all;

- Trafficable areas shall be clearly defined by guide posts or other suitable barriers to prevent unnecessary vehicle movement onto other areas;
- Water sprays shall be used for dust suppression across unsealed areas of the site, stockpiles and other dust generating areas. The water will be applied by water cart and/or use of a "knocker type" spray nozzle and/or hand-held hose. The water cart will be equipped with a pump and sprays capable of spraying water at a rate sufficient to maintain dust control;
- Visual inspections shall be undertaken to ensure that trucks are not excessively filled prior to departure for the site;
- A wheel washing/shaking facility shall be constructed at the access point to the site as appropriate. Trucks transporting material from the site shall be covered immediately after loading to prevent wind-blown dust emissions and spillage. The covering shall be maintained until immediately before unloading the trucks; and
- The tailgates of all trucks leaving the premises shall be securely fixed prior to loading or immediately after unloading to prevent loss of materials;

11.2. Odour, Dust and Volatile Emissions Control

Some odours and dust may be generated during the project works, and consequently, management procedures shall be required to address issues. Odour and dust generation at the site will be influenced by weather conditions, the extent of open excavations stockpiles, and the quality of material exposed. If obnoxious odours and dust occur, odour and dust management requires the following key issues to be addressed:

- Identification of sources of odours/dust;
- Minimisation of odour/source;
- Odour management response procedures;
- Progressive contingency measures; and

Monitoring dust and odour management are recognised as important aspects of site environmental management and will be given high priority in the planning and progressive task risk assessment of all excavation, stockpiling, demolition, remediation and haulage operations.

A monitoring program will involve:

- Fugitive odour and dust assessments performed using a sensory approach; and
- Visual observation of airborne dust (if any), along the property boundaries at least once during each working day.

At times of excavation in adverse weather conditions, such as strong and dry wind conditions and elevated temperatures, monitoring shall be more frequent. Frequency will be a function of conditions as assessed by the designated responsible Principal Contractor representative/manager.
The locations selected for dust and odour monitoring will correspond to the most critical set of conditions in terms of ambient air quality and shall consider the prevailing wind direction occurring at the time of the inspection/s. Air monitoring observations shall be used by the Principal Contractor to confirm or modify the acceptability of work procedures.

The ambient air quality will be considered to be unacceptable should the staff member conducting the inspection/s assess that any one observation fails to meet the air quality standards. In the event that the ambient air quality is considered to be unacceptable, the designated responsible Principal Contractor representative/manager will instigate works to rectify the ambient air quality in order that it reaches an acceptable quality within the shortest time practicable.

Rectification of the ambient air quality will initially involve the suspension of any activity that is generating unacceptable dust or odours at the Site. During that initial period of cessation of work, work methods will be modified, formalised and implemented with the relevant construction crew/s.

These rectification measures will continue to be undertaken until the ambient air quality complies with the required standards.

12. Pedestrian and Traffic Management

Upon appointment the Principal Contractor shall establish a Traffic Management plan to the satisfaction of Parramatta City Council for the various stages of demolition, excavation and construction identified in the construction programme.

The Pedestrian and Management Plan shall as a minimum:

- Ensure appropriate traffic control measures are employed to ensure safe separation of construction activities and the public;
- Define safe public access pathways and their maintenance;
- Ensure maximum safety of on-site personnel and drivers;
- Ensure that construction, earthmoving and demolition activities do not adversely impact or compromise safe traffic flow within the site;
- Define site perimeter loading zones and protection devices to be installed;
- Identify parking impacts on adjacent roadways and provide mitigation strategies for impacts associated with access requirements to adjacent properties.
- Minimise environmental nuisance and impact as a result of construction traffic;
- Ensure construction traffic does not interrupt existing traffic flows on the local road network;
- Ensure designated transport routes for those routes which will be used regularly over the duration of the proposed demolition, remediation, construction and recycling works will be adopted by the early works contractors and communicated to haulage contractors;
- Ensure any early construction for Parramatta Light Rail is not effected by the construction activities of APHS and PPS
- Establish strict scheduling of vehicle movements where possible to ensure there are no vehicles waiting off the site,
- Have no vehicles arrive at the site outside the site working hours;
- Encourage site workers to utilise local public transport system and car sharing wherever possible;
- Aim for trucks to only leave the site when they have reached their capacity loads wherever possible; and

- Establish the maximum number of on-site parking areas for the duration of the proposed works.

Refer to Appendix 03 for details of Traffic Management plan during construction

13. Archaeological and Heritage Management

The demolition and excavation phase works have potential to disturb items of heritage and archaeological significance of the sites is set out below.

- Item 1 – Convict barracks wall – 80-100 Macquarie Street - Lot 65, Section 17, DP 758829
- (State Item)
- Item 47 – Arthur Phillip High School and potential archaeological site – 175 Macquarie Street
    - Lots 1 and 2, DP 115296 (State Item)
- Heritage Building A and B – original school buildings

All demolition, construction and temporary works within the site or required as a consequence of the construction activity shall comply with the requirements of the NSW Heritage Act 1977, the NSW National Parks and Wildlife Act 1974, the archaeological and heritage reports and all conditions attached to excavation permits.

The archaeological and heritage program will be undertaken in accordance with the S140 permit and the Aboriginal Heritage Impact Permit issued under Section 90 of the NSW National Parks and Wildlife Act 1974.

All personnel directing, undertaking or superintending demolition and excavation works shall be informed of the history of the site and be briefed on the requirements of the archaeological and heritage excavation permits to ensure that works are carried out in compliance with the requirements. Regular on-site inspections by a suitably qualified Archaeologist during the demolition/construction programme shall be undertaken.

All Subcontractors shall advise the designated responsible Principal Contractor representative/manager, by way of a System Defect Report procedure, all non-conformances such that corrective action and preventative action can be undertaken to correct the non-conformance.

14. Waste Management Plan for Demolition – Construction

This Waste Management Plan (Demolition and Construction) is a preliminary outline plan for the demolition and construction works associated with the future development of Arthur Phillip High School and Parramatta Public School, Macquarie Street, Parramatta.

A Principal Contractor will not be appointed until after Development Approval is granted for the Development Application. This Waste Management Plan (Demolition and Construction) is to outline the framework within which future demolition and construction works shall be undertaken. Upon appointment and having developed a final detailed demolition and construction methodology, the Principal Contractor will prepare and submit an amended Waste Management Plan (Demolition and Construction) containing an increased level of detail. The revised and expanded Waste Management Plan) will provide the Principal Contractor's preferred demolition and construction methodologies outlining proposed re-use, recycling and landfill disposal of materials.

Please refer to the Waste Management Plan by the Mack Group (WMP) for Operational Waste issued as a separate report under this Development Application.

14.1. Outline of Proposal

14.1.1 Site Address

Parramatta Public School and Arthur Phillip High School
175 Macquarie Street, Parramatta

14.1.2 Building and Other Structures Currently On the Site

The site consists of playing fields, a gymnasium and 16 demountable buildings. The Arthur Phillip High School was established in 1960 and is located in buildings that have been continuously used as a school since 1875. There are two heritage buildings on site housing existing school functions for the APHS and PPS respectively.
Refer to **Appendix 01** (Demolition Plan) for the specifics of the current building and other structures currently occupying the site.

14.1.3 Brief Description of Proposal

The APHS and PPS design proposal involves the redevelopment of the site to accommodate the redevelopment of a high school and primary school, school grounds and refurbishment of two existing heritage school buildings on-site. The scope of the proposal includes:

- Demolition of all existing buildings and structures and site remediation.
- Dismantling and removal of demountable school buildings
- Excavation, cut and fill to regrade the PPS site and APHS site – with an equal expected cut to fill ratio
- School Grounds (hard and soft landscape) works on both APHS and PPS site
- Security fence and soft scape along perimeter as interface to public domain
- Construction of a vertical high school which equates to 17 stories with a height of 67m RL: 73.7 comprising a vertical school building and gym hall with height of 9.36m and RL 21.16
- Construction of a U-shaped Primary school with a height of 17.2m and RL 21.16 connected to the existing heritage school building (heritage building A)
- Demolition of the adjoining buildings to heritage building B. Repurpose of existing building for community and school use.

14.2. Stage 1-Demolition and Staging

Stage 1

November 2016-March 2017
Relocate APHS students to RHS site (operational Term 1, 2017)
Commence early works and demolition on Northern APHS site (from end of Term 4, 2016) to include dismantling of demountables and demolition of permanent structures.

Stage 2
March 2017-December 2018
Commence construction of new building works for APHS
APHS Western site operational until Dec 2018
PPS operational until Jul 2017

Stage 3
July 2017 – November 2017
Relocate PPS to OKS
Commence mobilisation, early works and demolition on Southern PPS site. To include dismantling demountables and demolition to permanent structure excepting heritage building A.
APHS Western site operational until Dec 2018

Stage 4
November 2017 – December 2018
Commence new building works at PPS
APHS Western site operational until Dec 2018

Stage 5
December 2018 - March 2019
APHS & PPS construction complete
Demolish high school and associated facilities on Western APHS site including demountables and permanent structures, retaining heritage building B.
Commence landscaping

Stage 6
January 2019- March 2019
APHS opens Day 1, Term 1 2019
PPS opens Day 1, Term 1 2019
Landscaping work completed March 2019

See Appendix 02 for further details

14.2.1 Waste Minimisation during the Demolition Stage

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details for the minimisation of waste during the construction stage. The revised Waste Management Plan (Construction) will provide a response specific to the Principal Contractor's preferred demolition methodology.
Where possible the demountable units will be repurposed on an alternative site for future use as school accommodation.

14.2.2 Waste Separation and onsite reuse and recycling

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details of waste separation and on site reuse and recycling. The revised Waste Management Plan (Construction) will provide a response specific to the Principal Contractor's preferred demolition methodology.

14.3. Stage Two – Construction

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details of the site areas to be used for on-site separation, treatment and storage (including weather protection). Information shall be provided on plan drawings accompanying the amended submission.

The following table shall be completed and submitted by the Principal Contractor upon appointment.

MATERIALS ON-SITE		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m3) or Area (m2) or weight (t)	ON-SITE Specify how materials will be reused or recycled	OFF-SITE Specify the contractor and recycling outlet	Specify the contractor and landfill site
EXAMPLE *e.g. bricks	*e.g. 2m3	*2.g. clean & reuse for footings and broken bricks behind retaining walls	*e.g. sent by XYZ Demolishers to ABC Recycling Company	*e.g. nil to landfill
Excavation Material				
Green Waste				
Bricks				
Tiles				
Concrete				
Timber				
Plasterboard				
Metals				
Other Waste				

14.3.1 Waste Minimisation during the Construction Stage

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details for the minimisation of waste during the construction stage. The revised Waste Management Plan (Construction) will provide a response specific to the Principal Contractor's preferred construction methodology.

14.3.2. Waste Separation and onsite reuse and recycling

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details of waste separation and on site reuse and recycling. The revised Waste Management Plan (Construction) will provide a response specific to the Principal Contractor's preferred construction methodology.

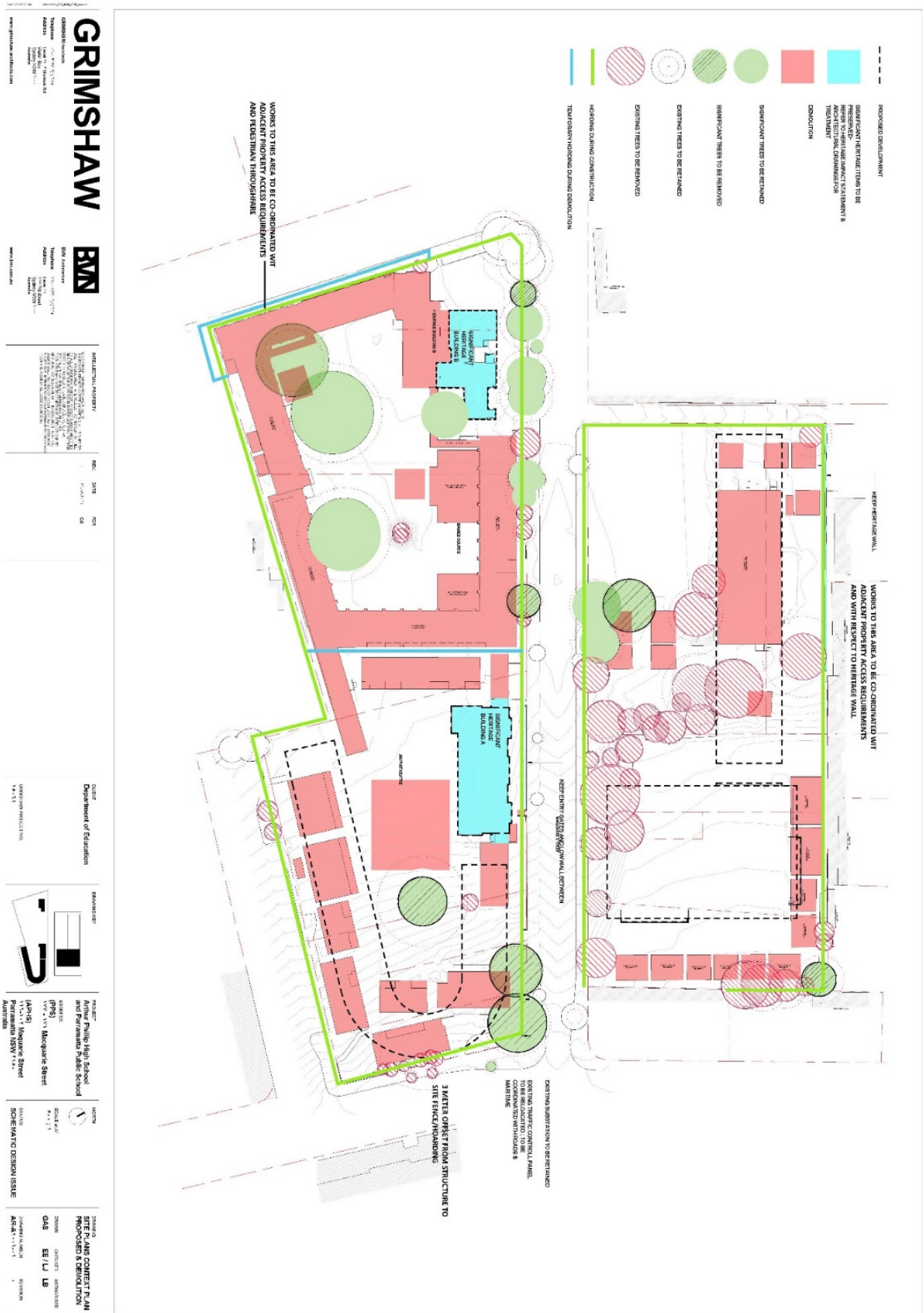
14.3.3 Site Operations Management - Ensure Minimal Waste Creation and Maximum Reuse and Recycling

Upon appointment the Principal Contractor will prepare and submit an amended Waste Management Plan (Construction) providing details for ensuring minimal waste creation and maximum reuse and recycling during the construction stage. The revised Waste Management Plan (Construction) will provide a response specific to the Principal Contractor's preferred construction methodology.

14.4. Stage Three – Design of Facilities

Please refer to the **Waste Management Plan (WMP) for Operational Waste** issued as a separate report under this Development Application.

Appendix 01 – Demolition and Construction Zone Plan



Appendix 02 – Staging Plan

Appendix 03 – Construction traffic management plan

Arthur Phillip High School and Parramatta Public School

Draft 1 | 11 March 2016

Job number 247436

Arup

Arup Pty Ltd ABN 18 000 966 165

Arup

Contents

1 Introduction

This report details the Construction Traffic Management Plan (CTMP) for the proposed works at Arthur Phillip High School and Parramatta Public School. The plan has been created by Arup on behalf of the Department of Education in for the Planning Application for State Significant Development (SSD) 15_7235.

The purpose of the CTMP is to assess the proposed access and operation of construction traffic associated with the proposed development with respect to safety and capacity. The CTMP is to be submitted for comment by the relevant authorities.

This plan will detail the management needed to control construction traffic, while minimising effects on the surrounding developments and allowing for appropriate access at all times. The Construction Contractor will prepare a CTMP with detailed Traffic Control Plans detailing specific methods of safely managing construction vehicle traffic within the surrounding area when appointed.

2 Description of proposed works

2.1 Location

The site is located on the north-eastern corner of the Parramatta City Centre, to the north and south of Macquarie Street, between Smith and Charles streets. The site is made up of two lots, with addresses at 175 Macquarie Street and 800-100 Macquarie Street, Parramatta.

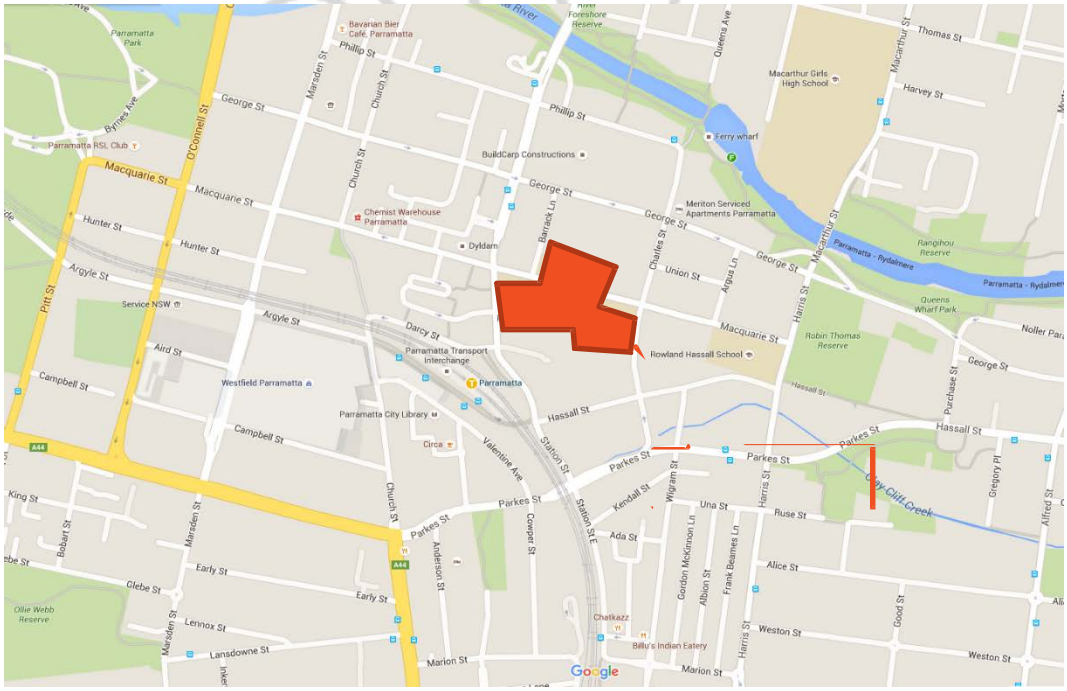


Figure 1: Site location

2.2 Overview of proposed works

It is proposed that the existing primary and high school be substantially demolished and replaced with two multi-story buildings, with smaller existing historic buildings retained for supporting functions. The northern site parcel would be developed for the high school and the southern parcel for the primary school, refer below.

The high school comprises a tower building of 17 storey equivalent height (11 primary levels plus mezzanines) towards the north east corner plus a sports hall on the western site with a total floor area of approximately18,000m².

The primary school building is a 4-storey "U-shaped" building opening onto the school courtyard with a floor area of approximately 10,000m².

2.3 Programme

Construction of the development is estimated to typically occur over an indicative two year period, but this may vary depending on staging. As the project is in its preliminary stages, this timeframe is approximate only and may vary considerably once a contractor is appointed.

Table 1: Indicative construction staging and timing

Construction Stage	Duration
Demolition/Excavation	6 months
Structure	12 months
Fit Out	6 months

2.4 Vehicle types

Vehicles that will access the site during construction will mainly comprise private vehicles for workers. Heavy vehicles including Articulated Vehicles (AV) such as precast delivery trucks and Heavy Rigid (HR) such as concrete trucks are also expected to access the site. These different types of vehicles may access the site at the same time.

All heavy goods such as machinery plants will need to be delivered outside of peak traffic hours. It is envisaged that a number of mobile crane days will be required during the construction stage of the program, with limited lifting operations in off-peak periods. These operations would be subject to a separate application for partial road closure with the Roads and Maritime Services and Parramatta City Council as required.

3 Impact of proposed measures

3.1 Truck routes and controls

Construction vehicles would be restricted the state road network and vehicles will likely originate from this network, with movements along local streets prohibited. These routes are shown in Figure 2.

It is envisaged the key inbound traffic routes for construction vehicles would be via Parkes Street and Harris Street from the surrounding state road network.
Macquarie Street and Charles Street would form the local roads for access into the site.

Outbound routes would either continue down Macquarie Street to O'Connell Street or Smith Street / Station Street / Wilde Avenue to Victoria Road / Parkes Street.

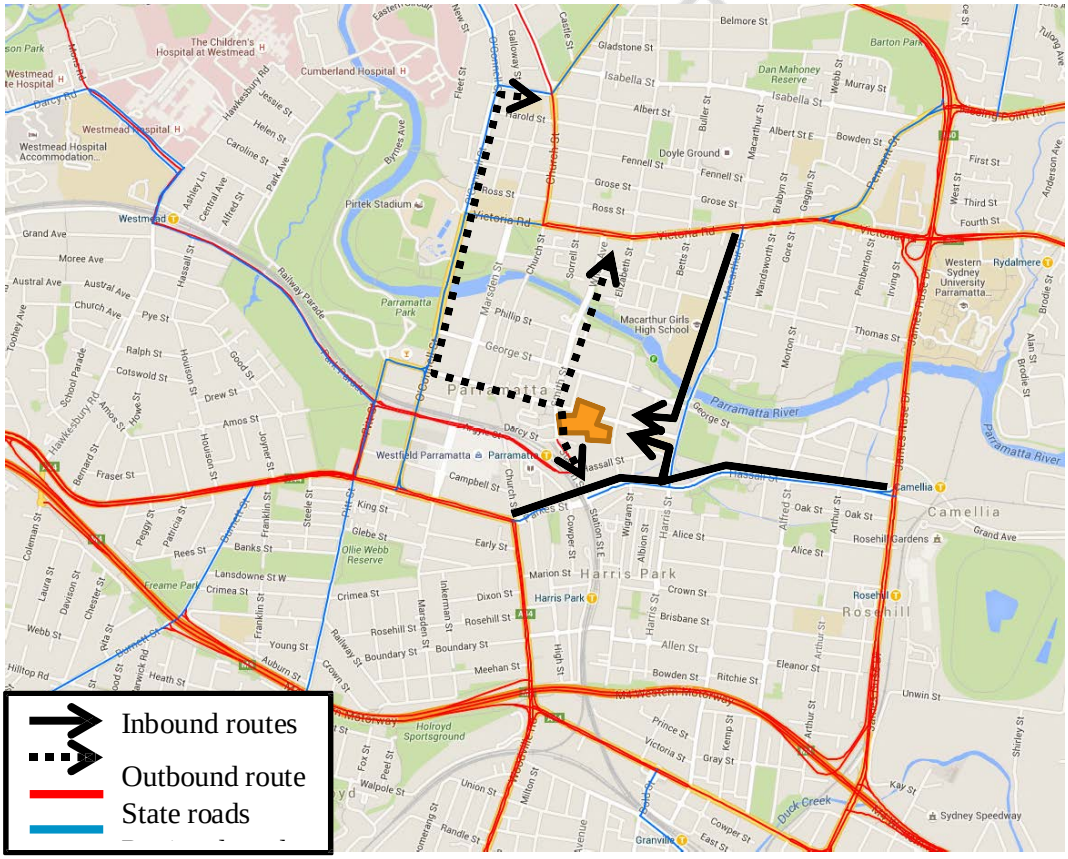


Figure 2 Construction Vehicle Routes

3.2 Construction traffic

Workers will generate additional traffic to the site. Road network impacts will be

mitigated by the fact that construction workers generally start earlier and finish earlier than the commuter peak periods, and would likely not coincide with the school or CBD peak periods. Construction workers driving to sites in constrained parking environments typically carpool – further reducing the impact on the road network.

The impact of construction traffic will be discussed once specific construction details are provided however heavy vehicle volumes are expected to be low, in the order of 100 vehicles per day. This usually occurs during concrete pours or the demolition stage. The traffic generation of this magnitude is less than the amount of trips generated and assessed for the operational phase of the development and therefore the potential impacts are anticipated to be minimal.

3.3 Parking

It is likely that on-site parking will not be provided for private construction vehicles, with construction vehicles utilising works zones and internal circulation routes. Given that parking is restricted and metered in surrounding streets and parking stations, a number of construction workers may choose to take public transport to the site and store their larger tools on site.

3.4 Pedestrians

Pedestrians will be diverted and controlled by traffic controllers as necessary.

They will control pedestrians as well as vehicles. Pedestrians will be directed through the B-class hoarding along the street frontages.

When vehicles require access, pedestrians may be held for very short periods of time as trucks enter and exit the site to minimise delay for vehicles to the streets. Concertino gates may be considered to control pedestrians safely.

Pedestrians will be managed by qualified traffic controllers so that they will not conflict with heavy vehicles accessing the site to maximise pedestrian safety. As a result, additional delays to pedestrians around the site will be minimal.

4 Effects on existing and future developments

There may be some impacts associated with the construction works to the schools as they continue to operate. Construction vehicles will often need to carefully enter the site, and may turn in and out slowly. Suitably qualified traffic controllers will be present to ensure that traffic is safely and adequately managed around the

5 Detailed of provisions made for emergency vehicles, heavy vehicles and cyclists

Construction works and vehicle storage will be mainly confined to the site. As such, no additional specific provisions for emergency vehicles, heavy vehicles, cyclists or pedestrians have been identified on the surrounding road network.

6 Measures to ameliorate impacts

The measures proposed to ameliorate the impacts of the construction work are:

- The establishment of a Works zone
- Traffic control
- B-class hoarding

These measures are discussed in earlier sections of the report. Additionally, drivers wishing to access the site for any reason will need to report to the traffic controllers and receive instructions and guidance. Scheduling will be the main management method in ensuring minimal multi-vehicle arrivals. A radio set-up will manage multiple vehicle arrivals and allow for circulation routes around the site.

Traffic control plans will be developed and submitted with a finalised version of this plan. Traffic will not be impacted on entry or exit unless a temporary partial road closure is in place during the few occasions in off-peak periods that a mobile crane is required. These temporary road closures would be obtained through the normal approvals process.

6.1 Vehicle movements

Mitigation measures would be adopted during the construction phase to ensure traffic movements have minimal impact on surrounding land uses and the community in general, and would include the following:

- Truck loads would be covered during transportation off-site
- Establishment and enforcement of appropriate on-site vehicle speed limits (20km/h), which would be reviewed depending on weather conditions or safety requirements
- Neighbouring properties would be notified of construction works and timing. Any

comments would be recorded and taken into consideration when planning construction activities.

- All activities, including the delivery of materials would not impede traffic flow along local roads and highways
- Materials would be delivered and spoil removed during standard construction hours
- Avoid idling trucks alongside sensitive receivers
- Deliveries would be planned to ensure a consistent and minimal number of trucks arriving at site at any one time
- Parramatta City Council will be notified of any future disruption to roadways and footpaths

6.2 Driver code of conduct

No queuing or marshalling of trucks is permitted on a public road. All vehicles must enter and exit the site in a forward direction. Traffic Controllers are not to stop traffic on public street(s) to allow trucks to enter or leave the site. They must wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. The Roads Act does not give any special treatment to trucks leaving a construction site – the vehicles already on the road have right-of-way.

Vehicles entering, exiting and driving around the site will be required to give way to pedestrians at all times.

6.3 Roads and Maritime Services discussions

Roads and Maritime Services will be contacted and to provide feedback prior to the Local Traffic Committee meeting. Any comments will be incorporated into a finalised plan.

7 Public transport services affected

The 900 ‘Parramatta Free Shuttle’ bus service may be impacted by construction traffic as the works will likely require the relocation or removal of the bus stop in Macquarie Street. No other bus services are expected to be impacted as Macquarie Street and Charles Street do not form a bus route for other services.

8 Public consultation

Parramatta City Council, Sydney Buses and Roads and Maritime Services will be given the opportunity to contribute to this report on submission of this plan to Local Area Traffic Committee.

Should temporary road closures be required at any stage during the construction period, they would be obtained separately through the normal approvals process.

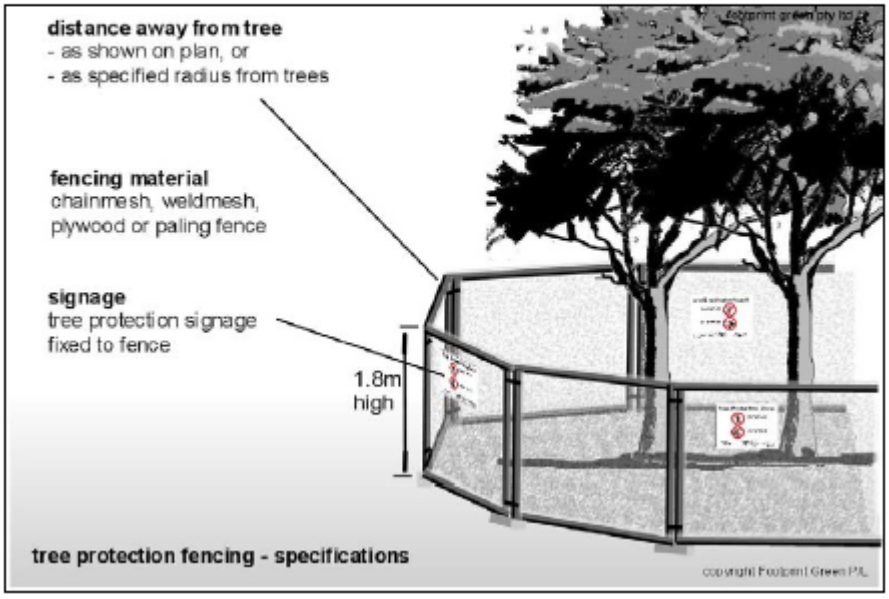
Ongoing consultation will be conducted with the schools and surrounding residents and businesses by the Construction Contractor to ensure everyone is updated on the construction of the works.

Appendix 04- Tree Protection measures

tree protection measures

specific tree protection measures prior to or during demolition

Prior to demolition, tree protection fencing shall be erected as shown on the Tree Protection Plan Prior to & During Demolition (refer sheet 15) in accordance with the specification below.



Prior to demolition, Tree Protection Signage is to be incorporated on the secure protective fencing at a maximum of 8m intervals in accordance with the specification below.

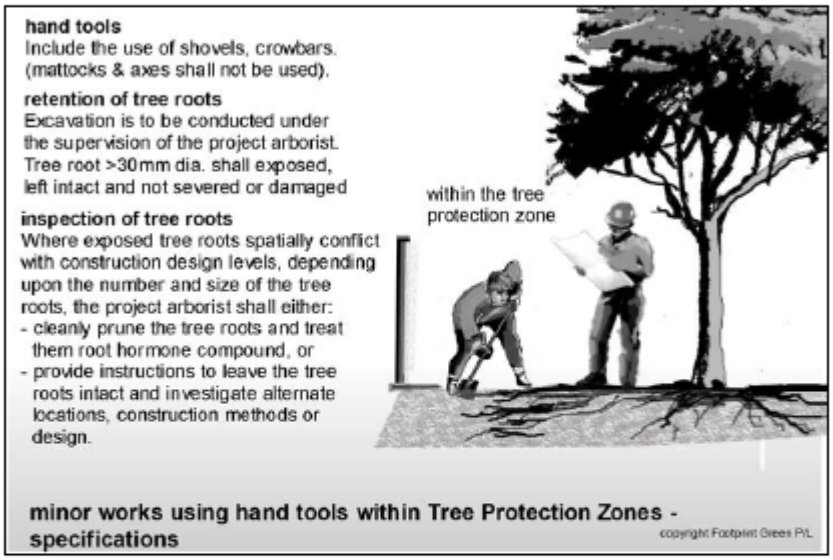
All demolition or earthworks within the Tree Protection Fencing shall be carried out under the direction of a qualified and experienced Project Arboriculturalist.

specific tree protection measures prior to or during construction

Prior to earthworks or construction, tree protection fencing shall be realigned as shown on the Tree Protection Plan Prior to & During Construction (refer sheet 16).

The area within the tree protection fencing shall be mulched with organic mulch and a temporary drip irrigation system be installed.

All earthworks or construction works within the tree protection fencing areas shall be carried out under the direction of a qualified and experienced Project Arboriculturalist..



general tree protection measures prior to or during construction

The building contractor shall ensure that at all times during site works no activities, stock piles, storage or disposal of materials shall take place within the fenced off areas and that all Protective Fences remain secure throughout the development work period.

All access within the tree protection fencing for temporary and permanent works must be carried out under the instructions of an experienced and qualified project arborist.

Tree Protection Fencing shall remain in functional condition for the duration of building works and can be removed to allow for works identified in the landscape plan.

Specific excavation for services that require critical fall (eg. sewer, stormwater) may be undertaken within the tree protection zones only under the direct supervision of the project arborist.

Any tree damage that occurs to trees or tree roots during site works is to be treated by an experienced and qualified arborist.

Should branch pruning be required, all pruning works including the removal of deadwood are to be undertaken in accordance with Australian Standard AS 4373-2007 Pruning of Amenity Trees and the work is to be undertaken by an experienced and qualified arborist.