PRELIMINARY CONSTRUCTION MANAGEMENT PLAN

AUSTRALIAN HEARING HUB

April 2010

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1 GENERAL

1.1 Introduction

This plan sets out the proposed site access and worksite requirements for the construction of the Australian Hearing Hub (AHH) at the Macquarie University.

The project will be under the control of a Head Contractor who will be appointed after the approval is granted for the Project Application. Upon appointment and once they have become familiar with the site and developed a methodology for the construction of the Australian Hearing Hub, the Contractor will prepare and submit a Detailed Construction Management Plan. It is anticipated the Plan will be based on this Plan and be prepared during the first quarter of 2011.

This Construction Management Plan (CMP) is a preliminary plan which has been prepared to give an outline of the processes to be employed during construction of this project. Prior to the on site activities commencing this plan will be revised by the Head Contractor and expanded to provide a site specific:

- Project Management Plan;
- OH&S Management Plan;
- Environmental Management Plan; and
- Pedestrian and Traffic Management Plan.

1.2 Description of the Works

The Australian Hearing Hub is to be a unique, world-class facility purpose-designed for research, research training, teaching and learning in hearing, and hearing-related speech, language and reading disorders. The AHH will bring together key University research groups in hearing and cognitive sciences, neurosurgery, special education and electronic engineering with major organisations involved in developing hearing technologies and services.

Key aspects of the Hearing Hub facility include:

- 6 storeys (ground floor plus five floors above the ground floor).
- GFA with carpark 37,126 m2
- GFA without carpark 24,491m2
- NLA excluding Basement Storage 18,777m2
- Shared Spaces including Anechoic Chamber & wind tunnel 1,950m2
- Carparking for approximately 339 cars over two levels within the basement.
- The building will house up to 1000 building occupants.
- Lecture theatre of approximately 150 seat capacity.
- 4.5 Star Nabers Rating.
- 5 Star Greenstar Design Rating.
- 5 Star Greenstar As-Built Rating.

- Construction of specialist Anechoic ("no echo") chamber

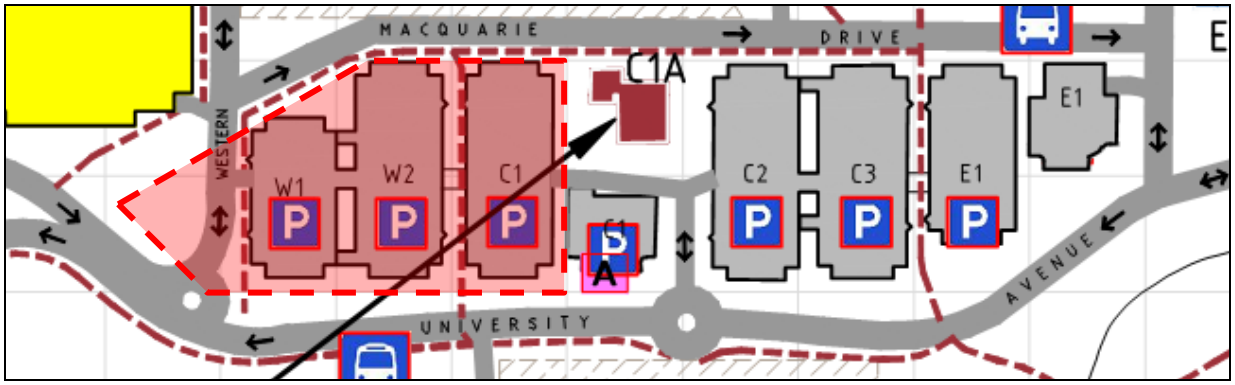
The Project Application is planned to be submitted in the third quarter of 2010, in order to enable construction to commence in early 2011.

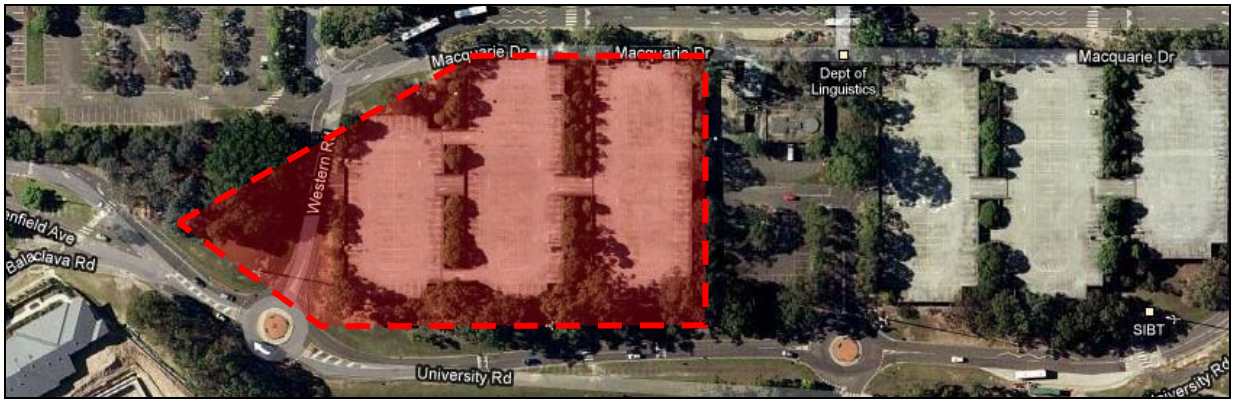
1.3 Objectives

The objective of this plan is to provide an outline of the procedures and mechanisms that will be employed on this project during construction in order to minimise the impact on the local amenity, to ensure safety of the public and to protect the environment.

1.4 The Site

The site is bounded by Macquarie Drive to the North and University Avenue to the South and Western to the South East. The northern boundary currently has pedestrian access to the existing Carpark W1 and W2.





1.5 Site establishment

The Contractor shall provide all necessary accommodation and secure storage for its operations. The location on site of the Contractors accommodation shall be as agreed with the Superintendent, failing agreement as directed by the Superintendent acting reasonably.

The Contractor shall provide and maintain all required construction plant & site amenities including but not limited to:

- Construction plant & site amenities shall include all required equipment, facilities, hoardings and barricades, roads and crossovers, site administration accommodation, storage sheds and compounds, hoisting and crainage plant, scaffolding, platforms, access ladders, barriers, handrails, and other temporary accommodation.
- Construction plant & amenities shall comply with the requirements of all relevant authorities wholly contained within the hoarded site. The Contractor shall obtain all required permits, pay the applicable fees and comply with all conditions and instructions.
- The Contractor shall remove construction plant progressively when no longer required.
- The Contractor shall provide chutes and space for demolished or discarded materials including the provision and regular removal from site of waste materials.
- The Contractor shall provide first aid facilities for the use of all workmen employed on the Works. A fully provisioned first aid cabinet and such other life-saving and safety equipment as deemed necessary or as may be required by relevant statues, Authorities and Awards shall be maintained at all times by the Contractor.
- Surrounding areas shall be immediately made good to original by and the expense of the Contractor.

2 PEDESTRIAN AND TRAFFIC

2.1 Traffic and Pedestrian Management

The site is bounded by Macquarie Drive to the North and University Avenue to the South and Western to the South East.

The contractor will prepare a construction traffic management plan and ensure the appropriate allocation of resources to manage vehicle and pedestrian traffic around the site, ensuring the safety and security all persons moving in proximity of the Hearing Hub site.

Construction traffic will enter the construction zone at the Eastern end of the site after entering the Campus via Herring Road. The construction site will be delineated by means of concrete jersey kerb with screened fencing; lockable gates at the entry and departure points. Construction traffic will enter the University Campus from Balaclava Road or Herring Road and approach the site on University Avenue.

Delivery trucks will enter as per above, park outside the site on University Avenue where the truck will be unloaded. Once construction advances, the loading dock will be utilized as a loading and staging area as much as possible to avoid parking and loading on the roadway.

Spoil from the excavation will be loaded, within the site boundary then leave the site at the centre of the southern boundary and head onto University Avenue.

2.2 Parking & Site Traffic

The Contractor's is to submit a Traffic Management Plan in line with existing Office of Major Projects campus Traffic Management Plan.

The Principal will supply 12 parking permits for parking area adjacent to the Y3A building to the Head Contractor. Contractors shall be responsible for creating safe areas of parking on the Site and pay particular attention to pedestrian access and safety at the entrances. All construction related vehicles entering the site will be at the Principal Contractor's risk at all times and must be properly insured in accordance with the Contract.

The University operates a Restricted Parking Area Scheme. The Contractor is responsible for fines issued by the University as result of Contractor and Sub-Contractor infringements. The University accepts no responsibility for any damage caused to vehicles while travelling, standing or parked in the University grounds, or the theft neither of any vehicle, motor bike or cycle, nor for any damage to or loss of accessories or contents.

The Contractor, staff and all delivery and associated persons shall at all times observe the safety and traffic control requirements of the University's Traffic and Parking Department and shall obey all reasonable instructions.

At all times, on all roads on University-owned land, the following speed limits will apply:

- University roads 30 km/h;
- Car parks and shared zones 10 km/h ; and
- Pedestrians have right of way excepting on University Avenue and Macquarie Drive.

Please refer to the following Site Plan which indicates truck movements from the site, out of the Macquarie University campus via Balaclava Road.

2.3 Hoarding and Fences

Prevention of unauthorised access to the site is a very high priority and will be vigorously managed throughout the construction period. When the Contractor is appointed, the site will be secured with site barriers and hoardings in accordance with construction documentation and code requirements. Alternate pedestrian routes around the site will be created and clearly signed.

A hoarding is to be provided around the perimeter of the site, in accordance with the requirements of the Occupational Health and Safety Act, and NSW Workcover.

The standard of the hoarding is be to the Universities requirements in terms of it's finish. Example of the standard required by the University is shown in the below images:

Construction of new footpaths to replace those within the site boundaries will form part of the Early Works package.

2.4 Temporary Protection

The Contractor is to provide protection to existing building elements potentially impacted by the works, including off form concrete, glazing, balconies, paving, access ways, landscaping. Protection should be in the form of drop sheets (taped as required), hoardings, fencing and the like. All temporary protection is to be installed and maintained to the satisfaction of the Superintendent.

2.5 Major Plant and Equipment

During excavation, heavy earthmoving equipment will be active on the site. This work will involve tree removal and mulching, top soil removal and it is anticipated rock ripping, loading and removal. As the excavation deepens, the earth walls will be nailed to prevent slippage.

During construction the following equipment will be used:

- Bulldozers, backhoes and excavators
- Articulated and fixed trucks
- Mobile cranes
- Fixed crane
- Concrete delivery trucks
- Concrete pumps
- Man and material hoists
- Scissor and boom lifts
- Fork trucks

2.5.1 Cranes

Tower cranes will be required on this site.

At this time we believe it is not necessary to setup cranes on the street as there is adequate space on site. It is currently proposed that material deliveries will be unloaded within the site.

3 SITE NOTICES & SIGNAGE BOARD

The Contractor shall provide sign-boards as required to comply with Workcover and OH&S requirements.

The Principal Contractor will be permitted to erect a single signage banner to the hoarding at the main entrance point to identify the Site. Other Subcontractor signboards are sign boards are subject to approval from the Superintendent.

The existing driveway and the space within the site will allow all vehicles to enter and exit the site in a forward direction. There is no need for special traffic controls.

4 ENVIRONMENTAL MANAGEMENT

4.1 Stormwater and Waste Water Management

Stormwater and waste water management will be included in the Environmental Management Plan (EMP) and the control measures documented in the plan will be implemented during the construction of the project. The purpose of these procedures is to ensure that stormwater and wastewater run off is managed and that there is no off site environment impact caused by overland stormwater flows.

The EMP will be developed in detail but will include:

- Silt Control on the Roads;
- Water from Dewatering systems;
- Rainwater within the site, during excavation and before final pavements are installed;
- Diversion of clean water;

- Waste Water, from general cleanup of tools and equipment; and
- Spills control.

Implemented procedures will be in compliance with the Dept of Environment and Protection, Local Council and Sydney Water requirements.

4.2 Waste Management

Macquarie University encourages waste management practices that minimise the amount of construction waste going to disposal. The contractor is required to implement a Waste Management Plan (WMP) in accordance with the ESD specification.

Storage of materials and rubbish or carrying out of associated works will be permitted only in areas nominated by the Superintendent. The contractor is responsible for the removal of all rubbish from the site. The use of building facilities other than those designated is not permitted. Under no circumstances are tools, paintbrushes etc to be cleaned in basins located in toilets for tearooms. The contractor is to provide locations and methodology for washout zones and management plans for OMP review as part of their Site Management plan. Macquarie University will provide access to an existing paint dilution sink connected to a sewered dilution pit located in Y3A back of house and accessed via the loading dock.

Materials and rubbish shall, where possible be transported to / from the loading dock around the perimeter of the building.

The site of the works shall be cleaned daily or more often as required to ensure minimal impact on building operations. Any soiling of common areas finishes the loading dock and surrounds shall be cleaned immediately. Additional cleaning as deemed necessary by the Macquarie University shall be at the Contractor’s cost.

4.3 Air Quality Management

The construction process can lead to the generation of unacceptably high levels of dust or other air pollution.

Once appointed the contractor will be required to implement a site specific Environmental Management Plan (EMP). The EMP will include systems and procedures that are to be implemented during construction to establish air quality management during the development.

The EMP controls will include items such as:

- All construction plant, equipment and vehicles are to be properly maintained and operated so as to alleviate excessive exhaust emissions;
- Good “House Keeping” on site with regular removal of loose material;
- Waste loads leaving the site are to be covered at all times;
- All dust generating construction activities are to cease during high wind conditions unless operations can be controlled by localized watering or other control means;
- The burning of waste materials and the lighting of fires will be strictly prohibited on the site at all times;

- Continual visual monitoring of the site will be undertaken by site management to ensure that works do not generate unacceptably high levels of dust;
- Wherever practical, materials and processes that are non-toxic will be employed to minimize possible harmful affects to air quality;
- Scaffolding to include mesh and shade cloth to reduce wind velocity and also to trap any wind born objects; and
- Activities which produce airborne particles are to be done in enclosed spaces e.g. spray painting.

4.4 Dust, Vibration and Noise Control

The Contractor shall provide a methodology for the notification of disruptive activities for the approval of the Superintendent, prior commencement of the works. The Contractor shall allow for noisy and disruptive works to be carried out during a period of time as agreed with the Superintendant.

Dust from the works is to be dampened and contained within the site, in accordance with OH&S and Workcover requirements.

Without limiting the foregoing requirements of this sub-clause, the Contractor shall arrange the programming of the Works so as to prevent, as far as practicable, excessive and nuisance noise reaching neighbouring buildings. The Contractor shall adopt best practice methods for noise suppression.

The Contractor will utilise and ensure that the workmen and Contractors employed in the Works utilise best practice of noise suppression on all compressors, jackhammers and other machinery of whatsoever descriptions to ensure that the noise level emanating from the Site during the execution of the Works is kept to a minimum.

The Contractor shall comply with all instructions reasonably given by the Superintendent, or by any legitimate Authority, in respect to the suppression of noise and/or dust, and shall bear the cost of carrying out any preventative work so instructed.

The Construction Noise and Vibration Management Plan prepared by Acoustic Logic establishes relevant noise criteria for the construction works (particularly in relation to impacts on the nearby childcare centres) which will be monitored during construction. The Construction Noise and Vibration Management Plan prepared by Acoustic Logic notes that, subject to application of relevant recommendations, construction noise levels should not exceed the maximum amenity criteria established by relevant policies However, to minimise the construction noise impact on the childcare centres, acoustical shielding is proposed to be provided by hoardings at the boundary between the proposed works site and child care centres.

Control of noise and vibration will be achieved through the use of appropriately licensed and experienced contractors coupled with monitoring. Plant and equipment utilised during demolition will be required to meet relevant guidelines with regards to noise levels.

Dialogue with the both daycare centres will be established to ensure that impacts from works are minimised and mitigated where possible.

4.4.1 Notification of Noisy Works

If works are planned that will exceed the construction noise objective, all sensitive receivers will be notified in writing at least 48hrs prior to the commencement of those works.

4.4.2 Construction Hours

The hours of construction, including the delivery of materials to and from the site, shall be as follows, unless approved by the Director, Strategic Assessments, Department of Planning:

A) Between 7:00am and 7:00pm, Monday to Fridays inclusive;

B) Between 8:00am and 4:00pm, Saturdays; and

C) No work on Sundays and public holidays.

4.4.3 Notification of Commencement of Works

The operators of the Childcare centres and Willandra Village will be notified of commencement of construction works one week prior to commencement.

4.5 Hazardous Materials & Decontamination

The Contractor is responsible for the control and decontamination of hazardous substances. Handling, use, isolation, removal and disposal of any such substances encountered during the execution of the works, will be undertaken in accordance with statutory requirements.

The Department of Environment, Climate Change and Water (DECCW) or WSN Environmental Solutions may advise of suitable disposal sites.