Appendix 3.10

Preliminary Construction Environmental Management Plan

Prepared by University of Technology, Sydney

PRELIMINARY CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Dr CHAU CHAK WING BUILDING

NEW FACULTY OF BUSINESS BUILDING, ULTIMO

Project No: 02106-S-09

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1 INTRODUCTION

This Preliminary Construction Environment Management Plan (CEMP) has been prepared by University of Technology, Sydney for the Dr Chau Chak Wing Building on the former Dairy Farmers Cooperative site at 14-18 Ultimo Road at the corner of Ultimo Road and Omnibus Lane. This Preliminary CEMP has been prepared to identify the relevant standards and regulations that would be adhered to and identifies the management processes and mitigation measures that would be implemented in order to ameliorate adverse construction impacts.

The 2,816 square meter site is bounded to the north by Mary Ann Street and to the east by the Ultimo Pedestrian Network (UPN). Pedestrians will access the ground level of the new Faculty of Business from Ultimo Road and Mary Ann Street and the first level from the UPN, which the city intends to develop as a public esplanade.

It is currently anticipated that construction would take approximately two years. The mobilisation of works is likely to commence in February 2012 with the completion of the building by January 2014.

This Preliminary CEMP forms part of the Project Application and has been prepared to cover construction management of the site during demolition, bulk excavation and construction works. A more detailed CEMP will be prepared by the Building Contractor once appointed and prior to Construction Certificate (CC) being issued.

2 OBJECTIVES

The objectives of the CEMP are to:

- Ensure that the works are carried out in accordance with appropriate environmental statutory requirements;
- Ensure that works are carried out in such a way as to minimize impact to the neighbouring areas;
- Ensure that works are carried out in such a way as to minimize potential environmental degradation by the implementation of best environmental practice;
- Ensure that all personnel engaged in the works comply with the terms and conditions of the CEMP;
- Ensure that no change is made to the CEMP without written permission of the Project Manager;
- Respond to changes in environmental and physical conditions during the proposed works through review and monitoring and control programmes in consultation with the Project Manager or their nominated representative(s); and
- Ensure that corrective actions are completed in a timely manner.

3 BUILDING DESCRIPTION

The site is located at 14-28 Ultimo Road in Ultimo, Sydney. It is bounded by Mary Ann Street to the north, the embankment of the former Darling Harbour Railway Line to the east, Ultimo Road to the south and Omnibus Lane to the west.

The site is approximately 0.28 hectares in area (approximately 35m wide and 70m long). Its topography is generally flat with a slight fall to the north east.

The site's current land use is an at grade concrete open car park. It is the former site of the Dairy Farmers building which has been demolished but leaving the floor slab of this building now used as the carpark.

The proposed Dr Chau Chak Wing Building will accommodate UTS's Faculty of Business and will contain teaching spaces, research spaces, faculty offices, a faculty boardroom and function area, as well as support facilities including large student lounges, outdoor roof terraces, and a publicly accessible café and coffee bar. Parking for 28 cars will be in a basement level along with bicycle parking and shower rooms for students and staff who choose to cycle to the business school.

4 DESCRIPTION OF WORKS

4.1 Early Works

The existing site on Ultimo Road is currently leased and operated as a car park by University of Technology, Sydney. As part of the process of early engagement of the Building Contractor, further investigations will be undertaken as to whether there is benefit to undertake any early works. This includes considerations of known contamination in the ground, removal of existing underground tanks, consideration of the potential of any archaeology present in the ground including aboriginal heritage. An archaeological investigation will be undertaken prior to construction and following this a watching brief or investigation will be carried out for Aboriginal heritage dependent on program constraints.

4.2 Demolition

The site is currently operating as a temporary open air car park on ground slab the former building, so there are no major structures above ground to be demolished as part of the construction works. There are sub-structure elements of the former building under the ground slab that need to be removed during the excavation works. These include piles and pile caps.

4.3 Excavation & Construction Scope

The proposed excavation and construction works are summarised as follows:

- Perimeter bored piling, site remediation, removal of existing sub-structures, bulk excavation of basement and including removal of contaminated fill.
- Construction of basement
- Construction of building
- Public domain works and adjacent footpaths

A specific CEMP will be created by the contactor for these works. Items that will require specific consideration will be protection and maintaining operation of the oviform brick sewer which runs down the Eastern boundary of the site.

Ensuring the construction works have minimal impact on Transgrid building on adjoining site and ensuring construction works do not impact on necessary access requirements or operations.

Refer to Environmental Management Plans for heritage, archaeology and aboriginal heritage in section 5 of this document.

4.4 Site Establishment and Security

Site establishment will include the establishment of site contractor's offices, mess and toilet facilities, vehicle access, vehicle loading and unloading, lay down areas, establishment and maintenance of on-site work areas. Exclusion zones, including fenced exclusion zones to protect the adjoining buildings, will be set up.

The Contractor will ensure the security of all active work areas, heritage buildings and vacant buildings to ensure the safety of the public and protection of the works.

It is more than likely that the building contractor will establish an accommodation, work and materials compound on adjacent property such as the SHFA UPN.

4.4.1 Tree Protection

Appendix 6.3 Arboricultural Assessment of the Environmental Assessment Report provides details on tree protection and removal. Prior to any demolition of existing pavements of other structures within 6m of any trees to be retained, the trunk and lower scaffold branches of the trees are to be protected from potential contact damage. Any potential impact of construction scaffolding on the tree must be addressed prior to commencement of construction. It is recommended that the project arboriculturist inspect the installed tree protection devices and provide written certification that the devices are installed correctly and satisfy tree protection requirements. The Tree Protection Devices cannot be removed, altered or relocated without the project arboriculturist's assessment and approval.

Demolition of pathways and paved areas within the 6m of the trees to be retained shall be undertaken under the supervision of the Project Arboriculturist .The pavement surface and sub-base shall be stripped-off either by hand, or in layers of no greater than 50mm thick using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise soil disturbance. The machine shall work within the footprint of the existing pathway to the final layer of sub-base material shall be removed using hand tools where required to avoid compaction of the underlying soil profile and damage to woody roots.

4.5 Environmental and Safety Controls

Environmental and safety controls shall be installed by the Contractor prior to the commencement of the bulk excavation and construction works.

These will include but not be limited to:

- Development of a construction methodology that complies with the intent of the Remedial Action Plan by EIS Appendix 3.9 of the Environmental Assessment Report);
- Water table and contamination monitoring wells installed outside the site boundary;
- Security measures (fencing and gate access);
- Occupation health and safety measures (personal protective equipment, first aid supplies, signage and barriers if needed); and
- Environmental management measures (spill kits, booms, storm water control, dust control).

4.6 Protection of Heritage Buildings

Barriers/fencing is to be placed around the former signal box building to create protection and/or exclusion zones as required.

The location of the fencing will be submitted by the Contractor and approved by the Project Manager prior to the works commencing.

Site induction and tool box talks will be held by the Contractor to inform site personnel and visitors of the location and requirements for the protection of the heritage structures. Work Method Statements shall be developed by the contractor for works in close proximity to the heritage structures.

4.7 Disconnection and Blocking of Site Services

After consultation with the appropriate utility companies, services will be disconnected/made safe as necessary prior to the commencement of any demolition and recycling works; comprising:

- Disconnect gas supply and provide for future re-connection;
- Disconnect existing 'house services' sewers and protect existing sewer trunk main;
- Install new substation kiosk;
- Disconnect most existing stormwater connections and implement new temporary stormwater strategy, for management of stormwater run-off during the period of demolition and recycling, bulk excavation and construction; and
- Disconnect existing communications services and implement protection to existing services transiting the site.

4.8 Removal of Hydrocarbon Contaminated Material from Site Buildings

A Stage 1 and Stage 2 environment site assessment concludes that there are no hazardous materials on or below the site and that the site has material contaminated by hydrocarbons the source of such hydrocarbons being two below ground tanks and an (oil) arrestor pit.

There will be no Hazardous Waste. Waste from the site will be classified Restricted Solid Waste if hydrocarbon contaminated and General Solid Waste otherwise.

The latter is subject to confirmation of test results on samples taken during excavation with some material of acid sulphate content requiring treatment with lime before disposal to General Solid Waste.

4.9 Bulk Excavation

The water table is very high and just below ground level. The perimeter of the site must be sealed by bored contiguous or secant piles toed into bedrock so as to restrict ground water flow into the excavation. A proposed well installed outside the block boundary will monitor ground water table levels, ground water flow and contaminant flow out of the site.

The contractor undertaking the excavation must comply with OHS Act 2000, OHS Regulations 2001, and associated Codes of Practice.

The bulk excavation will be undertaken using equipment in accordance with the contractor's work methods and safe work method statement.

4.10 Construction

Once the excavation works are complete, the contractor will set up any tower cranes required and commence construction of the basement. The tower cranes will be used to handle materials for the installation of the structure, services, façade, roofs. The crane locations are currently unknown and will be developed further by Building Contractor in a more detailed CEMP with a Proposed Material Handling Schematic and strategy. Once the construction of the floor slabs is past the ground level, temporary perimeter screens and or scaffold will be installed around the building perimeter for safety as the suspended deck construction progresses.

4.11 Materials Handling

It is envisaged that the majority of materials unloading and loading during demolition and excavation will occur on site however a street construction zone on surrounding streets may be required. Loading zones required to be established on existing roads, will require separate approval from the relevant Authorities.

Construction Zones will be required for the majority of the construction building time.

The Construction Zones will be used to park trucks for the purpose of:-

- Unloading materials required for the works.
- Load up surplus materials including waste, from the works.
- Standing a concrete pump and concrete trucks required for the works.

To alleviate congestion to the Construction Zones and streets, once a permanent basement is constructed and stripped of formwork, trucks that can be marshalled into the basements will be directed there for unloading and or reloading of materials. Some of these activities will be:-

- Delivery of concrete trucks
- Pick up of rubbish bins
- Delivery of finishing materials such as bricks, blocks, gyprock, light fittings and generally anything else which can practically be hoisted by hoist or builders lifts rather than the tower crane to the designated floor.

Discussions are underway with SHFA in regard to utilising part of the Ultimo Pedestrian Network (UPN) for temporary site shed or storage during construction works.

4.12 Street Closures

For the works to be completed safely, several temporary street closures will need to occur. These may affect Omnibus Lane, Mary Ann Street and Ultimo Road. These closures will be well planned and documented in advance, coordinated with Council and other statutory authorities. Residences and businesses that may be affected by these closures will be notified and consulted with as to alternate arrangements.

4.13 Work Programme and Working Hours

Construction working hours are to comply with any Authority approvals and with any hours stipulated in the Construction Contract. For the purpose of the construction programme the working week shall be six (6) days per week. Non working days are Sundays and NSW Public Holidays.

The anticipated working hours of construction and work on the development would be as per City of Sydney (CoS) standard conditions, and are quoted below for clarity:-

“The hours of construction and work on the development must be as follows:

(a) All work, including demolition, excavation and building work, and activities in the vicinity of the site generating noise associated with preparation for the commencement of work (e.g. loading and unloading of goods, transferring of tools, etc) in connection with the proposed development must only

be carried out between the hours of 7.00am and 7.00pm on Monday to Fridays, inclusive, and 7.00am and 5.00pm on Saturdays, and no work must be carried out on Sundays or Public Holidays.

(b) All work, including, demolition, excavation and building work must comply with the City of Sydney Code of Practice for Construction Hours/ Noise 1992 and Australian Standard 2436-1981 'Guide to Noise Control on Construction, Maintenance and Demolition Sites'."

With these hours, the following is a summary of the Works Program:-

- Site Perimeter bored piers and site remediation - 3 months
- Excavate for Basements – 3 months
- Construct Structures – 8 months
- Finishing works to buildings – 8 months
- Hard and soft landscapes – 3 months

Some work activities noted above will be occurring concurrently, and it is anticipated that the construction period will be approximately 21 months. Construction is currently anticipated to commence in February 2012.

5 ENVIRONMENTAL MANAGEMENT PLANS

5.1 Heritage and Archaeology Plan

5.1.1 Heritage Mitigation

Godden Mackay Logan (GML) have undertaken an Heritage Impact Statement for the proposed works (refer to appendix 6.10 of the Environmental Assessment Report) The site does not contain built heritage items and is not located within a conservation area, so there would be no heritage impacts from the proposal on the site itself.

The foundations and retaining wall on Ultimo Road of the former signal box adjacent to the Ultimo Road Railway Underbridge are immediately adjacent to the proposed site. Therefore it is proposed that identification of the heritage fabric of these elements is undertaken prior to construction and then protection of the identified heritage fabric be provided during the construction phase.

5.1.2 Archaeological Mitigation

Casey & Lowe recommends the following mitigation:

- A program of archaeological investigation should be undertaken and an excavation director appointed to manage the program if required. In conjunction with the Contractor UTS will develop enough flexibility in the development timetable will be allowed to enable remains to be recorded in appropriate detail.
- A Research Design report needs to be written to guide this investigation (see Appendix 6.11 of the Environmental Assessment Report). This report needs to draw on a range of Heritage Branch, Department of Planning guidelines.
- Archaeological testing of the site is a way to clarify the nature of the archaeological resource so as to determine more accurately the nature and depth of archaeological remains. This can be undertaken as part of the Environmental Assessment or following Project Approval. Under Section 75U, Part 3A of the Environmental Planning & Assessment Act it is not necessary to apply for a S140 application if the works are undertaken as part of the Environmental Assessment.
- Based on the archaeological integrity and significance of the remains, a program of archaeological salvage and recording could be required. Salvage would include sampling sections of the site, such as:
    - Evidence for the early topography and natural landform and how this was modified through time.
    - The nature of the site's reclamation fills should be investigated – these will be present throughout the study area.
    - Reclamation across the study area.
    - The timber houses and associated yard and occupation deposits and features, such as, wells, cesspits, rubbish pits and underfloor deposits.

- The two groups of structures in the northern part of the site, one a possible dairy and the other whose use is unknown.
- Sections of the NSW Shale and Oil Company buildings to clarify their function.
- Limited excavation of the c1874 terraces, nos 20 and 22, which had some Chinese occupation. The other terraces do not reach the local significance threshold and do not require further investigation.

- The archaeological sampling and recording will be undertaken according to Heritage Branch guidelines and best practice archaeological methodologies. This will then feed into future interpretation and produce a detailed record of the site.
- The results of the archaeological program should be interpreted within the new development. The archaeologists need to have a central role in the development of ideas and themes and interpretative concepts
- In accordance with standard Heritage Branch, Department of Planning guidelines and conditions, all artefacts recovered during excavation will need to be cleaned, labelled, bagged, boxed and catalogued and entered into a database. A detailed excavation report will need to be written including responses to the identified research design. Significant artefacts need to be conserved. UTS will need to provide permanent archival storage for artefacts recovered from the excavation.
- If the nature of the proposed works in any of the area changes then the impact on the archaeological resource should be reassessed.

5.1.3 Aboriginal Heritage Mitigation

Godden Mackay Logan have undertaken a due diligence report on the Aboriginal heritage potential on the site (refer to Appendix 6.12 of the Environmental Assessment Report). There is potential for Aboriginal objects to be found and impacted by construction works at the subject site. Therefore, mitigation as recommended in the Due Diligence Report would be adhered to. This comprises that an Aboriginal Heritage Plan of Management will be prepared prior to the start of historical excavations and construction works. A watching brief will be undertaken and if objects are found an Archaeological Research Design (ARD) will be prepared and implemented. Alternatively an ARD will be prepared prior to start of historical excavations and if Aboriginal objects are found the ARD would be implemented.

5.2 Noise and Vibration Management Plan

Marshall Day Acoustics recommend the following construction noise control measures.

Community consultation and negotiation during construction is required.

With regard to construction activities, reference will be made to AS2436 – 1981: Guide to noise control on construction, maintenance and demolition sites, which offers detailed guidance on the control of noise from demolition and construction activities. In particular, it is proposed that various practices be adopted during construction, including:

- limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;

- establishing channels of communication between the contractor/developer, Local Authority and residents;
- appointing a site representative responsible for matters relating to noise;
- monitoring typical levels of noise during critical periods and at sensitive locations; and
- All site access roads will be kept even so as to mitigate the potential for vibration from trucks.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:

- selection of plant with low inherent potential for generation of noise;
- erection of barriers as necessary around items such as generators or high duty compressors; and
- siting of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.

Marshall Day recommends the following construction vibration control measures.

In order to minimise potential vibration impacts during demolition and construction, it is proposed that various practices be adopted, including:

- limiting the hours of operation of site activities likely to create high levels of vibration;
- monitoring typical levels of construction vibration during critical periods and at sensitive locations; and
- selection of plant and methods with low inherent potential for generation of vibration.

5.3 Air Quality Management Plan

A detailed Air Quality Management Plan shall be prepared by the Contractor prior to the commencement of works. The following air quality management measures will be adopted during the construction works:

- Dust emissions will be controlled by the use of water spraying when required;
- Concrete decks to be kept clean to reduce dust emissions
- All motorized equipment used on the site will be selected on the basis of its noise performance and will comply with regulatory standards for noise generation;
- High efficiency mufflers are to be installed for major plant items particularly those that would be used for long periods on the project to reduce construction noise;
- Equipment will be operated in a proper, efficient and correct manner which includes proper Odour emissions from the site which could adversely affect air quality or the amenity of the local area to be monitored;
- No materials will be burnt on site; and
- Maintenance in order to control noise and associated exhaust emissions.

5.4 Soil and Water Management Plan

5.4.1 Stormwater Drainage System

The stormwater drainage system shall collect stormwater discharge from downpipes, grated drains, rainwater outlets, and rain water tank over flows and discharge via gravity to Sydney Water's stormwater main. A new connection point complete with kerb inlet pit shall be provided in accordance with the requirements of the City of Sydney Council. On Site Detention is not required as per the letter issued by John Hyde a Development Services Representative for Sydney Water to Mathew Burke titled 'Stormwater discharge 14-18 Ultimo Road, Ultimo' on the 15th September 2010. The stormwater drainage system shall comply with the requirements of the City of Sydney Council and/or Sydney Water Corporation.

5.4.2 Soil and Water Management Plan

The Soil and Water Management Plan (SWMP) has been designed to the requirements set out within the City of Sydney Councils 'Guidelines for Erosion and Sediment Control on Building Sites' document and Landcom's 'Soil and Construction Manual, Volume 1 '(Blue Book). The plan details particular erosion control devices such as a construction entry/exit shaker grid and gravel filled fabric silt bags around the perimeter of stormwater inlets to mitigate against sediment laden runoff entering the stormwater network. These measures aid to protect the quality of downstream water levels which aids in preserving aquatic life. A SWMP Notes and Details drawing has also been created in order to supplement the SWMP and provide the contractor with specific measures to control erosion from the site. The SWMP and SWMP notes and details sheet have been included within Appendix 6.13 Drainage Strategy Report of the Environmental Assessment Report.

5.5 Waste Management Plan

The Contractor shall prepare the Waste Management Plan (WMP) prior to the commencement of works. The Contractor shall retain waste records and submit quarterly reports to the Project Manager.

The plan includes the following mitigation measures:

- use of supplier contracts, which include the removal of packaging waste from the site where appropriate;
- separation of waste materials into their respective waste stream skips at convenient locations on the site or as appropriate during demolition and recycling on a building by building basis;
- use of proprietary waste collection and storage systems for hazardous materials and the use of appropriately licensed waste management companies for the removal and disposal of potentially hazardous waste materials from the site;
- anticipating recording and tracking of the types, quantities and destination of all waste materials taken off-site in accordance with the Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes (NSW DECC, 2004); and
- collection of waste materials by a licensed waste contractor for recycling as a first option, or disposal as a second option at a frequency, which ensures that waste materials are not allowed to build up to an unacceptable level on the site.

5.6 Traffic Management Plan

The Contractor shall prepare a Traffic Management Plan (TMP) prior to the commencement of works. Traffic will generally be managed at the site in the following way:

- Designated transport routes shall be communicated to all personnel
- Strict scheduling of vehicle movements is to occur to minimize vehicles waiting off the site
- Site workers are to utilize local public transport and car sharing wherever possible

The following issues will be considered in the TMP.

5.6.1 Traffic Impact

The construction traffic should generally be restricted outside the peak traffic hours to minimize the traffic impact in the locality. On-site car parking should not be provided for the site personals to minimize the traffic impact. The majority of the workforce should be encouraged to travel by train and bus outside the morning and afternoon commuter peak periods.

5.6.2 Parking Impact

Construction workers should not park in the residential streets. The kerb side parking on Mary Ann Street should not be affected during the construction period. If any parking is required on Mary Ann Street, application for ‘Works Zone’ should be lodged to City of Sydney (CoS).

5.6.3 Pedestrian Activity at/ near the Site

There should not be any pedestrian impact during the construction period at the vicinity of the site. Inside the site boundary, pedestrian access will be limited via fencing/ safety hoardings. The pedestrian activity adjacent to construction access driveway on Mary Ann Street should be managed and controlled by site personnel. Pedestrian affects on Ultimo Road should be minimised and a safe and convenient pedestrian environment should be maintained at all times.

5.6.4 Impact to cycleway

There should not be any adverse impact to cyclists on Ultimo Road.

5.6.5 Impact to Adjacent Businesses/ Properties

There is no other business activity at the vicinity of the site. Properties opposite site of Mary Ann Street and Omnibus Lane should not be affected due to the construction activity. The Contractor will need to maintain clear access at all times to the Transgrid and Energy Australia leased space on the adjacent property.

5.6.6 Truck Movements

The construction site loading bays and on-site construction platforms (if required) should be accessed via separated entry and exit driveways onto Mary Ann Street so that all vehicles should able to enter and exit the worksite areas in a forward direction. Mary Ann Street provides good access to Harris Street via the existing traffic signals for travel in all directions. All queuing and storage of trucks should be accommodated on-site, within the designated construction zones or in designated marshalling areas.

Trucks should not be permitted to park on – street in Mary Ann Street or other surrounding streets. Truck drivers will be advised of presence of the traffic controllers/ spotters and they must observe his/ her directions.

5.6.7 Construction Traffic Management

The movement of construction vehicles to/ from the site and in particular trucks associated with the removal of spoil/ other construction debris should be carefully managed by qualified site personnel. All trucks removing spoil from the site should be loaded to prescribed limits and loose materials should be covered during the transport from the site. Vehicles leaving the site should be cleaned in an appropriate manner as required to prevent the tracking of dirt/ other construction debris onto public roads.

5.7 Health and Safety Management Plan

A detailed Health and safety Management Plan (HASP), which will include a health and safety risk assessment for the planned construction works shall be prepared by the Contractor prior to the CC being issued. The HASP shall include, but not be limited to:

- Name key personnel responsible for site safety;
- Emergency contact details and procedures;
- Identify and describe the risks associated with each operation conducted;
- Describe actions to be taken to mitigate risks and hazards;
- Confirm that on-site personnel are adequately trained to perform their job responsibilities; and
- Describe personal protective clothing and equipment that will be worn by personnel;

5.8 Contamination Management Plan

A Remedial Action Plan (RAP – see Appendix 3.9 of Environmental Assessment Report) has been prepared and includes:

- the removal of hydrocarbon source
- monitoring of contamination migration at all boundaries will wells installed outside the boundary and monitored for a number of years
- Removal of contaminated and uncontaminated material
- Testing of excavation and remaining material
- validation testing on completion of remediation and excavation
- the construction methodology will need to comply with the intent of this RAP.

The site will be remediated in accordance with the Remedial Action Plan in Appendix 3.9 of the Environmental Assessment Report.

5.8.1 Health Risk Assessment and Environmental Management Plan

Following removal of the hydrocarbon materials the site will be inspected by a qualified occupational hygienist. The occupational hygienist will undertake a Health Risk Assessment. Provided this is satisfactory it is passed to the Auditor to allow completion of the Auditor's SAS.

6 CONTAMINATION AUDITING

A contamination auditor will be engaged by UTS for audit of all stages of the remediation under this RAP and for preparation of a Site Audit Report (SAR) and ultimately Site Audit Statement (SAS) to the requirements of NSW CLMA 1997.