

UNSW – MECHANICAL & MANUFACTURING ENGINEERING PRECINCT DEVELOPMENT

Construction and Waste Management Plan



VERSION CONTROL

Version	Date of Issue	Distribution	Action required
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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

The Construction Management Plan prepared by Aurora Projects establishes the overarching principles which will guide and define the Contractor's obligations and targets in accord with UNSW stated environmental targets. The Contractor will develop and operate its integrated Management System which will combine Environmental and Work Health and Safety Management objectives. This is consistent with the International Standard ISO 14001 and Standards Australia approach to enable an organization to align or integrate its own Environmental management system with related management system requirements.

The Contractor's management system will document its policies and responsibilities with respect to Environmental, Works Health and Safety Policy and develop processes to monitor, report and improve outcomes and targets.

The Management System will be developed to focus on the production of a project specific Contractor's Construction and Environmental Management Plan (CEMP), which is where the majority of construction activity risks must be identified and managed. Both project environmental and safety issues are planned and managed within the one management document. (Refer to CMP 1 and CMP 2 attached for the identified the construction zone, construction traffic and pedestrian access etc.)

The first step in the sequence of operations is to plan the environmental management activities and integrate these with the construction program.

CEMP will include but not be limited to:

- Statutory Compliance;
- Hazardous Substances/Dangerous Goods Management Plan;
- Asbestos (& Hazardous Building Material) Management Plan;
- Waste Management Plan;
- Contaminated Soil & Water Management Plan;
- Stormwater & Erosion Management Plan;
- Traffic Management Plan;
- Pedestrian Management Plan
- Noise & Vibration Management Plan;
- Air Quality Management Plan;
- Tree Protection Plan;
- Community & Stakeholders Consultation/ Participation Management Plan; and
- Sustainability.



Particular areas of interest for this project will be:

Stormwater and Erosion Control

The contractor's objectives during the Delivery Phase are to avoid erosion, contamination and sedimentation occurring as a result of the construction or demolition activities associated with the MMEPD project. (Refer to RBG Erosion a stormwater plan). This will include control of the quality of stormwater leaving the construction site such that no unacceptable impact occurs to adjoining areas. Appropriate management measures must be instituted to prevent environmental incidents and actions may include:

- limit land disturbance,
- · annual weather patterns, excavation and demolition footprint,
- construct earth bunds and similar diversion drains to divert surface water runoff, temporary sediment and erosion controls to prevent the erosion of soil from disturbed construction areas and stockpiles,
- limiting entry and exit points,
- truck washdown and wheel washing facilities,
- collection of stormwater,
- appropriate use of sediment fences and other devices,
- · rehabilitation of areas of disturbance,
- maintenance of controls,
- stormwater re-use for dust suppression,
- controlled discharges (dewatering),
- security measures and;
- emergency preparedness.

Traffic Management

During the Delivery Phase, management of the vehicles generated by the construction activities is essential to ensuring a safe and successful outcome for all stakeholders. The Contractor's objectives will be to minimise the impact of the additional traffic on both the campus community and neighbouring residents. The Traffic Management Plan will assess the expect vehicle type, size and frequency required in conjunction with the existing infrastructure in order to best assess the expected impacts and therefore mitigation methods. Interaction with pedestrians, access routes to and within the campus, site entry and exit points, and traffic control requirements will then be developed in response to this information.

Noise and Vibration Control

The Contractor's objectives during the Delivery Phase are to minimise the generation of noise and vibration from construction activities occurring on site and its impact on existing neighbouring residents, UNSW staff and students, associated building structures and existing facility personnel.

Noise generated during the demolition and construction phases will be primarily associated with vehicle movements, compressors, generators, heavy machinery (eg: excavators) and hand-held machinery and tools. Construction of MMEPD project would include excavation, ground preparation including some earthworks, concrete works including formwork, and building erection (Refer Acoustic Studios report). Construction noise acceptability





criteria vary depending on construction period, and will be in accordance with the NSW EPA Environmental Noise Control Manual (ENCM) Chapter 171 Construction Site Noise.

Air Quality Control

The Contractor's Delivery Phase objectives will be to ensure the construction and demolition works do not prejudice air quality, to minimise the generation of dust on the project site and to implement appropriate controls to suppress dust and other suspended particulates.

Major sources of air emissions from the proposed bulk excavation, demolition and general construction works at the site are primarily associated with traffic movements, soil dust and diesel emissions), excavation /stockpiling and handling of soils on site.

Appropriate management measures must be instituted to prevent environmental incidents and actions may include:

- air monitoring,
- clearance of vegetation,
- · minimise the length of time that excavations and stockpiles are left exposed,
- · truck washdown and wheel washing facilities,
- employment of water cart,
- transport routes,
- · landscape disturbed areas,
- plant and equipment to be fitted with standard pollution/noise control devices.

Community & Stakeholders Consultation

The Contractor's objectives will be to regularly update and advise UNSW personnel in nearby buildings and facilities staff of the construction works program; to also provide appropriate contact details should they need to lodge a complaint or discuss project works and to maintain a good neighbour policy with the UNSW by reducing disturbances and confining any potential loss of amenity.

Tree Protection

The significance of existing trees directly adjacent to the construction zone is recognized and the need to protect and maintain these trees so they will form part of the contractor's obligations.





WASTE MANAGEMENT PLAN

Details of Waste Management: Construction Phase

The objectives during the design phase on waste, with this in mind the design team consciously decided to retain and refurbish all of the Willis Building (J18) and the entire north wing of the Mechanical Engineering Building (J17 North) thereby minimising waste and refurbishing the buildings to provide a further 40 years of reuse.

The objectives of minimisation will be reinforced with the Contractor based on the hierarchy of avoidance/reduce, re-use, recycle, treat and dispose to endeavour to re-use and/or recycle to reduce/avoid waste disposal to landfill.

Construction waste minimisation requires early planning and establishment of "Waste minimisation Culture" by all participants in the Design, Construction and End User process. Waste minimisation is a key element in life cycle analysis, material selection and specification.

General construction works would generate quantities of materials such as concrete and other masonry products, timber, steel and plastic mainly associated with packaging. Wastes would be segregated were possible and recycled as per the Contractor's waste minimisation strategy.

All excavated materials will be tested to determine the appropriate classification and will be disposed of or used for landscaping works.

Materials on Site	Destination		
Type of Materials	Reuse and recycling		
	On Site	Offsite	Disposal
	Specify Proposed re-use or on site recycling methods	Specify Contractor and recycling outlet	Specify Contractor and Landfill Site
Concrete Slabs, paving and RC beams	Crushed on site and used as backfill and road base	Surplus sold for road base	
Formwork	Minimise wastage through reuse of formwork on succeeding floors		
Waste concrete	Crushed on site and used as back fill and road base	Surplus sold for road base	
Concrete blocks	Crushed on site and used as back fill and road base	Surplus sold for road base	
Plasterboard		Off cuts returned to manufacturer for recycling	
Timber	Minimal use of timber in the building other than for joinery fabricated off site		
Metal	Metal panel system is fabricated off site.	Sold as scrap	
General Waste			General Waste trucked to landfill; site and contractor not yet identified





Description of Operational Waste Management Initiatives at UNSW

- 1. UNSW is committed to minimizing its waste generation and resource use and has introduced appropriate policies and procedures to achieve this objective.
- 2. The EMP was established in 1995 to implement the operational aspects of the UNSW Environment Policy.

Details of the Environment Management Program, its personnel and activities can be found on the UNSW Web Site:

http://www.emp.unsw.edu.au/

- 3. UNSW targets best practice in the management of its built assets, including the minimization of waste during demolition and construction. Strategic Asset Management Policies are managed by the Strategic Asset Management Committee that reports to the Deputy Vice-Chancellor (Resources).
- 4. Environmental issues are also the responsibility of the Environmental Unit. The role of the Environment Unit is to "develop and promote a culture of environmental leadership, responsibility and continual improvement across the UNSW community", in line with the University's Environment Policy. It regularly considers issues related to the minimization of waste streams. Details of the Environment Unit and its activities can be found at

http://www.mech.unsw.edu.au/info-about/ohs/environmental-matters

- 5. The Green Office Program (GOP) is an initiative of the Environment Management Program. The Green Office Programme (GOP) is responsible for initiatives to reduce waste and also contributes to the achievement of UNSW greenhouse gas emission reduction targets.
- The GOP involves a number of initiatives, including paper and cardboard recycling, the progressive 6. introduction and use of photocopiers capable of double-sided operation, increasing the proportion of recycled paper used on campus, the introduction of re-usable internal envelopes and further encouraging the use of email for internal communication. In addition, the GOP operates a furniture recycling programme from its Randwick Store.
- 7. Waste collection on the University campus has been reorganized to maximize recycling, and to minimize solid waste. Recycling of solid wastes and general waste collection is carried out in partnership with Randwick City Council.
- 8. UNSW has developed a recycling program for its green organic waste that involves an industrial scale composting process. The output is used as water-reducing mulch for landscaped areas on the UNSW campus.
- 9. UNSW has standard procedures and requirements for the disposal of waste materials on site and for the minimization of waste during construction.
- Whole-of-life waste minimization initiatives include: 11.
 - Provision of a dedicated recycling space for buildings to allow efficient storage and sorting a) of recycled materials.
 - Specification of long life materials minimizing replacement. b)
 - Waste water minimized by the use of waterless urinals and low-flow sanitary appliances. C)
 - d) Part of the UNSW Green Office initiative, including office consumables such as toner cartridges.







Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components. Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

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C 31.10.12 100% Schematic Design Issue

FJM JC

UNSW School of Mechanical and Manufacturing Engineering Location Plan

Scale	1:1000 @A1	1:2000 @A3
Drawn	FJM	Checked JC
Project No.	S11378	
Status	DA	
Plot Date	31/10/2012 6:2	8:43 PM
Plot File	S:\11300-11399\s11378_unsw_engineering\A_J17-J18\cad\plots \DA\A0.001[C].dwg	
Drawing No.	[Revision]	
Drawing No.	[Revision]	CMP 1



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CMP 2

[Revision]