

71 MACQUARIE STREET, SYDNEY

Mixed Use Residential / Commercial Building



CONSTRUCTION & ENVIRONMENTAL MANAGEMENT PLAN FOR CONCEPT PLAN APPLICATION

Revision		Date
A	CEMP draft concept plan	22 April 2011
B	Issue for Concept plan	2 Nov 2011

TABLE OF CONTENTS

ITEM		
1.0	Introduction	Page 3
2.0	Hours of Work	Page 3
3.0	Demolition, Pedestrian & Traffic Management	Page 3
4.0	Rail Corridor Management	Page 5
5.0	Cahill Expressway Management	Page 7
6.0	Noise Management	Page 9
7.0	Waste Management	Page 11
8.0	Soil & Water Quality	Page 13
9.0	Erosion & Sediment Control	Page 13
10.0	Air Quality Management	Page 14
11.0	Construction	Page 15
12.0	Conclusion	Page 16
13.0	Appendices: <ul style="list-style-type: none">- Young Worker Policy.- Anti – Harassment Policy- Drugs & Alcohol Policy- HSE Consultation Statement- Health Safety Environment Policy- Injury Management & Return to Work Policy- Smoke Free Policy- UV Radiation / Sunlight Policy	Page 17

1.0 INTRODUCTION

This Construction & Environmental Management Plan (CEMP) has been developed by Mirvac Constructions Pty Ltd (Mirvac) for the concept plan phase on 71 Macquarie St Sydney, addressing construction items that relate to the future development. It is proposed a more detailed CEMP will be developed for the future project application. The CEMP outlines the actions and staging of demolition and construction deemed necessary to ameliorate possible concerns of neighbouring occupants and tenants whilst maintaining a safe, productive and efficient construction site.

Implementation of a CEMP is central to the successful completion of a project. The production of the CEMP is a positive commitment by Mirvac to ensure that all statutory obligations are fulfilled and that the project is delivered to the highest Mirvac quality, safety and environmental standards.

The responsibility for the management of this document and the actions contained therein lies with the Mirvac Senior Management Team for the Project. The Plan will be monitored throughout the project construction phase and amended from time to time to suit construction requirements.

Projects Statutory Requirements

All construction activities will be undertaken in accordance with the relevant sections from the Building Code of Australia, Australian Standards, NSW Occupational Health & Safety Act 2000 and NSW Occupational Health & Safety Regulations 2001.

2.0 HOURS OF WORK SOUGHT

Mirvac is seeking the approval for the following work hours:

1. Between 7:00 am and 6:00 pm, Monday to Fridays inclusive
2. Between 7:00 am and 3:00 pm, Saturdays,
3. No work on Sundays and public holidays.

3.0 DEMOLITION, PEDESTRIAN & TRAFFIC MANAGEMENT PLAN

Halcrow Consulting have been appointed as the Traffic Engineer for the Concept Plan phase for the development. The overall principles for pedestrian and traffic management during construction will be consistent with the Traffic Engineers Report and assume items as follows;

Pedestrian & Public Protection

- During the Demolition phase “B class” overhead protection hoardings will be provided along Macquarie St and along the public space adjacent to the western site boundary. The same principals shall apply to the Circular Quay East Promenade, with the installation of “B class” hoarding along the eastern site boundary;
- Pedestrian footpaths adjacent to the site will be maintained during the demolition period;
- The pedestrian access stair from Macquarie St to the Cahill Walk will be maintained during the demolition period, overhead protection will be provided where required;
- Due care is to be taken by all vehicles entering and leaving the site;
- All vehicles will enter and exit the site in a forward direction;

- Qualified traffic controllers will be utilised where necessary to manage traffic and ensure pedestrians and cyclists are allowed safe access adjacent the project;
- Signs alerting both pedestrians & drivers of the potential danger will be posted for added protection.

Ingress and egress routes to the construction site

- Trucks Access to the site, during the period of demolition will be provided via temporary entry and exit driveways onto Macquarie Street. The demolition access driveways will be managed and controlled by qualified traffic controllers and construction vehicles will enter and exit the site in a forward direction;
- As demolition works progress below Macquarie Street levels, the existing trafficable zones to Circular Quay East Promenade will be utilized for access to the site, and will remain in place for the construction phase;
- The existing vehicle access to Quay Grand will be maintained at all times during the demolition phase of the project.

Traffic access to the site

- Through traffic on Macquarie Street will be maintained at all times throughout the demolition / construction period. There will be no requirement to permanently block traffic lanes in these streets during the construction process other than approved “works zones”;
- Truck movements will be restricted to designated truck routes and will be confined to the main road network. Truck routes to and from the site will be identified in the Pedestrian & Traffic Management Plan for the project, with the aim to minimise impact of construction traffic on streets within the CBD. Transport companies and subcontractors will be advised of the designated truck routes to and from the site;
- Emergency & service vehicle access will be maintained to the site, adjoining properties and public areas for the duration of the project;
- All trucks leaving the site will be loaded to prescribed weight limits and loose material will be covered during transport from the site. The site contractor will be responsible for locating a truck wash facility or other appropriate cleaning mechanism adjacent to the site access driveway. Loose material will be removed from all vehicles and/or machinery before leaving the site and entering the road system. Any run-off from the washing down of vehicles will be directed to the sediment control system to be located within the site.

Proposed construction zone locations

- A Work Zone (Construction Zone) is to be applied for on the project for a portion of Macquarie Street and/or Macquarie St footpath adjacent the site.

Management for all deliveries and disposals to and from the site

- All deliveries to the site will be carried out within the site boundaries or from within designated work zones after approval from Council;
- Qualified traffic controllers will be provided where necessary to ensure pedestrians and vehicles are allowed safe access adjacent the project.

Application for and effects of any street closures required for construction works

- Prior to implementation of any temporary road changes during demolition / construction. Mirvac will apply for the appropriate approvals from City of Sydney Council including the development of a traffic control plan detailing times and dates of changes, signage, road markings. Including notification to all surrounding residents and properties;
- In addition to the measures outlined above, Mirvac will encourage the workers to utilise the public transport services available a short walk from the site for travel to/from the site.

4.0 RAIL CORRIDOR MANAGEMENT

Reference is made to the following documentation that has been prepared to ensure adequate consideration is given to the rail corridor adjacent the site;

Preliminary Geotechnical Report

- A preliminary geotechnical desk study has been completed by Coffey Geotechnics and a report providing recommendations on excavation, shoring and foundations. The objectives of the desk study were to develop a preliminary geotechnical model of subsurface conditions at the site as a basis for preliminary assessment of the proposed geotechnical aspect for the project including:
 - Excavation conditions.
 - Excavation support.
 - Likely groundwater conditions.
 - Suitable footing types and foundation design.
 - Protection of neighbouring structures including the elevated Cahill Expressway and rail line.

In addition to the information and recommendations in the abovementioned documentation it is important to note the following;

Surveys & Reports to be obtained

- Noise & Vibration Assessment will be prepared by an Acoustic Consultant for the Project Application, (refer to section 6.0);
- A Registered Surveyor will undertake a detailed identification survey of the development, existing common boundary and rail infrastructure to identify impairments or unforeseen elements. Prior to the commencement of excavation works, the position and location of all existing services affected by the project are to be ascertained from the drawings of the relevant authorities, investigation of the site, and by other means as may be appropriate. Each existing service affected by the project work will be disconnected, cut back, sealed off, removed, altered or re-directed, as is necessary for the completion of the work. Also to be considered is the maintenance of services to surrounding occupants. All the above is to be in accordance with the requirements and approval conditions of Railcorp and other relevant Authorities;
- Pre & post demolition dilapidation surveys of the adjoining rail infrastructure will be completed in accordance with Council requirements;

- A detailed Construction Monitoring Plan will be prepared prior to commencement of the project. The plan will outline the methodology and monitoring requirements during the demolition, excavation and shoring phases of the project to ensure the works have no effect on the adjacent railway corridor;
- Coffey Geotechnics will be engaged by Mirvac to provide Geotechnical Services for the project. Their scope of services will include but not be limited to;
 - Full time on site supervision by an experienced Geotechnical Engineer during any excavation works below the RES to check the stability of excavation faces;
 - Full time on site supervision during construction of all permanent inclined rock anchors below the RES;
 - Mapping of the subsurface profile including records of rock strengths, defects and joints;
 - Analysis of survey markers mounted on the RES to monitor any movement or deflection in the structure as the works proceed;
 - Preparation of a Long Term Monitoring Program Report at completion of activities that includes design and installation certification, as built information and maintenance requirements.

Hoardings & Fences to Rail Corridor

- The existing Railway Enclosure Structure (RES) and fencing maintains separation of people and equipment from the rail corridor; currently no physical access is required within the RES or rail corridor;
- Mirvac will, in consultation with Railcorp, design and construct a protective barrier in the form of a solid vertical screen along the entire common boundary to shield the rail corridor from the demolition and construction activity.

Management of Rail Corridor & Adjoining Structures

- Mirvac will ensure thorough consultation with Railcorp is established and maintained for the duration of the project;
- Any temporary or permanent structural works required to ensure the stability of remaining buildings / structures will be determined by the structural engineering consultants engaged for the project;
- Permanent structural support of surrounding buildings / structures will be carried out as necessary during the demolition, excavation and shoring phases of the project under the supervision of the project structural engineer;
- Existing buildings / structures on adjacent sites are to be monitored by periodical inspections for any structural movement;
- A project specific Workplace Risk Management Plan (WRMP) will be developed to identify and detail the key areas affecting health safety and environment (HSE). The Plan outlines workplace specific HSE management practices that shall be implemented and maintained to achieve the objectives outlined in the Mirvac Group Health Safety Environment Policy. Of particular importance will be the Job Safety and Environmental Analysis (commonly referred to as Risk Assessments or Safe Work Method Statements) that will be developed for all activities to ensure that any potential hazards and associated risks are identified and suitable systems implemented to ensure the health and safety of personnel and minimise risk to the surrounding environment;

- Mirvac will coordinate joint inspections of the rail infrastructure and property in the vicinity of the project prior to the commencement of works and at the completion of the works;
- Mirvac will provide regular status updates to Railcorp regarding the progress of works on site. These updates will include status of monitoring for movement or deflection in the structure;
- To assist in an emergency potentially affecting the Rail Corridor, signage will be prominently displayed around the site that includes emergency phone numbers of all emergency services including the Rail Corridor Management Centre and a nominated Railcorp contact.

5.0 CAHILL EXPRESSWAY MANAGEMENT

As per the Railcorp management plan, reference is made to the following documentation that has been prepared to ensure adequate consideration is given to the Cahill expressway adjacent the site;

Preliminary Geotechnical Report

- A preliminary geotechnical desk study has been completed by Coffey Geotechnics and a report providing recommendations on excavation, shoring and foundations. The objectives of the desk study were to develop a preliminary geotechnical model of subsurface conditions at the site as a basis for preliminary assessment of the proposed geotechnical aspect for the project including:
 - Excavation conditions;
 - Excavation support;
 - Likely groundwater conditions;
 - Suitable footing types and foundation design;
 - Protection of neighbouring structures including the elevated Cahill Expressway and rail line.

In addition to the information and recommendations in the abovementioned documentation it is important to note the following;

Surveys & Reports to be obtained

- Noise & Vibration Assessment will be prepared by an Acoustic Consultant, prior to the commencement of the project (refer to section 6.0);
- A Registered Surveyor will undertake a detailed identification survey of the development, existing common boundary and Cahill Expressway to identify impairments or unforeseen elements. Prior to the commencement of excavation works, the position and location of all existing services affected by the project are to be ascertained from the drawings of the relevant authorities, investigation of the site, and by other means as may be appropriate. Each existing service affected by the project work will be disconnected, cut back, sealed off, removed, altered or re-directed, as is necessary for the completion of the work. Also to be considered is the maintenance of services to surrounding occupants. All the above is to be in accordance with the requirements and approval conditions of the RTA and other relevant Authorities.
- Pre & post demolition dilapidation surveys of the adjoining expressway structure will be completed in accordance with Council requirements.

- A detailed Construction Monitoring Plan will be prepared prior to commencement of the project. The plan will outline the methodology and monitoring requirements during the demolition, excavation and shoring phases of the project to ensure the works have no effect on the adjacent Cahill Expressway structure;
- Coffey Geotechnics will be engaged by Mirvac to provide Geotechnical Services for the project. Their scope of services will include but not be limited to;
 - Full time on site supervision by an experienced Geotechnical Engineer during any excavation works below the RES to check the stability of excavation faces;
 - Full time on site supervision during construction of all permanent inclined rock anchors below the RES;
 - Mapping of the subsurface profile including records of rock strengths, defects and joints;
 - Analysis of survey markers mounted on the RES to monitor any movement or deflection in the structure as the works proceed;
 - Preparation of a Long Term Monitoring Program Report at completion of activities that includes design and installation certification, as built information and maintenance requirements.

Hoardings & Fences to Cahill Walk & Expressway

- As stated previously in the pedestrian management section, pedestrian stairway access from Macquarie St to the Cahill Walk will be maintained at all times throughout the project;
- Mirvac will, in consultation with the RTA, design and construct a protective barrier screen along the entire common boundary with the rail corridor, inclusive of any overhead protection that may be required.

Management of Cahill Expressway

- Mirvac will ensure thorough consultation with the RTA is established and maintained for the duration of the project;
- Any temporary or permanent structural works required to ensure the stability of remaining buildings / structures will be determined by the structural engineering consultants engaged for the project;
- Permanent structural support of surrounding buildings / structures will be carried out as necessary during the demolition, excavation and shoring phases of the project under the supervision of the project structural engineer;
- Existing buildings / structures on adjacent sites are to be monitored by periodical inspections for any structural movement;
- Mirvac will coordinate joint inspections of the expressway infrastructure and property in the vicinity of the project prior to the commencement of works and at the completion of the works;
- Mirvac will provide regular status updates to the RTA regarding the progress of works on site. These updates will include status of monitoring for movement or deflection in the structure;
- To assist in an emergency potentially affecting the expressway, signage will be prominently displayed around the site that includes emergency phone numbers of all emergency services including the nominated RTA contact.

A project specific Workplace Risk Management Plan (WRMP) will be developed to identify and detail the key areas affecting health safety and environment (HSE), as previously outlined in section 4.0.

6.0 NOISE MANAGEMENT PLAN

Purpose

The Noise Management Plan will be developed to ensure that demolition and construction activities do not lead to the generation of unacceptably high levels of noise that will affect the surrounding community.

Scope

To establish the noise management procedure to be implemented during construction and to also ensure compliance with Mirvac's noise control policy.

Major Measures

Working Hours:

General construction noise will be limited to the approved working hours. Should work be required outside of the approved working hours for any reason (excluding works undertaken to avoid loss of life or injury, damage to surrounding properties, environmental damage and/or as directed by the Police or other authorities) Mirvac will apply for the appropriate approvals from the City of Sydney Council & surrounding neighbours will be informed.

Standards:

The maximum noise levels of all construction activity, plant and equipment is to comply with EPA requirements, Australian Standards and Mirvac's noise control policy.

Management:

- Noise assessment and monitoring will be carried out on and around the site to Mirvac's noise control policy;
- Alternative methods will be explored to reduce the impact on site workers and the general public;
- The maintenance of exhaust silencing attachments on all diesel powered equipment;
- Only silenced compressors will be permitted to be used on the site;
- Potential for noise generation to be used as an important criteria in the selection of construction plant and equipment on the site;
- On site monitoring will be carried out to ensure that noise suppression devices are installed on all required plant and equipment;
- Where practicable, noise-generating plant is to be located away from residential boundaries;
- Site rules prohibiting the use of noisy audio equipment, shouting and swearing (particularly near site boundaries) and the like will be enforced;
- The solid screen of A and B class hoarding will be maintained on site during construction periods.



AVERAGE NOISE LEVELS & APPROXIMATE SAFE EXPOSURE TIME WITHOUT HEARING PROTECTION	
JET ENGINE @ 25 m	140 dB 0 minutes pain threshold
GUNSHOT	110dB 1 minute
LIVE ROCK MUSIC	100 - 110 dB 1 minute
JACKHAMMER	100 - 110 dB 1 minute
KANGO HAMMER	100 - 110 dB 1 minute
POWER SAW	105 dB 3 minutes
ANGLE GRINDER	90 - 100 dB 15 minutes
RIDE ON ROLLER	95 dB 1 Hour
HEAVY TRUCK	90 dB 2 Hours
LAWN MOWER	85 - 90 dB 2 Hours
GENERAL POWER TOOLS	85 - 90 dB 2 Hours
EXCAVATOR	UNDER 85 dB 8 Hours
GENERAL LABOURING without power tools	83 dB No limit
HEAVY STREET TRAFFIC	65 dB No limit
VACUUM CLEANER	60 dB No limit
BUSINESS OFFICE	60 dB No limit
NORMAL SPEECH	

Noise Control Policy

As an Employer or Controller at workplaces Mirvac is committed to ensuring that noise and vibration levels, to which employees, contractors or visitors may be exposed, remain at levels that will not affect human health. This commitment includes the monitoring of noise exposure and peak noise levels at temporary, new or existing workplaces where noise is identified as a risk and the implementation of noise control measures where adverse levels are identified.

Noise can result in hearing loss based on either the intensity of the noise level, i.e. a peak of more than 140dB(lin); or noise levels which exceed an 8-hour noise level equivalent of 85dB(A). As an Employer or Controller at workplaces where these levels may be exceeded Mirvac recognises its Duty of Care to its workforce and will instigate a noise control program that includes:

- the identification of actual and potential exposure to noise in the workplace by conducting noise assessments or monitoring where identified as a risk;
- assessment of the risks to health and safety of potential or actual exposure to noise;
- the potential impact of noisy works on nearby neighbours or the surrounding community;
- strict adherence to any hours of operation imposed by local government or other conditions;
- outline of the responsibilities for noise control and information on the risk of noise exposure in workplace inductions;
- procurement of plant and equipment which does not adversely impact on noise levels;
- wherever practicable the implementation of controls such as encapsulation or isolation of noisy works or plant equipment to minimise reliance on personal protective equipment and the impact of noise on the surrounding workforce or others;
- use of personal protective equipment by employees, visitors or contractors who undertake or are situated close to noisy work;
- the identification of noisy areas or plant equipment with warning signage to alert personnel of the requirement for use of personal protective equipment; and
- where considered necessary employees or contractors exposed to potential risk areas or activities are monitored through audiometric testing.

Mirvac is committed to assisting industry sectors in which its divisions operate to reduce the instance of noise related hearing loss through ongoing funding and implementation of a noise control program at Mirvac workplaces. Implementation by Mirvac personnel of the intent of this policy and a noise control program is unconditional and the basis of the program will be reviewed whenever legislation, guidelines or industry innovation in noise abatement occurs.

Greg Paramor
Managing Director

1 November, 2006

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success

7.0 WASTE MANAGEMENT PLAN (WMP)

Mirvac Constructions Pty Ltd is aiming to reduce the amount of waste to land fill by adopting the waste management hierarchy of avoid > reuse > recycle > dispose in the civil and infrastructure phases. The following document outlines waste management procedures to be carried out to assist in reducing waste.

Waste generated at the workplace shall be avoided or recycled wherever practical.. Waste targets for this Business Unit are >80% diversion of waste from landfill by recycling, reuse, design or other methods. Mirvac have implemented a Waste Management Plan and is described as follows:

- material is reused wherever practicable, in particular VENM;
- the establishment of a workplace waste management area(s) for sorting and segregating waste where available space allows;
- participation in waste minimisation training for all workplace personnel;
- recyclable materials are reprocessed wherever practicable, e.g. plasterboard off cuts, steel reinforcement and concrete;
- contractors identify areas where they can reduce waste and reuse materials in their respective trades (waste avoidance initiatives to be provided by each Service Provider in the JSEA);
- prescribed waste, e.g. hazardous or contaminated material, asbestos, aqueous waste (paint washout residue/sludge), shall be removed by a licensed contractor and dockets retained at the workplace for audit verification purposes;
- pollution and damage to the environment is prevented; and
- The safety and health of employees, Service Providers and the public is protected.

The figure below details the general principles for prevention of waste.



Figure 2.0: Waste prevention principles

Specific Waste Management Plans

A project specific Waste Management Plan will be developed by Waste Contractor combining a number of different strategies due to the proposed operations on site.

Demolition Waste

Due to the quantity of materials involved a specific management plan will be developed by a demolition expert to maximise the recycling potential and minimise the amount of waste required for landfill. Monthly reports detailing all waste removed from the site stating the type, quantity and location disposed and total recycled, will be submitted by the demolition contractor.

Existing Building Survey

Prior to the commencement of the demolition phase an existing building survey will be undertaken to determine the extent of hazardous material. In the event hazardous materials are encountered the following steps will be put into place.

Controls: Removal of hazardous material will be strictly in accordance with the Code of Practice for the Safe Removal of Asbestos – Worksafe Australia the National Occupation Health and Safety Commission (MOHSC: 2002, 1998) “Safe Removal of Asbestos “ document. Hazardous products where required will be “wet down” or sprayed with a bonding agent prior to removal. Mirvac will engage specialised contractors to remove all hazardous material from the existing building during the demolition phase.

Monitoring: All hazardous material disposal will be recorded. All records kept will display the vehicle / truck removing material from site, when it was removed and where it was removed to. All movements off site will be matched by a corresponding tip receipt where the material was disposed of.

Clearance: Upon completion of the removal of hazardous material from site, air monitoring and clearance certificates will be issued by the contractor carrying out the removal of hazardous material. All certification will be provided by a NATA accredited consultant.

Construction Waste

A Waste Management Plan will be developed and submitted by a Waste Contractor for the removal of all waste from this project. Continual review of this waste management plan will be undertaken to ensure compliance with environmental regulations and standards.

Waste types likely to be generated on the site include the following:

- General Waste.
- Putrescible waste (lunch room waste from site personnel).
- Cardboard & White Paper, amended plans & drawings.
- Bottles, Cans & Plastics.
- Concrete / Bricks / Tiles / Timber & Gyprock.

The waste contractor will supply waste bins for the on site collection and storage of general waste material. The material from this project will be transported to a Recycling facility for

screening and sorting. Industry standard currently recycles 80% of the material bought to their recycling depot.

Generally materials disposed off are managed as listed below:

- Concrete is crushed, pulverized and sold as recycled aggregate
- Bricks are also crushed, pulverized and sold as recycled road base
- Timber is chipped and sold as mulch for garden beds and ground cover
- Steel is sent to either Metalcorp or Simsmetal for recycling
- Plasterboard is broken down to a gypsum product and sold to farmers as a soil additive
- Cardboard & White Paper Recycling to Amcor for recycling
- Bottles, Cans & Plastics Recycling to Visy for recycling

Monthly reports detailing all waste removed from the site stating the type, quantity and location disposed and total recycled, will be submitted by the waste contractor.

8.0 SOIL AND WATER QUALITY

Prior to the commencement of the project Mirvac will engage a Environmental Consultant / Ecologist to assess the potential impacts the demolition / construction activities may have on the following;

- water quality;
- marine vegetation;
- aquatic ecology;

The consultant will be required to provide a report detailing recommended management procedures for inclusion in the Erosion and Sediment Control plan along with specific requirements to address potential impacts on aquatic habitats from changes to the quantity, quality and discharge of stormwater from the site.

9.0 EROSION & SEDIMENT CONTROL PLAN

Introduction

An Erosion and Sediment Control Plan will be developed following the receipt of the Geotechnical and Ecologist's report prior to the commencement of the project. The purpose of these procedures is to aim to ensure that there is no off site environmental impact caused by overland stormwater flows & project discharge.

Scope

The work to be executed under this plan consists of the implementation of measures to control, minimise and maintain erosion and sediment within site. Construction works will be undertaken so as to avoid erosion and sedimentation of the site and the surrounding land.

General Principles

It is important to design and install measures that reduce the erosion hazard of any particular construction activity. Once this is achieved, run off water which carries the sediment must be controlled, in such a way as to reduce the amount of sediment leaving the site. Generally, this may be achieved by the following:

- Maintenance of the sediment control installed at base of stockpiles.
- limiting the amount of site disturbance on areas not being developed;
- Installation of sediment controls and water treatment within the site to control any water on site.
- Installation of temporary controlled overland flow paths to direct water to the on site temporary water basins.
- Ensuring water management systems adopted on site will not adversely affect water quality or quantity in the downstream water courses.

10.0 AIR QUALITY

Air quality and visual monitoring is to be maintained throughout the various demolition / construction phases. Generally the dust created by related activities is more prominent in windy conditions and will be dealt generally with water suppression.

- Spray type irrigation will be used throughout the demolition phase to maintain a damp surface to areas likely to create dust.
- Water carts and spray type applicators will be used throughout the excavation phases to maintain a damp surface to areas likely to create dust.
- The construction site will be maintained and kept clean with the use of mechanical sweepers, and covered waste bins to minimise air borne matter.
- In windy conditions the frequency of dust suppression such as watering would be increased appropriately.
- All materials transported to and from site in trucks will be appropriately covered to eliminate dust or airborne matter.
- Construction activities that result in dust being mobilised by winds will be avoided (if required) until such time as either winds subside or effective safeguards can arrest the airborne movement of dust.
- Earthworks are to be controlled and areas capped as early as practically possible to minimise dusts.
- Completed surfaces are to be kept clean and the use of road sweepers are to be implemented to maintain access roads and approaches to site.
- Contolled site access to be maintained with truck / vehicle wash down facilities available at all exit points to ensure no mud is carried out into public areas which may latter dry out and create dust.

- Local residents immediately adjacent to the Development site potentially affected by air quality deterioration would be included in any community consultation programme. Any complaints in relation to dust generation from the works would be promptly addressed.

11. CONSTRUCTION

Preliminary Construction Methodology

The Project will be constructed as a single stage, split into 4 key phases:

1. Excavation
2. Structure
3. Façade & Finishes
4. Public Domain Works

Excavation

- A detailed Excavation Management Plan in accordance with the Workcover Authority regulations will be prepared by the appointed licensed excavation contractor prior to commencement of excavation work on the site;
- The general Excavation Management will involve the following steps:
 1. Erect all additional fences, hoardings & Environmental Controls;
 2. Cap –off and / or remove any existing services running through the site;
 3. Commence excavation in materials as found, using best industry practice methodology & equipment to ensure all noise and vibration is kept to a minimum and compiling with current EPA guidelines;
 4. Progressively remove excavated spoil from site constructing any shoring as determine by the Structural Engineer in conjunction with the site Geotechnical Engineer;
 5. Progressively batter perimeter of excavation or provide shoring or rock stabilisation as required;
 6. Upon completion, remove all rubbish, spoil, residual materials, barricades, screens, scaffolding, temporary shoring etc.

Structure & Facade

The structure will be composition of insitu reinforced concrete and precast concrete elements.

- The general Construction Process will involve the following steps:
 1. Construct reinforced concrete basement levels;
 2. Construction of the tower structure, including the following:
 - a. Erection of all scaffolding, perimeter protection screening
 - b. Erection of tower crane, within the site boundaries
 - c. Maintenance of all Class A & B Hoardings
 - d. Progressive construction of horizontal insitu concrete elements and precast vertical elements
 - e. Wherever possible all materials handling and plant activities will be contained within the site boundaries to minimise impact on surrounding residents, in

accordance with all relevant Codes of Practice and Council regulations and requirements.

- f. All materials are to be stored within the site boundary;
- g. Basement levels will be utilised for materials storage as soon as practicable;
- h. No materials to be stored on public footpaths and / or roads.

Public Domain

The public domain works will be incorporated to the overall project programme. These works will entail;

- 1. Demolition of existing landscape inclusive of paving, bollards, relocation of trees;
- 2. Cap –off and / or remove any existing services running through the site;
- 3. Various staging requirements to maintain the amenity of surrounding public space
- 4. The relocation of the Quay Grand carriageway (vehicular access to Quay Grand will be maintained at all times through this period).
- 5. Construction of all new public domain works in accordance with the City of Sydney Council's '2030 Vision'.

12.0 CONCLUSION

The CEMP has been developed for the Concept Application for 71 Macquarie Street Sydney. It provides in broad terms proposed Construction and Environmental management initiatives to be implemented for the demolition phase and construction of 71 – 79 Macquarie Street and surrounding public domain.

It is proposed a further CEMP will be submitted with the Project Application for the subject development.

13. APPENDICES



Young Worker Policy

Young workers and those new to the workforce often lack the experience to be cautious about workplace safety. In the past decade, injury and fatality research demonstrates that young workers aged between 15 and 24 years are over-represented in workplace injury statistics across many industry sectors. The high risk nature of some Mirvac workplaces, such as construction sites, or specific task-related risks at other Mirvac workplaces (such as manual handling, operation of plant and equipment, chemical handling or work at a height over 2 metres) means that the risk of injury to young workers is significant and affords special consideration by Mirvac.

The Mirvac Group Young Worker 'Look Out' Safety Program has been developed to guide and mentor young workers to reduce their risk of injury or illness. The Program applies to new workers, trainees or apprentices under 25 years with less than 2 years experience and is a requirement at 'all' Mirvac construction workplaces and 'all' other Mirvac business locations where risk and opportunity planning identifies young workers tasked with work routines assessed as having a medium or greater injury potential. In addition, the Program includes students undertaking work experience for which the [Mirvac Group Student Placement Procedure](#) is completed.

Launched on 31st August 2006, the objectives of the Program are to:

- » increase awareness of young worker safety
- » mentor and build confidence and experience through learning and development
- » supervise or limit risky work routines or activities
- » readily identify young workers at Mirvac workplaces so that assistance and mentoring remains ongoing

Implementation of the Mirvac Group Young Worker 'Look Out' Safety Program requires the completion of the [Mirvac Group Young Worker Policy Commitment](#) relevant to the specific Mirvac division and display of the relevant Mirvac Group Look Out Poster(s) at the workplace.

The Mirvac Group Young Worker 'Look Out' Safety Program has demonstrated a strong capacity to return safer work routines and fewer injuries to young workers who are recognised as the future of Mirvac's skill base. Please join me in supporting and implementing this important initiative.

Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



Anti-Harassment Policy

Mirvac is committed to providing workplaces that are free from discrimination and harassment. No one has the right to harass or bully others at work or in any situation related to work. Mirvac does not tolerate such behaviour and is committed to providing a work environment which is pleasant, safe and enjoyable where all employees and service providers are treated with dignity, courtesy and respect.

Some examples of discriminatory or harassing behaviour include:

- > bullying or mocking a work colleague through teasing or pranks
- > threatening or abusing another person
- > sexual advances or sexual jokes
- > publicly humiliating another person - especially if it is an abuse of position
- > excluding a less popular team member from activities,
- > disrupting an individual's work, work space, equipment or interfering with their personal property

Legal Considerations

Harassment is a form of unlawful discrimination. Mirvac has a Duty of Care to provide and maintain a safe working environment for its employees, service providers or others working on its behalf or visiting its workplaces. This duty includes eliminating or reducing the risk of discrimination and harassment.

Employees also have a Duty of Care to ensure they work in a safe manner without risk to fellow workers or others in the workplace. Bullying, harassment or assaults on other workers or workplace visitors may constitute a breach of the law. Incidents of harassment including those that involve physical assault, indecent exposure, stalking, sexual assault and obscene communication are considered criminal acts.

Implications of Harassing Behaviour

Acting in a harassing manner is in breach of the **Mirvac Code of Conduct/Ethical Business Behaviour** and is deemed to be serious misconduct. Anyone that experiences or witnesses harassment should report it as soon as possible to their immediate supervisor or the designated Mirvac Anti-Harassment Officer in their workplace. When harassment is reported, it is investigated quickly in accordance with the **Mirvac Group Anti-Harassment Procedure** outlined on the Mirvac Intranet. Where necessary a formal investigation is undertaken.

Employees, or others undertaking work on behalf of Mirvac, found to have breached the Mirvac Group Anti-Harassment Procedure, may face disciplinary action. Depending on the circumstances, such disciplinary action could include: education or training, counselling, a formal warning, demotion, suspension, exclusion from a workplace and even dismissal. Disciplinary action may also be undertaken where persons intentionally make false allegations of harassment or those in a position of authority knowingly tolerate harassment.

Commitment

Mirvac is committed to providing a work environment that is pleasant, safe and enjoyable and free from discrimination and harassment.

The appointed Anti-Harassment Officer(s) for this workplace is/are:

Contact: _____

Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



Drugs & Alcohol Policy

Mirvac is committed to providing safe, healthy and productive workplaces. While social drinking may be identified as part of Australia's cultural identity, it is well recognised that drugs and/or alcohol affect a person's health and their ability to perform tasks safely and productively. As an Employer of Choice, Mirvac shares community concern over the harmful physical, behavioural and social effects of drugs and/or alcohol and the overall human and economic cost of dependence or abuse.

Drug or alcohol abuse causes short and long term impairment to a person's work performance, can impact on their safety and health, and may even impact on the safety of others at a workplace. To eliminate risks associated with drugs and alcohol abuse and achieve Mirvac's commitment to a safe, healthy and productive workplace, the following is prohibited at Mirvac workplaces:

- » Undertaking high risk work duties or work at high risk workplaces under the influence of drugs or alcohol
- » Driving a motor vehicle under the influence of drugs or with a blood alcohol level over the legal limit while at work or travelling to and from work
- » Illegal drug use or drug use that impairs an employee's capacity to perform their duties, including their responsibility to work safely
- » Operating plant and equipment while under the influence of drugs or alcohol
- » The provision of alcohol to a person(s) under the legal age limit

Objectives

In enforcing the prohibitions above, Mirvac manages the risks associated with the use of drugs and/or alcohol in the workplace in a way that is consistent and fair to all employees. More specifically, Mirvac's objectives include:

- » Provision and maintenance of a safe, healthy and productive workplace
- » Preclusion from employment of individuals applying for high risk work who test positive to the Mirvac Group Pre-Employment Medical Assessment drug screen component
- » Management of work related social or entertainment events in a responsible manner by adhering to the [Mirvac Group Drugs & Alcohol Procedure](#) and its codes of behaviour that support this policy
- » Promoting awareness of the risks associated with drugs or alcohol abuse
- » Ensuring that consultation remains confidential between management and employees in the ongoing prevention, education, counselling and rehabilitation of employees affected by drug or alcohol use

To ensure Mirvac's commitment to a safe, healthy and productive workplace, all managers shall promote and administer compliance with this Policy and the [Mirvac Group Drugs & Alcohol Procedure](#) which includes mandatory codes of behaviour. All employees, service providers or other visitors to Mirvac workplaces shall abide by the provisions of this Policy as a condition of employment or contract.

Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



HSE Consultation Statement

Mirvac is committed to ensuring the health, safety and welfare of all employees, service providers and visitors at its workplaces. Mirvac will consult with its employees and service providers on their work tasks and the procedures and practices to be implemented to manage the health, safety and welfare of people engaged in those tasks. Mirvac believes that the involvement of workplace personnel in discussion at all levels is essential in achieving good health safety environment outcomes for our workforce.

At this workplace, agreed consultative arrangements for Health Safety Environment involve:

- Committee
- Designated Workgroup(s)
- Representative(s)
- Workplace Meetings
- Consultation Group
- Safety Walk

The roles and responsibilities or functions of the above consultative arrangements shall include:

HSE Committee or Consultation Group

Where established an HSE Committee consists of a minimum of four employee/service provider members and at least one Mirvac management representative. The HSE Committee assists with the development and monitoring of safe work practices and systems, and identifies for discussion those issues that have the potential to affect the health, safety and welfare of personnel or the environment at Mirvac workplaces. Mirvac responds to requests and recommendations by the HSE Committee in a timely manner. The current minutes of HSE Committee meeting are displayed in a prominent location(s) at the workplace including membership of the Committee. In the absence of a fully qualified HSE Committee, agreed consultation arrangements may include a HSE Consultation Group, which can function in a similar fashion to a Committee as outlined above.

HSE Representative

Where an HSE representative(s) is elected at the workplace, that person is democratically elected in accordance with relevant legislation for a maximum period of 2 years, or 3 years in Victoria. Employees or service providers are encouraged to raise specific HSE issues directly with their supervisor or the elected HSE Representative. Where the immediate supervisor or HSE representative cannot resolve an HSE issue it shall be referred to the HSE Committee/Consultation Group. The HSE Representative(s) shall be identified and posted in a prominent location(s) at the workplace.

Designated Workgroup

Where requested, Mirvac will establish a Designated Work Group(s) within 14 days. When an HSE issue(s) is raised either by Mirvac, an employee, service provider or the HSE Committee/Consultation Group, the HSE Representative will consult members of the workgroup and their supervisor(s) to resolve Health Safety Environment concerns in a timely manner.

Workplace Meetings

Some workplaces may consist of a small number of personnel and an HSE Representative or Committee is not requested or not required by legislation. For these workplaces Mirvac will consult with its workforce and agree on a Consultation Group and workplace meetings at intervals to be determined by the type of workplace and its risk profile. Health Safety Environment issues are a formal agenda item at all such meetings and the minutes and attendees of the meetings are posted in a prominent location(s) at the workplace.

Workplace Health & Safety Officer

Where 30 or more workers are employed for 24 hours or more at a Queensland workplace, including a construction site where Mirvac is the Principal Contractor, a Workplace Health and Safety Officer (WHSO) is elected and a notice identifying the WHSO displayed within 5 days of appointment. The WHSO performs the role of HSE representative at the workplace and assists the HSE Committee.

Agreed Method of Consultation

The Workplace Manager retains a record to demonstrate that employees, service providers or others were consulted on the agreed method of consultation established at the workplace.

Review of Consultation Arrangements

Mirvac, in agreement with its workforce, commits to the ongoing review and monitoring of these arrangements with employees to ensure consultation is effective and HSE issues are resolved. Further information is provided in the [Mirvac Group Consultation Procedure](#).



Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



Health Safety Environment Policy

Health Safety Environment is central to Mirvac's core business values. Our vision is simple - to provide workplaces free from harm and supported by a culture which ensures that the safety of people and protection of the environment remains an absolute priority. Mirvac believes the best business solution for management of Health Safety Environment is also the best business solution for all Stakeholders across the Mirvac Group.

Objectives for achieving our vision involve:

- » Complying with applicable statutory requirements, codes of practice, standards and guidelines
- » Establishing measurable objectives and targets aimed at the elimination of work related incidents or impacts from our activities, products and services
- » Defining roles, responsibilities and levels of accountability for Health Safety Environment

Strategies will include:

- » Integration of risk management principles in all core planning activities
- » Regular review of objectives and targets to promote improved performance outcomes across all business divisions
- » A commitment to measurable and continuous improvement in Health Safety Environment performance across the Mirvac Group through strategic planning
- » Working with government and industry to improve performance outcomes for the benefit of our stakeholders and wider industry goals
- » Establishment and ongoing expansion of Health Safety Environment learning and development initiatives
- » Regular consultation with our workforce and other stakeholders to improve decision-making on Health Safety Environment matters
- » Ensuring incidents are investigated and lessons learnt are distributed across all business divisions within the Group
- » Distributing Health Safety Environment information, including this policy, across the Group to all employees and interested parties
- » Providing timely and effective injury management and environmental remediation strategy
- » Regular review of Health Safety Environment policies and procedures to ensure compliance with legislation and ongoing relevance across the Mirvac Group
- » The provision of sufficient resources to ensure Health Safety Environment remains central to core business values
- » Prequalification of Service Providers (contractors and suppliers)
- » Adopting sustainable business principles and practices that meet the needs of stakeholders without compromising future resource needs
- » Recognising and rewarding excellence in Health Safety Environment performance

I commit Mirvac to the implementation of this policy and task all divisions and personnel across Mirvac with the responsibility for achieving our vision.

Nicholas Collishaw
Managing Director
September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



Injury Management & Return to Work Policy

Mirvac recognises the benefits of sound injury management principles and practices and is committed to implementing such practices in all of its workplaces. In conjunction with this commitment Mirvac acknowledges all legislative frameworks which govern and support injury management activities across all divisions and regions of operation by the Mirvac Group.

Experience has demonstrated that early intervention and management of workplace injury through sound injury management practices greatly assists the healing and recovery process and helps restore workers to normal duties much sooner. Workplace injury management includes early provision of timely and adequate services, including a suitable duties program, and aims to:

- » maintain injured or ill workers at work or
- » ensure the employees earliest possible return to work or
- » maximise the worker's independent functioning and
- » provide for durable employment

This policy constitutes a joint workforce-management agreement to which Mirvac commits to:

- » Provide a safe and healthy work environment, but in the event of injury or illness, make sure workplace injury management is commenced as early as possible in accordance with medical opinion
- » Make suitable duties available to injured or ill workers to facilitate their safe and early return to work. These duties will be consistent with current medical opinion and be time limited
- » Maintain confidentiality over medical and injury management information including verbal or written confidentiality
- » Make workers aware that in the event of injury or illness they will be consulted in the development of a structured and safe return to work program that will not disadvantage their employment position
- » Comply with legislative obligations with regard to the nature and standard of injury management at the workplace
- » Adopt a multidisciplinary approach to injury management as required to achieve the best possible outcomes for early return to work
- » Regularly review this policy and associated programs to ensure Mirvac's commitment continues to meet legislative requirements and the needs of all parties

I commit Mirvac to the implementation of this Policy and its supporting framework of workplace injury management procedures, which outline key terms, roles and responsibilities and stages in the return to work process.

Nicholas Collishaw
Managing Director
September 2008



Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



SmokeFree Policy

Mirvac is committed to protecting the health and wellbeing of its employees and visitors by creating a work environment which is free of tobacco smoke. To achieve this commitment, smoking is prohibited within:

- » 'Enclosed' workplaces, e.g. buildings or structures. Enclosed means any space having a ceiling or roof; and except for doors and passageways is completely or substantially enclosed by walls or windows
- » 'Semi-enclosed' workplaces, e.g. amenities, lunchrooms, and areas where meals are consumed. Semi-enclosed means any area mainly located outside the permanent external walls of a building and has a ceiling or roof and at least two sides that include fixed walls, operable windows, doors or retractable coverings
- » 5 metres of any access points to an enclosed/semi-enclosed Mirvac workplace including a building doorway entry or exit, operable window or louvre, and air conditioning vent or duct
- » Lifts, hoists, and undercover car parks
- » 6m of any area that is classified as a confined space
- » Mirvac vehicles and plant and equipment if another person(s) is present
- » 10 metres of any designated flammable or combustible goods store
- » Other areas designated as no smoking by signs

Smoking breaks for employees during work hours are not permitted. Where employees experience difficulty with the absence of such breaks, or seek to quit smoking, assistance is provided through the [Mirvac Employee Assistance Program](#).

To enable Mirvac to foster an environment that promotes health and wellbeing at work and at the same time meets legislative obligations under smoke free, health, and occupational health and safety legislation all managers promote and administer compliance with this Policy. All employees, service providers or other visitors to Mirvac workplaces shall abide by the provisions of this Policy.

Littered cigarette butts have environmental impacts on waterways, soils and habitats. Mirvac supports a cigarette butt free environment and asks all smokers to please 'butt it and bin it' to protect the environment.

Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success



UV Radiation/Sunlight Policy

At Mirvac the provision of a safe working environment is central to core business values. Mirvac recognises the risk of skin cancer to outdoor workers exposed to Ultra Violet (UV) radiation through everyday sunlight. Where outdoor work is to be performed at Mirvac workplaces, UV radiation exposure is considered in all planning activities.

Initiatives to eliminate or minimise the risk of UV radiation exposure to outdoor workers and raise awareness include:

- » a purchasing arrangement for Mirvac employee work clothing consisting of the requirements for close-weave fabric with a minimum UPF 50+, long sleeves and a collar
- » identification of the potential for UV radiation exposure in risk and opportunity planning
- » consultation and awareness training for employees or service providers through workplace induction which emphasises the dangers of UV radiation exposure and skin cancer
- » the provision of sheltered amenity areas not exposed to direct sunlight
- » display of the Mirvac Group UV Exposure Poster at all workplaces where outdoor work and UV radiation is identified in risk and opportunity planning

Identification of potential UV radiation risks for outdoor job tasks is a Mirvac Group risk and opportunity planning requirement. Control measures as a minimum include:

- » nomination of UV as a risk in all safe work procedures or equivalent prepared for outdoor work
- » availability of a broad brimmed (min. 8-10cm) hat, or brim and neck flap for safety helmets, to all employees engaged in outdoor work
- » availability of sunglasses complying with AS/NZS1067 to all employees engaged in outdoor work
- » availability of sunscreen min. SPF 30+ at prominent locations at the workplace
- » wearing a shirt at all times when undertaking outdoor work

Where UV radiation is identified as a risk to health and safety, Mirvac monitors the implementation and effectiveness of control measures through regular workplace appraisals.



Nicholas Collishaw
Managing Director

September 2008

Living Quality

Integrity ■ Diversity ■ Creating Connections ■ Sharing Success