Construction & Environmental Management Plan

Harbourside, Darling Drive, Sydney

Revision	Status	Date
1	FINAL	November 2016
2	Response to Submissions and Amended Proposal	August 2018
3	Update	January 2020
4	Update	May 2020
5	Update	Sept 2020
6	Update	Oct 2020

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Issue Register

Employee Name	Employee Signature	Date

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1. Introduction

This Construction & Environmental Management Plan (CEMP) has been developed for inclusion in the State Significant Development Application (SSDA) to address the construction items related to the proposed development at Harbourside, Darling Drive, Sydney. In due course, the CEMP will address the Development Consent conditions in relation to construction and development works at Harbourside.

In addition, the CEMP outlines the actions and staging of construction deemed necessary to address the concerns of neighbouring properties, authorities and any other requirements, whilst maintaining a safe and productive construction site.

The CEMP is a commitment by Mirvac to ensure that the statuary obligations are fulfilled and that the project is delivered to the highest quality, safety and environmental standards.

The responsibility for the management of this document and the actions contained therein lies with the Construction Manager for the Project (name to be provided in due course). The CEMP will be monitored throughout the project construction phase until such time as all actions on the CEMP Action List are completed.

Since exhibition of the proposal and given the nature and range of submissions made from agencies and the pubic, Mirvac has been reviewing the overall approach and elements of the Concept Proposal. This has accordingly led to developing an Amended Concept Proposal. The final Concept Proposal therefore includes substantial amendments made my Mirvac pursuant to Clause 55 of the *Environmental Planning & Assessment Regulation*, in the main to address matters raised in the submissions and deliver an overall significantly improved outcome on the site and for the broader Darling Harbour precinct.

The following key amendments have been made to the proposal:

Following the second exhibition of the proposal in April 2020 and given the nature and range of submissions made from agencies and the public, Mirvac has again reviewed the overall approach and elements of the Concept Proposal. This has accordingly led to developing a Further Amended Concept Proposal. This further and final Concept Proposal therefore includes amendments made my Mirvac pursuant to Clause 55 of the Environmental Planning & Assessment Regulation, in the main to address matters raised in the submissions and deliver an overall significantly improved outcome on the site and for the broader Darling Harbour precinct and Pyrmont Peninsula.

In addition to the further amendments made to the Concept Proposal, Mirvac are also now including detailed Stage 1 Early Works, comprising demolition of existing site improvements down to ground slab level (no ground disturbance). Revised SEARs were accordingly issued by the Department on 12 May 2020.

The following further key amendments have been made to the Concept Proposal since its April 2020 public exhibition:

Increase in Height of the Tower

The height of the tower has been increased to be consistent with the height originally proposed (from RL 153.75 to RL 166.95). The tower height has been increased in order to better align with the place outcomes identified within the Draft Pyrmont Place Strategy for Harbourside. This opportunity for additional height is supported with the provision of additional public benefit through the creation of a new significant public accessible area of open space on the northern podium rooftop.

Reduction in Height of the Northern Podium

A portion of the podium height at its northern extent has been further reduced from RL 25 to part RL 17.6 and part 13.75. The reduction in height provides for an improved relationship to the state heritage listed Pyrmont Bridge, further improve view sharing from 50 Murray Street, along with providing an opportunity to create a new publicly accessible open space area.

Gross Floor Area / Land Use Mix

The amended proposal retains the same overall 87,000sqm of GFA, however there is a minor adjustment in the split between non-residential and residential. The final proposal now includes:

- Non-residential uses floor space – 45,000sqm; and
- Residential uses floor space – 42,000sqm

In response to market demand and the focus of local and regional strategic planning policies, it is proposed for the podium to now include predominantly commercial land uses along with supporting retail. Indicatively, comprising ~28,000sqm net lettable area of commercial office and ~8,500sqm gross lettable area of retail.

The podium enables large campus sized commercial floor plates that are favoured by large multinational tech, media, finance and professional services companies.

Apartment numbers

No change is proposed to the indicative number of apartments (357), with the minor increase in the tower height resulting in a review of the mix and sizing of apartments. Note, this yield is on the 'Indicative Design' only and will be subject to future design development and a Stage 2 DA. This Stage 1 DA only seeks approval for land uses and the building envelope comprising a total of 87,000sqm GFA.

Car Parking

The overall footprint of the basement has been reduced, but there is proposed to be an additional basement level of parking (increase from 3 levels to 4 levels). There is no change to proposed indicative parking spaces, remaining at 306 spaces. As above, this is based on the 'Indicative Design' only.

Landscaped Open Space and Public Domain

The key concepts and public benefits as originally proposed are retained under the amended Concept Proposal, with the addition of a new significant area of publicly accessible open space created on the rooftop of the northern podium (referred to as "Guardian Square").

Final Description of Development

The Harbourside Shopping Centre Redevelopment application will include a Concept Proposal and detailed Stage 1 Early Works.

The final Concept Proposal seeks approval for the following key components and development parameters:

- A network of open space areas and links generally as shown within the Public Domain Concept Proposal, to facilitate re-integration of the site into the wider urban context;
- Building envelopes;
- Land uses across the site, non-residential and residential uses;
- A maximum total Gross Floor Area (GFA) across the Harbourside site of 87,000sqm for mixed use development (45,000sqm non-residential and 42,000sqm residential development);
- Basement car parking over 4 levels;
- Car parking rates to be utilised in subsequent detailed (Stage 2) Development Applications);
- Urban Design and Public Realm Guidelines to guide future development and the public domain; and
- Strategies for utilities and services provision, drainage and flooding, and ecological sustainable development.

The Stage 1 Early Works comprises:

- Demolition of the existing site improvements, including the Harbourside Shopping Centre, obsolete monorail infrastructure, and associated tree removal.

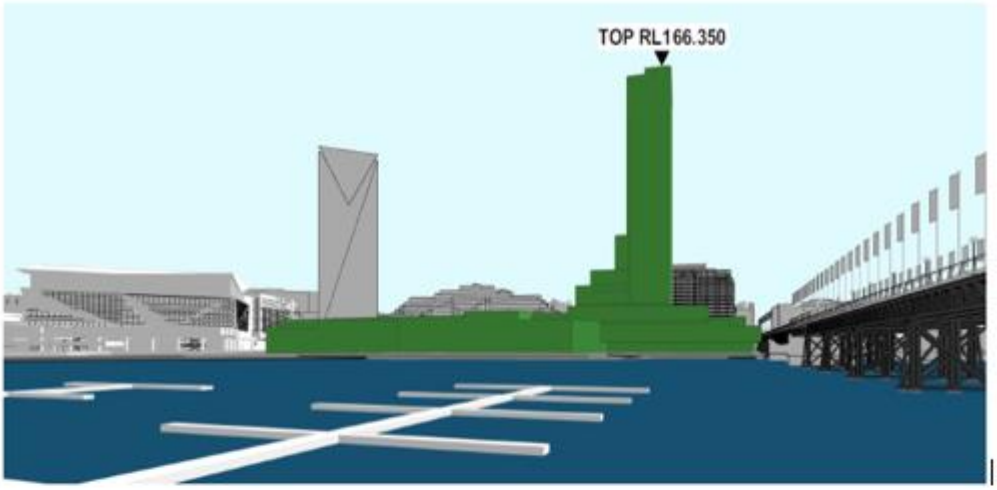


Figure 1 Original submitted Concept Proposal

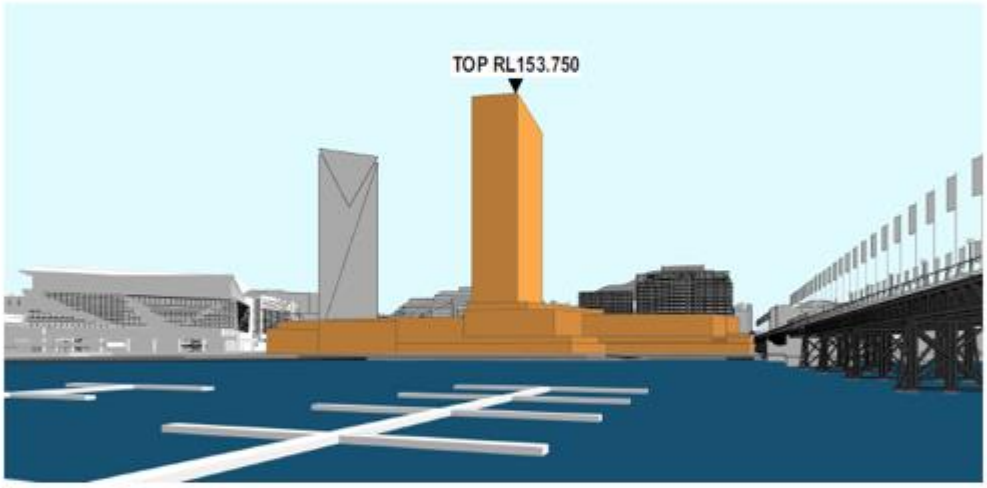


Figure 2 Amended Concept Proposal

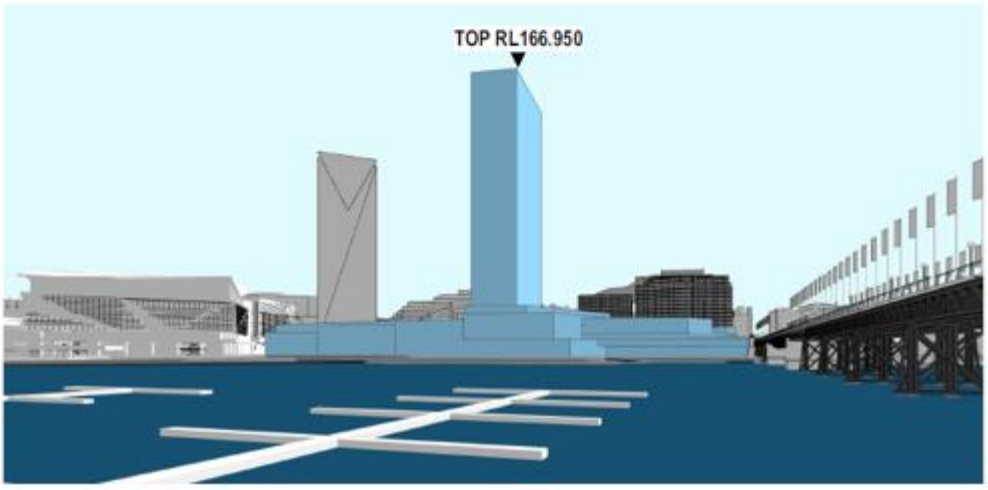


Figure 3 Further and Final Amended Concept Proposal

1.1 Project Overview

Harbourside is a Sydney shopping centre with a strong tourist and food catering focus, occupying a strategic harbour front location with unparalleled views east to Sydney CBD. The site is located within the Sydney CBD on the western side of the Darling Harbour precinct. It is located to the immediate south of Pyrmont Bridge and north of the Sydney International Convention, Entertainment and Exhibition Centre/ Sydney Sofitel Hotel. The site is bounded by Darling Harbour Drive and the alignment of the Light Rail to the west, and the waterfront promenade to Darling Harbour to the east.

The Site is located within the City of Sydney local government area (LGA). A locational context area plan and location plan are provided at Figures 1 and 2 below.

The Darling Harbour precinct is undergoing significant redevelopment as part of the SICEEP and Darling Square renewal project. The urban, built form and public transport / pedestrian context for Harbourside will fundamentally change as these developments are progressively completed.

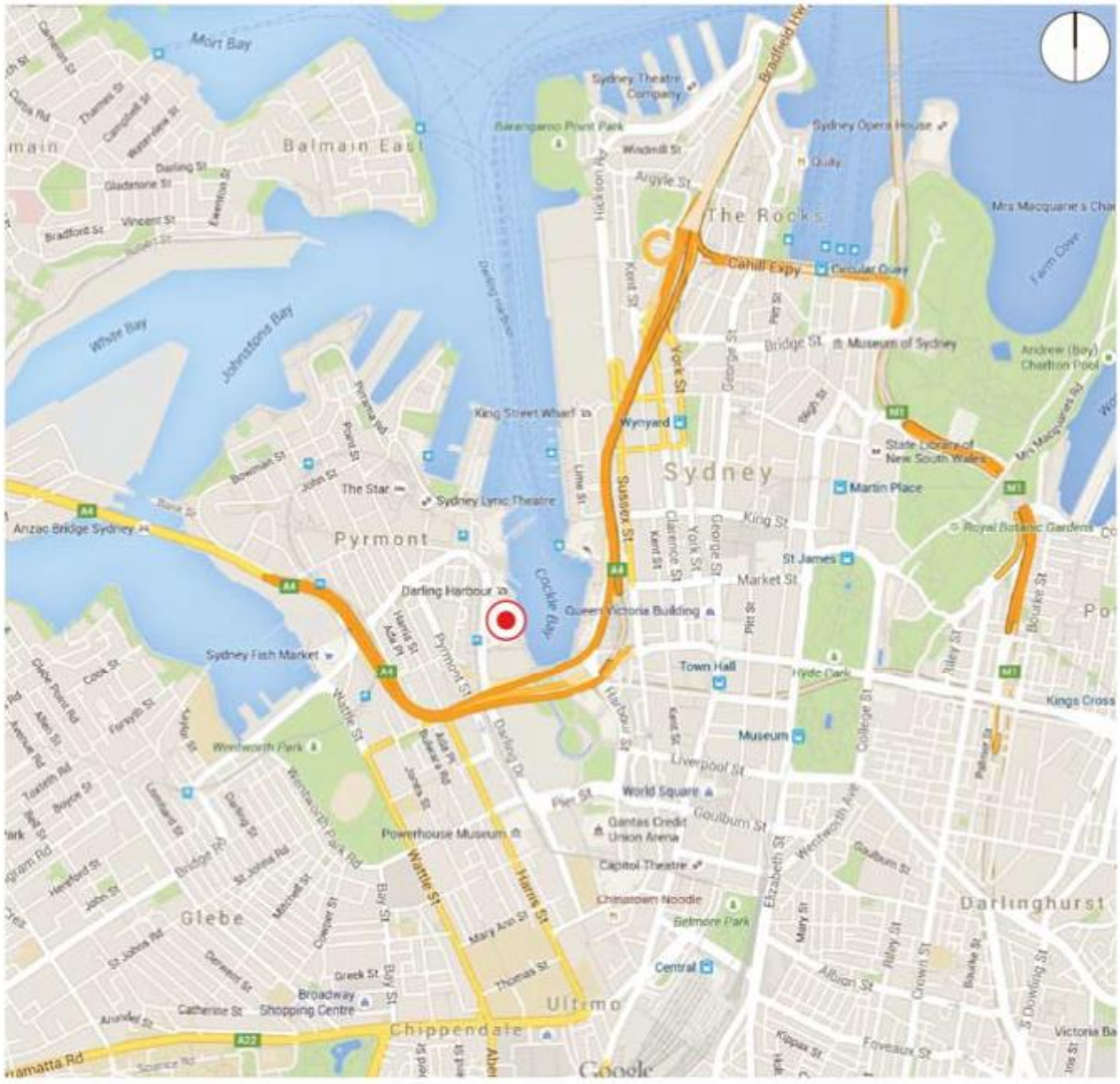


Figure 1. Locational Context Area Plan.

The Land is contained in Auto Consol 8663-98 (comprising Lots 1-10, 12-15 and 17 in Deposited Plan 776815). The Deposited Plans indicate the site comprises 15 adjoining lots which form an irregular shaped site with a frontage to Cockle Bay of approx. 270 metres and a total area of 20,542 square metres (2.054 hectares). The ground floor land footprint comprises around 18,425 square metres.

The site is generally inclusive of the shopping centre land itself, the loading dock area and associated driveways, the overhead vehicular bridge from level 3 of the centre to the car park, part of the entry area off Pyrmont Bridge and the former Monorail station (but not including the pedestrian bridge to the Ibis/Novotel Hotels). Figure 2 provides an aerial image identifying the Harbourside site.

A summary of the proposed development is detailed as follows:

- Demolition of existing Monorail Station
- Demolition of Novotel Bridge Link
- Retention of Ibis/ 50 Murray Street Bridge Link
- Demolition of existing Shopping Centre
- Construction of Bunn Street Bridge
- Construction of 4 x Basement Levels to suit 312 Car Parking spaces
- Construction of a Retail/ Commercial Podium comprising of approximately 45000sqm of GFA.
- Construction of a Residential Tower comprising of approximately 42,000Ssqm of GFA.
- Public domain works that integrates with the Sofitel Sydney Darling Harbour and adjoining SICEEP facilities, revitalises the pedestrian interface to Darling Harbour and provides for new connections between Darling Harbour and both Pyrmont and the Sydney CBD (via Pyrmont Bridge)

Figure 2: Aerial View of the site

1.2 Hours of Work

The anticipated hours of work pending approval for construction works, including the delivery of materials to and from the sites within the precinct, are as follows:

- Between 7:00 am and 6:00 pm, Mondays to Fridays inclusive.
- Between 7:00 am and 5:00 pm, Saturdays.
- No work will be carried out on Sundays and Public Holidays.

Works outside these times are subject to agreement and approval by Council or the relevant approving authority, however noting that it is anticipated that the demolition of the Monorail Station and Novotel and IBIS bridges will require out of hours working.

1.3 Contact Details

The Construction Manager for the Project will be confirmed in due course.

2 CEMP 'Action List'

The "CEMP Action List" forms the basis of the Harbourside CEMP. The Action List responds to a series of anticipated DA conditions that are to be addressed prior to and during the construction phase of the project. They further address any Authority requirements as well as taking into consideration the concerns of neighbouring building occupiers.

The Action List provides a means by which responsibilities of the project team can be readily identified and monitored.

In addition to the Action List are a series of attachments which contain more detailed information in the form of checklists, registers, templates and reports. The attachments contain the information and tools that must be implemented during the construction phase in order to close out the specific items and ultimately satisfy the DA conditions associated with the project.

3 Demolition Management Plan

3.1 Introduction

The purpose of the Demolition Management Plan is to address the requirements of AS 2601-2001 The Demolition of Structures. It plans how the demolition of the existing Harbourside Shopping Centre located at 2-10 Darling Drive, Sydney will be conducted with consideration to program, safety and environment.

3.2 Scope

The demolition scope of works includes:

- Demolition and removal of all structures and materials from site to ground slab level inclusive of internal fixtures, fittings, furniture, internal finishes and building fabric at the site.
- Installation of hoarding and scaffolding.
- Complete site clearing of rubbish, waste, rubble, tree removal.
- Provide all sediment control measures to the site during demolition.
- Capping of all redundant services back to site perimeter.

Harbourside: Demolition Site Plan

3.3 Structural Characteristics

Occupancy Class

The existing Harbourside Shopping Centre is currently trading and open to the public.

Structural Support System

The structure of the multi storey dwelling is predominantly reinforced concrete slabs, beams and reinforced concrete columns with a glazing and brick masonry façade with structural steel atrium encased with glass.

Services

Prior to demolition, the site will be inspected to determine if any services still require disconnection and capping.

Power will be disconnected from the building by a licensed electrician including all telecommunications and data services.

All existing stormwater pits to the site will be covered with geofabric sediment fencing to prevent sediment runoff into the stormwater system, in particular along the eastern boundary. To prevent sediment contamination, the filters will be regularly inspected and replaced during the duration of the works.

The fire services to the buildings will be disconnected and capped with a temporary water service connection for dust control. The fire alarm will be disconnected and the fire sprinklers and hydrant tank will then be drained. The local fire brigade will be notified of the intention to disconnect the fire alarm.

Acoustic Monitoring

Acoustic monitoring to be carried out in accordance with Noise and Vibration Plan.

3.4 Method Of Demolition

3.4.1 General

All works will be performed in accordance with relevant Legislation, Australian Standards, Codes of Practice and Guidelines for demolition. As a minimum, NSW Workplace Health and Safety Act 2011 (WHS Act), Workplace Health and Safety Regulation 2017 and AS 2601 – 2001 Demolition of Structures will be followed.

Notification to SafeWork NSW is required to submitted seven days prior to commencement of activity for demolition works. Approvals are to be displayed on site.

The Site Supervisor for this project will be a SafeWork NSW Class 1 Unrestricted Demolition Supervisor with experience in high rise demolition works.

Hot works will be in accordance with H&R Hassarati procedure for oxy/acetylene use in the SWMS for oxycutting. All oxycutting will cease a minimum of one hour prior to the completion of work and carry out a 30m fire watch after use. An inspection will be carried out of the working floors prior to workers leaving the site and inspection records kept on site. Hot works permit to be obtained prior cutting.

All work areas will be barricaded, and warning signs posted to ensure access is restricted to the demolition crew only.

Temporary power will be supplied to the area by portable generator or a temporary builder's supply with ELCB protection. All temporary electrical installations will comply with AS 3012-1990-Electrical Installations – Construction and Demolition Sites. All power tools and leads will be tagged and checked on a monthly basis and earth leakage protection shall be used.

Temporary poly pipes will be installed along the face of the scaffolding to on each floor of each of the buildings and will be capped off on a floor by floor basis as the demolition progresses down the building. This is to ensure there is water available on each floor for firefighting, if required.

All employees working in boom lifts will be required to use safety harnesses. Employees using boom lifts will only enter and exit boom lifts from the ground level. All operators of boom lifts in excess of 11 metres high will be ticketed or under instruction from a ticketed operator.

All work areas will be barricaded and warning signs posted to ensure access is restricted to the working crew only.

Where it is proposed to place demolition plant and equipment on suspended floors for demolition, the floor will be certified by a structural engineer prior to the machine being placed in position.

All employees will be inducted on the procedure of the Safe Work Method Statement and the general work procedures outlined in the site induction prior to commencing works on site. Workers will attend a pre-start toolbox talk on a daily basis outlining the activities for the day including hazard identifications and risk assessments.

The demolition area will be fenced off to all unauthorised personnel and signposted appropriately for demolition work to comply with regulations. Employees working in areas where a fall of 1.8m can occur must wear a safety harness attached to a fall arrest system approved by a competent person.

The site will be enclosed by a A-Class and/or B-Class Hoarding along all permitter boundaries.

A heavy-duty scaffold will be erected around the building along the boundary facades prior to demolition commencing. The scaffolding will be encapsulated with chainwire and shadecloth and will be erected by ticketed scaffolders. Shadecloth used conforms with AS 1725-2003 which is also fire-rated.

Scaffolding will be removed progressively during demolition in line with the walls supporting the scaffold ties. Scaffolding will be maintained and inspected on a regular basis.

3.4.2 Site Establishment

Initially during site establishment access to the working floors will via the existing stairs and/or lifts of the buildings which will remain under house service power.

The existing lights will be maintained to the fire stairs to provide emergency egress for personnel during these works. Site establishment includes the disconnection of services and establishment of site amenities.

During the second phase of the works, the lifts will be decommissioned (By Others). The existing fire stairs will be used to access the site.

The fire stairs will be provided with temporary lighting. At least one access stair will be kept clear of demolition material to provide egress from the working floors while the other is being demolished. The fire stair being demolished will be closed off to access during this procedure.

3.4.3 Asbestos Removal and Disposal

A hazardous materials survey will be completed for the project prior any works taking place. These works will be performed by Australasian Technical Services Pty Ltd who hold a SafeWork NSW Friable (Class A) Asbestos Removal Licence Monitoring and inspection will be done by an occupational environmental hygienist (Airsafe Pty Ltd).

An asbestos management plan will be developed by ATS and all works will be carried out in accordance with Work Health and Safety Regulation 2011 and the NSW Government and SafeWork document entitled How to manage and control asbestos in the work place: Code of Practice (SafeWork NSW) and the City of Sydney Managing

Asbestos Policy. Five days prior to the commencement of asbestos removal, SafeWork will be formally notified of the works.

Air monitoring will be done during the removal of friable asbestos. On completion of the asbestos and hazardous material removal works, a clearance certificate will be issued by Airsafe prior to demolition commencing.

A copy of waste dockets will be provided to the client confirming all hazardous materials removed from site were disposed of at an EPA approved landfill.

Signs and barricades will be erected to clearly indicate the area where the asbestos removal work is being performed. Signs will be placed in positions so that people are aware of where the asbestos removal work area is and will remain in place until removal is completed and clearance to demolish has been granted.

If any suspected asbestos contaminated material is found during the demolition works, the area shall be isolated. An occupational hygienist shall test the material to determine whether the material is in fact contaminated with asbestos. If it is, ATS will be engaged to remove the asbestos and a clearance certificate obtained prior to recommencement of demolition in that area.

3.4.4 Hoarding and Scaffold

The building will be encapsulated with heavy duty scaffold and A-Class and/or B-Class hoarding as per plan below.

Harbourside: Hoarding & Scaffold Site Plan

3.4.5 Demolition Works

Truck Access;

An along the western area of the site will be utilised to access site for personnel, plant and vehicles including loading out of debris generated by the demolition works. All vehicles will enter and exit in a forward direction along Darling Drive.

Strip-out:

The area to be demolished will be barricaded off and appropriate demolition signs placed at the entry points to the building. The strip-out will commence after isolation of all services has occurred and scaffolding has been installed.

A mobile crane will be used to lift a skidsteer and small excavator onto the top structural floor of the building on Level 3 and Level 2. The mobile crane will be set up on within the site boundaries in accordance with the approved lift study and Traffic Control Plan. A penetration will be made through the existing roof to allow access for the small machines to be placed on Levels 3 and 2.

These small plants will be used to demolish the ceilings, furniture, internal walls, floor coverings and services such as pipes and cables. Personnel will work with the skidsteer and small excavator to control dust and sort out material. A structural engineer will certify that the building is adequate to take the live loads of plant when working on suspended floors.

Partition and block walls will be demolished by excavator. The machines will remain at least one bay apart (i.e. they will work in different bays).

Floor finishes such as carpet and underlay will be removed manually by labourers and rolled up for reuse on the scaffold as a catch deck. An excavator or skidsteer will remove ceilings and services such as pipes and cables.

All material will be sorted out on the floor slab into different stockpiles depending on whether it is to be recycled or sent to landfill for disposal.

The skidsteer will be used to transfer the demolished materials to the ground floor load out area. The area at the bottom of the drop zone at ground level will be fenced off and signposted.

A wheelstop (250UC or UB) will be put in place at the entrance of the openings on each floor to prevent the skidsteer falling down when utilising drop zone areas. The area around the dropzone opening will be fenced off at all times when not in use. The area will be fenced off at both ends at each working floor to prevent workers entering the dropzone area. Drop zone when in use will not be accessible to personnel and when entering or exiting plant, a nominated plant zone will be provided and monitored onsite. Cabin to facing opposite side of live edges when entering and exiting at all times.

Workers on the working floor and the ground floor dropzone area will communicate via two-way radio to ensure that prior to dropping material down that the base of the dropzone has been fenced off and workers are not in the area.

Structural Demolition of Levels 3, 2 and 1:

This area of works involves the demolition of concrete floors, brick walls, fire stairs, roof structure, service risers of the buildings after internal stripout is complete. Before commencement of demolition, the area around the floor to be demolished will be cordoned off and appropriate demolition signs displayed.

Works will commence in the centre of the site so as to target the new residential tower which will ensure the quickest start to finish duration of the development. This will enable construction of the 4-level basement as soon as possible

The area under the floor to be demolished will also be cordoned off to all site personnel and signs will be displayed warning that the area is restricted.

The excavators will be working from Level 1 (Ground Floor) and commencing from the north and working towards the south using various attachments such as hydraulic hammer, pulveriser, ripper and bucket attachment. All beams will be scalloped equally using hydraulic hammer attachment. The perimeter walls will be demolished by an excavator with hammer and bucket attachment. All plant will remain at least one bay apart (i.e. they will work in different bays).

Ensure large excavators are working on slab on ground and/or compacted rubble ramp and away from suspended floors.

The base of the concrete columns will be chased by the excavator to expose the reinforcement bars. The column will be chained to the excavator, workers will then use oxycutting equipment to cut the outside reo bars so the excavator can then lower the column onto the ground.

The excavators and skidsteer will be used to transport the rubble material to the drop-zone ready for load-out.

Workers on the working floor and the ground floor dropzone area will communicate via two way radio to ensure that prior to dropping material down that the base of the dropzone has been fenced off and workers are not in the area.

The walls will be maintained to a height of 1 m above the top working floor during their use as a drop zone so as to create a handrail and wheel stop. The area around the dropzone opening will be fenced off when not in use.

The external scaffold will be progressively stripped on a floor by floor basis as the building is being demolished. Workers will use carpet or plywood to line the working deck of the scaffold to prevent dust and rubble from falling between the scaffold and the building.

Prior to the demolition of the ground floor slab, investigation into shoring and propping of the perimeter retaining walls will be completed, if required.

During demolition works, an excavator working in the nominated load out zone area will remove the rubble from the drop zone and load out the trucks driving in from Darling Drive. Traffic controllers will be used to guide the trucks into the site.

Material will be sorted out at ground level into recycling or landfill and disposed of appropriately by trucks loaded by the excavator. Men will be on hand to work with the excavator during the demolition process to act as a spotter and to control dust.

Maintain exclusion zone/s within the drop zone area with barriers or fencing with warning signs. 2-way radio communication at all times between operator and spotter. Drop zone to be managed daily in toolbox talks.

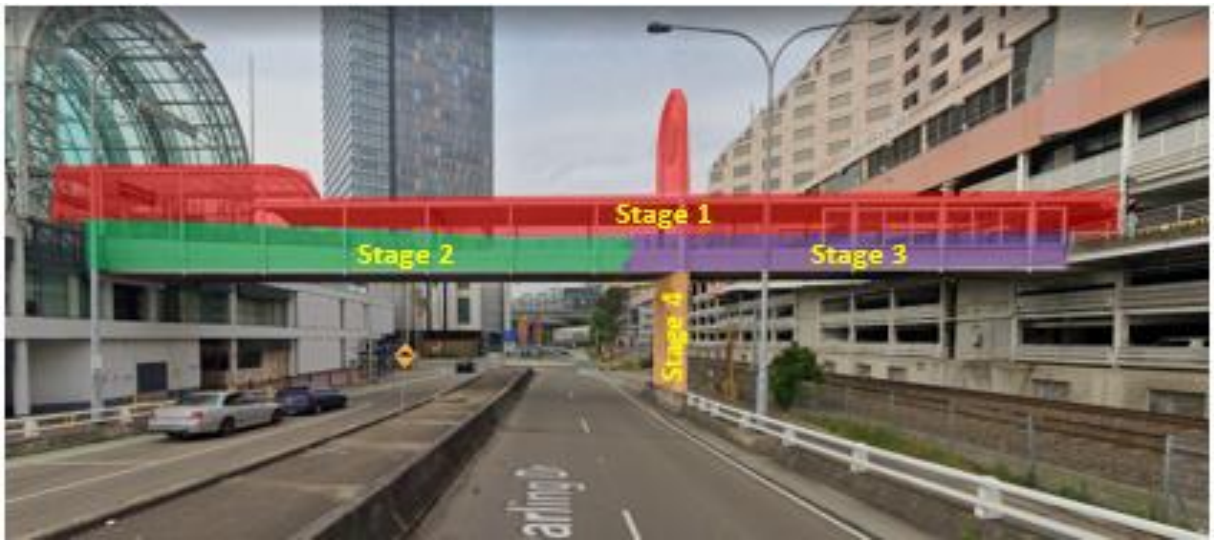
Demolition of Pedestrian Bridge

This area of work (Stage 4) involves the removal of the pedestrian bridge between the existing Harbourside Shopping Centre and Novotel Sydney on Darling Harbour Carpark. The bridge consists of a reinforced concrete structure with metal cladding roof structure which spans over Darling Drive and the light rail tracks. Approval to close Darling Drive and the light rail movements will be obtained prior to commencement of works. The electrical lines over the light rail tracks will be de-energised prior to removal of the bridge.

The scope of work involves saw-cutting of the concrete bridge structure and its columns including roof structure into sections by mobile crane. Mobile crane will be established on Darling Drive in close proximity of Harbourside

Shopping Centre. The area under the bridge will be fenced off and signposted to prevent unauthorised access during the demolition process. The existing carpark will be protected during bridge removal using shadecloth or plywood to prevent sawcut slurry from damaging the carpark. The steel framed roof of the bridge will be removed by hooking sections to a mobile crane and oxy-cutting the columns of the structure. Workers will work off the bridge slab to access the work area. The roof sections will be lifted down to ground to be processed by excavators. The handrails of the bridge will be left in place for fall protection.

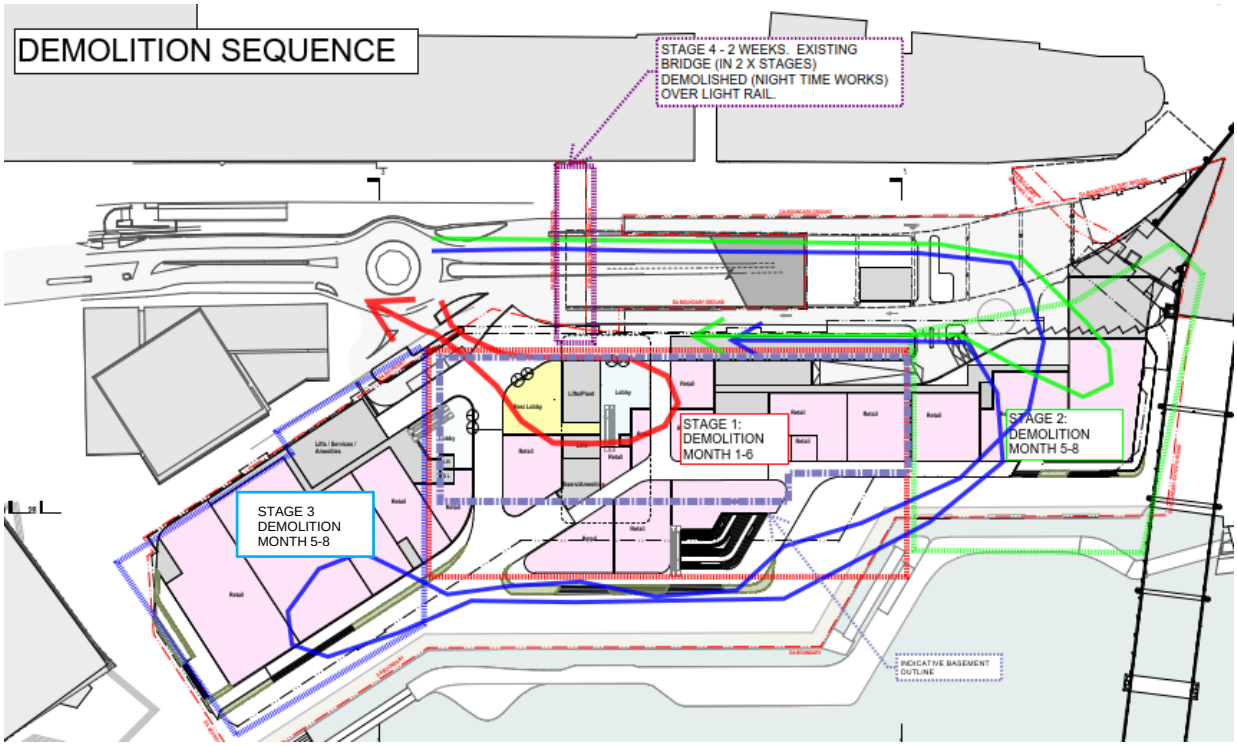
Mobile crane will take the weight of the section of bridge structure and workers will use boom lifts to gain access to the underside of the bridge for the rigging and saw-cutting purposes. A structural engineer will certify the position of the crane including lifting points. Pedestrian bridge structure will be lowered into 3 sections i.e. section 1 bridge above Darling Drive, section 2 bridge above the light rail corridor and section 3 the double columns. Once the concrete sections are sawcut, the mobile cranes will lower the walkway down to ground in the respective areas where they will be processed by excavators for disposal off site. All demolition material will be loaded onto trucks by excavator for disposal at landfill or recycling yard. Trucks will have their loads covered to prevent material falling off the truck during transport. After disestablishment of the cranes, the area around the light rail tracks and Darling Drive will be cleaned and inspected prior to handing back to the relevant authorities.



STAGE 4: SUB STAGE BREAKDOWN

Demolition of Structural Steel Atrium

This area of work involves the removal of the structural steel atrium running in an east to west direction centrally with the existing harbourside Shopping Centre. The atrium will be demolished one section (or Bay) at a time using large excavators with shear attachments working from Ground Level. Drop zones will be managed within the site boundary and excavators will further process steel members for offsite disposal.



Harbourside: Demolition Sequence Plan

3.5 Demolition Materials Handling and Disposal

3.5.1 Concrete and Brick

Brick will be generated from external walls and dividing walls. Brick will be separated from other debris and stockpiled. Concrete will be pulverised with the view to separate out the steel and also to achieve a maximum size of 600mm in any direction. As with brick, concrete will be separated from other debris and stockpiled. It will be loaded into trucks and then carted to a recycling yard.

3.5.2 Metals

Metals will be separated into their individual types and further into light gauge and heavy gauge. These will be stockpiled and then loaded into bins for removal to a scrap recycling facility.

3.5.3 General Waste

General Waste includes plasterboard, timber (engineered and natural), glass, carpet and insulation etc. These items will be loaded into trucks and taken to landfill.

3.5.4 Synthetic Mineral Fibre

Synthetic Mineral Fibre (SMF) is found in the building chiefly in ceilings and walls.Disposal of SMF will be through General Waste and taken to EPA approved landfills.

3.5.5 Waste Management Plan

Estimated waste generated during demolition works:

Waste	Total	% Recycled

Debris (Brick and concrete)	16,500 m3	100%
Metals	1,050 m3	100%
General Waste	1,500 m3	Nil
Hazardous Waste	50 m3	Nil

3.6 Demolition Traffic Management Plan

The Traffic Management Plan (TMP) for these proposed works will incorporate a Traffic Control Plans (TCP), incorporating Pedestrian Management Plans and Vehicle Movement Plans. Each specific worksite will implement a Traffic Control Plan which will identify and show the management of vehicle, pedestrian and plant movement around works. The approval from stakeholders (Sydney Harbour Foreshore Authority, Light Rail Authority, and Roads & Maritime Services RMS) will also form the TMP. All TCP's and approvals will be attached and updated as necessary. All worksites and TCP's will be implemented by suitably qualified personnel as per authorised TCP for the particular stage of works.

Identification and assessment of worksites;
Each work site has different requirements, these will be identified individually and management plans put into place, the site TCP will include more detail of this implementation and how the controls put in place will minimise disruption whilst maintain a safe work area for construction crews. Each work site will have a TCP which will address the following:

Traffic flow;
All traffic will be managed by a TCP which will comply with AS 1742.3 and the RMS Traffic Control at Work Sites manual (TCWSM). Please refer to the Traffic Control Plans attached.

Plant movement;
All plant movement including entry, egress and movement within the work area in accordance with RT TCWSM Section 7 – Providing for works traffic. Plant movement will be undertaken in accordance with Darling Harbour Live Project Traffic Management Plan Section 3.5.

Stakeholder Authority;
The proposed TMP will require the authority of the stakeholders, Sydney Harbour Foreshore Authority, City of Sydney Council, Roads & Maritime Services (RMS), and Light Rail Authority. The TMP has been developed in consultation (where appropriate) with the relevant stakeholders.

Access to Sydney Harbour Foreshore Authority;
Access is maintained along Darling Drive.

Pedestrian & cyclist movement;
All pedestrian & cyclist movement including entry, egress and movement around the work area will be in accordance with RMS TCWSM Section 9.3 – Pedestrians. All work areas will be secured with barriers and fencing to ensure that no unauthorised entry for pedestrians is possible. Pedestrian Movement will be undertaken in accordance with Darling Harbour Live project Traffic Management Plan Section 3.6

Heavy Vehicle Access Route ;
Access route for heavy vehicles over 3t GVM will be as set out in the Darling Harbour Live project Traffic Management Plan Section 3.5

Local traffic & Light Vehicle Detour Route;
Detour route for local traffic & light vehicles under 3t GVM, will be via Harris Street. Access from Darling Drive will be by means of Ultimo Road to the south and Pier Street or Bridge Road to the north.

Residential Access;
There will be no impact on residential properties. Access for adjacent residents will be maintained at all times.

Measures to ameliorate the impact of re-assigned traffic;

- Public Consultation
- Variable Message Signs
- Traffic Control Signage
- Assessment of Public Transport Services Affected
- Provisions Made for Emergency Vehicles
- Assessment of Effect on Existing & Future Developments with Transport Implications in the Vicinity of the Proposed Measure.
- Assessment of Effect of Proposed Measures on Traffic Movements in Adjoining Areas.

3.6.1 Access/ Egress of Vehicles

All exiting trucks will be loaded to their prescribed weight limits, within the site boundary. All trucks will be covered by tarpaulin or like prior to exiting the site.

The demolition site will not interfere with any pedestrian movement other than at the access/egress points. Works will be carried out so that no impacts affect the surrounding buildings and roads.

Vehicles will access the site from the existing driveway along Darling Drive. Vehicles will exit the site from Darling Drive.

There will be no requirement to block any traffic lanes during the demolition works. Access to neighbouring properties will be maintained at all times.

The arrival and departure of trucks associated with the demolition works will be carefully managed and controlled by site personnel using two-way radios. Trucks will be called onto the site when required and enter and exit from Darling Drive.

3.6.2 Transport Vehicle Frequency

Transport Vehicles:
All demolition waste will be transported in rigid tipper trucks.

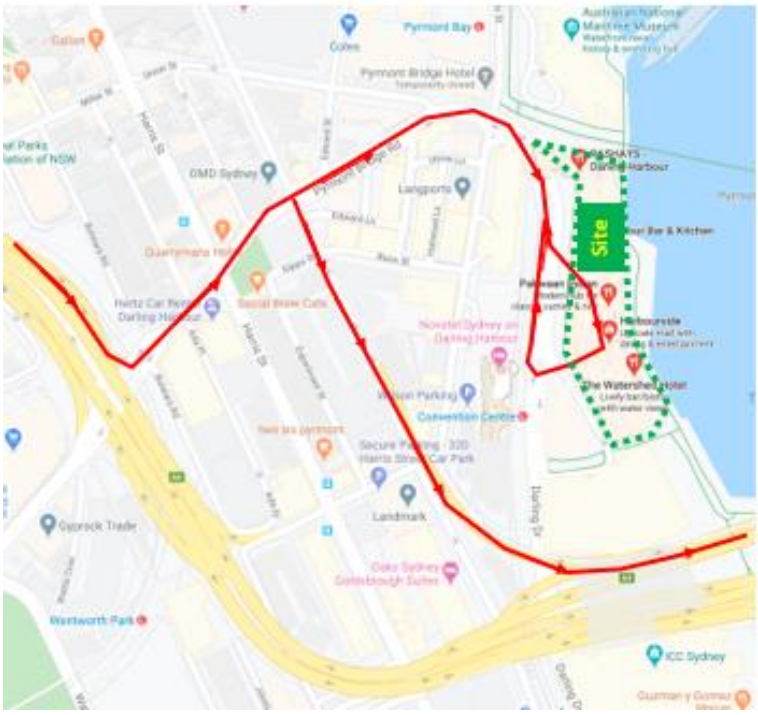
Transport Frequency:
The demolition works will involve approximately 1,480 total truckloads, on average 20 truck movement in/out per day.

Storage of Demolition Materials:
All material generated from the demolition process will be progressively removed from site to avoid stockpiling. The demolition material will be sorted in this area and transported off site to landfill.

We estimate approximately 17,750m3 of debris will be generated for offsite disposal.

3.6.3 Demolition Pedestrian Management

All pedestrian travel within the site for site workers will be confined to designated walkways identified by safety signs and paraweb or alternate temporary fencing. No unauthorised personnel will be permitted within the demolition zone unless accompanied by the site supervisor. Whilst within the confines of the demolition works, all personnel will attire in Hi-Viz vests to ensure that visible to moving traffic. The site perimeter will be bound by hoardings to prevent unauthorised access to the site.



Harbourside: Proposed Traffic Ingress and Egress Plan

4 Traffic Management Plan

4.1 Introduction

Mirvac have engaged Arcadis as the traffic management consultant for Stage 1 of the DA submission. Arcadis produced an initial high level report measuring the existing traffic flows and the anticipated increased traffic volumes as a result of the proposed redeveloped Harbourside. Pending the approval of the Stage 1 DA, Mirvac will prepare and issue a Stage 2 DA. A Traffic Management Consultant will be commissioned to develop a detailed Traffic Management Plan (TMP) for the Harbourside project – This will be contained within Appendix D.

The traffic management plan for the project shall deal with the issues of construction traffic, their effect on the surrounding environment and be prepared prior to the issue of the Construction Certificate.

4.2 Access and Egress to site

Vehicles

During mobilisation, demolition, earthworks and construction the construction related traffic will enter the site off a road via Darling Drive. The temporary construction access route runs adjacent to the light rail line then under darling drive. By implementing this access system Darling Drive will remain open for the duration of the project (except potentially for the demolition of the Monorail Station and bridges).

Exit points on each site will be manned by qualified Traffic Controllers who will be responsible for managing both vehicular and pedestrian traffic movements.

A hoarding will be erected around the perimeter of the site and will be capable of having graphics installed.

Public Transport Access

All site workers and visitors to site shall be actively encouraged to take public transport to and from the Harbourside Site. Town Hall train station is located within 900 metres of the site and will enable the majority of site workers to travel by train. There are also bus services which run regularly from surrounding areas.

Pedestrians

All site workers and visitors shall enter and exit the sites via one of the following entry/exit points:

- Secured door on eastern side of darling drive adjacent to light rail line
- Secured door on western side of darling drive adjacent to current shopping centre site

4.3 Loading and Unloading of Materials

There will be several designated areas for deliveries and the loading / unloading of materials on the sites. These will be further developed and detailed in an Access and Egress Plan which will form Appendix C. As a principal it is anticipated that the main unloading area will be under and adjacent to Darling Drive within the existing loading dock and traffic routes of the shopping centre. Other key principles will be as follows;

- All loading and unloading operations are to comply with statutory requirements;
- No materials will be stored on public footpaths or roads;
- All entering and exiting of vehicles to work zones shall be supervised by a Traffic Controller. Flow to all lanes of Traffic shall remain mostly unimpeded in accordance with Council and DA requirements.
- Should any lane closures be required, a relevant traffic management plan will be compiled along with any required permits and stakeholders / residents notified where required.
- As noted above, these points are all subject to Council and Authority approval and, these proposals may require amendment prior to the works being undertaken.

4.4 Truck and Vehicle Routes:

The routes for all trucks and vehicles proceeding to and exiting from the site will be identified in Appendix B, construction staging plans and the TMP.

All major deliveries will enter and exit the Harbourside site via Darling Drive. Signage will be installed within the precinct to direct all deliveries to the correct sites. All vehicles upon entry to the precinct for the first time must complete a truck driver's declaration or complete a site induction to ensure compliance with the site rules.

4.5 Disruption to Traffic Flows

The primary goal of the TMP will be to mitigate any disruptions to traffic flow around the Harbourside site and in the surrounding areas. Trucks and vehicles using Darling Drive must be marshalled within the site boundaries and will not be permitted to stop or wait in Darling Drive prior to entering site.

All non-critical deliveries will be scheduled outside peak traffic periods where possible.

4.6 Pedestrian and Traffic Management

Signage will be established at the precinct entry and exit points to alert pedestrians and other drivers to the movement of construction traffic. Where required, traffic control personnel will control the movement of large vehicles to and from the sites.

Visitors to the sites will be escorted at all times by Mirvac Site Staff and will be provided with a defined entry path from the point of entry.

4.7 Site Safety Plan

A Mirvac Site Specific Workplace Risk Management Plan (WRMP), will be implemented prior to the commencement of construction and be updated from time to time to reflect the current stage of site works.

All works throughout the construction process will be required to comply with the TMP, statutory requirements, and the Mirvac WRMP.

4.8 Site Specific Issues

4.8.1 Public Pedestrian Access

Pedestrian access and movement around the Harbourside site will be of high importance during all stages of construction, and is anticipated to change as surrounding construction works are completed i.e. ICC. Detailed pedestrian access routes will be identified and highlighted in the TMP, which will form Appendix B. All pedestrian routes shall be clearly defined with signage and delineated from vehicular traffic routes where required. Pedestrian access to adjacent buildings and sites will be maintained for the duration of construction works.

4.9 Site establish, demolition and construction staging, Description and Duration

The following is a summary of the proposed site establish, demolition and construction staging' and estimated durations for the project (Note: durations overlap);

Element	Description	Duration (working months)
1. Site Establishment	Set up hoardings and site amenities	2 weeks
2. Demolition	Demolition of Monorail Station, Novotel Bridge Link and Ibis Bridge Link and existing shopping centre, tree removal	1-8 months (Main building), Bridge 2 weeks
3. Earthworks	Foundation Piling, bulk excavation, detailed excavation and in-ground services	12 months, pending final Stage 2 DA approved design
4. Construction	Substructure	13 months, pending final Stage 2 DA approved design
	Superstructure	32 months, pending final Stage 2 DA approved design
	Façade, Services, Finishes and Finalisation	26 months TBC, pending final Stage 2 DA approved design

4.10 Plant & Equipment

The following is a summary of the types of plant and equipment that will be utilized on the project:

- Articulated flatbed truck for delivery of site sheds and hoarding materials.
- Articulated float / low loader for delivery of earth moving equipment such as excavators, dozers, dump trucks and piling rigs.
- Truck and trailers for the exportation of excavated material off site.
- Concrete trucks for delivery of ready mix concrete.
- Mobile cranes, of various size, for erection of site amenities, tower cranes and miscellaneous lifting.
- Prime mover and enclosed flatbed trailer for delivery of materials.
- Medium rigid vehicles, small rigid vehicles, vans and couriers to deliver smaller materials.
- Multiple tower cranes erected during the detailed excavation phase and early structure phase. Man / material hoists to be erected during the tower structure works.

4.11 Truck Movements

A detailed analysis of truck movements will be established with numbers (at Stage 2 DA) to be finalised around the following activities;

- Demolition Waste – trucks per day
- Export off site of m3 / day by truck and trailer.
- Concrete trucks for piling
- Construction of foundation & sheet piles.
- Number of trucks per day during busiest concrete pour days

5 Noise and Vibration Management Plan

5.1 Introduction

Renzo Tonin & Associates have been engaged to provide a high level acoustic report for the Stage 1 DA. For the Stage 2 DA an Acoustic Consultant will be engaged to prepare a detailed Construction Noise and Vibration Management Plan (NVMP) for the project, which will form Appendix E of this CEMP. The management plan provides guidelines to reduce noise and vibration impacts to nearby affected tenants, residents and asset owners during construction works. The NVMP primarily deals with the issues of vibration and noise generating activities and their locations.

The NVMP has been compiled in accordance with the NSW Interim Construction Noise Guideline (ICNG, 2009) and through consultation with neighbouring landowners.

Mirvac will comply with the obligations provided in the NVMP and also commits to the Noise and Vibration Control Measures detailed within this section of the CEMP.

5.2 Project Objective

The principal objectives of the NVMP:

- Identification of the noise and vibration standards which will be applicable to this project.
- Formulation of a strategy for construction to comply with the standards identified in the NVMP.
- Development of a monitoring programme to measure and regulate noise and vibration at potentially affected locations if required.
- Liase with neighbouring building owners.

5.3 Noise Criteria

The criteria for noise from construction activities on this project will maintain reasonable levels within the site and surrounding buildings. The noise criteria is outlined in the NVMP.

Further to this, specific noise criteria relating to noise limits, the time and extent of works and monitoring shall be agreed between Mirvac and the adjacent landowners. This specific criteria shall be included within the Noise and Vibration Monitoring Plan.

5.4 Vibration Criteria

The criteria for vibration from construction activities on this project will maintain reasonable levels within the site and surrounding buildings. The vibration criteria is outlined in the NVMP.

5.5 Control of Construction Noise and Vibration

As part of the NVMP, a review will be undertaken of each of the proposed activities which will occur as a part of the construction works on this project. The execution of this work will confirm the effectiveness of ongoing noise control strategies for this project. In addition, the site working hours will be enforced and all works carried out in accordance with regulatory codes, practices and legislation.

5.6 Noise and Vibration Control Methods

The following Noise Management Measures to reduce the impact of construction noise and vibration shall be implemented:

- Carry out community consultation;
- Noise barriers such as site hoarding to be erected as soon as practical;Establish background noise and vibration levels prior to any construction works commencing;
- Include relavent noise and vibration components within site inductions and pre-start meetings;
- Monitor behavioural practices;
- Carry out short-term attended noise and vibration measurement of key activities during works to evaluate emissions, the effectivenss of work practices and identify opportunities for additonal mitigation measures;

- Establish and implement appropriate complaints handling procedures;
- Manage approved construction working hours;
- Where possible, select low noise and vibration emmitting plant and equipment.
- Where possible, use silencing devices to reduce sound emission from plant and equipment that exceed noise criteria.
- Establish regular maintenance of plant and machinary to ensure operating at optimum levels.

Further details regarding the proposed noise controls and management measures will be contained within the Noise and Vibration Monitoring Plan in Appendix E.

4.7 Establishment of Direct Communication with Affected Parties

Continual communication is required between all parties that may be affected by the development. A Community Liaison Officer shall form part of the project team and shall co-ordinate / communicate with all parties, stakeholders and residents. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

Informing local residents is typically a critical aspect in reducing complaints regarding construction noise. The objective in undertaking a consultation process is to:

- Inform and educate the groups about the project and the noise controls being implemented.
- Increase understanding of all acoustic issues related to the project and options available.
- Identify group concerns generated by the project, so that they can be addressed.
- Provide advice about the time and duration of potential noisy activities.

4.8 Noise Complaint Procedure

Mirvac has in place a specific procedure in relation to the handling of noise related issues. When a noise related complaint is brought forward, the specific details will be recorded on the Mirvac community contact register form. The details will then be reviewed by the site manager. The site manager then makes an assessment of the complaint against our construction guidelines in relation to approved working hours, development consent conditions, noise levels and any other relevant items relating to the matter. Mirvac will close out accordingly within 48 hours.

If a breach of the guidelines and restrictions is found then further action will be taken to resolve the issue. If a suitable outcome cannot be achieved then a suitable acoustic and vibration engineer will be consulted to review and respond to the noise complaint. Further notification will then be provided to the complainant of the course of action to be taken to resolve the matter. A copy of Mirvac's noise control policy can be found below.

health safety environment

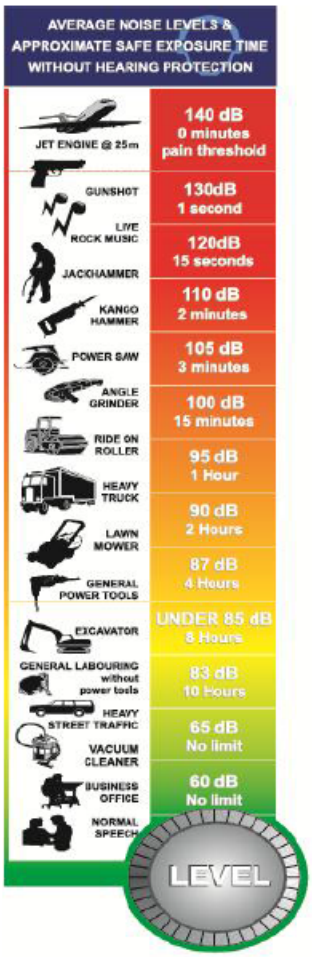
policy

mirvac

NOISE CONTROL POLICY

Mirvac is committed to ensuring that its workplaces are free from noise and vibration levels which have the potential to adversely affect human health. This 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(C); 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 will instigate noise control measures that include:



- 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 development condition
- 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 control measures such as encapsulation or isolation of noisy works or plant and equipment to minimise reliance on personal protective equipment and the impact of noise on surrounding workers or others
- use of personal protective equipment by employees, workers, service providers, visitors, surrounding workers or others who undertake, or are situated close to noisy work
- the identification of noisy areas or plant and equipment with warning signage to alert personnel of the requirement for the use of personal protective equipment
- display of the Mirvac Sound Advice Poster at all workplaces where noise is identified in risk and opportunity planning
- employees or other workers frequently required to use personal protective equipment to protect against the risk of hearing loss associated with noise that exceeds the exposure standard will be monitored by their employer through audiometric testing

Mirvac is committed to assisting industry sectors in which it operates to reduce the instance of noise related hearing loss through ongoing implementation of the Mirvac Group Noise Management Procedure at all Mirvac workplaces. Implementation of this policy and the Mirvac Group Noise Management Procedure by Mirvac personnel is unconditional.

Susan Lloyd-Hurwitz

Susan Lloyd-Hurwitz
CEO and Managing Director

Policy Authorised by: Executive Leadership Team	Date last amended: 23.01.2013 To be reviewed within three years of this date
Policy Maintained by: Corporate Services HSE Department	MG-CS-HSEPOL7.2-E 0113

6 Construction Waste Management Plan

A Waste Management Plan will be developed by a fully licensed Waste Contractor, for the removal of waste generated by construction works on site (refer Appendix E). Periodic review of this waste management plan will be undertaken to ensure continual 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;
- Steel / Concrete / Bricks / Tiles / Timber & Gyprock.

The waste subcontractor will supply builder's waste bins for the onsite collection and storage of general waste material. It is required that the waste facility will recycle a minimum of 95% of the material brought to their recycling depot.

Upon arrival at the facility, the waste is sorted into various categories. Once the product has been sorted into its various categories, the facility then processes the individual recyclable waste streams into reusable products available for re-sale to the public as described 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.

Waste generated at the workplace shall be avoided or recycled wherever practical. Mirvac have implemented a Waste Management Plan and it is described as follows:

- material is reused wherever practicable, in particular top soil
- 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 3: Waste prevention principles

7 Stormwater, Erosion, Sediment Control and Soil Pollution

An Erosion and Sediment Control Plan will be implemented on the project. Below are items that as a minimum will be included in the Erosion and Sediment Control Plan (refer Appendix: D)

- All stormwater pits around the perimeter of the site will be covered using filter fabric and sand bags.
- Filter fabric and sand bags shall also be installed around piling activities which are adjacent to public roadways or pedestrian footpaths in order to contain spoil arisings. These shall be regularly maintained to ensure no spoil or concrete migration onto public areas.
- During excavation, a wash down facility will be installed to wash down the tyres and wheel arches of any trucks exiting the excavation zone.
- All construction work zones and loading areas that are trafficked by vehicles are to be regularly swept / washed-down to maintain a clean surface and keep surrounding roads clean.
- Stockpiling of excavated material shall be carried out in a manner to limit sediment migration and water run-off. Stockpiled material to be appropriately covered where deemed necessary to prevent erosion and / or odour migration.
- The use of temporary sediment / silt fencing to ensure erosion and sediment particles do not enter public access ways or surrounding waterways.
- Vehicles leaving the site will secure and cover their loads. All trucks will be inspected prior to leaving the site (where applicable)
- All roads and pedestrian footways surrounding the site will be swept clean as required to remove any debris associated with the works on the site.
- A Dewatering Management Plan shall be compiled to outline the requirements for dewatering and any water treatment that may be required. Following any required treatment of water and verification testing, it shall be pumped to sewer and/or stormwater in accordance with Office of Water and Sydney Water requirements.

8 Stormwater & Water Quality Plan

General Water Quality inc; Groundwater Seepage

- During excavation, a wash down facility will be installed to wash down the tyres and wheel arches of any trucks exiting the excavation zone (refer Appendix D).
- A Dewatering Management Plan shall be compiled to outline the requirements for dewatering and any water treatment that may be required. Following any required treatment of water and verification testing, it shall be pumped to sewer and/or stormwater in accordance with Office of Water and Sydney Water requirements.
- Due to the location of Harbourside a detailed Dewatering Management Plan shall be prepared and implemented by a suitably qualified and experienced person (s) and include but not limited to addressing the following elements;
    1. Dewatering technique
    2. Profile and radius of the water table
    3. Quality of dewatering liquid
    4. Evaluation of the need for treatment of the extracted water and its viability before release to the environment
    5. Risks of disturbing acid sulfate soils
    6. Discharge consent conditions
    7. Results of consultation with any local residents and business affected.

Stormwater Runoff

- Where required a Surface Water Quality Monitoring Program (SWQMP) shall be prepared and implemented to monitor impacts on surface water quality and resources during construction and operation. It shall be prepared by a suitably qualified and experienced person (s) and include but not limited to:
    - Identification of works and activities during construction which may have the highest risk of impacts on water quality (e.g. exposure of soils during earthworks, accidental leaks or spills of chemicals, disturbance of contaminated land, stormwater runoff).
- All stormwater pits around the perimeter of the site will be covered using filter fabric and sand bags.
- Management strategies will be put in place to address any environmental issues arising during the operation of the dewatering project. This should include design measures to minimise the impact of local stormwater on the dewatering operation.
- All construction work zones and loading areas that are trafficked by vehicles are to be regularly swept / washed-down to maintain a clean surface and keep surrounding roads clean.
- The use of temporary sediment / silt fencing to ensure erosion and sediment particles do not enter public access ways or surrounding waterways.

8 Air Quality and Odour Impacts

Air quality monitoring will be carried out throughout the excavation phase of the Project. This will be limited to excavation phases of the Project with additional monitoring required being assessed on a monthly basis.

Dust created by construction related activities, typically becomes more prominent during windy conditions, and will be dealt with by way of water suppression. Other measures for dust suppression include:

- Stockpiles of spoil to be covered and/or emulsion spray added to stockpile;
- In windy conditions, the frequency of water suppression will be increased;
- The construction site will be maintained and kept clean. Where suitable, the use of mechanical sweepers and covered waste bins will be utilised;
- Completed surfaces will be kept clean;
- Controlled site access will be maintained with vehicle wash down / clean down facilities to be established to maintain access roads;
- All materials transported from site in trucks will be appropriately covered.

Air quality monitoring devices will be installed to neighbouring buildings, or in sensitive areas, if required following consultation with stakeholders and assessment by suitably qualified professionals.

Odour Impacts

Stockpiling of excavated material shall be carried out in a manner to limit sediment migration and water run-off. Stockpiled material to be appropriately covered where deemed necessary to prevent erosion and / or odour migration

9 Hazardous Materials

9.1 Existing Site Survey

A hazardous material inspection survey and report shall be completed for all areas within the project boundary.

The survey shall involve a visual inspection of representative construction materials, on-site testing of suspected materials and the collection and analysis of additional unidentified suspected asbestos-containing materials (ACM) in order to update the hazardous materials register for the site.

9.2 Hazardous Materials Controls and Monitoring

Prior to commencement, asbestos monitoring devices will be established to adjacent properties, in locations to be agreed with the building owner / manager.

Removal of any hazardous materials will be in strict accordance with Codes of Practice for the safe removal of the relevant hazardous materials. All hazardous materials removal works will be completed by licensed contractors.

All hazardous materials disposal will be recorded. All records will include vehicle details, material type, when it was removed, and where it was disposed.

9.3 Dust Emission's Monitoring

Dust monitoring devices will be established to adjacent properties, in locations to be agreed with the building owner / manager.

9.4 Hazardous Materials Clearance

Air monitoring results and clearance certificates shall be provided at regular intervals (minimum weekly) by Mirvac during any hazardous materials and remediation phases.

All certification shall be provided by a NATA accredited consultant.

Construction works will not commence until hazardous materials clearance has been received.

9.5 Ground Contamination

Mirvac shall implement a Remedial Action Plan (RAP) to identify and manage the remediation process on site, obtain a Remediation and Validation Report and Site Auditor sign off prior to completion.

9.6 Goods Stored on Site During Construction

During construction, Mirvac will implement as part of the Work Risk Management Plans and audit procedures, a hazardous materials register which will include the following materials / procedures:

- Fuels required for running of plant and equipment, these fuels will include: unleaded petrol, diesel and gas. All fuel will be contained and bounded as required under EPA guidelines, Department of Environment Climate Change and Work Cover requirements.
- Refuelling procedures and designated areas will be implemented and allocated to eliminate risks associated with spills and also identify procedures to contain spills.
- Spill kits and adequate training will be provided to relevant construction staff and at locations identified as storage and refuelling.

Dangerous goods to be stored on site will also include; oxyacetylene, bonding agents etc and as per the fuels listed above, these will also be stored as required under relevant Australian Standards, EPA guidelines, Department of Environment Climate Change and Water, Work Cover requirements and Industry codes of practice.

Hazardous substances and dangerous goods will be stored in secure well ventilated areas. At all times, Mirvac will have regard to the storage and hazardous materials and their proximity of neighbouring properties.

Mixed class gas cylinders, e.g. oxy and acetylene, will be separated from other hazardous substances or flammable goods by a minimum distance of 3 metres as detailed in AS4332 Storage and Handling of Gases in Cylinders. The exception to this requirement is minor storage situations (a total capacity of all cylinders in the store of less than 2,000 litres) where both oxygen and acetylene can be stored together.

Storage of dangerous goods that 'exceed' the amounts outlined in the Mirvac Group Dangerous Goods Storage Guidelines require the premises (workplace) to be licensed under dangerous goods legislation and associated regulations. To minimise workplace risk and eliminate the need for licensing, except in exceptional circumstances, it is a Mirvac Group requirement that maximum volumes of Dangerous Goods do not exceed those quantities outlined in the abovementioned guidelines.

The storage area for hazardous substances and dangerous goods shall be constructed with an impervious floor and bunded with a minimum capacity of 110% of the largest container in the store, e.g. a store consisting of a 20 litre substance container requires a bunding capacity of 22 litres.

Mirvac will maintain a dangerous goods register and material safety data sheets for each product listed as well as having a procedure to deal with spills.

All relevant firefighting equipment, first aid facilities and relevant authority contact details i.e. Fire, EPA will be displayed at prominent locations and included at site inductions.

10 ESD & SUSTAINABILITY

10.1 INTRODUCTION

Mirvac's target is to achieve a consistent level of environmental and social outcomes throughout the project by committing to establishing new initiatives where possible. Exploring alternative sustainable options outside of the legislative requirements and implementing them will make a significant contribution to the physical environment and the local community.

By exercising the sustainability values depicted in Figure 4 and recognising the benefits of social, environmental and economic sustainability, Harbourside will promote a balanced lifestyle for its future occupants and wider community which will be reflected in the development and throughout the construction phase.

Figure 4 – Mirvac's Sustainability Values

10.2 COMPANY STRATEGY

Adherent with Mirvac's commitment to sustainability, an integrated approach "This Changes Everything" is focused on the responsibility Mirvac has to the environment, wider community and to its investors. With the engagement from relevant stakeholders Mirvac seeks to deliver a culture that fosters sustainability and having a lasting impact. The four aspects of this strategy include:

- **Reimagining resources**: Mirvac aims to generate more water and energy than we consume and to find ways to capture and reduce waste beyond that we create. Through efficient use of resources, Mirvac will reduce consumption of natural resources and operate in a manner which will achieve a minimum 95% recycling. In management practices, Mirvac will invest in opportunities such as renewable energy onsite and assess suppliers in their involvement to sustainability.

- **Shaping the Future of Place**: To create a place where we live, work, shop and play utilising feedback from the community on past projects. Ongoing community engagement is necessary to predict future challenges while accepting information and boundaries will change over time. Implementation of utilities and infrastructures will be made in the design and construction to promote a sense of place.

- **Enriching Communities**: To improve the health and wellbeing within a community as well as strengthen social inclusion. Mirvac recognises "beyond boundaries" are what supports society as a whole and improves the places we create. Active participation from external stakeholders on sustainability issues will result in refining business operations and investing in the community.

- **Smarter Thinking**: Investing in assets designed to improve its own performance and ease of operation over its cycle. Financing in smart technology to become more efficient and effective in the delivery of the project while educating and informing the importance of sustainability.

10.3PROJECT SPECIFIC STRATEGY

The following criteria will be monitored during construction to measure overall performance in addressing sustainability targets:

10.3.1 Environmental Management System

Implement a Workplace Risk Management Plan that is certified to AS/NZS ISO 14001, which establishes clear environmental objectives & targets for the site works.

10.3.2 Community / Schools

Provide opportunities for students and the local community to learn about the projects and the impact on the wider community. As well as this, hold information sessions on the health and safety programs to engage and build a rapport with the relevant agencies. Have email updates on the progress and any other media coverages.

10.3.3 Energy

Examine opportunities to reduce electricity and water consumption and the use of alternative systems implemented for site amenities.

10.3.4 Sustainability Induction

Construction staff will be educated on the sustainability initiatives planned for the project and encouraged to innovate and find sustainable solutions through site induction and tool box talk's process.

10.3.5 Innovation

Review project planning and development to explore innovative options to promote sustainability on the project.

11 Workplace Risk Management

11.1 Introduction

Mirvac is fully committed to providing a safe working environment. Each Work Place Risk Management Plan (WRMP) requires that equipment, workplaces and practices comply with relevant regulations and standards. Regular and ongoing reviews of these standards will be conducted and where higher standards are practical and desirable, they will be adopted. In addition the company will:

- Provide adequate resources to satisfy this policy.
- Identify, control and reduce work-related hazards and risks that may produce injury, illness or asset damage.
- Identify, quantify and control to safe levels, those chemicals and physical agents in the workplace capable of causing ill health.
- Promote environmental, health, safety and the welfare of employees and sub-contractors while respecting the privacy of individuals.
- Provide information, instruction and training for employees to increase their personal understanding of workplace hazards, promote safe working practices and ensure contractors are aware of and satisfy the Groups HSE expectations.
- Consult employees and contractors in environmental, health and safety to reduce workplace hazards and risks.
- Consult with clients, industry bodies and others in the development of appropriate standards, control strategies and monitoring techniques, which comply, with the requirements of statutory authorities.
- Set short and long term goals in occupational health and safety management, and review performance against these goals.

Mirvac Management is responsible for raising the awareness of the responsibilities of all workers on the site in regards to workplace safety and the role they play in achieving a safe and healthy work environment. Mirvac employees and all other workers on the premises or site are responsible for working towards achieving and maintaining a healthy and safe workplace. The intent of this policy is to foster a culture within Mirvac employees and its subcontractors, raising health and safety awareness, and promoting active participation in the Health Safety and Environment (HSE) program.

11.2 Workplace Risk Management Plans (WRMP) and Job Safety & Environment Analysis (JSEA)

A key tool in the management of HSE on the project will be the continued improvement of both Mirvac's WRMP and each individual Job Safety & Environment Analysis (JSEA). This plan as a minimum includes the following:

- A description of the work to be undertaken;
- An identification of the foreseeable hazards associated with the works; and
- A description of the hazard control measures to be used.

A detailed site specific Workplace Risk Management Plan shall be developed and implemented by Mirvac prior to commencement of works and shall be updated as / when required.

12 Site Management Plan

12.1 Introduction

A Site Management Plan will be developed to outline the proposed phases of the construction work on site, outline the order of works, and assess Mirvac's impact and interaction with the surrounding community.

12.2 Construction Phases

The works have been broadly divided into the following phases:

a. Site establishment;
b. Demolition of Monorail Station and existing Bridges
c. Demolition of existing shopping centre
d. Civil – basement diameter wall, excavation, piling and ground retention works;
e. Remediation works to site;
f. Structure;
g. Façade & atrium roof works;
h. Building fit out and finishes;
i. Commissioning & handover works;
j. Landscaping and public domain works.

12.3 Construction Staging

Proposed summary staging plans will be included within Appendix B of this document and will identify the key project stages and proposed phased handovers. Other construction staging items as follows:

- The demolition of the monorail station, and the footbridge to the Novotel will be undertaken on the weekends only.
- The demolition and removal of the shopping centre in one phase
- Basement Construction and Excavation and treatment of all associated material
- Construction adjacent to Pyrmont Bridge
- Construction staging around the shopping centre and commercial tower

12.4 Interaction with Surrounding Community

The following actions will be implemented, which focus on minimising the impacts of construction activity to the community surrounding the Harbourside project.

- Hoarding around site;
- Monitor compliance of the Traffic Management Plan and Noise and Vibration Management Plan;
- Clear display of contact details on the hoarding for community information and contact in case of emergency;
- Make arrangements for the notification to surrounding properties of activities which may affect their amenity, including the provision of a 24-hour contact point;
- Close community liaison with neighbours
- Monthly Newsletter updating surrounding residents on construction works and upcoming activities or interactions;
- Monthly meetings to discuss the progress of works and to address any concerns raised by the surrounding community.

12.5 Dispute Resolution

Mirvac acknowledges the potential for disruption as a result of the development, and proposes that the following measures be established:

- Complaint procedure / complaint register to be developed. Should a complaint or infringement occur, the following procedures are to be adopted:
    - All complaints and infringements are to be brought to the attention of the Mirvac Site Manager immediately upon receipt;
      The Mirvac Site Manager shall investigate the complaint and ensure appropriate action is taken to address the complaint or infringement within the time frame outlined in "HSE Objectives and Targets for Community Contact Issues". This is detailed within the Mirvac Construction HSE Management Systems Manual;
    - A Community Contact Notification form shall also be completed for all complaints and enquiries (refer to following pages for this template);
    - A copy of this documentation is to be filed within the site office.

The contact details of the Site Manager will be permanently shown on the site notice to be displayed in a prominent location at site entries as an emergency 24 hour contact.

12.6 Fire Protection Measures During Construction

Mirvac will comply with the requirements of the BCA and Australian standards during excavation and construction.

Specifically, E1.9 of the BCA requires the following:

- not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each *storey* adjacent to each *required exit* or temporary stairway or *exit*; and
- after the building has reached an *effective height* of 12 m—
    - the *required* fire hydrants and fire hose reels must be operational in at least every *storey* that is covered by the roof or the floor structure above, except the 2 uppermost *storeys*.

12.7 Site Specific Issues

12.7.1 Contamination

Mirvac shall implement the (RAP) to identify and manage the remediation process on site, obtain a Remediation and Validation Report and Site Auditor sign off prior to completion.

12.7.2 Heritage

A heritage consultant will be engaged by Mirvac to produce a report for the project as well as assist in the development and monitoring of design and construction works adjacent to the Pyrmont Bridge.

12.7.3 Infrastructure Assets

A number of existing services are present within the precinct. Mirvac shall liaise with the relevant Utility Providers throughout the design process and prior to construction for approval of the design and proposed construction methodology to ensure compliance with Health, Safety and Environmental requirements, Network Standards and Codes of Practice.

A detailed Risk and Opportunity Register and work method statements shall be completed following acceptance of the design principles.

COMMUNITY CONTACT NOTIFICATION

PURPOSE

Contact with the community is a means by which Mirvac can positively engage stakeholders and potential clients or customers by demonstrating sound management practices in resolving any concerns raised in a timely manner.
Community members that interface with Mirvac business undertakings present the opportunity for feedback and a positive response by Mirvac.
Any response shall be commensurate with Mirvac's high regard and sensitivity to social amenity and the lifestyle impacts of its business undertakings.

The details outlined below must be completed for all 'formal' (oral or written) representations to any Mirvac representative by a community member or on being directly informed of a concern by a third party and corrective (follow up) action undertaken within 48 hours of notification where required.

WORKPLACE: _____

CONTACT DETAIL:

(1) How was the contact made?:

Telephone: ☐ Personal Contact: ☐ Written Letter: ☐ Email: ☐ Fax: ☐
Other [specify]: _____

(2) Date of contact: _____ Time of contact: _____ am ☐ or pm ☐

(3) Contact made by: [who made the contact?]

Name	Address	Phone

(4) Outline concerns/issues raised:

_____

(5) Notification details recorded in the HSE Incident Reporting System by:

Name	Mirvac Division	Date recorded	Phone

(6) Has the contact been referred to another person? Yes ☐ No ☐

(7) If 'Yes' list the name and contact details of the person:

List Name	Mirvac Division	Time Referred	Phone

(8) Has the contact been 'formally' acknowledged to the complainant? Yes ☐ No ☐
[Note: mandatory within 48 hours of contact]

(9) How was the contact formally acknowledged?

Telephone: ☐ Personal Contact: ☐ Other: [specify] _____

(10) Is follow-up action required? Yes ☐ No ☐

(11) Outline follow-up action undertaken:

[Note: mandatory within 48 hours of contact]

_____

(12) Date of follow-up action: _____ Time of action _____ am ☐ or pm ☐

(13) Date complainant was advised of the outcome/action undertaken as a result of the contact: Date _____ Time of action _____ am ☐ or pm ☐

[Note: mandatory within 48 hours of first contact]

(14) What were the 'Contributing Factors' and the 'Root cause' of the issue?
(Action/ inaction by persons, failure of tools/ machines or procedures not followed) *(QUESTION THE CAUSE 5 TIMES)*
e.g. (the issue) Slurry on public road, splashing on passing cars. ***Q. 1 Where** did the slurry come from?* – From concrete cutting adjacent to road. ***Q. 2 How** did it get on the road?* – No effective barrier in place. ***Q. 3 Why** was there no barrier?* – Hazard of slurry splashing on cars not identified. ***Q. 4 Why** was this hazard/ control not identified?* – Location/task specific risk assessment not reviewed for location. ***Q. 5 Why** was the risk assessment not reviewed?* – Risk assessment not maintained or checked prior to activity or during daily pre-start meeting.

Insert main issue description

Q.1?

Q. 2?

Q. 3?

Q. 4?

Q. 5?

(15) Identified 'long term' corrective action(s) required to prevent the issue re-occurring

_____

(16) Date 'long term' corrective action(s) implemented and R & O Register reviewed:

_____

(17) Date the corrective action(s) were monitored by a Mirvac representative and confirmed as having been effective:

_____

(18) Completion:

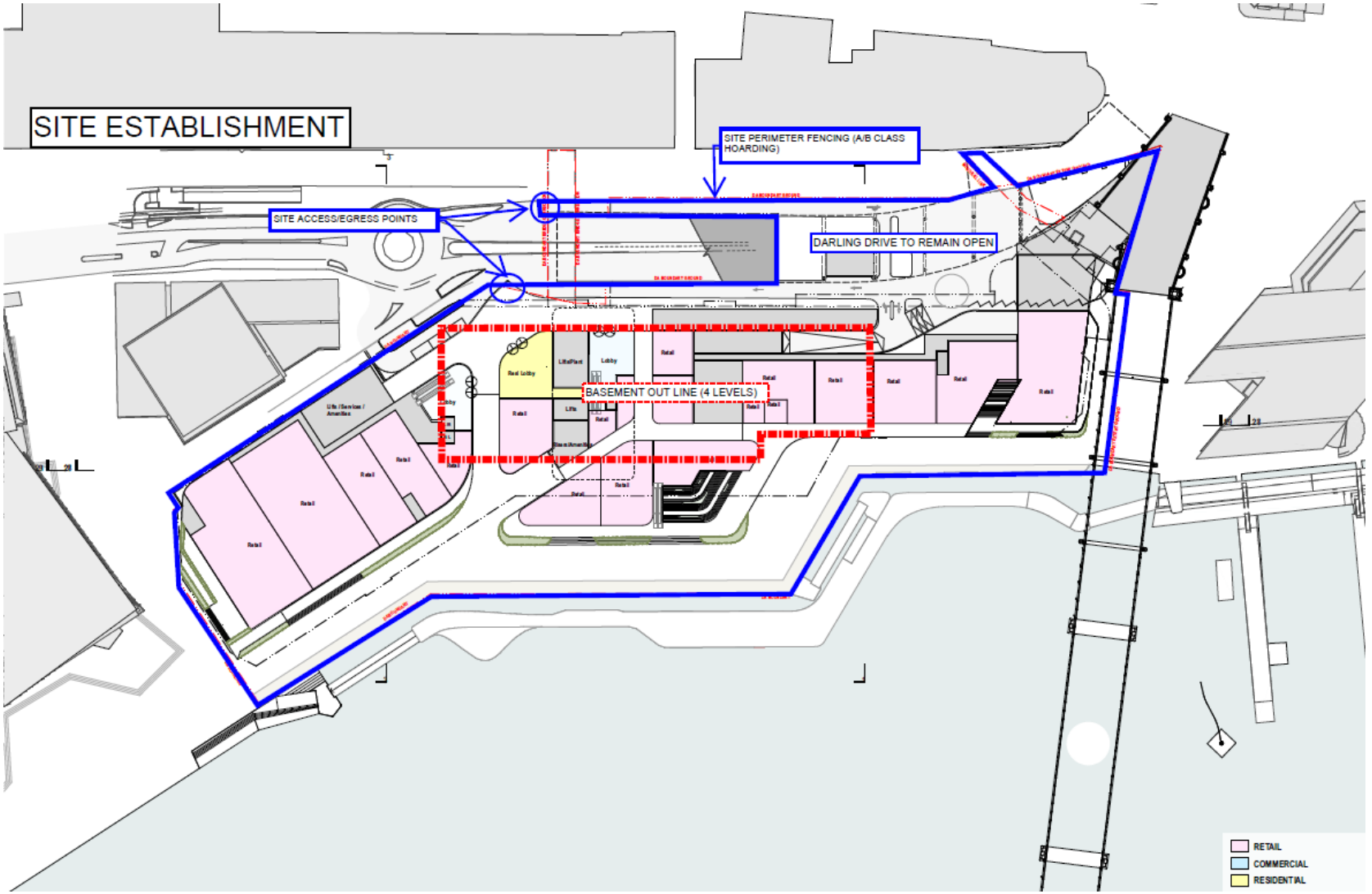
Person completing this report:

Name: _____ Signature: Date: _____

Manager of person completing this report:

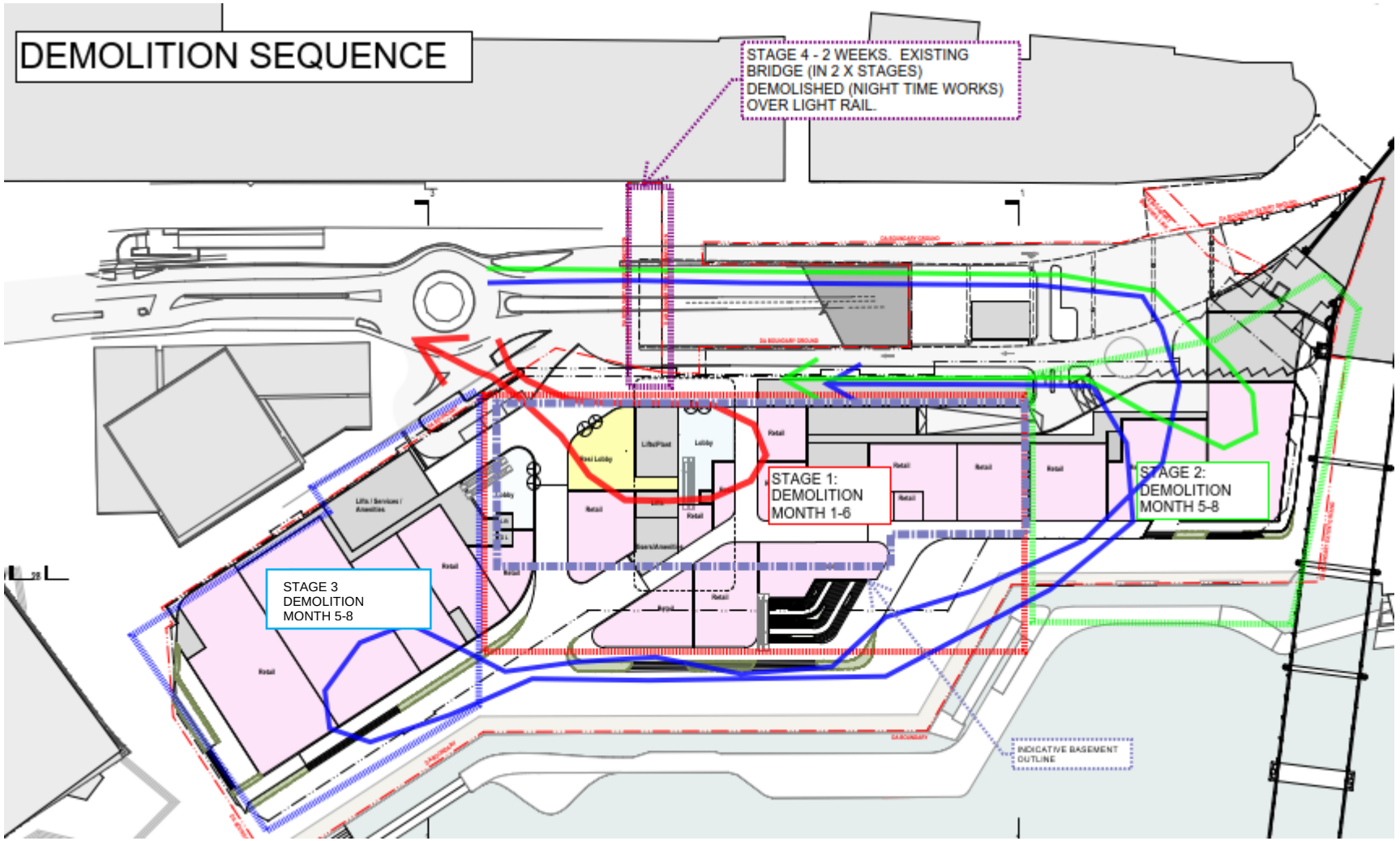
Name: _____ Signature: Date: _____

Appendix A:
Site Establishment & Location Plan



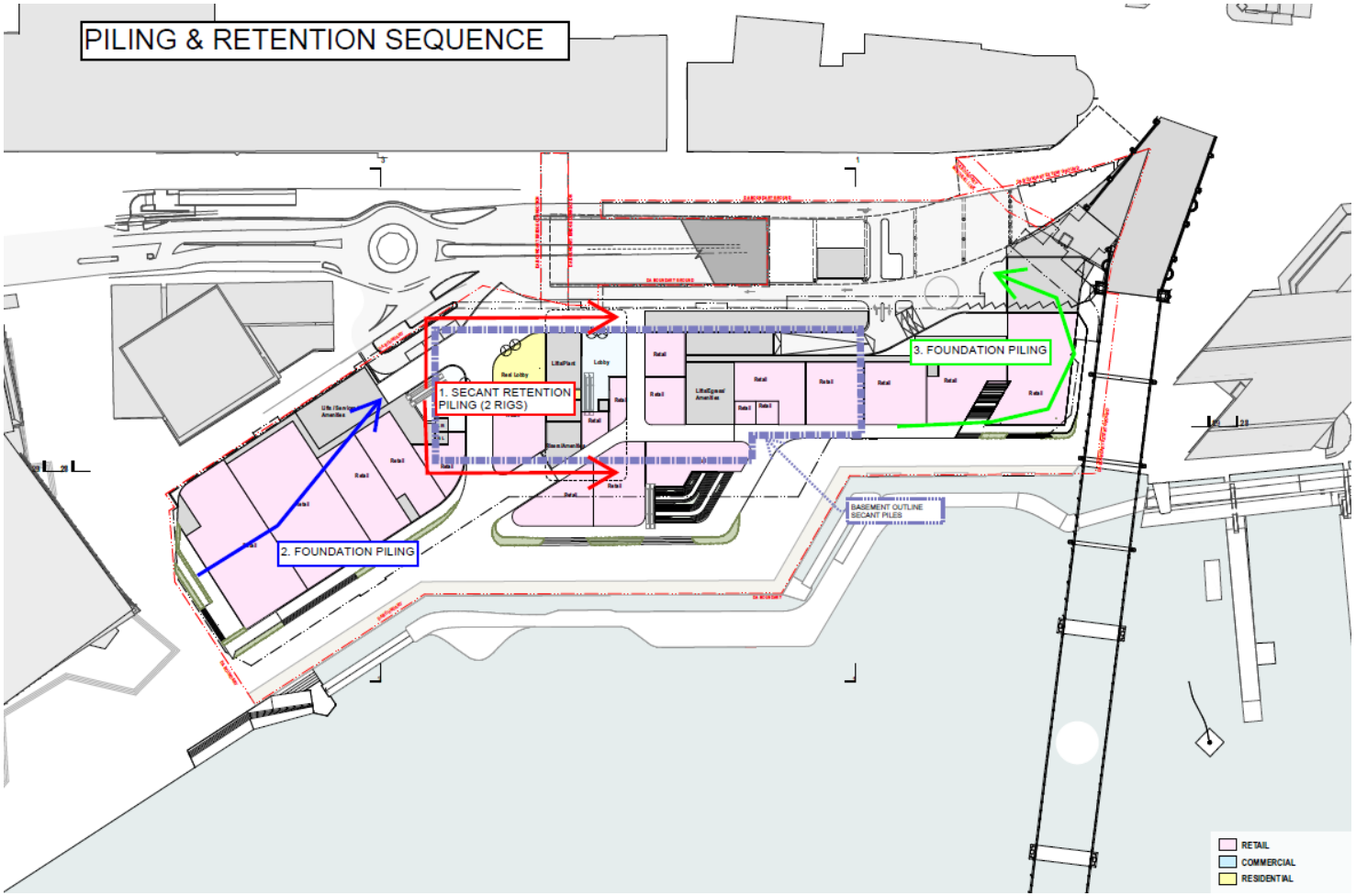
Appendix B:
Demolition Plan

Prepared by: Mirvac



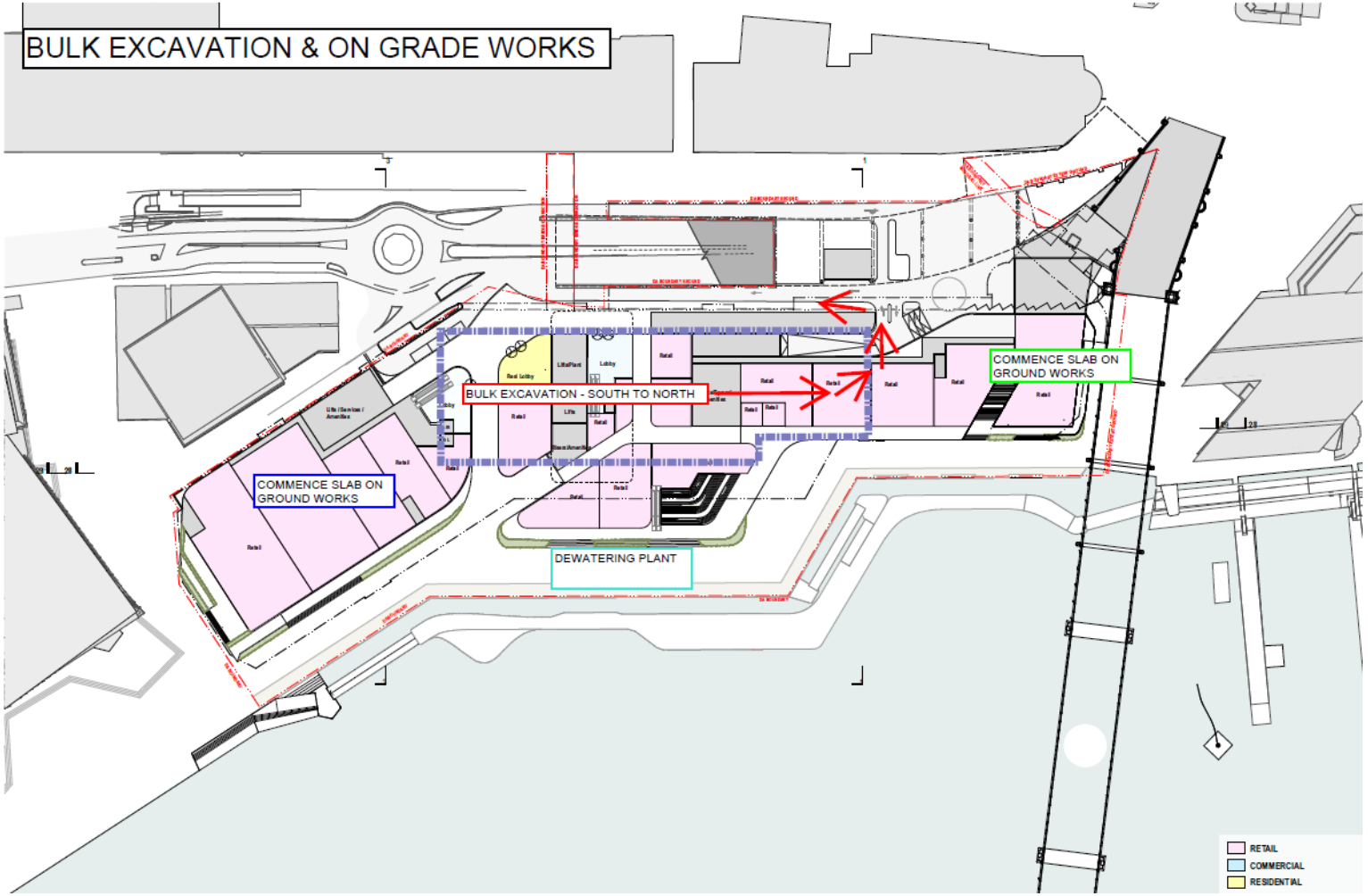
Appendix B:
In Ground - Piling & Retention Plan

Prepared by: Mirvac



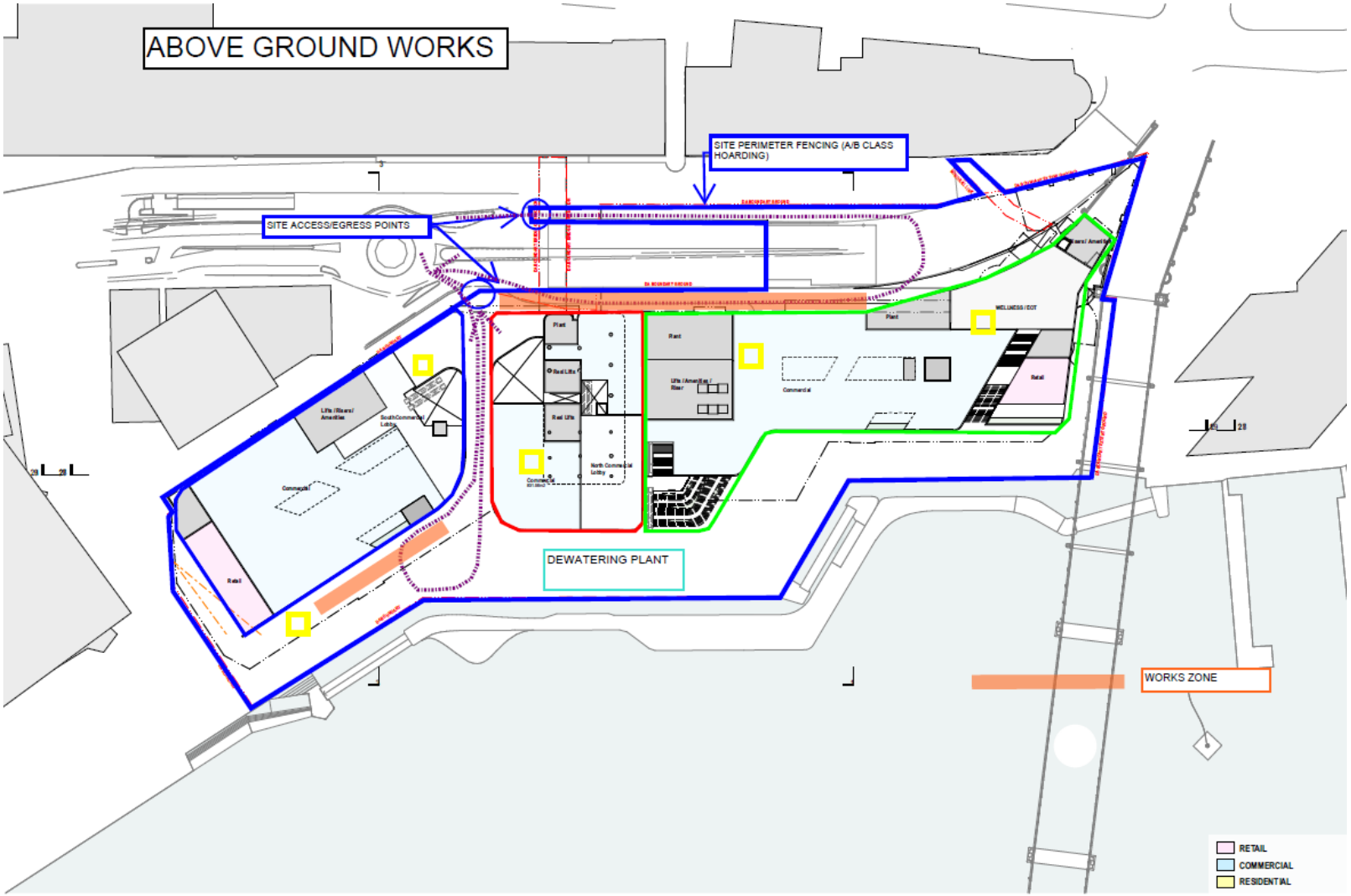
Appendix B:
In Ground - Bulk Excavation & On Grade Plan

Prepared by: Mirvac



Appendix C:
Above Ground Works Plan

Prepared by: Mirvac



Appendix D:
Stormwater Management Plan

Prepared by: Mirvac

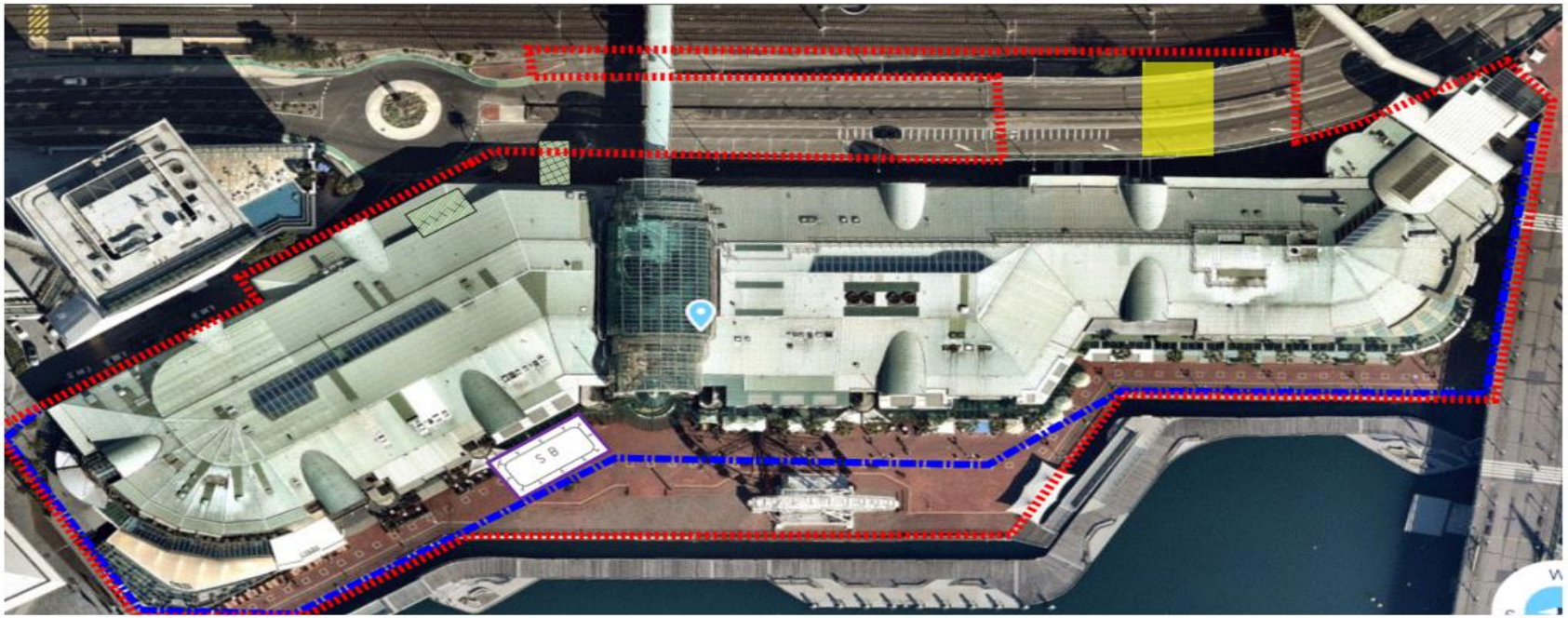
Project:
HARBOURSIDE

Title:
DEMOLITION – STORMWATER MANAGEMENT PLAN

LEGEND

SITE BOUNDARY	
SHAKER GRIDS AT CONSTRUCTION VEHICLE EXIT	
SEDIMENT FENCE	
WASTE COLLECTION POINT (UNDER RAMP)	
SEDIMENTATION BASIN	

See next page for detailed description of sediment and erosion controls mentioned above.

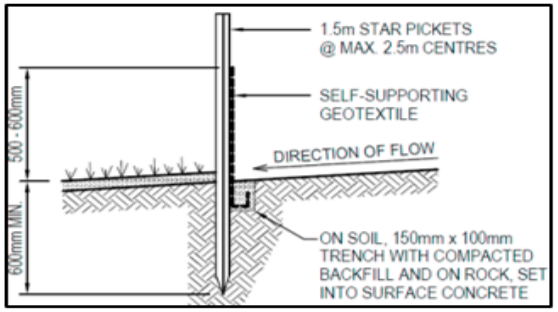


INDICATIVE ONLY
Subject to Change

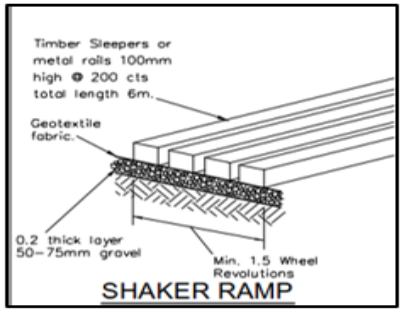
Project:
HARBOURSIDE

Title:
DEMOLITION – STORMWATER MANAGEMENT PLAN

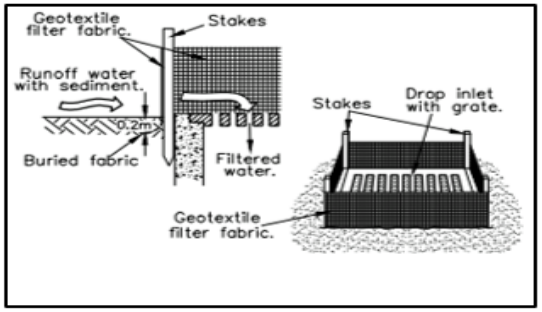
SEDIMENT FENCING TO PERIMETER



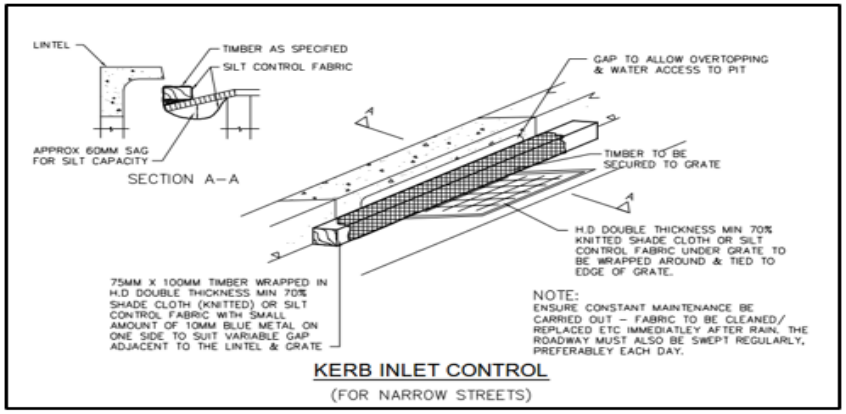
SHAKER GRIDS AT EXITS TO CONTROL SEDIMENT WHEN WASHING DOWN EXITING CONSTRUCTION VEHICLES



GEOTEXTILE NET INLET FILTER OVER DRAINS TO CONTROL SEDIMENT



INLET FILTERS IN KERB INLET DRAINS



INDICATIVE ONLY

Appendix E:
ESD & Waste Management Plan

Mirvac HSE
CFA 8 Sustainability & Environment | Environmental Management
Waste Management Plan Template

Division:	Mirvac Construction Pty Ltd
Location:	Harbourside Redevelopment
Work Description:	Demolition ESD & Waste Management Plan

Waste Recycling Target: **95%** diversion from landfill

Waste Management Targets:

Waste generated at the workplace shall be avoided or recycled wherever practicable in accordance with the waste management hierarchy detailed in the HSE Risk Management Procedure.

Waste targets are **>95%** diversion of waste from landfill by recycling, reuse, design or other methods.

The methods of waste management shall consider the following processes, as determined by the Workplace Manager and HSE Manager:

- ☒ Waste Subcontractor engaged based on their proven ability to recycle waste at their waste facilities (or directly engage a third party waste recycling facility if the contractor does not have their own facilities);
- ☒ Waste sorting and recycling shall be carried out by the waste contractor and records provided to Mirvac to enable waste targets to be determined;
- ☒ Waste contractors are to be audited at 6 monthly intervals to ensure compliance with the waste management plan and the waste contractor's licence;
- ☒ Where sufficient storage area is available waste management shall be adopted through the use of on-site sorting and separation bins for recyclable materials, and non-recyclable waste materials.
- ☒ Contract scopes for various trade packages are to include clauses around waste minimisation, reduced materials packaging and take back-back programs to reduce the overall amount of waste generated on Mirvac sites.

Waste Prevention Planning:

The Workplace Manager shall ensure:

- material is reused wherever practicable (in particular top soil for construction and development sites);
- 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];
- 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

Mirvac HSE
CFA 8 Sustainability & Environment | Environmental Management
Waste Management Plan Template

- the safety and health of employees, Service Providers and the public is protected.

The use of materials that are fully recycled or include post-consumer recycled material in production will be considered wherever practicable in design stages. Suppliers of building materials will be encouraged to nominate packaging minimisation and reuse initiatives, as part of product supply to the project. Bulk handling and reusable/returnable transport containers shall also be encouraged, e.g. timber pallets.

Works that constitute a 'material' risk to the environment or generate significant waste streams shall submit as a minimum a Job Safety & Environment Analysis [or equivalent] prior to commencing work.

This will include as a minimum:

- practical measures associated with the works to prevent waste;
- waste streams resulting from the works which can be recycled and will be actively managed as part of a waste reduction plan;
- consideration of alternative products containing recycled material, which conform to the design specification that could be utilised in the works in place of more traditional materials.

Additional separation bins shall be provided for workplace waste streams. Material collected shall include:

- Metals;
- Timber;
- Concrete/rubble;
- Gyprock;
- Glass & Aluminium;
- Steel cans and PET (recyclable plastic);
- Paper/cardboard; and
- Sand pots to outdoor designated smoking areas to capture cigarette butts.

Communication & Education:

- Mirvac will conduct an on-site pre-construction meeting with Service Providers that generate medium to high volume waste streams.
- Attendance is mandatory for the Service Provider's key site personnel. The purpose of the
- meeting is to reinforce to the Service Provider's site employees the commitments made by their company with regard to the project goals and waste management requirements.
- Waste prevention and recycling activities is discussed at the beginning of each Service Provider Coordination Meeting and is a standard agenda item for that meeting to reinforce project goals and communicate waste management progress to date.
- As each new Service Provider comes on site, the Recycling Coordinator/HSE Officer and or HSE Coordinator will provide a copy of the Waste Management Plan and provide a tour of recycling areas.
- The Service Provider is responsible for ensuring all of its employees or agents comply with the Waste Management Plan.
- Recycling containers will be clearly labeled. Containers shall be located in close proximity to the work / construction areas and recyclables/salvageable materials will be placed into the 'designated' bins provided as detailed by its labeling.

Mirvac HSE
CFA 8 Sustainability & Environment | Environmental Management
Waste Management Plan Template

- Acceptable/unacceptable materials will be posted throughout the site so that Service Providers are aware of what can and cannot be recycled.
- All Service Providers are informed in writing and in the workplace induction of the importance of non-contaminating different waste streams or with rubbish or other materials.
- The Recycling Coordinator/HSE Officer and or HSE Coordinator or nominated person inspects recycling containers on a weekly basis to ensure against contamination by workplace personnel or the public.
- Mirvac and its Service Providers include as a standard agenda item waste prevention and recycling in toolbox talks and HSE meetings.

Motivation:

- The site or project team develops and publishes a Waste Management Mission Statement that is distributed to all Service Providers attached to contracts, and is displayed in a prominent location(s) at the workplace.
- Mirvac conducts a pre-award meeting for Service Providers that are appointed through a tender process. Service Providers considered for the award of a tender contract are required to attend the meeting to review project goals and requirements with the project team. Attendance is a prerequisite to award of a contract(s). A signed commitment is required by Service Providers attending the meeting indicating that that the project goals are understood and a willingness to commit to these goals. This signed document will be an attachment to every contract and copies of the attachment will be posted prominently at the workplace.

Evaluation:

- The HSE Manager will schedule an independent auditing of Waste Service
- Providers and processing for compliance;
- The HSE Manager will review each project's monthly HSE report to ensure that the waste targets achieved in accordance with this waste management plan.
- The HSE Manager and HSE Officer and or HSE Coordinator will include waste as a standard item in Health Safety Environment auditing to ensure waste is being managed to meet objectives and targets.
- The Workplace Manager/ HSE Officer and or HSE Coordinator will maintain, update, and display at the workplace a graph showing the progress to date for achieving the project's waste recycling target.

Appendix F:
Noise & Vibration Management Plan (NVMP)