Construction Environmental Management Plan

Block 2
Frasers Broadway

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Section 1 Introduction

This Construction Environmental Management Plan (CEMP) has been prepared by Frasers Broadway Pty Ltd for Block 2. The location of the site is the north east corner of the Frasers Broadway development site bounded by Broadway to the north, Balfour St to the west, Kent St to the east and Tooths Avenue to the south. This Plan also includes the terraces across Tooths Avenue and leading into the Main Park

This CMP will form part of the Project Application for Block 2 and has been prepared to cover the construction management of the site during the bulk excavation and construction works associated with Block 2. A more detailed CEMP will be prepared by the Contractor prior to the commencement of the works.

Section 2 Objectives

The objective of the CEMP is to:

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

Section 3 Building Description

The project involves the construction of a mixed use buildings containing residential, serviced apartments, retail and a commercial fitness centre. It comprises 2 towers above a Podium covering the entire site. The Podium is linked under and over Tooths Avenue to the south by an underpass at Lower Ground Floor and above at Level 2. Both of these terraces link to the Main Park.

The Podium will integrate with the heritage listed main gate.

Below the Podium and terraces there is a car park and services areas, which forms part of the combined basement of Blocks 2, 5 and 9.

Section 4 Description of Works

4.1 Excavation and Construction Scope

The proposed excavation and construction works associated with Block 2 are summarised as follows:

- Installation of secant pile walls for the basement inclusive of any temporary shoring
- Bulk excavation of the basement (or part thereof)
- Construction of basement (or part thereof)
- Construction of the building
- Public Domain works within and around Block 2 boundary and adjacent footpaths along Broadway, Balfour, Kent and Tooths Avenue.

4.2 Site Establishment and Security

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

The fencing for the construction works will be defined in a Fencing and Security Plan to be prepared by the Contractor and approved by the Project Manager prior to the commencement of the works. The Fencing Plan shall clearly identify all access points onto the site.

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

4.3 Environmental and Safety Controls

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

These will include but not be limited to:

- Security measures (fencing and gate access)
- Occupation health and safety measures (personal protective equipment, first aid supplies, signage and barriers if needed); and
- Environmental management measures (spill kits, booms, storm water control, dust control)

4.4 Protection of Heritage Buildings

Barriers/fencing is to be placed around and over heritage items to create protection and/or exclusion zones as required.

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

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

4.5 Bulk Excavation

The bulk excavation will be undertaken using equipment in accordance with the contractor's work methods and safe work method statements and OHS Act 2000 and OHS Regulations 2001.

Secant pile walls with temporary anchors will be installed to rock level to form the perimeter of the basement walls. Once the secant pile wall is installed, then excavation for the basement can commence. It is envisaged that the contractor will use excavators to remove any materials other than rock up to the rock level. The rock will then be either saw cut around the perimeter of the excavation using excavators fitted with rock saws or alternatively will be ground back using cutters attached to the excavators. During the latter process there will be dust minimization works be undertaken on an as needs basis. Bulldozers fitted with rippers will rip up the rock to the final level and excavators fitted with hydraulic hammers will break up the rock. Excavators will then load the material onto trucks for transporting off site.

4.6 Construction

Once the excavation works is complete, the contractor will set up the tower cranes and commence construction of the basement. It is envisaged that there will be two(2) cranes servicing each Tower for the project. The tower cranes will be used to handle materials for the installation of the structure, services, façade, roofs.

Once the construction of the floor slabs rise past the ground level, temporary perimeter screens will be installed around the façade perimeter of each of the buildings for safety while the suspended floor construction progresses.

4.7 Materials Handling

It is envisaged that the majority of materials unloading and loading will occur within the site however a street loading zone on Broadway may be sought in non peak times. All other loading / unloading should be via Balfour and Kent Streets or Tooths Avenue. If any loading zones are

required to be established on existing roads, the contractor will seek approval from the relevant Authorities.

4.8 Work Programme and Working Hours

The working hours will be in accordance with the conditions of the consent which are as follows:

- Monday to Friday, 7.30am – 5.30pm
- Saturday, 7.30am – 3.30pm
- Sunday & Public Holidays, No work

Section 5 Environmental Management Plans

The bulk excavation and construction works will be undertaken in accordance with the CEMP. The following EMPs are provided separately by other Consultants:

- Heritage Impact statement - Urbis
- Stormwater and Sediment Control Plan – Hughes Truman
- Traffic Management Plan – Masson Wilson Twiney

Prior to the commencement of construction works, a site specific Health and Safety Plan will be prepared by the Contractor and implemented for the site

This document and the associated reports provide the generic conditions which will be augmented by more detail by the Contractor.

5.1 Heritage and Archaeology Plan

To ensure the adequate protection of the Heritage Gate, the following activities will be undertaken:

- Archaeological investigation will be undertaken during the remediation works
- Protection barriers are to be installed by the Contractor around the heritage gate to ensure protection during the works
- Work method statements will be prepared by the Contractor to detail works in the immediate vicinity of the heritage structure and adjacent heritage buildings

5.2 Noise and Vibration Management Plan

The contractor shall provide a Noise and Vibration Management Plan prior to the commencement of the works.

The following noise management measures will be implemented during the construction works:

- The Contractor shall set up noise and vibration monitors around the site at locations identified by the Acoustic Consultant as sensitive areas and high risk areas.
- Works on site will only be carried out during approved hours
- The Contractor will be responsible for scheduling activities that generate high noise to short term duration wherever possible and practical
- Establishment of site practices and strategic positioning of processes on site
- Establishment of direct communication with affected Parties

Activities that have the potential to produce significant ground vibration include:

- Jack hammering during bulk excavation works
- Dropping of heavy structures

- Piling works

Vibration monitoring will be used to:

- At the commencement of a new activity near a sensitive structure, establish and confirm safe working distances from the sensitive structure
- When activity identified as producing significant ground vibration is occurring within the safe working distance established, continuously record vibration levels at sensitive structures using unattended vibration loggers. These will also provide a visual/audible alarm when vibration limits are approached
- When operating very close to sensitive structures, attended monitoring is to ensure that any preventative action is taken immediately to prevent the targets from being exceeded.

Where a monitor alarm is activated, the following actions shall be undertaken:

- All vibration producing works in the vicinity of the alarm shall cease immediately
- Cause of the exceedence shall be investigated immediately
- If the cause of the event is likely to be caused again, or if another alarm is triggered, then the acoustic specialist should be advised and further action taken place before works recommence.
- One of two courses of action can then follow:
    1. If attended monitoring is established the activity can continue with the attended monitoring confirming that even if the alarm level is exceeded the works can proceed provided the vibration limits are not exceeded
    2. Work practices are modified and attended monitoring used to confirm the vibration limits are being achieved, before returning to unattended monitoring

A register of noise complaints should be maintained by the Contractor.

5.3 Air Quality Management Plan

A detailed Air Quality Management Plan shall be prepared by the Contractor prior to the commencement of works.

The following air quality management measures will be adopted during the construction works:

- Dust emissions will be controlled by the use of water spraying when required;
- Concrete decks to be kept clean to reduce dust emissions
- All motorized equipment used on the site will be selected on the basis of its noise performance and will comply with regulatory standards for noise generation;
- High efficiency mufflers are to be installed for major plant items particularly those that would be used for long periods on the project to reduce construction noise;
- Equipment will be operated in a proper, efficient and correct manner which includes proper maintenance in order to control noise and associated exhaust emissions;
- Odour emissions from the site which could adversely affect air quality or the amenity of the local area to be monitored

5.4 Soil and Water Management Plan

Refer to Stormwater and Sediment Control Plan prepared by Hughes Trueman

The Stormwater and Sediment Control plan is to be prepared by the Contractor prior to the commencement of the works and shall include measures to ensure compliance with the Protection of the Environment Operations Act (2000), as amended, and other relevant legislation. The SSC shall include a plan showing the location of the sediment controls to be implemented by the Contractor with the following measures to be adopted:

- Provide temporary drainage channels and detention pondage to appropriately manage stormwater
- Stormwater drain grates will be wrapped in filtration medium. The filtration medium will be periodically cleaned and changed as and when required;
- Diversion drains will be constructed to minimize runoff from rainfall flowing into the works area. Stormwater diversion drains are to be constructed in the vicinity of areas to be excavated to minimize water flow into excavations;
- Regular visual inspection of the site drainage system will be undertaken by the Contractor

5.5 Waste Management Plan

The Contractor shall prepare a Waste Management Plan (WMP) prior to the commencement of works.

The Contractor shall retain waste records and submit quarterly reports to the Project Manager. As a minimum, the Contractor shall reuse or recycle 80% (by mass) of the construction waste.

5.6 Chemical Management Plan

The Contractor shall prepare the Chemical Management Plan prior to the commencement of works.

Before a product or substance is used for construction activity, the Contractor shall review the Material Safety Data Sheet (MSDS) to determine if the product or substance is classified as hazardous. All workers involved in the use of products classified as hazardous are to be provided with information and training to allow safe completion of the required tasks. As a minimum standard, all safety and environmental precautions for use listed on the MSDS are followed when using the substance and included in their Safe Work Method Statements. No products or substances, including chemicals or fibrous materials, are brought to the workplace without a current MSDS. All products and substances to be brought to the workplace are to be documented.

All storage and use of hazardous substances and dangerous goods is to be in accordance with the MSDS and legislative requirements. Hazardous substances and dangerous goods are not to be stored in amenities, containers (unless properly constructed for the purpose) sheds or offices.

Disposal of chemical substances shall be in accordance with OH&S and legislative requirements.

5.7 Traffic Management Plan

The Contractor shall prepare a Traffic Management Plan (TMP) prior to the commencement of works.

Traffic will generally be managed at the site in the following way:

- Traffic Entry and Exit will generally be via Broadway and Balfour or Regent and Kent St.
- Designated transport routes shall be communicated to all personnel
- Strict scheduling of vehicle movements is to occur to minimize vehicles waiting off the site
- Site workers are to utilize local public transport and car sharing wherever possible

5.8 Health and Safety Management Plan

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

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