REPORT

Tonkin+Taylor

Downtown Carpark Site Development

Air Quality Assessment

Prepared for
Precinct Properties New Zealand Limited
Prepared by
Tonkin & Taylor Ltd
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1 Introduction

1.1 Background

Precinct Properties New Zealand Limited ("**Precinct**") is lodging an application under the Fast-track Approvals Act 2024 ("**FTAA**") for resource consents and other authorisations required for the Downtown Carpark Site Development at 2 Lower Hobson Street, Auckland ("**Project**"). The development site is predominantly at 2 Lower Hobson Street, but also includes associated elements at 188 and 204 Quay Street and 29 Customs Street West ("**Site**"). The Site location is shown in Figure 1.1.

Precinct has engaged Tonkin & Taylor Limited ("**T+T**") to prepare this air quality impact assessment ("**AQIA**") of discharges to air from demolition and construction activities associated with the Project for submission with the FTAA application for resource consents.

This AQIA report has been prepared in accordance with our proposal[1] dated 14 February 2023 and variation order dated 8 July 2025.

Figure 1.1: Application lots.

[1] T+T LOE, 14 February 2023. *"Downtown Carpark Redevelopment – Geotechnical and Environmental Engineering/Civil and Infrastructure Services"*, Job number 1016043.

1.2 Context

The discharges to air from the proposed demolition and construction activities are permitted under the rules of the Auckland Unitary Plan (Operative in Part)[2], provided the following permitted activity standards under section E14.6.1.1 are met:

1 *The discharge must not cause, or be likely to cause, adverse effects on human health, property or ecosystems beyond the boundary of the premises where the activity takes place.*

2 *The discharge must not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke or ash beyond the boundary of the premises where the activity takes place.*

3 *There must be no dangerous, offensive or objectionable visible emissions.*

4 *There must be no spray drift or overspray beyond the boundary of the premises where the activity takes place.*

1.3 Purpose

The purpose of this report is to assess the environmental effects of discharges to air from the demolition and construction phases of the development to assess compliance of the discharges with the permitted activity standards described in Section 1.2.

[2] At Activity A1 of Table E14.4.1

2 Activity description

2.1 Overview of site and development

The existing Site, illustrated in in Figure 1.1, includes the following elements:

- The seven storey Downtown Carpark Building at 2 Lower Hobson Street. The majority of demolition and construction works will occur within this property.
- Aon House at 29 Customs Street West and HSBC Tower at 188 Quay Street, which share the same two level podium. The works within these properties relate only to the shared podium of the two buildings to facilitate the new laneway network.
- The second floor Pedestrian Bridge over Lower Hobson Street connecting the Downtown Carpark Building to the building at 204 Quay Street, which will be demolished as part of the Project.
- The second floor (vehicle) bridge over Customs Street West connecting the Downtown Carpark Building to Fanshawe Street, which will be demolished as part of the Project.

Within the Site, the proposed development works include:

- Demolition of existing Downtown Carpark building and adjoining foot and vehicle overpass ramp structures described above.
- Excavation / bulk earthworks and establishment of a 4-level basement beneath the site footprint.
- The construction of:
  - Three podium buildings (Podium 1; Podium 2 and Podium 3).
  - Two towers - Tower 1 (approximately 227 m in height) and Tower 2 (approximately 162 m in height).
  - New public realm.

The stages of development works, as they relate to potential emissions to air are summarised in Sections 2.2 to 2.5.

2.2 Demolition

Demolition will occur over approximately 11.5 - 13 months (including 3 months of enabling works) in four key areas listed below and shown in Figure 2.1:

- Stair and colonnade adjacent to Hobson Street (likely completed prior to the demolition of the Downtown Carpark);
- Pedestrian Bridge over Hobson Street (completed prior to the demolition of the Downtown Carpark);
- Downtown Carpark building (completed after demolition of the above two components), and;
- Vehicle overpass ramp to Customs West from Fanshawe Street (completion to be coordinated with the demolition of the Downtown Carpark).

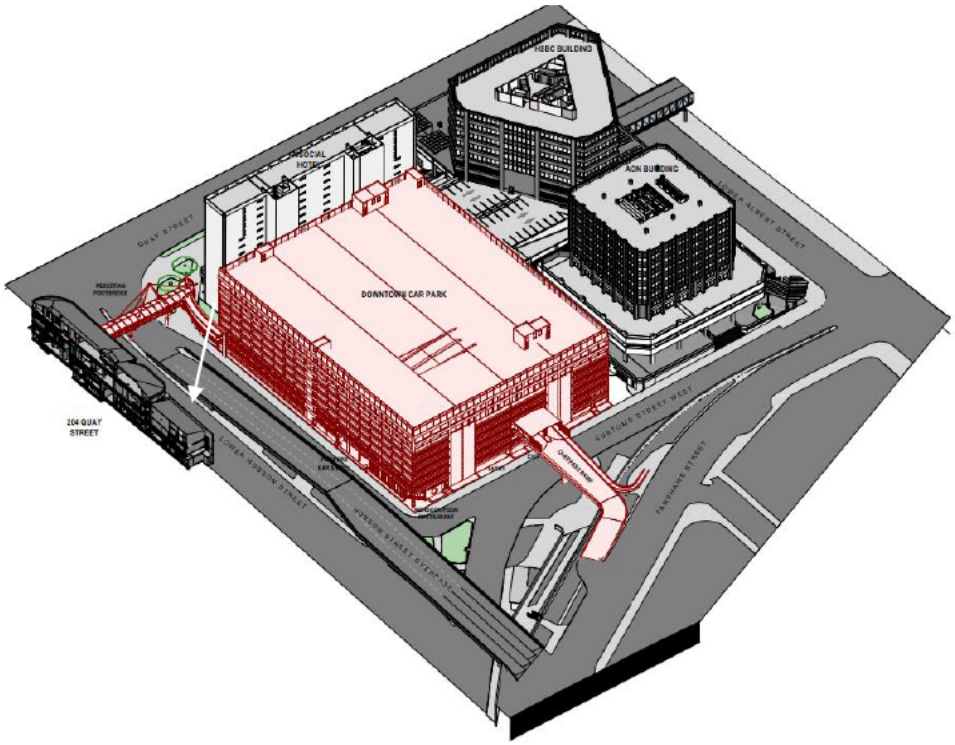

Figure 2.1: Existing Downtown Carpark structures to be demolished (Source: Warren and Mahoney)

The demolition will be subject to the demolition contractor's final methodology. It is currently proposed that following termination of redundant services and make safe works, internal soft demolition strip out will be progressively undertaken from top down.

Prior to demolition, construction hoardings will be installed around the perimeter of the site. Hoardings will extend up from ground level and over the adjacent laneway or footpath, providing a barrier between the construction site and public roads.

Prior to any hard demolition works, the building will be scaffolded on all available elevations and covered with a shade cloth enclosure.

The existing structure will then be demolished commencing at the top floor and proceeding down the building floor by floor with the following sequence of works:

- Drop shafts will be created through each floor plate to allow for transfer of demolition materials.
- Sorting and loading to trucks of demolition materials will occur at Ground Floor and Level 1 with entry and egress via Lower Hobson Street.
- Mobile crane to lift excavators and skid steers onto roof of the carpark, noting that it is not foreseen that a tower crane will be required for the demolition phase of works.
- Each slab structure is to be mechanically demolished commencing from the South and working towards the North before the machines walk themselves down to the floor below and commence cutting and processing the structural steel framework (for the top two floors).
- Skid steer (bobcats to be used to progressively clear the demolished rubble from the floor and transfer the rubble to the designated drop-zones).
- Upon clearing the demolition debris, excavators to demolish columns and re-commence slab demolition and repeat the process.

The expected approach to demolish the existing structure will be to create a number of sequential work faces primarily for efficiency and safety purposes. All asbestos will be removed by licensed asbestos contractors in accordance with the Asbestos Management Plan for the works and disposed of at an appropriate facility that can accept asbestos.

Ground floor slabs and foundations will subsequently be removed to enable excavation and construction.

2.3 Basement excavation and retention

Basement excavation works are proposed to occur over 10 to 12 months and will include construction of perimeter retention and excavation and removal of material from the site.

Perimeter retention includes construction of diaphragm walls along the western and northern basement walls and northern portion of the eastern basement wall (adjoining the HSBC Tower). Sheet piling will be used to retain the southern basement wall and southern portion of the eastern basement wall (adjoining Aon House).

Earthworks to excavate the basement levels down to an elevation of -10.3 m RL. The volume of earthworks is approximately 100,000 m^3, over an area of 6,442 m^2.

Due to residual moisture content of material excavated below the water table, excavated material is expected to be in damp condition and have a low dust generation potential on removal.

All excavated material will be placed in trucks and loaded out of the site via ramps and/or long arm load out machinery.

2.4 Construction

The proposed Project construction works are proposed to occur over a period of approximately 34.5 to 39 months and involve the establishment and construction of:

- A four level basement;
- Three podium buildings;
- Two towers - Tower 1 comprising 55 levels (including podium) and Tower 2 comprising 45 levels (including podium); and
- New public realm.

Above ground core raft foundations will be constructed to support two crane towers that will be used during construction. The crane towers and jump forms will be installed. A 'Jump Form' is a prefabricated, 'self-climbing' formwork system for concrete structures that lets the construction of the lift core progress in advance of the concrete floor slab construction.

Forming, reinforcement tying and of the cores will progress in a controlled cycle to construct the podium levels of the development. Once above the podium levels, the two high-rise towers will transition into typical arrangements. From here the high rises will be efficiently constructed in a structure, passive fire, façade and fit-out works sequence.

2.5 Vehicle movements

Vehicle movements to and from the site will occur throughout demolition, earthworks and construction.

Vehicle access routes and projected frequencies of truck movements associated with the demolition, earthworks and construction phases are described in the Construction Traffic Assessment and draft Construction Traffic Management Plan for the project.

2.6 Operating hours

As noted in the AEE, it is anticipated that construction hours will generally be between 7am – 6pm, Monday to Friday (excluding public holidays) and 8am – 5pm Saturdays.

Construction hours may be extended to 6.30am – 10.30pm Monday to Friday (excluding public holidays) and 7am – 11pm on Saturdays and public holidays to enable high noise works to occur outside of normal office hours.

Demolition outside of these hours is likely required during the removal of the pedestrian footbridge over Lower Hobson Street and vehicle overpass ramp over Customs Street West to minimise disruption to the road network.

3 Nature of the discharges to air

The main discharge to air from the proposed demolition and construction activities is dust/particulate matter. Dust/particulate matter emissions are generally categorised by particle size (denoted by aerodynamic diameter of particles) as follows:

- Deposited dust – particulate of generally greater than 30 microns (μm) in diameter. This coarse size fraction falls out of the air relatively rapidly and deposits on exposed surfaces. The deposition on surfaces can cause nuisance effects on amenity and soiling effects on property;
- Total suspended particulates ("**TSP**") - particulate of generally less than 30 μm in diameter. Particulate of this size fraction remains suspended in air at the time for longer than larger fractions. TSP (particularly the coarse fractions of greater than 10 μm) can potentially affect visibility; and
- Fine inhalable or respirable fractions of TSP such as PM_{10} (particles with an aerodynamic diameter less than 10 μm) can penetrate the nose or mouth under normal breathing conditions and is the most commonly used indicator of the potential for health effects of particulate matter in New Zealand.

The particulate emitted from demolition and construction activities will be predominantly comprised of the coarse deposited fraction, from which nuisance and amenity effects are most prevalent. However, a minority fraction of the particulate emissions may also be comprised of fine particulate that can cause respiratory health effects.

Crystalline silica (comprising crystalline forms of silicon dioxide, SiO_2), may also be present in concrete and other construction material to be removed during demolition. Exposure to high concentrations of the respirable fraction (respirable crystalline silica or RCS) of this material can cause the respiratory disease silicosis.

4 Environmental setting

4.1 Adjoining land use and sensitive receptors

The Site is located in a mixed-use (City Centre) zone, in Auckland City Centre. As a result of this, the area surrounding the site is highly modified, high density and developed for a range of uses typical of a central business district. Figure 4.1 shows the density of the area surrounding the site and neighbouring major buildings.

The HSBC Tower and Aon House (which share the same podium) adjoin the existing Downtown Carpark to east (separated by an existing service lane). The Project includes modifications to Aon House and the shred podium to provide a public connection through to Lower Albert Street.

Aon House features a 21 level office tower, and the HSBC Tower features a 29 level office tower. Each of these tower buildings are fully enclosed with air conditioned ventilation. Exposure to outdoor air for activities occupying the tower floors is likely to be via ventilation intakes only.

Activities currently located at the first floor level of the shared podium of the HSBC Tower and AON House (where there is a potential for outdoor access or exposure) include:

- A childcare centre operated by Kindercare located at first floor level on the western side of Aon House (adjoining the service lane between Aon House and the Downtown Carpark building). The childcare centre is included in the proposed ancillary demolition works and is proposed to be relocated prior to demolition of the adjoining carpark building. This assessment therefore assumes the childcare centre does not form part of the receiving environment of the discharges to air from the Project demolition or construction activities.
- Separate lobby areas for each building.
- Food retail outlets.

Directly to the north of the existing carparking building is the M Social Hotel. This also contains a restaurant and bar on the ground floor which is accessed off Quay Street to the north.

To the west of the site across Lower Hobson Street lies the Sebel Auckland Viaduct Harbour at the corner of Customs Street West and Lower Hobson Street, which includes both hotel rooms and private apartments. To the north of the Sebel Hotel on Lower Hobson Street lie the rear of various hospitality operations on the Viaduct Harbour. These buildings screen the existing carpark building from the Viaduct Harbour, which features a sailboat marina and public promenade areas, as well as hospitality operations.

To the south of the site, across Fanshawe Street lie the multi-storey Kyndryl and Group M buildings. Commercial Bay Shopping Mall and the PwC Tower are located Street to the east of Aon House across Lower Albert Street. An office building at 139 Quay Street lies to the north of the M Social Hotel, across Quay Street. All of these buildings are used by a range of occupants, generally including commercial and office uses above ground level and food service and retail at ground and lower levels.

To the south-west of the site are the Auckland Council Tepid Baths which are used recreationally for swimming. To the north of the HSBC Tower is the Downtown Ferry Terminal Pier 13 and the recently redeveloped Waterfront Park, Te Wananga.

Figure 4.1: Area surrounding site.

4.2 Local meteorology

Local meteorological conditions provide an important influence on dust emissions generation and propagation. In general, the amount of dust generated largely depends on if conditions are dry, and the wind speeds, with faster wind speeds increasing effect of wind erosion and the distance that the dust travels.

Wind rose analyses of the frequency of wind speeds and directions measured at the NIWA weather station at the Auckland Museum of Transport and Technology ("**MOTAT**"), Western Springs from 2018 to 2023 are presented in Figure 4.2. Wind roses are presented for all hours of the day and for the hours of 7am to 6pm (broadly representing the proposed operating hours).

The MOTAT weather station is located approximately 4.2 km southwest of the Site. Wind measurements at this station are likely to be generally representative of overlying wind conditions on the Auckland Isthmus. Although tall buildings and topographical features in the area will alter localised wind conditions around the Site, the wind direction frequency trends illustrated below are likely to be broadly similar to overlying wind conditions experienced in the area.

Based on the wind roses presented in Figure 4.2, winds are predominantly from the southwest and northeast, and therefore sensitive locations to the northeast and southwest of the site, respectively, are likely to be most frequently exposed to any off-site dust emissions from site activities. Winds during the proposed construction hours follow a similar directional pattern with generally higher wind speeds and a lower frequency of calm and light wind conditions.

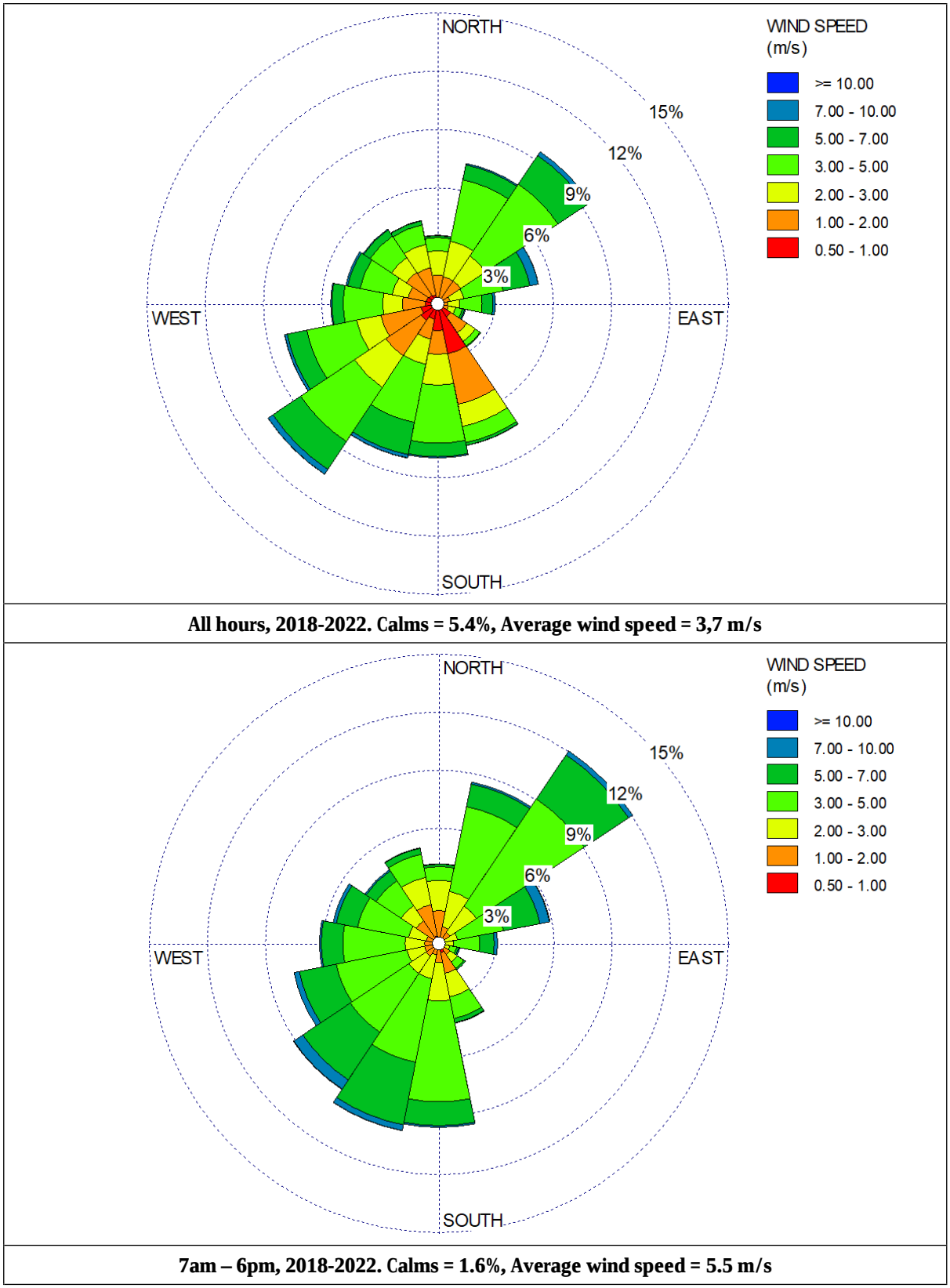

Figure 4.2: Wind rose frequency analyses of wind speeds and directions at the Auckland MOTAT weather station for 2018 to 2023 (inclusive), all hours and operating hours. Source: NIWA Cliflo database.

Figure 4.3 shows that the expected drier months are during summer, when wind speeds also tend to be higher. Over the year winds from the southwest, which will transport any emitted dust towards

sensitive receptors to the northeast of works activities, are relatively frequent over the Auckland Isthmus. Northeast winds become more frequent over summer months.

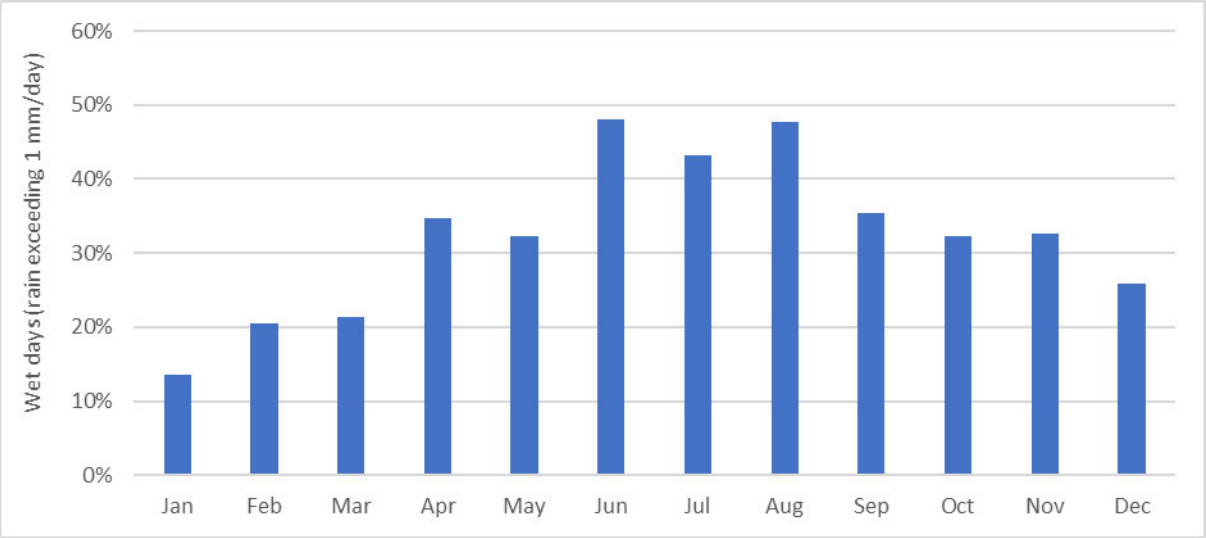

Figure 4.3: Percentage of wet days (rain exceeding 1 mm) over each month of the year at MOTAT (2018-2022). Source: NIWA CliFlo database.

4.3 Background air quality

Auckland Council operated an air quality monitoring station at Queen Street between December 1998 and August 2023. This is the only air quality monitoring station operated in the Auckland City Centre. The concentrations recorded at this station are likely to be broadly representative of the current air quality at the site and other locations throughout Auckland CBD.

Figure 4.4 shows the average annual PM_{10} concentration at Queen Street between 2018 and 2022. In 2022, the annual average PM_{10} concentration was measured at 19 ug/m³. This is below the National Ambient Air Quality Guideline (AAQG) of 20 ug/m³. However, the 2022 annual average PM_{10} concentration is above the 15 ug/m³ WHO guideline value shown by the red line in Figure 4.4.

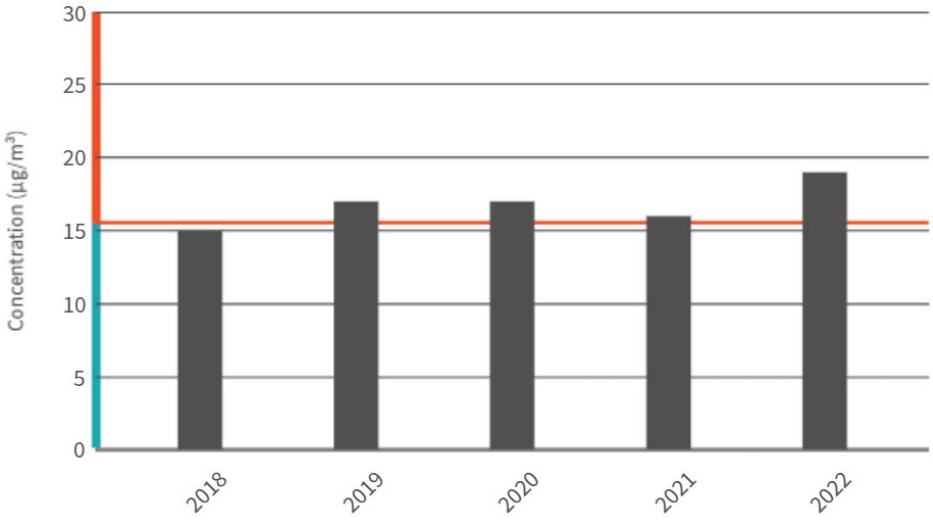

Figure 4.4: Annual PM_{10} averages at Queen Street monitoring station. Source: LAWA.

5 Assessment methodology

5.1 Selection of assessment method

The assessment of dust impacts has been conducted using qualitive assessment methods set out in Ministry for the Environment ("**MfE**") guidance on dust assessment and management ("**Dust GPG**")[3]. The MfE Dust GPG notes the difficulties associated with the use of quantitative assessment approaches based on atmospheric dispersion modelling as an alternative to the qualitative methods employed as follows:

> *Dispersion modelling is typically only employed for new, large industrial sources of particulate. This is because it can be very difficult to estimate and model particulate emissions accurately, particularly from fugitive sources.*

The dust emission sources associated with the proposed demolition and construction activities are diffuse (fugitive) in nature and emissions from those sources vary significantly both spatially, in terms of location and elevation within the site, and temporally, varying over each working day and over the different phases of the development. As a result, dust emissions from the development are not able to be accurately quantified and represented in a dispersion modelling investigation.

The assessment of air quality impacts of emissions from the proposed demolition and construction activities has therefore utilised the following techniques, in accordance with the MfE Dust GPG:

- Comparison of the risk of dust impacts associated with the proposed demolition and construction activities calculated using a method developed by the UK Institute of Air Quality Management ("**IAQM**"), referred to in the MfE Dust GPG;
- Evaluation of the measures employed and proposed to manage dust emissions and mitigate potential environmental effects; and
- An evaluation of potential dust exposure at key receptor locations using the 'FIDOL' factor framework.

5.2 IAQM dust risk assessment approach

Guidance on the assessment of demolition and construction dust published by the IAQM[4] details a method for determining the risk of dust impacts factoring in the following aspects of the activity:

- The magnitude of potential dust emissions from proposed demolition, earthworks, construction and vehicle track-out activities; and
- The sensitivity of the surrounding area to dust soiling, human health or ecological effects.

The identified dust risk is then used to inform dust management and mitigation requirements for the activity.

The potential magnitude of emissions is categorised as "small", "medium" or "large" based on the nature and scale of the activities proposed.

[3] MfE. 2016. "Good Practice Guide for Assessing and Managing Dust".
[4] IAQM. 2024 "Guidance on the assessment of dust from demolition and construction". Version 2.2.

The sensitivity of the surrounding area is determined in relation to three aspects as follows:

- The sensitivity of the surrounding area to dust soiling is categorised as “low”, “medium” or “high” based on the number of high, medium and low sensitivity receptors located within distances of 20 m, 50 m and 100 m of the dust proposed sources[5].
- The sensitivity of the surrounding area to human health effects is calculated in a similar fashion with additional consideration of annual average PM_{10} concentrations in the area.
- The sensitivity of the area to ecological impacts is based on the number of ecologically sensitive receptors within distances of 20 m and 50 m.

5.3 FIDOL Assessment

Potential dust nuisance effects associated with discharges from the site have been assessed in accordance with the Dust GPG. This involves a qualitative assessment of potential dust impacts on sensitive locations surrounding the site.

Following the identification of affected sensitive receptors within the screening criteria, those locations are then assessed in more detail using the FIDOL[6] factors, which are described as follows:

Frequency:	The frequency of exposure to dust impacts experienced at a given location. This depends on both the frequency of discharges and the frequency of weather conditions that could transport a discharge the receptor location.
Intensity:	The intensity of dust impacts depends on the scale or intensity of the discharge and the degree of dispersion or dilution of the discharge, which in relation to dust is dependent on the degree of separation between the source and the receptor and weather conditions.
Duration	The duration of dust impacts depends on both the duration of the discharge and how long a sensitive location is continuously downwind of the dust source.
Offensiveness:	The offensiveness of the dust relates to both the character of the dust and the degree of how pleasant or unpleasant that character is.
Location:	The location factor relates to sensitivity to dust at the receptor location and relates to the nature of land use at the location.

[6] Frequency, Intensity, Duration, Offensiveness, Location

6 Assessment of air quality impacts

6.1 Assessment of dust risk

6.1.1 Potential dust emission magnitude

The potential magnitude of dust emissions from each activity phase of the Project taking into consideration the example definitions outlined in section 7.2 of the IAQM guidance is described below:

- **Demolition:** The building volume to be demolished exceeds 75,000 m³ and demolition will occur at heights of over 12 m above ground level. However, no on-site crushing or screening of demolition material is proposed. Overall, the magnitude of dust emissions from demolition is assessed as being '**large'**.
- **Earthworks:** The total site area is less than 18,000 m². As the excavation is below ground level, the excavated material is expected to be damp and thereby less prone to emitting dust. Other than the surge pile of material awaiting removal, excavated material is unlikely to be stockpiled or formed into bunds on site, further reducing the potential for dust generation. Overall, the magnitude of dust emissions from earthworks is assessed as being '**small**'.
- **Construction:** The building volume to be constructed is greater than 75,000 m³. However, on site concrete batching and sandblasting are not proposed and construction methods do not involve significant. Overall, the magnitude of dust emissions from construction is assessed as being '**small**'.
- **Vehicle track-out:** Heavy vehicle movements out of the site during the earthworks phase are estimated in the Integrated Transport Assessment to be greater than 50 per day. Due to the confined nature of the site area, the length of unpaved road length has been assumed to be less than 50 m. Overall, the magnitude of dust emissions from track-out is assessed as being '**medium**'; however, track-out of material should be able to be controlled appropriately through application of wheel wash facilities for vehicles exiting the site.

6.1.2 Sensitivity of area

6.1.2.1 Sensitivity of area to dust soiling effects

Figure 6.1 illustrates the area located within distances of 20 m, 50 m and 100 m of the approximate demolition area for the purposes of determining sensitivity. Figure 6.2 illustrates the same buffer distances but for the construction area.

As detailed in Section 4.1, the site is located within the central business district of Auckland. The area surrounding the site is occupied primarily by a high density of commercial office, retail and hospitality activities, which under the IAQM guidance would be classed as medium sensitivity receptors.

However, the area is also interspersed with activities that would be classified as high sensitivity activities, including:

- M Social hotel located within 20 m (exposure to outdoor air in hotel rooms appears to be via air conditioned ventilation rather than openable windows and balconies).
- The Sebel hotel and private apartments located within 50 m (the nearest rooms/apartments along Albert Street do not feature openable windows and balconies whereas rooms/apartments along Customs Street West and the Viaduct Harbour feature outdoor access via balconies).

The Kindercare childcare centre currently located at Aon House would also be classified as a high sensitivity activity. However, as noted in section 4.1, the childcare centre is to be relocated prior to demolition and will therefore not be subject to dust discharges from the Project.

Although the area is primarily occupied by medium sensitivity receptors, given the number of people likely to occupy the above high sensitivity receptor locations the area is assessed as having a '**high**' sensitivity to dust soiling effects.

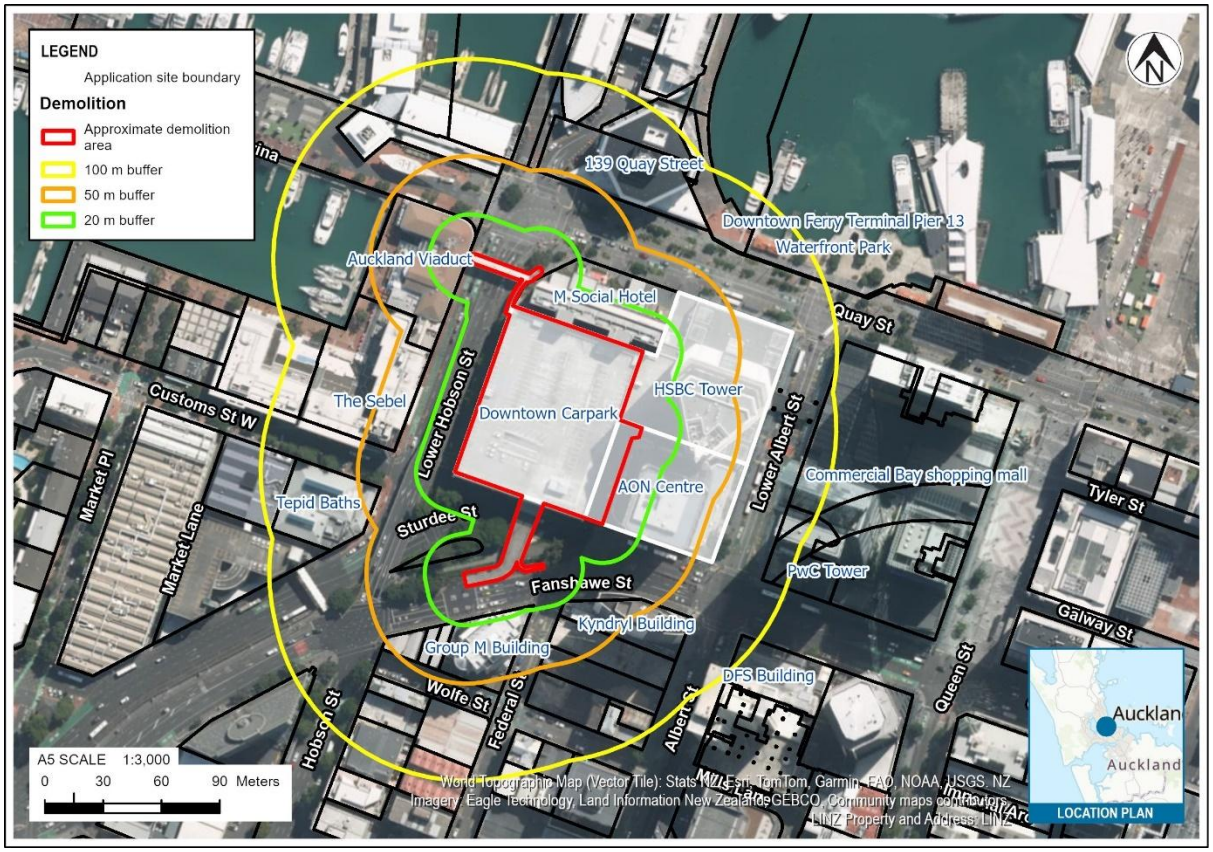

Figure 6.1: Area within 20 m, 50 m and 100 m of demolition area.

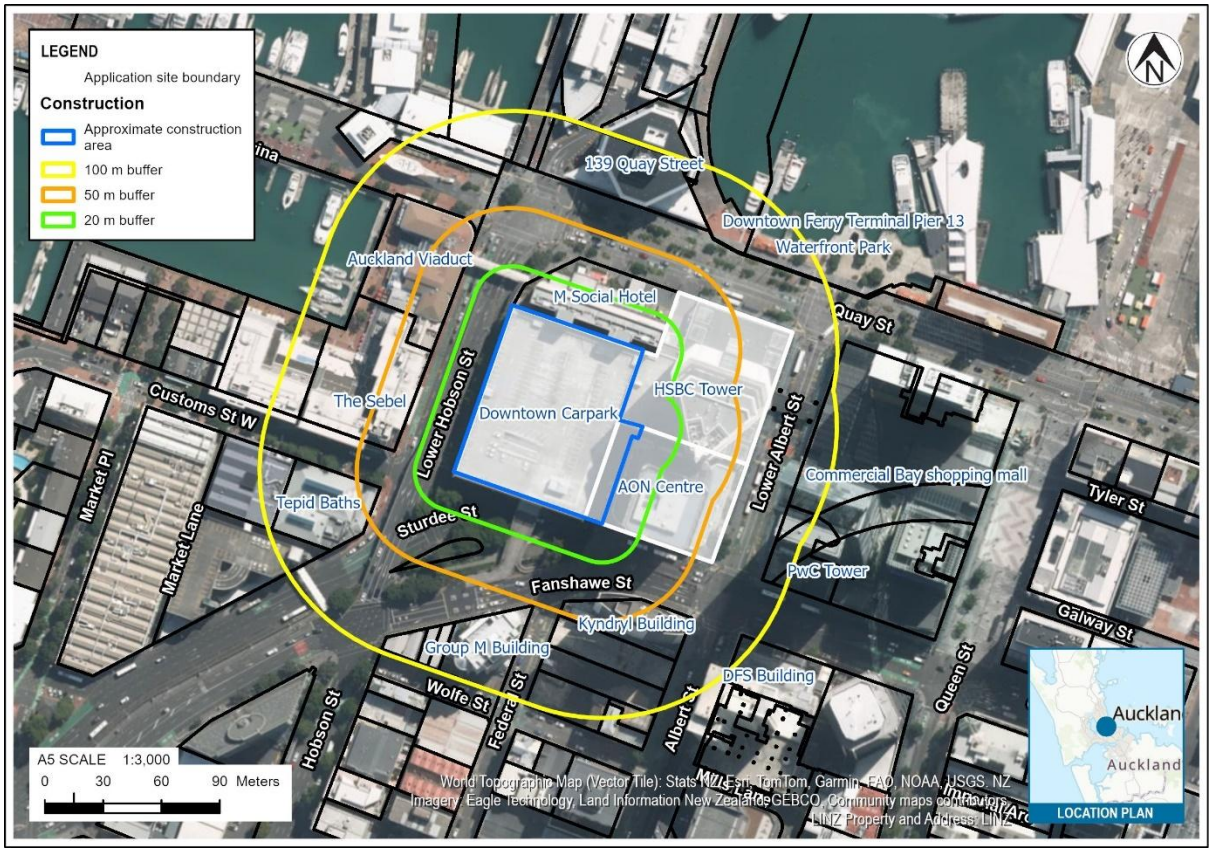

Figure 6.2: Area within 20 m, 50 m and 100 m of construction area.

6.1.2.2 Sensitivity of area to the health effects of PM_{10}

As discussed in Section 4.3, the average annual PM_{10} concentration at the Queen Street air quality monitoring station in 2022 (the most recent complete calendar year of monitoring) was 19 ug/m³. Although PM_{10} concentration measured in preceding years were lower, this 2022 value measured at Queen Street has been conservatively assumed to be representative of potential annual average PM_{10} concentrations surrounding the site.

Given that the assumed annual mean PM_{10} concentration is greater than 18 ug/m and the presence of high sensitivity receptors within 20 m of the site, as described in section 6.1.2.1, the area is assessed as having a '**high**' sensitivity to the health effects of PM_{10}.

6.1.2.3 Sensitivity of area to ecological effects

The site is located in the highly modified CBD environment and is not located within 50 m of any significant ecological area set out in the AUP. The sensitivity of the area to ecological effects is therefore assessed as being '**low**'.

6.1.3 Overall risk of dust impacts

Table 6.1 summarises the sensitivity of the area to dust soiling, human health effects and ecological effects discussed in Section 6.1.2.

Table 6.1: Summary of dust risk for proposed demolition, earthworks, construction and vehicle tracking activities under the UK IAQM framework

Activity	Potential magnitude of dust emissions	Sensitivity of surrounding area		
		To dust soiling	To human health effects	To ecological effects
Demolition	Large	High	High	Low
Earthworks	Small			
Construction	Small			
Track-out	Medium			

Based on the potential dust emission magnitude and the sensitivity of the area the overall risk of dust impacts for each activity can be determined. The risk calculated under the IAQM framework for each activity is summarised in Table 6.2. The relative level of dust impact risk of the various proposal activities has been used to inform the consideration of dust management measures in Section 6.2.

Table 6.2: Summary of dust risk to define specific mitigation

	Risk			
Potential impact	Demolition	Earthworks	Construction	Track-out
Dust soiling	High	Low	Low	Medium
Human health	High	Low	Low	Medium
Ecological	Medium	Negligible	Negligible	Low

6.2 Evaluation of dust management and monitoring measures

The proposed dust management measures specified in the existing application documents are evaluated against the recommendations of the UK IAQM guidance (taking account of the dust risk identified in Section 6.1.3) in Appendix B.

The proposed measures and recommendations for further measures, taking account of the following, are described in Table 6.3:

- Outcomes of evaluation against IAQM guidance presented in Appendix B;
- Relevant guidance on dust management published by the Ministry for the Environment MfE[7]; and
- Our experience of effective management of dust from the types of activities proposed.

Overall, with incorporation of the additional recommendations described in Table 6.3, the proposed dust management and monitoring regime will be consistent with published dust management guidance recommendations and in our experience is likely to provide effective management of dust emissions in this environment. The recommendations of Table 6.3 have been incorporated into the update to the draft Dust Management Plan (DMP) provided in Appendix A.

[7] MfE. 2016. "Good Practice Guide for Assessing and Managing Dust".

Table 6.3: Recommendations from evaluation of proposed dust mitigation and monitoring measures

Source of dust	Control measure proposed in existing application documents	Recommendations
Demolition	• Prior to demolition, construction hoardings will be installed around the perimeter of the site. Hoardings will extend up from ground level, over the adjacent laneway or footpath, providing a barrier between the construction site and public roads. • Prior to hard demolition, the entire existing building perimeter will be scaffolded at all available elevations. This scaffolding will be enclosed in shade cloth. • Internal fittings are to be stripped out prior to demolition of structural and exterior elements.	Enclosure of the carpark building on each side with shade cloth during demolition will substantially reduce wind exposure of the demolition works and provide a degree of containment of dust generated within the enclosure. The following additional measures are recommended for the demolition activities to provide further control of dust emissions: • Use of water sprays to dampen material prior to and during demolition. • Only wet cutting of concrete is to be undertaken. • Any breaking of concrete should be done under wet conditions (such as a water spray or fog cannons directed at where the breaking is occurring).
Stockpiles (including material placement and removal)		If stockpiling of demolition material, excavation spoil or other bulk materials occurs on-site, the following measures are recommended: • Store stockpiled material containing a high content of fine material indoors or undercover where practicable. • Locate and orientate outdoor stockpiles to maximise wind sheltering and separation from sensitive off-site activities as far as practicable. • Dampen, cover or stabilise inactive stockpiles if they are producing visible dust emissions. • Limit the height of stockpiles to reduce wind entrainment as far as practicable. • Minimise handling of stockpiled material and drop heights to stockpiles during unloading to decrease potential for dust generation.
Earthworks	• Prior to earthworks, construction hoardings will be installed around the perimeter of the site. • Remove excavated spoil from site on an ongoing basis.	As noted in section 2.3, dust emissions from earthworks are likely to be mitigated by the high moisture content of material excavated from below the water table. The following additional measures are recommended to control dust from earthworks: • Limit the extent of excavation and material handling activities in exposed areas carried out during dry and/or windy conditions, as far as practicable.

Source of dust	Control measure proposed in existing application documents	Recommendations
		• Limit drop heights of dry material during handling, including from any conveyor transfer points. • Stabilise exposed areas not required for construction, access or parking, along with completed fill and spoil areas as soon as practicable. • Maintain surfaces of active earthworks areas in damp condition during dry weather. Where material to be excavated is dry, this should include pre-watering of surfaces, prior to excavation allowing enough time for moisture to penetrate.
Construction	• Construction hoardings will be installed around the perimeter of the site.	The following additional measures are recommended to control dust from construction: • Only wet cutting of concrete is to be undertaken. • Concrete grinding or scabbling is only to be undertaken with either wet suppression or on-tool air extraction systems in operation. • Bagged fine power materials ensure bags are to be sealed after use and stored appropriately to prevent dust emissions.
Handling of dry material		The following measures are recommended to control dust from handling of dry materials: • Use of enclosed drop chutes is recommended for material to be dropped to lower levels. • Avoid handling (including loading or unloading) of material during windy conditions in locations where dust may be emitted beyond the site boundary, where practicable. • Cover loads of fine materials. • Minimise drop heights when loading and unloading dry material.
Vehicle movements	• Stabilised entrance ways will be established at all entry and exit points of the site.	The following additional measures are recommended: • All vehicle engines are to be switched off when stationary (no idling) on-site. • Limit vehicle speeds on site to no more than 20 km/h. • Cover loads of fine materials leaving or entering the site. • Minimise on-site travel distances through appropriate site layout and design. • Sealed access routes are to be cleaned with a vacuum sweeper truck whenever inspections (regular or in response to complaints) identify surface accumulation of dust material.

Source of dust	Control measure proposed in existing application documents	Recommendations
		• In dry conditions (e.g. less than 1 mm of rain in the preceding 48 hours), maintain vehicle accessways in regular use in damp condition through surface watering (e.g. with water carts or fixed irrigation). • If water suppression is ineffective, synthetic dust suppressants (excluding used oil-based suppressants) may be used as an alternative.
Miscellaneous		The following additional measures are recommended: • Planning of site layout so that dust generating activities are located away from sensitive receptors where practicable. • Site personnel trained in dust management controls. • Monitoring of site conditions (weather/soil conditions) to anticipate and prevent dust effects. • Limiting operations which have the potential to cause high dust during high wind events. • Use of water cart and sprays to keep surfaces damp as required near sensitive receptors. A critical part of this control measure is identification of a sufficient water supply at the site for this purpose with adequate volume.
Monitoring		The following dust monitoring measures are recommended: • Inspection of dust emitting activities and land adjacent to site on at least daily basis. • Inspect watering systems on weekly basis.

6.3 FIDOL assessment

The potential air quality effects of dust and other emissions from the redevelopment works and compliance with the relevant permitted activity standards have been assessed through a consideration of the FIDOL factors (frequency, intensity, duration, offensiveness/character and locational sensitivity) as described in Section 5.3.

Table 6.4 summarises an evaluation of dust impacts that may be experienced at key receptor locations in the surrounding area as a result of dust from the proposed demolition and construction activities against the FIDOL factor framework. Based on the IAQM dust risk assessment described in 6.1, the key receptors on which the FIDOL assessment has focussed on are as follows:

- The M Social Hotel to the north of site at 196-200 Quay Street.
- The Sebel Hotel and apartments to the east of the site at the corner of Lower Hobson Street and Customs Street West.

These receptor locations represent to peak potential air quality impact locations and potential air quality effects at other locations are likely to be lesser in scale.

In summary of the FIDOL evaluation at these receptor locations:

- Overall, the sensitivity at each of these locations is high. Potential exposure to dust at both hotel locations is reduced by the lack of openable windows facing the site and ventilation of each building via mechanical means
- Both the M Social Hotel and Sebel Hotel are likely to be exposed relatively infrequently.
- Dust comprised primarily of coarse particles of concrete, aggregate and soil/crustal material will be emitted from the demolition and construction activities. These emissions are likely to occur intermittently during daytime working hours and are likely to be associated primarily with demolition works that are projected to occur over a period of 8.5 months.
- The potential for dust emissions is greatest during the demolition phase and the uncontrolled risk of dust soiling and health risk from PM_{10} exposure assessed during this phase under the IAQM framework described in section 6.1 is high. A range of dust management measures are proposed to mitigate the risk of dust impacts in section 6.2, including use of a shade cloth enclosure and wet suppression during carpark demolition.

Overall, the FIDOL analysis indicates that offensive or objectionable dust impacts on the identified key receptors should be avoided through effective implementation of the recommended dust management measures. With the implementation of those measures, the potential for adverse property soiling, health and ecological effects of dust from the demolition and construction activities should be minimal.

Table 6.4: FIDOL evaluation of potential dust impacts

Factor	General considerations for all receptors	M Social Hotel	Sebel Hotel
	The frequency and duration of dust experienced at receptor locations will depend on the frequency/duration of emissions from the dust source and the frequency with which the receptor is downwind of the source. Demolition, earthworks, construction and tracking activities will occur over a finite period (as described in section 2, a total Project demolition and construction duration of up to 64 months is anticipated). Operating hours are proposed to be from 7:00 am to 6:00 pm on weekdays, and 8:00 am to 5:00 pm on Saturdays and public holidays. Within these operating hours, dust generating activities will occur intermittently. In terms wind exposure, wind measurements discussed in Section 4.2 provide an indication of wind conditions around the site. These measurements indicate there is likely to be a strong prevalence for winds from the southwest and northeast. As a result, receptors located to the northeast and southwest of the site, respectively, are likely to be most frequently exposed to wind from the site.	The M Social Hotel adjoins the Site to the north. This location is exposed to wind from the site in winds from the southerly quadrant (south-east to south-west). Therefore, the hotel is unlikely to be downwind of the site during prevailing north-easterly winds. Based on wind measurements discussed in Section 4.2, the hotel is likely to be exposed to winds of greater than 5 m/s from the Project for 4.9% of the time. Exposure to wind from the site is therefore relatively low. The rear of the hotel faces the site and does not contain openable windows. The hotel is fully enclosed with air conditioned ventilation and exposure to outdoor air is likely to be via ventilation intakes only. The frequency and duration of dust exposure for occupants of the hotel of the hotel Is therefore likely be low.	The Sebel Hotel is located to the east of the site, across Lower Hobson Street. This location is exposed to wind from the site in winds from the easterly quadrant (south-east to north-east). Based on wind measurements discussed in Section 4.2, the hotel is like to be exposed to wind of greater than 5 m/s from the Project for 4.8% of the time. Exposure to wind from the site at this location is therefore relatively low. The rooms and apartments facing the site on Lower Hobson Street do not feature openable windows or balconies. These rooms are fully enclosed with air conditioned ventilation and exposure to outdoor air is likely to be via ventilation intakes only. Rooms on Customs Street West and the Viaduct Harbour feature balconies but do not face the site and are further distant from the site. The frequency and duration of dust exposure at this location Is therefore likely be low.

Factor	General considerations for all receptors	M Social Hotel	Sebel Hotel
	The intensity of dust experienced at receptor locations will depend on the intensity of emissions at source and the degree of deposition or dispersion of the emissions that occurs en-route to the receptor (which itself will be dependent on wind strength and the degree of separation between source and receptor). As noted in Section 6.1.1, the IAQM framework identifies that the various activities associated with the project have the following sizes of emission sources without effective controls: • Demolition: Large • Earthworks: Small • Construction: Small • Tracking: Medium As noted in Section 6.2, the emissions from demolition and construction activities are likely to be well controlled through the implementation of dust measures including wet suppression and shade cloth enclosure during demolition.	The M Social Hotel is located within 10 m of the northern extent of the Project and there is relatively little opportunity for dust emissions to disperse or deposit before reaching the hotel building. However, as noted above, exposure to outdoor air is likely to be via ventilation intakes only and dust containment and suppression measures will reduce the intensity of emissions from the site. Taking account of the measures described in section 6.2, including the enclosure of carpark in shade cloth during demolition, the intensity of dust exposure for occupants of the hotel of the hotel Is therefore likely be low.	The Sebel Hotel is located approximately 30 m from the western extent of the carpark building. The intensity of dust exposure will be reduced through deposition and dispersion of emissions over this distance. Rooms and apartments on the eastern side of the hotel facing the site do not have openable windows or balconies. Taking account of the measures described in section 6.2, the intensity of dust exposure for occupants of the hotel of the hotel Is therefore likely be low.
	The offensiveness of dust relates to its characteristics in relation to visibly soiled surfaces. These characteristics might include colour or texture. The dust generated during demolition is likely to be from concrete and from earthworks and construction dust emissions are likely to be comprised of soil and crustal matter. Both soil and concrete will be light grey or brown in colour, similar to the soils in the area and typical of construction dust. As noted in Section 3, dust from demolition is likely to contain a component of RCS and is likely to be alkaline when exposed to water.		
	As noted in Section 4.1, the Site is located in a mixed-use (City Centre) zone. The area surrounding the site is highly modified and features a high density of development. The zone provides for a range of uses and is predominantly occupied by commercial office and retail activities typical of a central business district. As identified in Section 6.1.2.1, under the UK IAQM framework the local environment is classified as having high sensitivity in relation to dust soiling and human health effects and a low sensitivity to ecological effects.	People resident in apartments or staying at either hotel will have high expectations for air quality amenity. The sensitivity to dust soiling and human health effects at this location is therefore high.	

6.4 Summary compliance evaluation

Compliance of the discharge of contaminants to air from the proposed demolition and construction activities with the permitted activity standards set out in section E14.6.1.1 of AUP Chapter E14 is evaluated in Table 6.5.

Table 6.5: Evaluation of compliance with AUP section E14.6.1.1 permitted activity standards

Number reference	Standard	Compliance evaluation
1	The discharge must not cause, or be likely to cause, adverse effects on human health, property or ecosystems beyond the boundary of the premises where the activity takes place.	**Compliant:** The assessment described in section 6 indicates that with the adoption of the measures outlined in the updated DMP, there is minimal potential for adverse effects on human health, property or ecosystems due to the discharges.
2	The discharge must not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke or ash beyond the boundary of the premises where the activity takes place.	**Compliant:** The assessment described in section 6 indicates that with the adoption of the measures outlined in the updated DMP, dust and particulate matter emitted from the development is unlikely to be noxious, dangerous, offensive or objectionable beyond the site.
3	There must be no dangerous, offensive or objectionable visible emissions.	**Compliant:** Dangerous, offensive or objectionable visible emissions are unlikely to occur from the proposed development activities.
4	There must be no spray drift or overspray beyond the boundary of the premises where the activity takes place.	**Compliant:** Spray drift is not associated with the activities.

7 Conclusions

The following conclusions are drawn from this assessment of the environmental effects of dust emissions from the demolition and construction activities proposed for the Project:

- Proposed activities have the potential to generate dust/particulate matter emissions. The effects of the predominant coarse fraction of particulate emissions are primarily related to nuisance and soiling effects though components of the emissions also have the potential to cause adverse effects on ecology or human health.
- The site is located in a high-density central business district. Due to the proximity of sensitive activities, including the adjacent M Social Hotel and Sebel Hotel, the environment overall is assessed as having a high sensitivity to dust soiling and health effects.
- The risk of dust impacts of the proposed activities (without implementation of dust control measures) has been assessed using a method developed by the UK IAQM. Without control measures in place, the demolition works are assessed as having a "high risk" of causing dust soiling and health effects. The corresponding uncontrolled risk during the earthworks and construction phases is assessed as being "low".
- The identified uncontrolled dust impact risk levels have been factored into our review of the proposed dust mitigation and monitoring measures, which has identified a number of further measures be implemented. With those additional measures in place, the dust management regime is assessed as being consistent with relevant published dust management guidance recommendations and are likely to provide effective management of dust emissions.
- Overall, with the proposed dust management regime (including additional measures recommended in Section 6.2) in place the discharges to air from the proposed demolition and construction activities are assessed as being compliant with permitted standards (1) to (5) set out in section E14.6.1.1 of the AUP. The discharges to air are therefore evaluated as being a permitted activity under Activity A1 of Chapter E14 of the AUP.

8 Applicability

This report has been prepared for the exclusive use of our client Precinct Properties New Zealand Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application under the Fast-track Approvals Act 2024 and that an Expert Panel as the consenting authority will use this report for the purpose of assessing that application. We understand and agree that this report will be used by the Expert Panel in undertaking its regulatory functions.

8.1 Compliance with the Environment Court Practice Note 2023

I, Jason Pene, confirm that, in my capacity as author of this report, I have read and abided by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses contained in the Practice Note 2023.

I am a Principal Environmental Engineer at Tonkin & Taylor Ltd (T+T), where I specialise in assessment and management of the air quality impacts of discharge to air. I have worked at T+T since 2016. Prior to joining T+T, I was employed in a similar capacity at Beca Ltd.

I have over 23 years' experience in air quality assessment and management. I am a Certified Air Quality Professional of the Clean Air Society of Australia and New Zealand. I hold the following qualifications – BE (Hons.) in Chemical and Process Engineering.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

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Project Director

Report prepared by:

Jason Pene
Principal Environmental Engineer

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Appendix A Updated Dust Management Plan

REPORT

Tonkin+Taylor

Downtown Carpark Site Development

Dust Management Plan

Prepared for
Precinct Properties Holdings Limited
Prepared by
Tonkin & Taylor Ltd
Date
November 2025
Job Number
1016043.1000 v2.0

Together we create and sustain a better world
www.tonkintaylor.com

Document control

Title: Downtown Carpark Site Development					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
November 2025	1	Draft for FTAA application	C Dalziel	J Pene	P Millar
November 2025	2	Final for FTAA application	C Dalziel	J Pene	P Millar

Distribution:

Precinct Properties Holdings Limited	1 PDF copy
Tonkin & Taylor Ltd (FILE)	1 PDF copy

Table of contents

1 Introduction

1.1 Background - the project

Precinct Properties New Zealand Limited ("**Precinct**") is lodging an application under the Fast-track Approvals Act 2024 ("**FTAA**") for resource consents and other authorisations required for the Downtown Carpark Site Development at 2 Lower Hobson Street, Auckland ("**Project**"). The development site is predominantly at 2 Lower Hobson Street, but also includes associated elements at 188 and 204 Quay Street and 29 Customs Street West ("**Site**"). The Site location is shown in Figure 1.1. As part of the application under the FTAA, Precinct has engaged Tonkin & Taylor Limited ("**T+T**") to prepare this Dust Management Plan ("**DMP**").

This DMP document has been prepared in accordance with our proposal[1] dated 14 February 2023 and variation order dated 8 July 2025.

Figure 1.1: Site location shown in red outline (Basemap Source: LINZ Creative Commons Atribution 3.0 New Zealand)

1.2 Purpose of the Dust Management Plan

The DMP has been prepared to identify measures that are to be implemented to mitigate and manage the potential adverse effects of dust and other air emissions from the demolition and construction phases of the Project on air quality in the surrounding environment.

[1] T+T LOE, 14 February 2023. *"Downtown Carpark Redevelopment – Geotechnical and Environmental Engineering/Civil and Infrastructure Services"*, Job number 1016043.

The purpose of this DMP is as follows:

- Manage and control dust emissions from demolition and construction activities;
- Minimise air quality impacts on surrounding activities;
- Keep the local community and regulators informed of activities where required and respond quickly and effectively to issues or complaints;
- Monitoring emissions and off-site air quality effects to ensure dust generating activities are managed in accordance with the DMP and air quality impacts are effectively minimised.

This DMP has been prepared in accordance with the Ministry for the Environment ("**MfE**") '*Good Practice Guide for Assessing and Managing Dust*'[2].

This plan shall be implemented for the demolition and construction activities at the site and is the primary document for management of dust during these activities with exception of asbestos management. This DMP is appended to the Construction Management Plan for the Downtown Carpark Site Development for ease of reference. The Site Clearance and Demolition Management Plan has been prepared by RCP for resource consenting purposes[3].

1.3 Statutory environmental performance requirements

The discharges to air from the demolition and construction activities will be permitted under the rules of the Auckland Unitary Plan (Operative in Part)[4], provided the following permitted activity standards are met:

1 *The discharge must not cause, or be likely to cause, adverse effects on human health, property or ecosystems beyond the boundary of the premises where the activity takes place.*

2 *The discharge must not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke or ash beyond the boundary of the premises where the activity takes place.*

3 *There must be no dangerous, offensive or objectionable visible emissions.*

4 *There must be no spray drift or overspray beyond the boundary of the premises where the activity takes place.*

The demolition and construction works, and associated discharges to air, are required to comply with the above conditions at all times.

A range of air quality management and monitoring measures are specified in Section 6 and Section 7 of this DMP. These are designed to minimise the potential for adverse air quality effects in the surrounding environment and avoid the occurrence of offensive or objectionable dust or contaminants in the surrounding environment.

[2] Ministry for the Environment (2016) '*Good Practice Guide for Assessing and Managing Dust*'. Available online at: https://environment.govt.nz/publications/good-practice-guide-for-assessing-and-managing-dust/
[3] RCP, Downtown Carpark Redevelopment – Site Clearance and Demolition Management Plan, prepared for resource consent application.
[4] At Activity A1 of Table E14.4.1

2 DMP administration and control

2.1 Overview

This DMP provides a framework for managing dust nuisance from the demolition and construction works by identifying potential dusty activities and identifying mitigation measures. It provides information and recommendations to augment this process but is not intended to relieve the person conducting business or undertaking (PCBU) of either their responsibility for the health and safety of their workers, contractors and the public or its responsibility for the protection of the environment.

2.2 Roles and responsibilities

The roles and responsibilities of companies/organisations under this DMP are set out in Table 2.1.

Table 2.1: Organisational involvement

Company/organisation	Roles and responsibilities
Precinct Properties Limited	Developer: responsible for compliance with consent conditions, including the requirements of the DMP.
RCP Limited	RCP is the client appointed Project Manager and the client representative on site. RCP is responsible for compliance with the consent conditions, including the requirements of this DMP.
Main Contractor (Contractor)	Responsible for implementation of DMP during demolition works, including monitoring compliance of all Sub-contractors with the requirements for the DMP.
Any subcontractor(s) undertaking work	Responsible for undertaking works applicable in accordance with the requirements of this DMP
Auckland Council (Regulatory)	Monitoring and compliance of consent conditions.

2.3 Distribution

A copy of the final approved DMP shall be kept onsite at all times during demolition and construction activities. It is the responsibility of Precinct and/or their nominated project management company (RCP) to distribute the plan to the Contractor appointed to carry out the work. It is the responsibility of Precinct's nominated Contractor to distribute the DMP to any other sub-contractors or parties carrying out demolition and construction works and ancillary activities.

2.4 Review and update

This DMP is a live document. Statutory requirements, operating procedures or site conditions may vary and may require that this plan be amended or updated. Any changes to the DMP proposed by the Contractor must be approved by Precinct prior to works commencing or, if works have already commenced, by a variation before being implemented. If the changes are substantive, they may need to be approved by Council prior to implementation.

It is the responsibility of the appointed Contractor to distribute any changes to the plan to the relevant parties involved in the demolition and construction works and update the site copy.

3 Site and works description

3.1 Overview of site and development

The existing Site, illustrated in in Figure 1.1, includes the following elements:

- The seven storey Downtown Carpark Building at 2 Lower Hobson Street. The majority of demolition and construction works will occur within this property.
- The Aon Centre at 29 Customs Street West and HSBC Tower at 188 Quay Street, which share the same two level podium. The works within these properties relate only to the shared podium of the two buildings to facilitate the new laneway network.
- The second floor Pedestrian Bridge over Lower Hobson Street connecting the Downtown Carpark Building to the building at 204 Quay Street, which will be demolished as part of the Project.
- The second floor (vehicle) bridge over Customs Street West connecting the Downtown Carpark Building to Fanshawe Street, which will be demolished as part of the Project.

Within the Site, the proposed development works include:

- Demolition of existing Downtown Carpark building and adjoining foot and vehicle overpass ramp structures described above.
- Excavation / bulk earthworks and establishment of a 4-level basement beneath the Site footprint.
- The construction of:
  - Three podium buildings (Podium 1; Podium 2 and Podium 3).
  - Two towers - Tower 1 (approximately 227 m in height) and Tower 2 (approximately 162 m in height).

    New public realm.

3.2 Works description

3.3 Demolition

Demolition will occur over approximately 11.5-13 months (including 3 months of enabling works) in four key areas listed below and shown in Figure 3.1:

- Stair and colonnade adjacent Hobson Street (completed prior to the demolition of the Downtown Carpark);
- Pedestrian Bridge over Hobson Street (completed prior to the demolition of the Downtown Carpark);
- Downtown Carpark building (completed after demolition of the above two components), and;
- Vehicle overpass ramp to Customs West from Fanshawe Street (completion to be coordinated with the demolition of the Downtown Carpark).

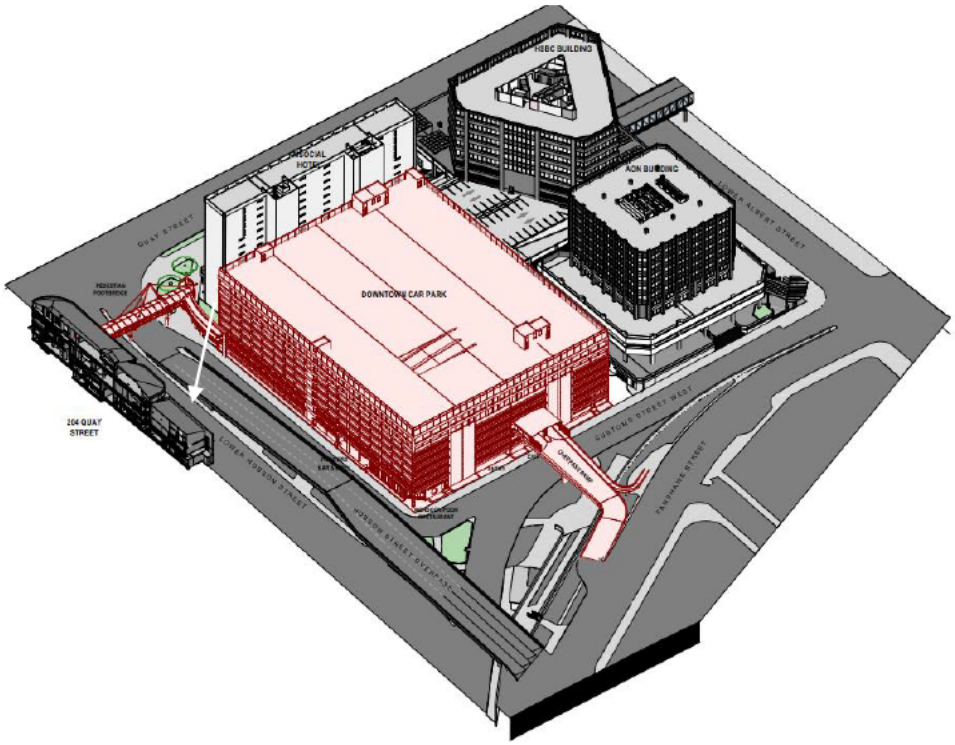


Figure 3.1: Existing Downtown Carpark structures to be demolished (Source: Warren and Mahoney)

The demolition will be subject to the demolition contractor's final methodology. It is currently proposed that, following termination of redundant services and make safe works, internal soft demolition strip out will be progressively undertaken from top down.

Prior to demolition, construction hoardings will be installed around the perimeter of the site. Hoardings will extend up from ground level and over the adjacent laneway or footpath, providing a barrier between the construction site and public roads.

Prior to any hard demolition works, the building will be scaffolded on all available elevations and covered with a shade cloth enclosure.

The existing structure will then be demolished commencing at the top floor and proceeding down the building floor by floor with the following sequence of works:

- Drop shafts will be created through each floor plate to allow for transfer of demolition materials.
- Sorting and loading to trucks of demolition materials will occur at Ground Floor and Level 1 with entry and egress via Lower Hobson Street.
- Mobile crane to lift excavators and skid steers onto roof of the carpark, noting that it is not foreseen that a tower crane will be required for the demolition phase of works.
- Each slab structure is to be mechanically demolished commencing from the South and working towards the North before the machines walk themselves down to the floor below and commence cutting and processing the structural steel framework (for the top two floors).
- Skid steer (bobcats) to be used to progressively clear the demolished rubble from the floor and transfer the rubble to the designated drop-zones.
- Upon clearing the demolition debris, excavators to demolish columns and re-commence slab demolition and repeat the process.

The expected approach to demolish the existing structure will be to create a number of sequential work faces primarily for efficiency and safety purposes. All asbestos will be removed by licensed asbestos contractors in accordance with the Asbestos Management Plan for the works and disposed of at an appropriate facility that can accept asbestos.

Ground floor slabs and foundations will subsequently be removed to enable excavation and construction.

3.4 Basement excavation and retention

Basement excavation works are proposed to occur over 10 to 12 months and will include construction of perimeter retention and excavation and removal of material from the site.

Perimeter retention includes construction of diaphragm walls along the western and northern basement walls and northern portion of the eastern basement wall (adjoining the HSBC Tower). Sheet piling will be used to retain the southern basement wall and southern portion of the eastern basement wall (adjoining Aon House).

Earthworks to excavate the basement levels down to an elevation of -10.3 m RL. The volume of earthworks is approximately 100,000 m^3, over an area of 6,442 m^2.

Due to residual moisture content of material excavated below the water table, excavated material is expected to be in damp condition and have a low dust generation potential on removal.

All excavated material will be placed in trucks and loaded out of the site via ramps and/or long arm load out machinery.

3.5 Construction

The proposed construction works involve the establishment and construction of:

- Four floor basement;
- Three podium buildings;
- Two towers - Tower 1 comprising 55 levels (including podium) and Tower 2 comprising 45 levels (including podium); and
- New public realm.

Above ground core raft foundations will be constructed to support two crane towers that will be used during construction. The crane towers and jump forms will be installed. A 'Jump Form' is a prefabricated, 'self-climbing' formwork system for concrete structures that lets the construction of the lift core progress in advance of the concrete floor slab construction.

Forming, reinforcement tying and of the cores will progress in a controlled cycle to construct the podium levels of the development. Once above the podium levels, the two high-rise towers will transition into typical arrangements. From here the high rises will be efficiently constructed in a structure, passive fire, façade and fit-out works sequence.

3.6 Vehicle movements

Vehicle movements to and from the site will occur throughout demolition, earthworks and construction.

Vehicle access routes and projected frequencies of truck movements associated with the demolition, earthworks and construction phases are described in the Construction Traffic Assessment and draft Construction Traffic Management Plan for the project.

3.7 Operating hours

As noted in the AEE, it is anticipated that construction hours will generally be between 7am – 6pm, Monday to Friday (excluding public holidays) and 8am – 5pm Saturdays.

Construction hours may be extended to 6.30am – 10.30pm Monday to Friday (excluding public holidays) and 7am – 11pm on Saturdays and public holidays to enable high noise works to occur outside of normal office hours.

Demolition outside of these hours is likely required during the removal of the pedestrian footbridge over Lower Hobson Street and vehicle overpass ramp over Customs Street West to minimise disruption to the road network.

4 Environmental Setting

4.1 Overview

This section of the DMP describes the environment surrounding the Site in terms of meteorological influences on the transport of air contaminants and sensitivity of adjacent activities to those discharges.

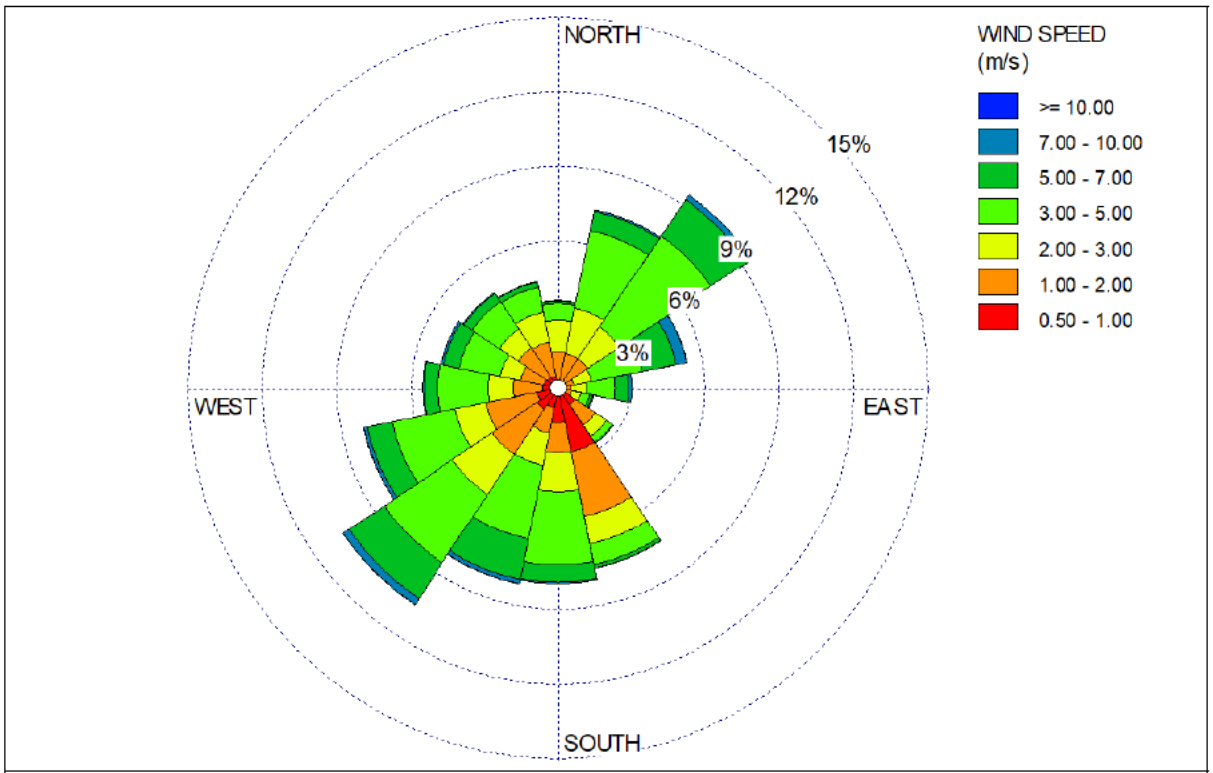
4.2 Local meteorology

Figure 4.1 shows wind roses of wind speeds and directions measured at the NIWA weather station at the Auckland Museum of Transport and Technology ("**MOTAT**"), Western Springs.

The weather station is located approximately 4.2 km southwest of the Site. Wind measurements at this station are likely to be generally representative of overlying wind conditions in central Auckland as it is relatively free from nearby obstructions or eddies created by adjacent buildings.

Although tall buildings and topographical features in the area will alter localised wind conditions, the wind direction frequency trends illustrated below are likely to be broadly similar to those experienced at the site.

Based on the wind roses in Figure 4.1, winds are predominantly from the southwest and northeast, and therefore sensitive locations to the northeast and southwest of the site, respectively, are likely to be most frequently exposed to any off-site dust emissions from site activities. The amount of dust generated also largely depends on if conditions are dry, and the wind speeds, with faster wind speeds increasing effect of wind erosion and the distance that the dust travels.



All hours, 2018-2022. Calms = 5.4%, Average wind speed = 3,7 m/s

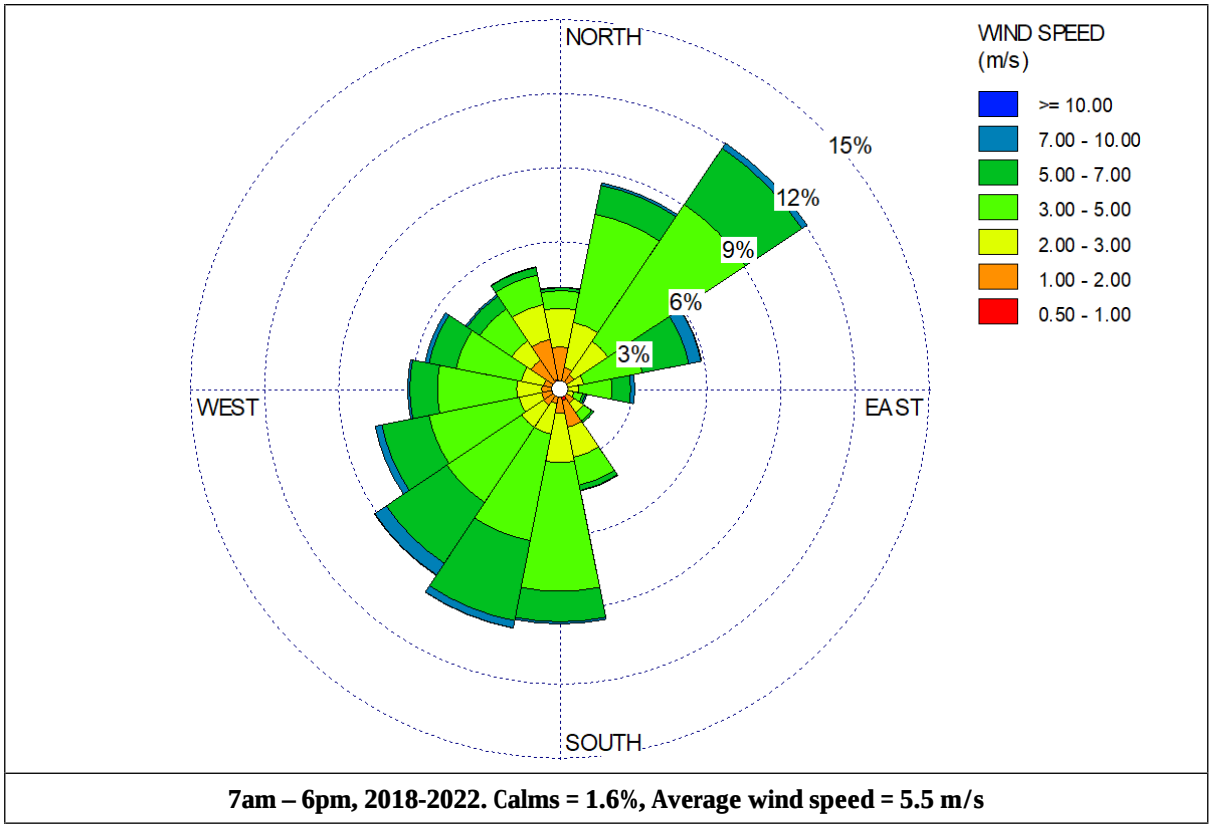


Figure 4.1: Wind rose frequency analyses of wind speeds and directions at the Auckland MOTAT weather station for 2018 to 2023 (inclusive), all hours and operating hours. Source: NIWA Cliflo database.

Figure 4.2 shows that the expected drier months are during summer, when wind speeds also tend to be higher. Over the year winds from the southwest, which will transport any emitted dust towards sensitive receptors to the northeast of works activities, are relatively frequent over the Auckland Isthmus. Northeast winds become more frequent over summer months.

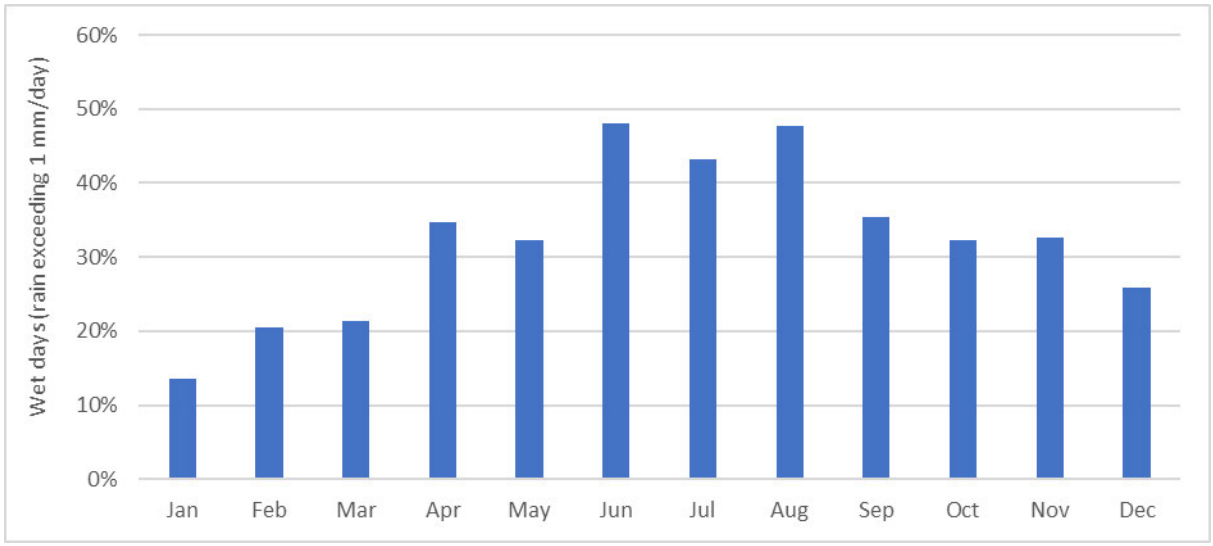


Figure 4.2: Percentage of wet days (rain exceeding 1 mm) over each month of the year at MOTAT (2018-2022). Source: NIWA Cliflo database.

4.3 Sensitive receptors

The Site is located in a mixed use (City Centre) zone, in Auckland City Centre, so features a range of adjacent activities.

Nearby activities that may be sensitive to dust nuisance include:

- M Social Hotel on the northern boundary of the site.
- The Sebel Hotel to the west of the site across Lower Hobson Street.
- Commercial, office and hospitality in the Aon House building and the HSBC tower building on the eastern boundary of the Site, both sites are owned by Precinct.
- Hospitality at the Viaduct Harbour to the west of the Site.
- Recreational facility (the Auckland Tepid Baths) to the southwest of the site.
- Pedestrian access and parked vehicles along neighbouring roads.

5 Discharges to air

The main discharge to air from the demolition activities will be dust. Dust has the potential to cause nuisance or soil property if deposited in sufficient quantities in the environment.

Fine particles present in dust emissions have the potential to affect respiratory heath while suspended in air. Fly ash and cement used in grout and concrete may contain respirable crystalline silica ("**RCS**"), which can also have respiratory health effects with sufficiently high exposure.

The main sources of nuisance dust emission along the project are:

- Demolition activities, such as
  - Knocking down and breaking up of building material including plasterboard and blockwork, and
  - Cutting, breaking and crushing of concrete;
- Handling of spoil, aggregate and other solid materials;
- Wind erosion of spoil and other stockpiled material; and
- Vehicle movements over unsealed surfaces and spilled material.

The major factors that influence dust emissions are:

- Wind speeds across the Project - pickup of dust from exposed surfaces occurs at windspeeds above 5 m/s and increase as windspeeds rise;
- The percentage of fine particulate in the material;
- Moisture content of material;
- The area of exposed surfaces;
- Disturbances such as vehicle movements and material handling activities; and
- The height of the dust source above the surrounding ground level.

Other minor discharges to air could include:

- Combustion emissions from vehicles, equipment or stationary engines on site, which can affect respiratory health in the environment with sufficient exposure.

6 Management procedures

6.1 Approach to dust management

A range of routine measures will be used to manage and mitigate the effects of discharges of dust emissions during the demolition activities. An adaptive approach to management of dust, including additional mitigation may be required if:

- Monitoring indicates that abnormal discharges of dust are occurring;
- Weather conditions are changing such that dust or odour discharges are more likely; and / or
- Complaints are received regarding discharges of dust or odour.

If the available mitigation methods are unsuccessful in controlling discharges (i.e. dust) that cause significant adverse effects on receptors beyond the site boundary, the activities causing the discharge shall be suspended until adequate mitigation can be put in place.

6.2 Dust mitigation measures

Dust management measures are specified Table 6.1 and will be used as required across the Project, depending on the demolition and construction activities undertaken, weather conditions, and proximity to sensitive receptors. The list is not necessarily exhaustive, and additional methods may be implemented during demolition to provide further control.

Alternative methods may be employed after the effectiveness of those methods is demonstrated and this DMP should be updated accordingly.

Table 6.1: Dust mitigation procedures

Source of dust	Control
Demolition	• Internal fittings are to be stripped out prior to demolition of structural and exterior elements. • Use of water sprays to dampen material prior to and during demolition. • Only wet cutting of concrete is to be undertaken. • Any breaking of concrete should be done under wet conditions (such as a water spray or fog cannons directed at where the breaking is occurring). • Containment of the carpark building demolition works though scaffolding of each building façade and envelopment with shade cloth.
Stockpiles (including material placement and removal)	• Store stockpiled material containing a high content of fine material indoors or undercover where practicable. • Locate and orientate outdoor stockpiles to maximise wind sheltering and separation from sensitive off-site activities as far as practicable. • Dampen, cover or stabilise inactive stockpiles if they are producing visible dust emissions. • Limit the height of stockpiles to reduce wind entrainment as far as practicable. • Minimise handling of stockpiled material and drop heights to stockpiles during unloading to decrease potential for dust generation.
Handling of dry material	• Avoid handling (including loading or unloading) of material during windy conditions in locations where dust may be emitted beyond the site boundary, where practicable. • Cover loads of dry fine materials. • Minimise drop heights when loading and unloading dry material.

Source of dust	Control
	• Use enclosed chutes and conveyors for material to be dropped to lower levels as well as covered skips.
Earthworks	• Limit the extent of excavation and material handling activities in exposed areas where material is dry, as far as practicable. • Limit drop heights of material during handling, including from any conveyor transfer points. • Stabilise exposed areas not required for construction, access or parking, along with completed fill and spoil areas as soon as practicable. • Remove excavated spoil from site on a regular basis. • Maintain surfaces of active earthworks areas in damp condition during dry weather. Where material to be excavated is dry, this should include pre-watering of surfaces, prior to excavation allowing enough time for moisture to penetrate.
Construction	• Only wet cutting of concrete is to be undertaken. • Concrete grinding or scabbling is only to be undertaken with either wet suppression or on-tool air extraction systems in operation. • Bagged fine power materials ensure bags are to be sealed after use and stored appropriately to prevent dust emissions.
Vehicle movements	• Limit vehicle speeds on site to no more than 20 km/h. • All vehicle engines are to be switched off when stationary (no idling on-site). • Limit load sizes to avoid spillages. • Cover loads of fine materials leaving or entering the site. • Minimise on-site travel distances through appropriate site layout and design. • Sealed access routes are to be cleaned with a vacuum sweeper truck whenever inspections (regular or in response to complaints) identify surface accumulation of dust material. • In dry conditions (e.g. less than 1 mm of rain in the preceding 48 hours), maintain vehicle accessways in regular use in damp condition through surface watering (e.g. with water carts or fixed irrigation). • If water suppression is ineffective, synthetic dust suppressants (excluding used oil-based suppressants) may be used as an alternative.
Miscellaneous	• Installation of construction hoardings around the perimeter of the site from demolition through to construction phases. • Planning of site layout so that dust generating activities are located away from sensitive receptors where practicable. • Site personnel trained in dust management controls. • Monitoring of site conditions (weather/soil conditions) to anticipate and prevent dust effects. • Limiting operations which have the potential to cause high dust during high wind events. • Use of water cart and sprays to keep surfaces damp as required near sensitive receptors. A critical part of this control measure is identification of a sufficient water supply at the site for this purpose with adequate volume. • Use of wind break fences. • Cleaning paved surfaces if affected by tracking of transported dust.

6.3 Review of dust mitigation

When site operators are alerted to a potential off-site dust nuisance through the monitoring techniques described in Section 7 of this DMP, or as a result of a complaint from a third party, the Environmental Manager will undertake a review of site activities to determine the source of the dust and implement further mitigation measures as required in order to reduce the dust generation to acceptable levels.

In general, the additional mitigation will be those measures set out in Table 6.1. Once the additional mitigation has been implemented the Environmental Manager will review the monitoring data to ensure that it has been effective.

6.4 Control of engine exhaust emissions

The following key actions shall be carried out to manage potential off-site impacts of exhaust emissions from vehicle and stationary engines:

- All engines used on the site will be maintained at least in accordance with manufacturers' requirements;
- Where excessive exhaust smoke is identified from any engine, it is to be serviced as soon as is practicable and the vehicle or piece of equipment is to remain out of service until such maintenance has been completed; and
- Unless warm-up or turbo maintenance procedures require it, vehicles should not be left idling while parked or unattended.

6.5 Dust contingency measures

As discussed in Section 6.2, a range of standard dust controls will be used to manage and mitigate dust effects during demolition activities of the Project. Additional mitigation may also be required in the event that:

- Monitoring indicates that significant dust emissions are occurring;
- Weather conditions are changing such that dust emissions are more likely; and / or
- Complaints are received regarding dust.

In the event of significant on-going dust emissions that are unable to be mitigated through the measures described in Section 6.2, the Environmental Manager shall investigate the implementation of dust contingency measures. The suggested dust contingency measures are presented in Table 6.2.

Table 6.2: Dust contingency measures

Source	Contingency measure
Dust generating activities at any location within 100 m of sensitive receptors.	• Install windbreak fences around dust generating activities where practicable. • Additional visual inspections of dust generating activities for visible dust emissions beyond the site boundary. • Ensure availability of water as dust suppressant should visible emissions arise.
Dust discharges cause excessive deposition / soiling at sensitive receptors	• Stop activities that are generating dust until mitigation is reviewed, and additional mitigation is in place.
Forecast high winds (greater than 5 m/s) in dry conditions	• Limit the activities that generate dust within 200 m of downwind sensitive activities.

Source	Contingency measure
	• Additional visual inspection of exposed areas and activities. • Assess the need for additional controls such as increased water application rates.
Forecast high winds (greater than 10 m/s) in dry conditions	• Stop activities that generate dust within 200 m of downwind sensitive activities until wind eases.
Visible dust discharges from stockpiles / areas of uncovered soil near sensitive receptors	• Dampen stockpile or exposed area of soil. • Cover or stabilise area to reduce dust generation.

7 Monitoring requirements

7.1 Monitoring approach

The overall approach to dust control is largely based on visual monitoring; good management of the demolition areas; or complaints received.

Good practice focusing on proactive measures will aid in avoiding significant dust emissions, however if dust emissions do occur, the monitoring will help to identify such occurrences and enable a prompt response.

7.2 Visual inspection and monitoring methods

Visual monitoring of dust across all areas of the site where dust generating activities are in progress will be undertaken on a daily basis, or more frequently if conditions change.

Weather forecasts should also be checked daily (wind speed, wind direction and rainfall) to assist in managing site activities and implementing the appropriate dust controls.

Table 7.1 describes the nature and frequency visual dust monitoring activities to be undertaken during demolition. In the event that dust deposits or visible dust plumes are observed at or beyond the site boundary, the findings of the visual inspections are to be recorded in the daily dust inspection log as set out in Appendix A.

Table 7.1: Visual dust monitoring programme

Monitoring activity	Frequency*
Inspect land adjacent to the site, exits and adjoining roads for the presence of dust deposition and/or accumulation of dust material.	Daily
Observe weather conditions including wind and rain.	Daily and as conditions change
Inspect all exposed un-stabilised surfaces for dampness and that the extent of those areas is being minimised.	Daily and as conditions change
Inspect stockpiles for dampness and height of no more than 3°m (or appropriately stabilised).	Daily and as conditions change
Inspect dust generating activities for effectiveness of dust management measures and avoidance of visible dust emissions beyond the boundary of the site.	Daily and as new activities commence
Inspect watering systems (sprays and water carts) to ensure equipment is maintained and functioning to effectively dampen exposed areas.	Weekly
Inspect dust generating activities and check surfaces are being maintained in a visibly damp condition, and dust and particulate matter emissions are minimised.	Where weather conditions are dry and wind speeds exceed 5 m/s
Inspect wheels of all trucks exiting the Site to public roads for evidence of tracked material (to be washed and removed as required).	All truck departures
Check for dust on local roads being used to access the site.	Daily
Inspect vehicle exits to ensure that wheel inspection and washing is effective and dust or sediment laden water is not being tracked off site by vehicles.	Daily
Inspect sealed vehicle access routes within the Site for deposition of material (to be removed via vacuum sweeper truck).	Daily

Monitoring activity	Frequency*
Inspect watering systems (sprays and water carts) to ensure equipment is maintained and functioning to effectively dampen exposed areas.	Weekly

* The frequency of site inspections may need to be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

8 Complaints

8.1 Overview

Although the mitigation measures described in this DMP are aimed at avoiding discharges to air, complaints may be received by members of the public. It is important to ensure that any complaints are recorded and promptly investigated to identify and resolve the cause of the complaint. The requirements and procedures relating to complaints are detailed below.

8.2 Receiving and recording complaints

A complaint may be received from a member of the public via the following:

- Direct call to the main works Hotline.
- Complaint received by Auckland Council which notifies the Site of the complaint.
- Written or email correspondence.

In all circumstances, correct and accurate information needs to be recorded by the person receiving the complaint in order to help investigate the cause of the complaint, and ensure appropriate mitigation has or will be undertaken.

Any complaints received should be recorded in a complaints file, and an investigation undertaken as outlined in the Section 8.3. The following guide should be followed when a complaint is received:

- Record the details provided about the incident by the complainant.
- The name and contact details of the person(s) who raised the complaint (unless they elect not to provide this).
- Acknowledge receipt of the concern or complaint and assure that an initial response shall be undertaken within 24 hours of receiving a complaint and resolved as soon practicable.
- Known demolition activities at the time and in the vicinity of the complainant during the concern or complaint period.
- Remedial actions undertaken (if any) and the outcome of these, including monitoring of the activity, to ensure that dust mitigation measures are effective in controlling dust emissions, and that there are no significant impacts on the surrounding environment, to the satisfaction of Auckland Council and the complainant.
- Weather conditions at the time of the concern or complaint, including wind direction.
- Reporting of the investigation in the complaints file.

8.3 Investigating complaints

The investigation of all complaints relating to air discharges will involve the following:

- Information about the incident as described by the complainant.
- Weather conditions at the time of the complaint, including wind direction and speed, and rainfall (if any).
- Reporting the findings and recommendations.
- Actions and time taken to close-out complaint.
- Communication with the complainant.
- Ensure reporting of the investigation is recorded in the complaints file.

An investigation of the complaint will require the Environmental Manager to visit the location where the complainant observed the impact and make visual observations in relation to the reported impacts and adjacent and upwind activities occurring on site. This may also include going to the location where the complainant observed the impact.

The site health and safety procedures must always be followed during the complaint investigation procedure.

9 Applicability

This plan has been prepared for the exclusive use of our client Precinct, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this plan as part of an application under the Fast-track Approvals Act 2024 and that an Expert Panel as the consenting authority will use this report for the purpose of assessing that application. We understand and agree that this report will be used by the Expert Panel in undertaking its regulatory functions.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
[redacted]	[redacted]
Caitlin Dalzell	Peter Millar
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Appendix A Dust inspection log

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Appendix B Evaluation of dust mitigation and monitoring against IAQM recommendations

Table B1: Evaluation of dust mitigation and monitoring measures against IAQM mitigation recommendations[1]

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
Communications	*1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.*	H	H	H	Community and stakeholder engagement in relation to wider project addressed in CMP
	2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H	H	H	To be confirmed in future
	3. Display the head or regional office contact information.	H	H	H	To be confirmed in future
	4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM10 continuous monitoring and/or visual inspections.	D	H	H	Set out in draft in DMP
Site Management	*5. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.*	H	H	H	Required in DMP
	6. Make the complaints log available to the local authority when asked.	H	H	H	Required in DMP

[1] IAQM. 2024 "Guidance on the assessment of dust from demolition and construction". Version 2.2. Section 8.2.

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
	7. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.	H	H	H	Required in DMP
	8. Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	H	Community and stakeholder liaison in relation to wider project addressed in CMP
Monitoring	*9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.*	D	D	H	Required in DMP
	10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	H	H	H	Required in DMP
	11. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	H	H	H	Visual monitoring requirements set out in DMP
	12. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H	Dust monitoring approach focusses on visual methods. Instrumental PM_{10} monitoring of monitoring of dust deposition/flux not proposed.

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
Preparing and maintaining the site	*13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.*	H	H	H	Required in DMP
	14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H	Scaffolding and shade cloth enclosure of building to be employed duration demolition.
	15. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.	D	H	H	
	16. Avoid site runoff of water or mud.	H	H	H	N/A to dust emissions
	17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H	Measure unlikely to have discernible impact on dust emissions (value of measure is largely aesthetic)
	18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	D	H	H	Required in DMP
	19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H	Stockpiling limited to surge pile prior to removal from site
Operating vehicle/ machinery and sustainable travel	*20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.*	H	H	H	N/A – specified requirements are not applicable in NZ
	21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H	Required under existing DMP
	22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery.	H	H	H	Use of diesel fired generators (if required other than for emergency supply) is likely to require resource consent (depending on rating and exhaust configuration)

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
	23. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	D	D	H	Speed limits specified in DMP
	24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	H	N/A
	25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	H	N/A
Operations	*26. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.*	H	H	H	Required in DMP
	27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H	Mains or tanker supply available
	28. Use enclosed chutes and conveyors and covered skips.	H	H	H	Required in DMP
	29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H	Required in DMP
	30. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	D	H	H	Required in DMP
Waste management	*31. Avoid bonfires and burning of waste materials.*	H	H	H	Not proposed

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
Demolition	*32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).*	D	D	H	Required in DMP
	33. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	H	H	H	Required in DMP
	34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H	Not proposed
	35. Bag and remove any biological debris or damp down such material before demolition.	H	H	H	Contaminated material is to be handled in accordance with the Contamination Site Management Plan
Earthworks	*36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.*	N	D	H	N/A - Basement walls to be stabilised prior to excavation.
	37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	H	
	38. Only remove the cover in small areas during work and not all at once.	N	D	H	Required in DMP
Construction	*39. Avoid scabbling (roughening of concrete surfaces) if possible.*	D	D	H	Construction method details to be confirmed
	40. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	D	H	H	Required in DMP

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
	41. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	N	D	H	On-site concrete batching not proposed
	42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D	Required in DMP
Vehicle track-out	*43. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.*	D	H	H	Required in DMP
	44. Avoid dry sweeping of large areas.	D	H	H	Suction sweeping required under DMP
	45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H	Required in DMP (fine materials only)
	46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H	Required in DMP
	47. Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H	Required in DMP
	48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H	Access will be via hard surfaces during demolition. Hard surfacing of access routes then unlikely to be practicable until construction commences.
	49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H	To be confirmed in future

Activity	IAQM Recommended Mitigation Measure	Implementation Recommendation by Activity Dust Risk*			Evaluation of proposed measures
		Low	Medium	High	
	50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H	H	Likely to be restricted by constrained site area
	51. Access gates to be located at least 10 m from receptors where possible.	N	H	H	To be confirmed in future

***Key to recommendation:**

H: Highly recommended

D: Desirable

N: Not required

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