

Client: Tristar Sandstone Pty. Ltd.

Project Reference: CN160710

Date: 6.10.2016

Version: 1

Preliminary Air Quality Management Plan:

**Sandstones Redevelopment - 23-33 and 35-39 Bridge Street,
Sydney, NSW, 2000**



Prepared By:



Andrew Bellamy
BSc., ISIAQ
Licensed Asbestos Assessor #000111
Senior Consultant



Dr Vyt Garnys
PhD, B.Sc. (Hons) AIMM, ARACI, ISIAQ,
ACA, AIRAH, FMA
Principal Consultant & Managing Director

CONTENTS

CONTENTS	2
<u>1</u> INTRODUCTION	<u>3</u>
1.1 OBJECTIVE AND SCOPE	3
1.2 LIMITATIONS	3
<u>2</u> OVERVIEW OF PROJECT	<u>4</u>
2.1 LOCATION OF SITE	4
2.2 SUMMARY OF PROPOSED WORKS	5
<u>3</u> REGULATORY REQUIREMENTS	<u>6</u>
<u>4</u> POTENTIAL AIR QUALITY IMPACTS	<u>7</u>
<u>5</u> SENSITIVE RECEPTORS	<u>8</u>
<u>6</u> MITIGATION OF AIR QUALITY IMPACTS	<u>9</u>
<u>7</u> AIR QUALITY MONITORING AND PERFORMANCE TARGETS	<u>11</u>
DISCLAIMER	13
COPYRIGHT	13

1 INTRODUCTION

1.1 Objective and Scope

CETEC were engaged by Tristar Sandstone Pty. Ltd. to develop a preliminary air quality management plan (AQMP) for the proposed redevelopment of the heritage listed Sandstones Precinct into a luxury hotel, The Patina Sydney.

The site (referred to from here on in as the Sandstones Precinct) is made up of the Lands Building and the Education Building located at 23-33 and 35-39 Bridge Street, Sydney, NSW, 2000 respectively.

The objective of this report is to provide preliminary recommendations to manage air quality during the proposed demolition and construction work for inclusion in the submission of the stage 2 development application. The scope of works and deliverables are as follows:

- Review the development proposal
- Identify legislative requirements
- Identify potential air quality impacts of the construction works
- Provide preliminary recommendations for mitigating air quality impacts during construction works
- Provide preliminary recommendations for environmental monitoring during construction works

1.2 Limitations

This report provides preliminary recommendations for the management of air quality during demolition and construction work based on the information that is currently available. It is likely that revisions may be required for reasons including but not limited to:

- Inclusion of new information as it becomes available
- Managing specific activities and/or processes that have the potential to impact air quality
- Managing unforeseen impacts on air quality
- As required by the Construction Environmental Management Plan (CEMP) or local authorities.

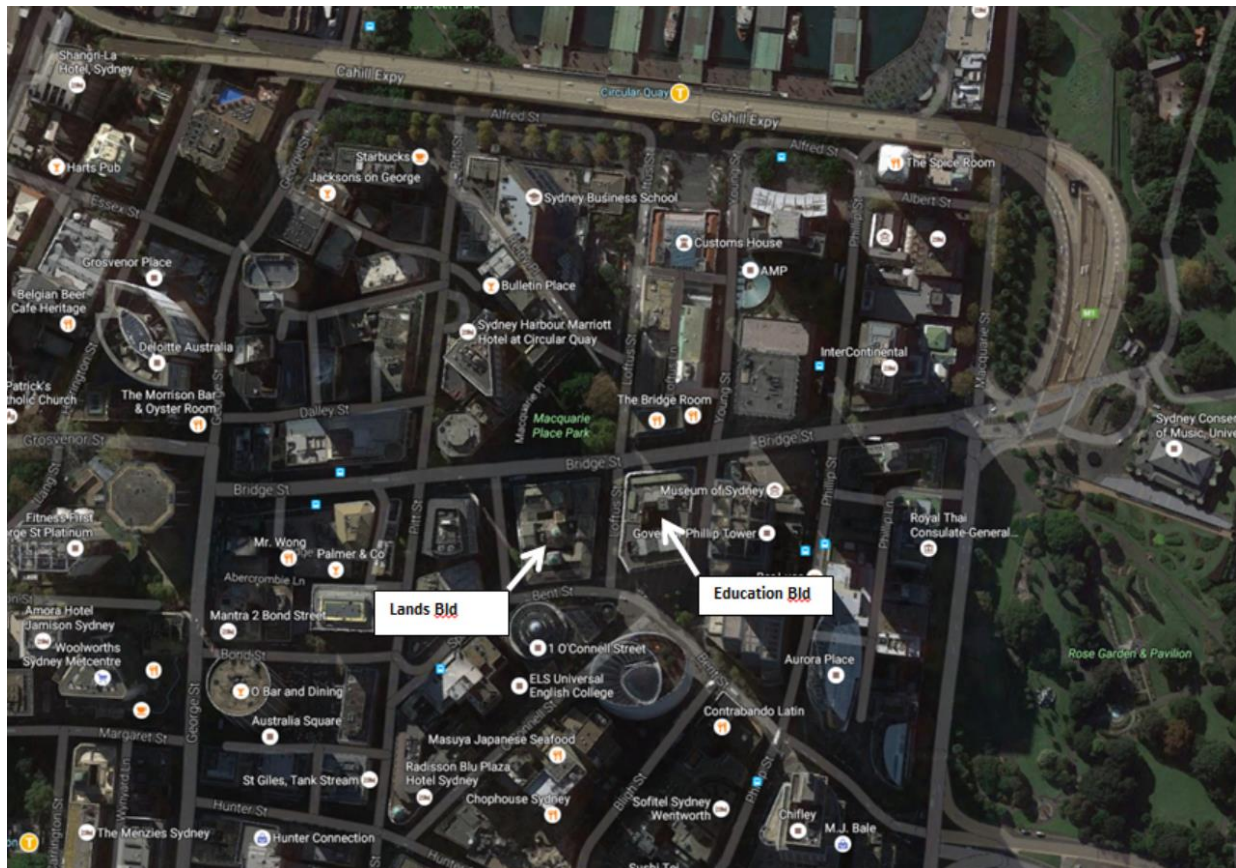
2 OVERVIEW OF PROJECT

2.1 Location of Site

The Sandstones Precinct is located in the Sydney CBD having a boundary with Bridge Street to the north, Bent Street to the south, Young Street to the east, Gresham Street to the west and Loftus Street intersecting the 2 buildings. Generally high traffic volumes can be expected in the area surrounding the Sandstones precinct particularly in the morning and afternoon peak times.

The site is surrounded on all sides by commercial buildings with the closest (1 O'Connell Street) within 10m of the site boundary. The commercial buildings are a mix of offices, hotels, retailers, restaurants and bars, some of which have outdoor areas. There are also numerous public spaces including footpaths accommodating high numbers of pedestrians within 1m on all boundaries of the site as well as Macquarie Park to the north of the Lands Building and Farrer Place to the south where people may congregate.

In addition other notable features of the local environment include; Sydney Harbour (Circular Quay) located approximately 250m to the north of the site boundary and the Royal Botanic Gardens located approximately 250m to the east of the site.



2.2 Summary of Proposed Works

The Sandstones Precinct redevelopment is generally expected to retain the sandstone base of both the Lands and Education buildings and hence it is expected that minimal external demolition will be undertaken. Construction work to the exterior will consist mainly of façade additions and roof extensions.

In contrast the interiors will undergo more extensive demolition and construction works to transform the interiors from government offices into hotels rooms, restaurants, bars, retail arcades, function rooms and conference facilities.

3 REGULATORY REQUIREMENTS

Legislative requirements, codes of practise and guidelines relating to the management of air quality during construction and demolition include but are not limited to:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Protection of the Environment Operations Act 1997 (POEOA);
- Protection of the Environment Operations (Clean Air) Regulation 2010 (POEO (Clean Air) Regulation 2010);
- National Environmental Protection Measure for Ambient Air Quality (Air NEPM);
- NSW EPA Local Government Air Quality Toolkit, Visual Guide: Dust from urban construction sites;
- AS/NZS 3580.1.1:2007 Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment OR AS 2922-1987 Ambient Air – Guide for the siting of sampling equipment;
- AS/NZS 3580.10.1:2003 Methods for sampling and analysis of ambient air – Determination of particulate matter – deposited matter – gravimetric method;
- Approved methods for the Sampling and Analysis of Air Pollutants in New South Wales (NSW DEC, 2006);
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (NSW DEC, 2005);
- Guidance on the assessment of dust from demolition and construction (IAQM 2014). This provides guidance on how to assess the sensitivity of receptors and the risk of impact on those receptors due to the various components of the project construction.

4 POTENTIAL AIR QUALITY IMPACTS

The dominant air quality impacts expected from the demolition and construction work at the Sandstones Precinct are as follows:

- Demolition and construction dust (dust assumed to be of low inherent toxicity)
 - Generated by most demolition and construction activities;
 - May cause dust deposition on surfaces, visible dust plumes and temporary elevation of particulate matter (PM10) concentrations;
 - Potential effects on receptors include; adverse health effects, damage to property, complaints and public outrage, impact on water quality and vegetation.
- Hazardous dusts and fibres (dust containing; asbestos fibres, lead, synthetic mineral fibres)
 - Generated during demolition of hazardous materials;
 - May cause exposure of people exceeding health based exposure limits;
 - Potential effects on receptors include; serious health effects.
- Exhaust emissions from vehicles and machinery (carbon monoxide (CO), sulphur dioxide (SO₂), oxides of nitrogen (NO/NO₂) and fine particulates)
 - Generated by machinery and vehicles used on site as well as delivery vehicles;
 - May cause elevation of atmospheric concentrations of greenhouse gases, visible smoke plumes, odours, temporary elevation of exhaust gas and fine particulate concentrations;
 - Potential effects on receptors include; adverse health effects, damage to property, complaints and public outrage, impact on water quality and vegetation and impact on climate change.
- Ozone depleting gas emissions (refrigerant gases)
 - Generated by release of refrigerant gases during decommissioning of HVAC and refrigeration systems;
 - May cause elevation of atmospheric concentrations of greenhouse gases;
 - Potential impact on climate change.

5 SENSITIVE RECEPTORS

Sensitive receptors likely to be impacted by the demolition and construction work at the Sandstones Precinct are as follows:

- People – high numbers of people in close proximity to the site including pedestrians, people in outdoor spaces such as parks and restaurants, road users, people in indoor spaces such as commercial buildings, hotels, education facilities, medical facilities and residences. Likely to include the very young and elderly people.
- Property – private and public buildings and facilities surround the site on all sides.
- Environmental receptors – Sydney harbour approximately 250m to the north and the Royal Botanic Gardens approximately 250m to the east and more broadly the local atmosphere and climate.

6 MITIGATION OF AIR QUALITY IMPACTS

- General management recommendations.
 - Develop and implement a detailed Construction Air Quality Management Plan specific to the site and the proposed demolition and construction work. This plan should be integrated into the Construction Environmental Management Plan and developed in consultation with relevant stakeholders.
 - Carry out regular inspections and audits to ensure compliance with the Construction Air Quality Management Plan
- Management of demolition and construction dust.
 - Identify activities that are likely to generate dust and implement appropriate dust control measures for dust generating activities to minimise dust emissions from the site boundaries;
 - Delineate dust generating activities to specific areas where possible;
 - Use water sprays where appropriate;
 - Use enclosed rubbish chutes;
 - Use filtered ventilation where appropriate;
 - Ensure waste removal and delivery trucks have covered loads at all times when in motion;
- Management of hazardous dusts and fibres
 - Identify and remove hazardous materials prior to general demolition and construction works where possible;
 - Remove hazardous materials in accordance with relevant legislation, guidelines and standards. Refer to the hazardous materials management plan.
- Management of exhaust emissions from vehicles and machinery
 - Ensure all vehicles and machinery comply with relevant emissions standards and have all relevant maintenance and registration documentation;
 - Minimise idling when stationary;

- Select battery or electric powered equipment where practical to do so.
- Management of ozone depleting gas emissions
 - Identify and remove ozone depleting gases prior to general demolition and construction works where possible;
 - Ensure only suitably licensed contractors decommission equipment that contains ozone depleting gases;
 - Ensure ozone depleting gases are disposed of at a facility licensed to receive them.

7 AIR QUALITY MONITORING AND PERFORMANCE TARGETS

To ensure the Construction Air Quality Management Plan is being implemented effectively it is recommended that an air quality monitoring program is undertaken to validate compliance with air quality performance targets. This report will discuss general recommendations for air quality monitoring and propose some preliminary performance targets. However, it is recommended that a more detailed study of existing air quality conditions and climatic factors is undertaken prior to commencement of the project in order to obtain baseline conditions and develop the final monitoring program and performance targets.

➤ General recommendations

- Performance targets should as a minimum be in accordance with regulatory air quality standards;
- In the absence of a regulatory limits, performance targets should consider the existing conditions in the area of the site prior to works commencing;
- Monitoring of performance targets may include regular inspections and/or environmental monitoring and measurements;
- Environmental monitoring should be conducted using validated or standard methods where available and where it is practical to do so;
- Air monitoring records should be kept and reviewed regularly by a suitably qualified air quality consultant.

➤ Monitoring and targets for demolition and construction dust

- Visible dust emissions beyond the site boundary should be continually monitored and reported by all site personnel. All instances should be reported and documented. Performance target - no visible dust emitted beyond site boundary;
- Particulate monitoring (PM₁₀ size fraction) to be conducted at the site boundary on a regular basis. Performance target (Air NEPM) – PM₁₀ less than 50 $\mu\text{g}/\text{m}^3$ time weighted average (TWA).
- Dust deposition monitoring to be conducted at the site boundary on a regular basis. Performance target (NSW EPA) – Maximum increase above background 67 $\text{mg}/\text{m}^2/\text{day}$ and

maximum total of 133mg/m²/day

- Monitoring and targets for hazardous dusts and fibres
 - Control monitoring and targets for hazardous materials work areas should be conducted in accordance with hazardous materials management plan.
 - Lead monitoring (assuming remnant urban dust in the building contains lead) to be conducted at the site boundary on a regular basis. Performance target (Air NEPM) – Lead concentration less than 0.5ug/m³ TWA.
- Monitoring and targets for exhaust emissions from vehicles and machinery
 - Exhaust monitoring (CO, NO₂ and SO₂) to be conducted at the site boundary on a regular basis. Performance target (Air NEPM) – CO concentration less than 9ppm TWA and NO₂ less than 0.12ppm TWA.
- Monitoring and targets for ozone depleting gas emissions
 - Audit tipping documentation to ensure that the amount of gas removed from the site is equal to the amount received by the licensed waste disposal facility.

DISCLAIMER

CETEC has taken all reasonable care to ensure that the information contained in this report is accurate. The report is based on data and information collected by CETEC personnel during location visits and information accepted in good faith from various personnel associated with this work. However, no warranty or representation can be given that the information and materials contained in it are complete or free from errors or inaccuracies.

CETEC accepts no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omissions, misinterpretation or fraudulent acts of the persons interviewed or contacted.

To the extent permitted by applicable laws, CETEC accepts no liability for any decision, action, loss, damages or expenses of any kind including without limitation, compensatory, direct, indirect or consequential damages, loss of data, income or profit, loss of or damage to property, or claims by third parties howsoever arising in connection with the use or reliance on the information in this report. This exclusion of liability shall also apply to damages arising from death or personal injury potentially caused by the negligence of CETEC or any of its employees or agents.

By viewing this report, you are acknowledging that you have read and agree to the above disclaimer.

COPYRIGHT

The material in this report is protected by copyright, which is owned by CETEC. Users may view, print and download the contents for personal use only and the contents must not be used for any commercial purposes, without the express permission of Tristar Sandstone Pty. Ltd. and CETEC. Furthermore, the material in this report, or any part of it, is not to be incorporated or distributed in any work or in any publication in any form without the permission of Tristar Sandstone Pty. Ltd. and CETEC.