HEGGIES

REPORT 10-6757-R3

Revision 2

Frasers Broadway Site Concept Plan

Daylighting Report

CONFIDENTIAL

PREPARED FOR

Frasers Broadway
C/- Incoll Management Pty Ltd
Level 1, 73 Miller Street
NORTH SYDNEY NSW 2060

20 MAY 2008

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Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

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Daylighting Report

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EXECUTIVE SUMMARY

Heggies Pty Ltd (Heggies) has been commissioned by Incoll Management Pty Ltd on behalf of Frasers Broadway to prepare a Daylighting Study for the Frasers Broadway Site Concept Plan (Frasers Broadway).

This study is required to assist in the preparation, lodgement and approval of a Concept Plan for the Frasers Broadway site.

Solar access within the Frasers Broadway site has been assessed using a methodology prepared by Cox Richardson and Alexander Tzannes Associates (COX/ATA).

On the basis of the current Solar Access Analysis of the development (residential components), Heggies has concluded the following:

- The proposed Frasers Broadway Site Concept Plan was found to provide 70.7% of the residential development with 2 hrs sunlight on the Winter Solstice day (21 June), between the hours of 7.30 am to 4.30 pm, utilising the COX/ATA apartment count methodology, with a 'sampling rate' of 15 minute intervals.

TABLE OF CONTENTS

TABLE OF CONTENTS

1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been commissioned by Incoll Management Pty Ltd on behalf of Frasers Broadway to prepare a Daylighting Study for the Frasers Broadway Site Concept Plan (Frasers Broadway).

This study is required to assist in the preparation, lodgement and approval of a Concept Plan for the Frasers Broadway site.

Solar access into residential buildings within Frasers Broadway site has been assessed using a methodology prepared by Cox Richardson and Alexander Tzannes Associates (COX/ATA) for the analysis of solar access into residential buildings.

2 SOLAR ACCESS TO RESIDENTIAL BUILDINGS

2.1 Daylighting Considerations

The following regulations are relevant to the assessment of the daylight access into residential components of the proposed development:

- Central Sydney Development Control Plan 1996, updated January 2002.
- State Environmental Planning Policy (SEPP) 65 supported by the Residential Flat Design Code - Part 03 Building Design, 'Rules of Thumb'.
- "Effective Sunlight" – Technical Bulletin 13 Sunlight Indicators (TB13) published by the NSW Planning and Environment Commission.

Solar access controls contained in the above have been assessed by Cox Richardson and Alexander Tzannes Associates (COX/ATA) and formulated into a methodology for the analysis of solar access into residential buildings. The method is described in the COX/ATA report *"Residential Design Amenity COX/ATA Solar Analysis Technique – as applied to the CUB Site, Chippendale"* (13 January 2006 – Revision B Draft).

The COX/ATA method has particular application to the assessment of solar access for residential apartment buildings, at preliminary stages of design, to predict the likely distribution of solar access throughout the often complex and dense development forms and where the final design has not been determined.

It uses a structured series of assumptions to develop a three-dimensional model, which can be evaluated to provide a reasonable prediction of solar access. The three-dimensional model of the development's all 15 minute intervals between 7.30 am and 4.30 pm on the Winter Solstice day (21 June).

The assessment parameters, design assumptions and assessment techniques in the COX/ATA report have been followed. The appropriateness of the proposed residential buildings to meet a reasonable normative target using the COX/ATA methodology is assessed.

Using the COX/ATA methodology, the following parameters must be achieved for compliance recommended by the Residential Flat Design Code (RFDC):

- A proportion of 70% apartments is required to comply within the whole development.
- The date of 21 June (Winter Solstice) at which compliance is assessed; and
- The minimum required period of 2 hours sunlight to each dwelling.

2.2 Solar Access Analysis

Using the 3D AutoCAD drawings package (645-amendedcp-080430-DWG) provided by the project team on 27 April 2008, sun's eye view diagrams were generated for each 15 minute interval between 7.30 am and 4.30 pm on the Winter Solstice (21 June).

The apartments were modelled in AutoCAD assuming a uniform apartment size of 75 m² net internal area, except for the following buildings:

- Residential Block 3B for which detailed floor plans were provided by TZG Architects. TZG design allows for the apartments to run through the building, i.e have an east and a west elevation. Therefore, the bulk of apartments will receive 2 hours sun.
- Residential Block 5 (5A and 5B) for which indicative floor plans were provided by Johnson Pilton Walker. Heggies daylighting study is based on 9 units/floor on Block 5B, 6 of which face east and the remaining 3 units face west. The bulk of apartments in Block 5A will have living area facing west over the park to maximise the number of living areas facing the sunniest side of the building.

In this way (and in the absence of detailed information regarding apartment distribution) the total number of residential apartments was estimated for all facades of all residential buildings in the proposed development.

The number of apartments with at least 2 hours sunlight between 7.30 am and 4.30 pm on the Winter Solstice day (21 June) was then assessed to determine compliance with relevant criteria.

Sun's Eye View diagrams prepared for each 15 minute interval between 7.30 am and 4.30 pm on the Winter Solstice (21 June) are shown in **Appendix A**. The buildings outlined in **bold red lines** represent residential apartment buildings.

Table 1 below provides a summary of the unit counts that comply with the prescribed solar access requirements for each residential building within the development. Only the Residential Blocks of the proposed development are included in **Table 1** as the COX/ATA solar access analysis methodology is specifically for residential development.

2.3 Summary of Daylighting Results

On the basis of the current Solar Access Analysis of the Frasers Broadway Site Concept Plan, Heggies has concluded the following:

- The proposed Frasers Broadway Site Concept Plan was found to provide 70.7% of the residential apartments in the development with 2 hours sunlight on the Winter Solstice between the hours of 7.30 am to 4.30 pm, utilising the COX/ATA apartment count methodology at a sampling rate of 15 minute intervals.
- The Residential Blocks 2, 3B, 9 and 11B have higher percentages (more than 70%) of apartments with at least 2 hours sunlight.
- Residential Block 5A has the lowest percentage of apartments with at least 2 hours sunlight.

Table 1 Solar Access Summary for each Residential Building within the Development

Block	Residential Floors	Apartments per Building	Total Apartments with 2 hours or more sun on the 21 June Winter Solstice	Percentages%
		Winter Solstice - 21 June / 22.5 Results between 7.30 am and 4.30 pm		
2	29	440	358	81.4%
3B	6	28	28	100.0%
5A	7	108	39	36.1%
5B	16	144	83	57.6%
8	9	114	60	52.6%
9	25	260	219	84.2%
11A	8	160	88	55.0%
11B	10	72	62	86.1%
	Total	1326	937	**Average 70.7%**

Figure 1 and **Figure 2** show the portion of the Residential Blocks' facades with 2 hours or more sunlight coloured in **yellow**. Note that all the south façades do not achieve the minimum of 2 hours sunlight.

Figure 1 North East View of the Proposed Development with the Residential Facades with more than 2 Hours of Sun

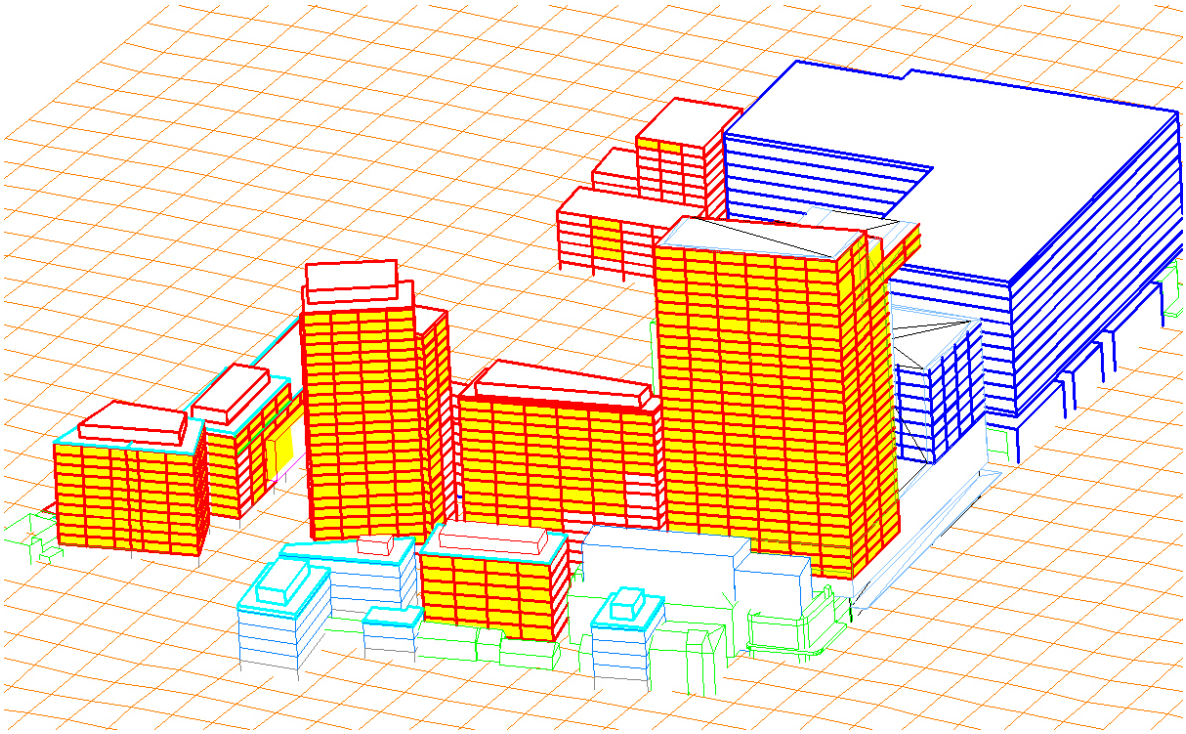

Figure 2 North West View of the Proposed Development with the Residential Facades with more than 2 Hours of Sun