HEGGIES

8 October 2007

10-5947 Stage 1 DA Letter Wind 20071008

Belmorgan Property Development
c/o Urbis
Level 21, 321 Kent Street
SYDNEY NSW 2000

Attention: Mr Paul Williams

Dear Paul

Dwyer-Oxford Site Re-Development, Wollongong CBD
Stage 1 (Dwyers Site Podium) DA Revised Statement

As you are aware, Heggies Pty Ltd (Heggies) has been engaged to assess a range of environmental impacts associated with the proposed Dwyer-Oxford Site Re-Development, including Noise Impacts (acoustics and vibration), ESD and Energy Efficiency, and Wind and Reflectivity.

Recently, we completed a revised wind impact assessment of the entire Oxford-Site project (all stages):

- Heggies Report 10-5947R4, *"Dwyers-Oxford Site Re-Development – Concept Design, 31 Crown Street, Wollongong, Wind Impact Assessment"*.

The enclosed provides an assessment of the wind impact in relation to the Stage 1 component of the development which has now undergone refined design amendments. A Statement of Commitments in relation to wind amelioration initiatives is also included.

If any further information is required at this stage, please do not hesitate to call.

Yours Sincerely

PETER GEORGIOU
Director

HEGGIES PTY LTD
ABN 29 001 584 612
2 Lincoln Street Lane Cove NSW 2066 Australia
PO Box 176 Lane Cove NSW 1595 Australia
Telephone 61 2 9427 8100 Facsimile 61 2 9427 8200
Email sydney@heggies.com Website www.heggies.com
Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

1 DWYERS-OXFORD SITE CONCEPT DESIGN WIND IMPACT ASSESSMENT

Heggies has recently completed a wind impact assessment of the proposed Dwyers-Oxford Site Re-Development - Concept Design option:

- Heggies Report 10-5947R4, *"Dwyers-Oxford Site Re-Development – Concept Design, 31 Crown Street, Wollongong, Wind Impact Assessment"*.

The Concept Design encompasses the following major elements, illustrated in **Figure 1**:

Stage1 – Dwyers Site

- Basement carparking levels B1 - B4.
- Podium retail and commercial Levels 1 – 4.

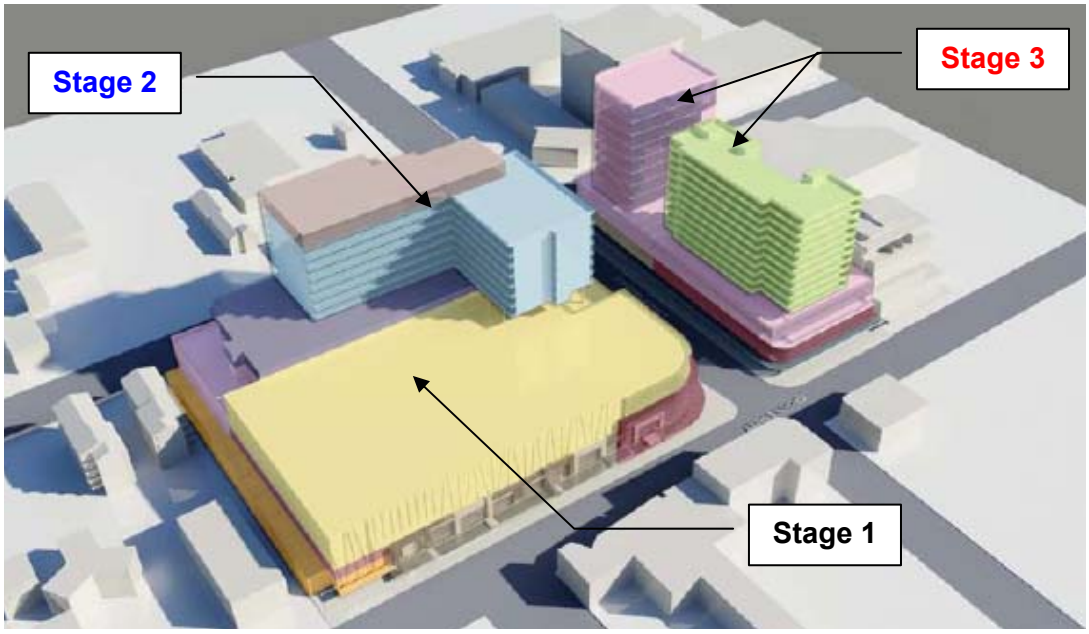
Stage 2 – Dwyers Site

- Hotel Levels 5 - 12 plus Restaurant Level 13.

Stage 3 – Oxford Site

- Basement carparking Levels B1 - B4.
- Podium Office Levels 1 - 4.
- Office Tower Levels 5 - 12.
- Residential Building Levels 5 – 15.

Figure 1 Dwyers-Oxford Site Re-Development Stages Illustration



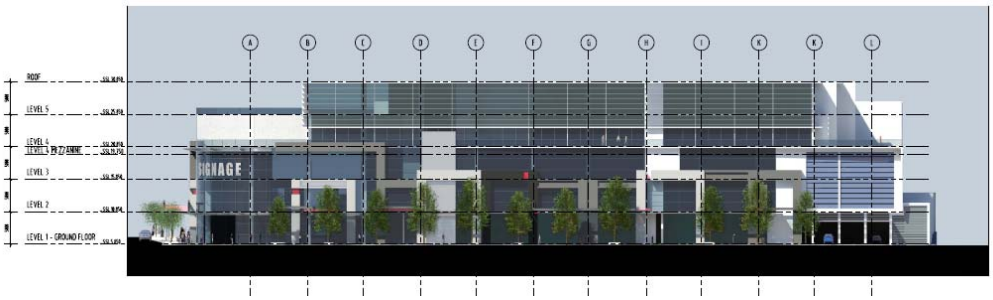
2 STAGE 1 DWYERS SITE DESIGN

Recent refinements have been made to the Stage 1 (Dwyers) component of the redevelopment.

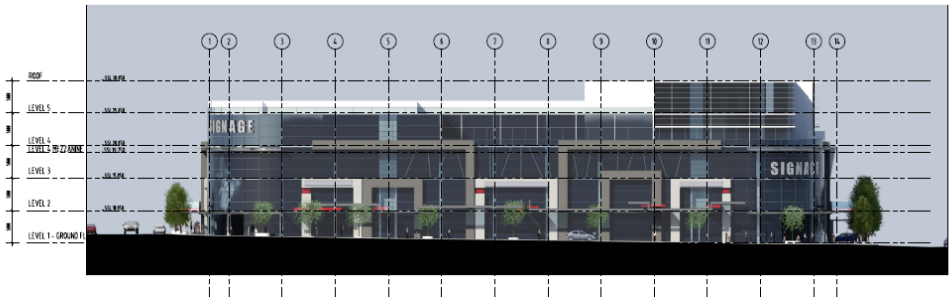
These can be seen in the revised architectural drawings supplied by DBI Design (July 2007) and illustrated **Figure 2.**

Figure 2 Dwyers Site Stage 1 Component of Re-Development

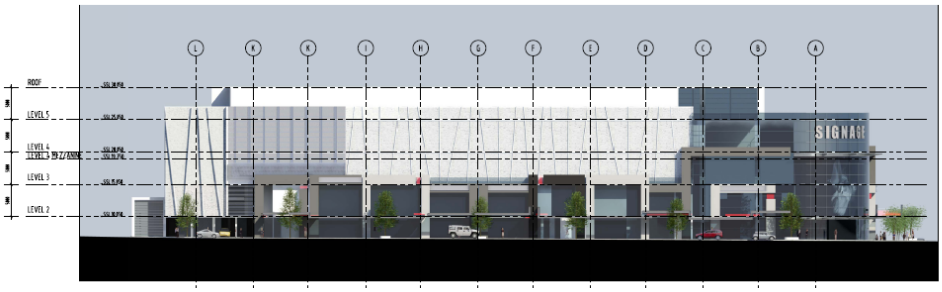
Burelli Street



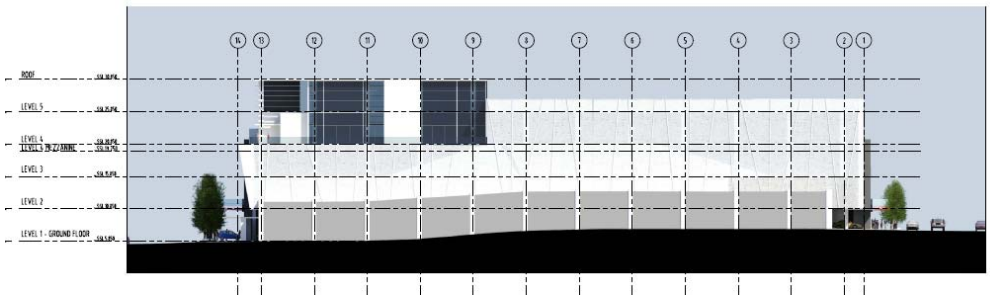
Corrimal Street



Crown Street



East Elevation



3 WIND IMPACT OF THE STAGE 1 DWYERS SITE COMPONENT

3.1 Existing Wind Environment at the Site

Heggies analysis of the Wollongong wind climate and local project site revealed the following characteristics regarding existing wind conditions at the site:

- *Existing* wind conditions on footpaths surrounding the site for ambient northeast and southeast winds will generally be below the 16 m/sec *"Walking Comfort"* criterion with exceedances occurring on a relatively infrequent basis.
- *Existing* wind conditions on footpaths surrounding the site for ambient westerly and southwesterly winds may be approaching the 16 m/sec *"Walking Comfort"* criterion with exceedances occurring on a relatively infrequent basis.
- Taking note of the mainly north-south Corrimal Street alignment, *existing* wind conditions on footpaths surrounding the site for ambient southerly winds may be approaching the 16 m/sec *"Walking Comfort"* criterion with exceedances occurring on a relatively infrequent basis.

3.2 Future Winds – Predicted Windflow Patterns for Prevailing Wind Directions

Heggies has analysed the likely impact of the redevelopment on prevailing local wind conditions on the basis of best engineering judgement and on the experience gained from model scale wind tunnel testing of a range of developments of similar magnitude to the currently proposed redevelopment.

In terms of the *future* wind environment with the proposed redevelopment, the following areas were noted as being of most significance:

- Footpath locations on Burelli Street at the entry point to the Dwyers Site Hotel Lobby.
- Dwyers Site Podium areas at the southeast and southwest corners of the Hotel block.
- Oxford Site Podium areas in between the Office and Residential blocks.
- Oxford Site Residential block balconies facing west and southwest.

It is noted that all but the first of the above listing are impacted as a result of the presence of the future taller blocks to be located on the site, namely the Hotel block located on the Dwyers Site podium and the Office and Residential blocks located on the Oxford Site podium.

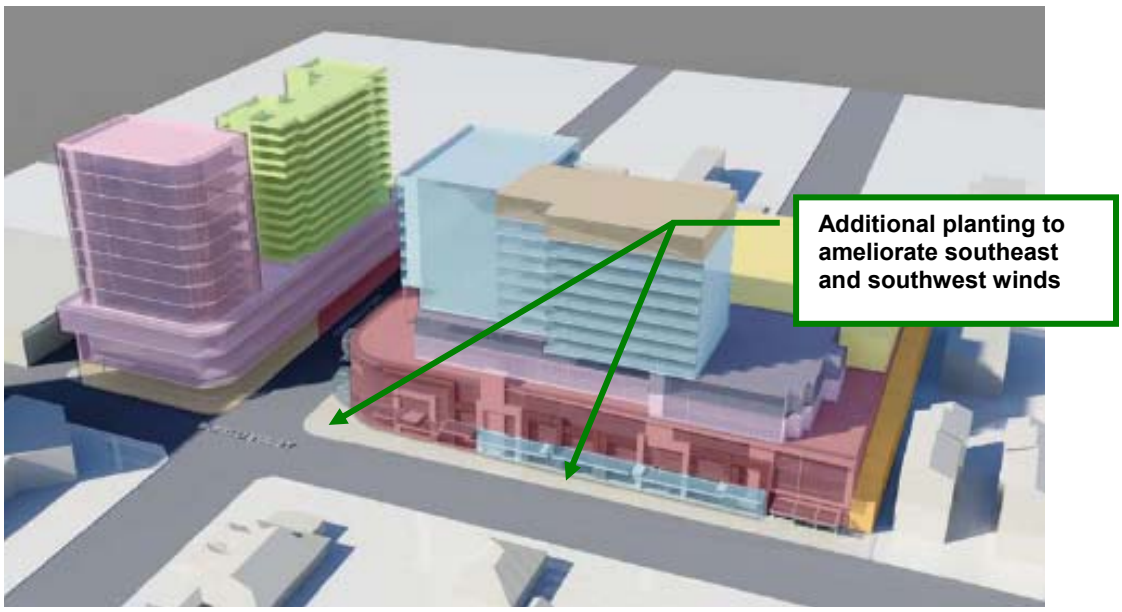
In Heggies Report 10-5947R4, it was noted that landscaping and other windbreak treatments already included in the proposed redevelopment would assist in the preservation of wind amenity both at ground level surrounding the site and upper levels of the development. It was also noted that the actual configuration of wind treatments, eg density, height and layout of landscaping, extend of awnings, etc, would be developed during the detailed design phase of the project and could be assisted (in a quantitative manner) by the use of model-scale wind tunnel testing or Computational Fluid Dynamics (CFD) 3-D modelling to accurately identify all affected areas and to develop cost-effective treatments to ameliorate adverse wind conditions.

On the basis of the above it was concluded that ground levels wind speeds along all surrounding public footpaths would either remain at their present levels or remain below the standard 16 m/sec walking comfort criterion level with the addition of the proposed redevelopment.

4 STATEMENT OF COMMITMENTS RE STAGE 1 DWYERS SITE PODIUM

In relation to the Stage 1 component (Dwyers Site podium), the only treatment deemed relevant to the maintenance of acceptable amenity in relation to wind effects is that related to the addition of planting along Burelli Street to provide added protection to the (future) Hotel block entry point and the southwest corner entry point into the podium's retail areas. These are illustrated in **Figure 3**.

Figure 3 Recommended Wind Amelioration Measures for Stage 1 (Dwyers Site Podium)



4.1 Statement of Commitments – Wind Amelioration

In relation to the Stage 1 component, the developers of the project will ensure that the currently planned windbreak features will be implemented to preserve and enhance the wind amenity of public access spaces surrounding the proposed development

Specifically, this involves the addition of landscaping along Burelli Street to provide enhanced wind sheltering to the currently proposed Hotel block Lobby and the southwest corner public access entry point to the retail areas of the Dwyers Site podium.