Putney Hill

600 Victoria Road, Ryde

Proposed amended Concept Plan Stage

Certification of Additional Block Montages

Report prepared for Fraser Property Australia Pty Ltd
by Dr. Richard Lamb
Date: June 4th 2014

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4th June 2014

Mr Warwick Dowler
Project Director
Frasers Property Australia Pty Ltd
Suite 11, Lumiere Commercial
Level 12, 101 Bathurst Street
Sydney NSW 2000

Dear Sir,

Response to request to prepare and certify accuracy of additional block model montages received from the Department of Planning and Infrastructure 2014

Major Project MP05_0001

Indicative Proposed Buildings in Stage 2, Putney Hill, 600 Victoria Road, Ryde

1 The reason for this response

Richard Lamb and Associates (RLA) have been appointed by Frasers Property Australia Pty Ltd, the Applicant, to assist with a request from the Department of Planning and Infrastructure (the Department) that block model montages be prepared to accurately show the potential massing, bulk and scale of proposed buildings in Stage 2 on the subject site.

RLA specialise in visual impacts assessment and the supervision and certification of the accuracy of photomontages.

Two original photomontages were in 2013 for a previous submission showing the view of the proposed massing from the corner of Morrison Road and Princes Street and from Fernleigh Close, but these have since been modified to reflect proposed changes to the massing of the development made by the Architects, Cox Richardson, in May 2014. These are included in this report and are augmented with two additional block model montages as requested by the Department of Planning and Infrastructure in April 2014.

The amended montages were prepared in May 2014 by DigitalLine and Cox Richardson. They show representative views in the public domain now including a view from the intersection of Gladstone Avenue and Cowell Street looking south towards the proposed site and from the Ryde Bridge on Concord Road looking north east towards the site.

2 Preparation of Block Model Additional Montages May 2014

So as to provide a higher level of certainty with regard to the effects of the amended Concept Plan on views from the adjacent public domain, the Department of Planning and Infrastructure requested that two additional representative block model montages be prepared independently and verified for accuracy.

RLA in consultation with Frasers Property Australia Pty Ltd appointed an independent architectural illustration firm, DigitalLine, to prepare block model montages representing the views from the two initial locations and also the additional two locations requested by the Department of Planning and Infrastructure.

The process outlined below is the standard method undertaken by RLA in respect of instructing and supervising the preparation of accurate block model montages and was followed in respect of all four photo montages. .

Dr Richard Lamb (RL) visited the Putney Hill Stage 2 site in May 2014 to determine the most appropriate locations from which photographs would be taken for preparation of amended montages from two viewing locations and two additional montages, to show indicative proposed building envelopes and massing.

RL identified locations and took photographs from two additional montage locations in May, being 'Location 1' from the corner of Gladstone Avenue and Cowell Street and 'Location 2' from the Ryde Bridge on Concord Road. RL identified points and features to be surveyed in each view and marked the copies of the photographs accordingly as instruction for the surveyors Linker Barker.

These instructions include the requirement to survey fixed features such as light poles, existing buildings etc. to be used to establish accurate 3D references to the existing survey plan and 3D model of existing approved buildings, which in turn are referenced to the 3D model of the proposed new buildings. .Subsequently RL and Linker Barker attended each camera location together to ensure that all required information was surveyed and recorded accurately.

At both places from which photographs were taken, the camera location and height of the lens above natural ground level was surveyed (see survey data attached to this report). At each of the locations, a minimum number of five 3D reference mark objects identified by RL was cross checked on the photographs taken on 1st May. The surveyors also took photographs for their own use and reference, but these have not been used to prepare montages. The 3D reference mark objects identified and marked on the photographs were later surveyed accurately and added to the electronic survey files by Linker Barker along with the location and RLs of the camera. The DWG files of the survey with the extra 3D reference markers were then provided to DigitalLine.

High definition photographic images were taken by RL using a Canon Eos 5D Mark 2 full-frame Digital Single Lens Reflex (DSLR) camera, using a tripod to standardise the eye height at the conventional 1.55m height and a self levelling head to ensure that the camera was horizontal in both horizontal and vertical planes. The images at 22.2 mega pixels provide a very high resolution image in which the 3D reference mark features identified for survey can be easily discerned.

Because of the distance and height of the buildings relative to the camera position in the Morrison Road and Fernleigh Close views, it was necessary to use a wide angle lens in those instances only. A standard 50mm focal length lens which is recommended for general landscape work and which was used for the other more distant views would not be able to encompass enough of the

vertical field of view for the buildings to be visible in their context. The lens used for the two closer range images was a 24mm wide angle. This is a common focal length used for architectural photography for the reasons set out above.

After the images were downloaded from the camera and the best images chosen to be send to DigitalLine, the images were imported into Corel Draw X5, a vector based drawing program, and the 3D reference markers were located in the images. Linker Barker also marked up photographs with the reference points they had surveyed (examples are attached). The marked up photographs were also supplied to DigitalLine. In this way DigitalLine could refer the reference points to the DWG and plot configuration files of the survey that includes the extra reference marks, provided by Linker Barker.

DigitalLine was provided with a 3D computer model of the proposed amended Master Plan by Cox, in the form of a Sketchup model of each of the proposed massing and the envelopes.

DigitalLine prepared an independent 3D block model of the proposed envelopes and the indicative proposed massing of the proposed buildings in each view. The models do not contain features such as windows and doors, articulating elements, etc. They do however contain everything that is necessary to establish the effect of the building on the composition of views from the specific viewing places required to be modelled.

The two models prepared by DigitalLine (both the envelopes and the massing models) were then merged under RL's direction by Cox Richardson to create one image in the case of the Morrison Road location, so the comparison can be made between the originally proposed envelope, the currently proposed envelope and the proposed massing model.

As the 3D model in this view springs from a location below the camera level, there is a foreground feature that rises into the view between the kerb line and the building, which obscures the base of the proposed massing model and is inside the site, but cannot be removed from the photographs without leaving what appears to be a void in the foreground. This could cause confusion. RL recommended that a simulated landscape render be added by Cox Richardson to the graphic for Morrison Road in the area between the site boundary and kerb line to remove this artefact from view. It has no effect on the accuracy of the montage, but removes the distracting artefact which would otherwise be visible in the foreground of the view.

A statement prepared by DigitalLine, describing the process of preparing the montages and how to establish the accuracy of location of the 3D model with respect to the photographic image, is attached this response. A certification as to the accuracy of the survey work by Linker Barker is also attached.

The 3D models were then merged by DigitalLine with the images provided by RL.

The accuracy of the locations of the 3D model of the buildings with respect to the photographic images was checked in three ways:

1. The model was checked for alignment and height with respect to the 3D reference markers which are visible in the images taken by RL and which were identified on the images send to DigitalLine.
2. The location of the camera was checked using the Camera Match utility in the 3D Studio Max program, which uses five or more match coordinates to back-check the location, the RL of the camera and the focal length of the lens used.

3. Each of the images has five or more 3D reference marks visible. As a result, there are more than the necessary numbers of reference points for cross-checking accuracy in every image.
4. The physical location of the camera and its RL is also independently known. There is therefore a further cross-check that can be performed in the event that the predicted camera location does not match the location calculated by the Camera Match utility in 3D Studio Max. This proved unnecessary, because there was a close match.
5. No significant discrepancies were found between the known camera locations and those predicted by the computer software of the Camera Match utility.
6. This is the most accurate method of aligning a 3D model that is currently used in preparing photomontages of these kinds of developments, as it has three formal and other informal cross-checks.

I can therefore certify on the basis of my supervision of the work, my knowledge of the methods used and the cross-checking that has been carried out, that the montages are as accurate as is possible in the circumstances.

I hope this analysis will assist in providing the information requested by the Department of Planning and Infrastructure and in demonstrating and certifying the accuracy of the block montages.

If you have any questions or require any clarifications, please do not hesitate to call me,

Yours sincerely

Dr Richard Lamb
Richard Lamb & Associates

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Richard Lamb and Associates
Suite 1/134 Military Road
Neutral Bay NSW 2089

Re: Project 600 Putney Hill Stage 2,

28/05/2014

Dear Dr Lamb,

The photomontages provided for the buildings proposed at the property Putney Hill Stage 2, were prepared utilizing the latest technology and the following methodology:

1. Digital Line Pty Ltd was created in Sydney, NSW in November 1998. The company creates 3D computer generated graphics, including photomontages for the analysis of visual impacts of Development Applications..

2. Photomontages created by Digital Line have been successfully used by our clients in Randwick, Woollahra, Waverley and other NSW councils. In 2009 and 2013, Digital Line was announced as a winner of the tender for the preferred supplier of DA photomontages for Randwick City Council.

3. For creating photomontages Digital Line Pty Ltd uses specialized software 3DStudio MAX 2012, created by Autodesk®. Software is licensed and registered with Autodesk®, S/N 391-03075907.

4. We use the “Camera Match utility” for creating the photomontages:
   - 4.1. The following input information was required for creating the photomontages:
     - High resolution digital photograph of the site, taken from each viewing place.
     - Architectural plans and elevations in DWG format.
     - Certified survey plans.
   - 4.2. The Camera Match utility uses a bitmap background photo and five or more special "CamPoint" objects to create or modify a camera match so that its position, orientation, and field-of-view matches that of the camera that originally created the photo.
   - 4.3. An accurate 3d model is created from the architectural drawings and this is then superimposed on the original photograph
   - 4.4. After determining the position of the camera match we check accuracy by comparing the photograph and 3d model with existing objects (such as height poles, buildings, trees, light rail poles and other objects, the locations and heights of which can be derived from survey data)
   - 4.5. For a detailed explanation of the processes involved, please call Digital Line Pty Ltd

5. The “Camera Match utility” currently is the most accurate system for creating images used in the preparation of photomontages.

Sincerely yours,

Leonid Medvedskiy
Director

Surveying Certification by Denny Linker & Co.

CONSULTING SURVEYORS

DENNY LINKER & CO.

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4 June 2014
Our Ref: 110316.07.13

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Attn: Warwick Dowler

Email: *warwick.dowler@fraserspropery.com.au*

Re: Putney Hill Stage 2
Morrison Street, Ryde

Dear Warwick

I hereby certify that the information documented on our "Putney Hill Stage 2 - Photo Montage Control Coordinate Schedule dated 20th May 2014" together with the Photo Location Camera Shots 1 and 2 is a true and accurate representation of the survey work undertaken by my site surveyor Grant Michell.

Grant Michell is a survey technician and has been employed by Denny Linker & Co for 11 months. Grant Michell works under my supervision.

Yours sincerely

Tasy Moraitis

TASY MORAITIS
Director
Denny Linker & Co

LINKER & BARKER PTY. LIMITED A.B.N. 44 002 312 405
DIRECTORS: MARK J ANDREW B.SURV., **TASY MORAITIS** B.SURV.
FOUNDING PARTNER: DENNY LINKER (RETIRED)
MEMBERSHIPS INSTITUTION OF SURVEYORS NSW

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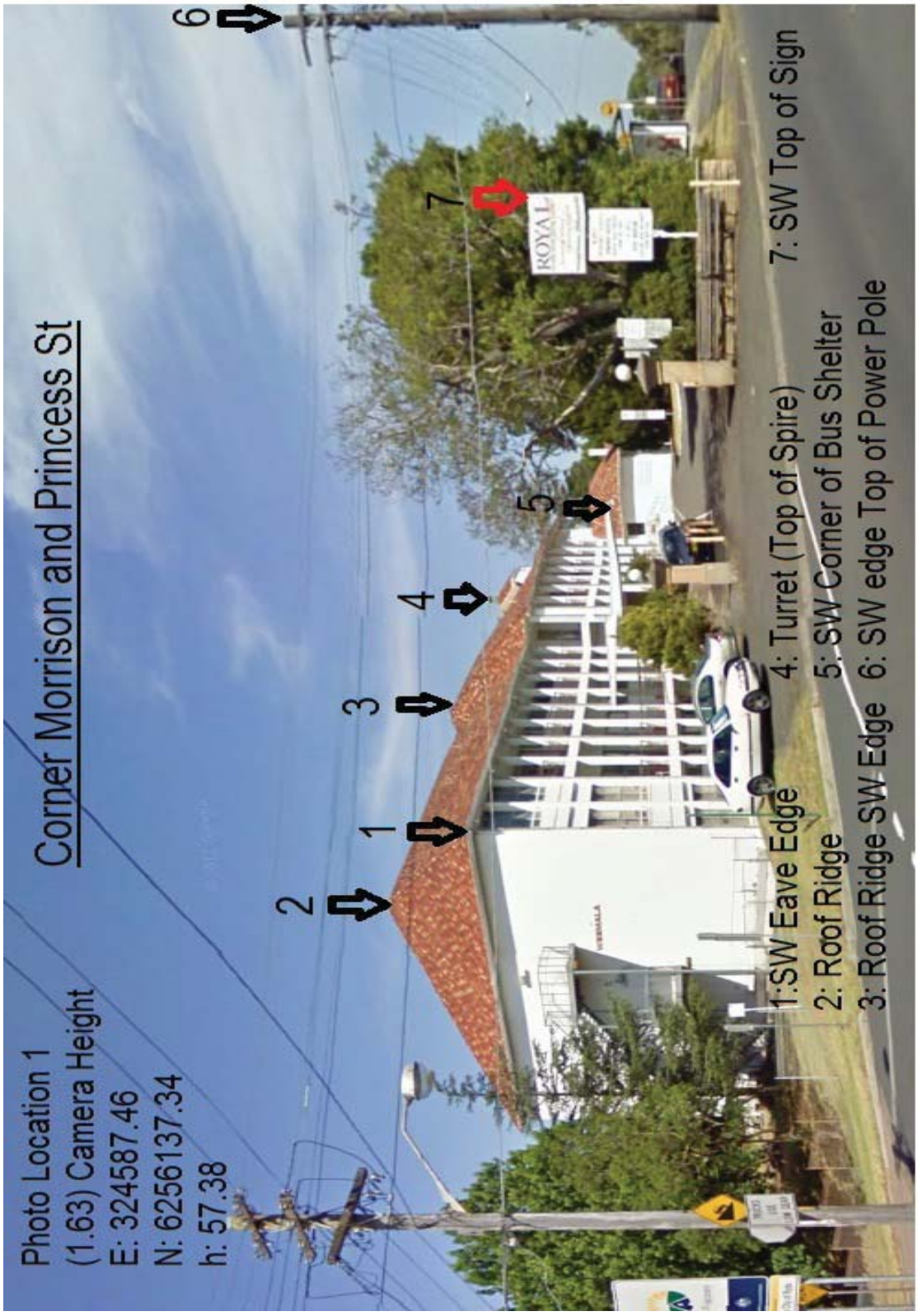
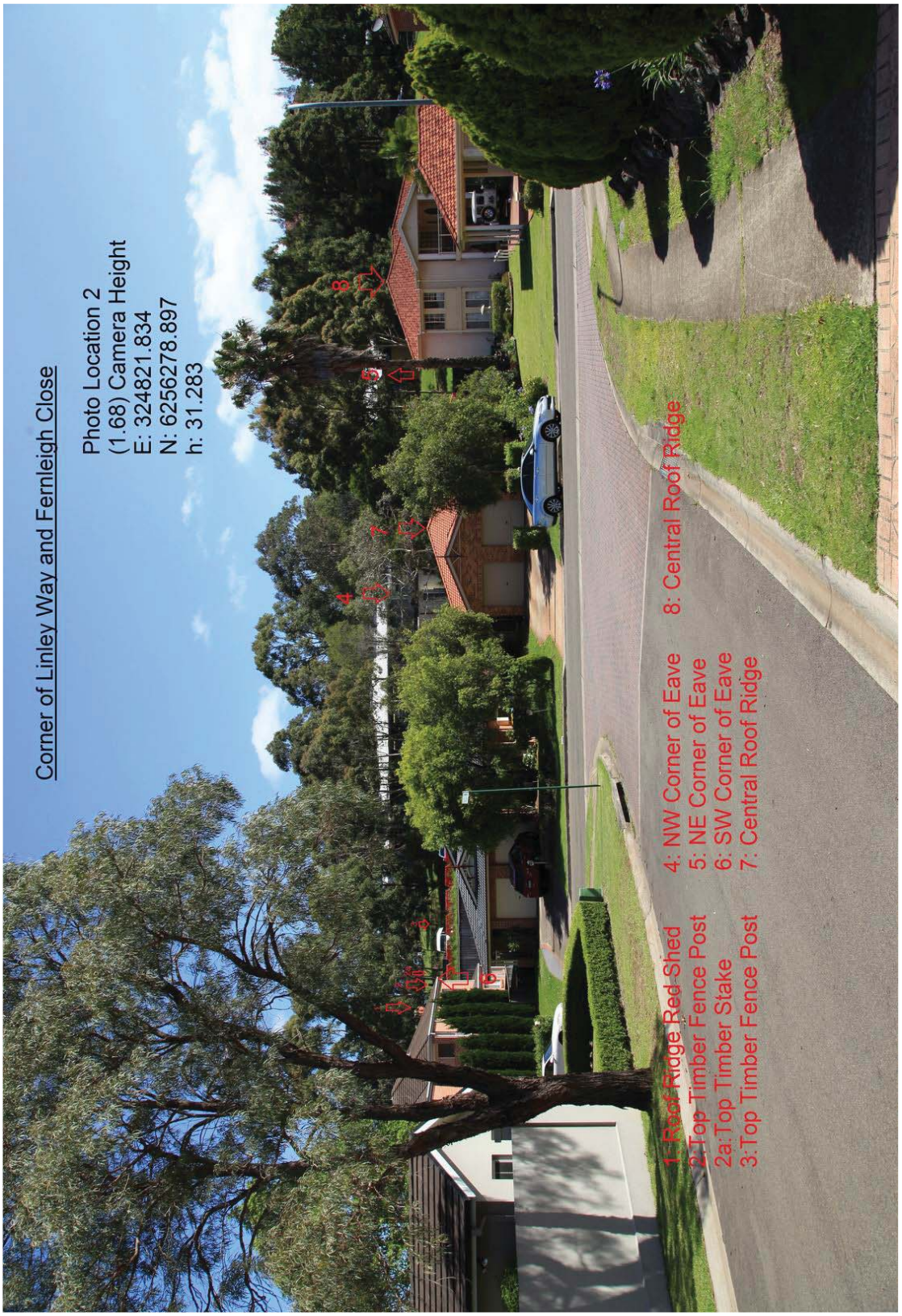
Stage 2 Montage Viewing Locations (Corner of Morrison Road and Princes Street and Fernleigh Close)

Putney Hill Stage 2
Approximate locations of viewing places photographed. Note Google image is not up to date but shows the existing buildings

Stage 2 features to be surveyed (corner Morrison Road and Princes Street)

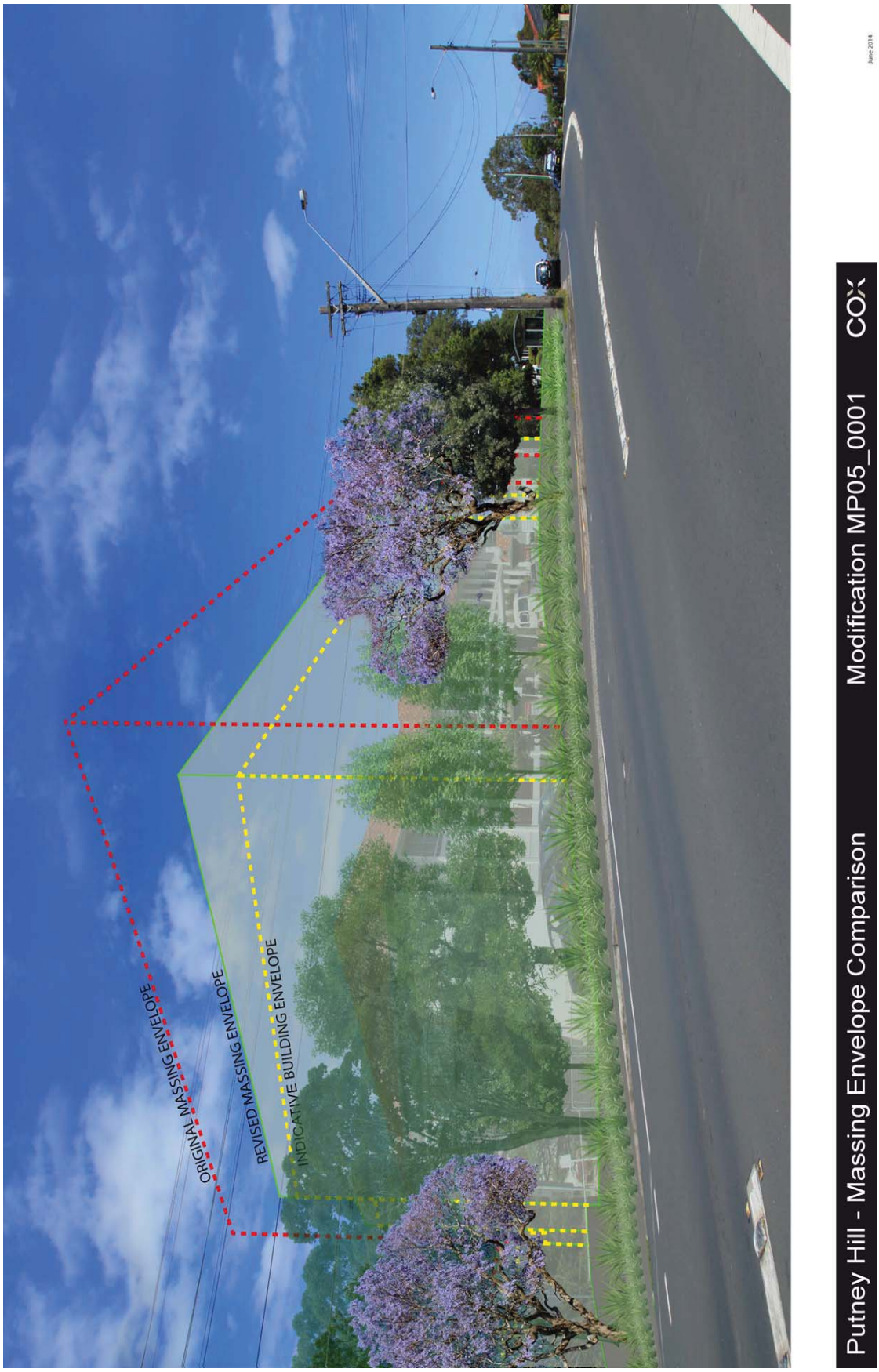


Stage 2 features to be surveyed (Fernleigh Close)



Stage 2 Original Photo by RLA (corner Morrison Road and Princes Street)

Stage 2 Montage of the Proposed Development May 2014 corner Morrison Road and Princes Street



Stage 2 Original Photo by RLA (Fernleigh Close)

Stage 2 Montage of the Proposed Development from Fernleigh Close

Proposed Building Massing

Proposed Envelope

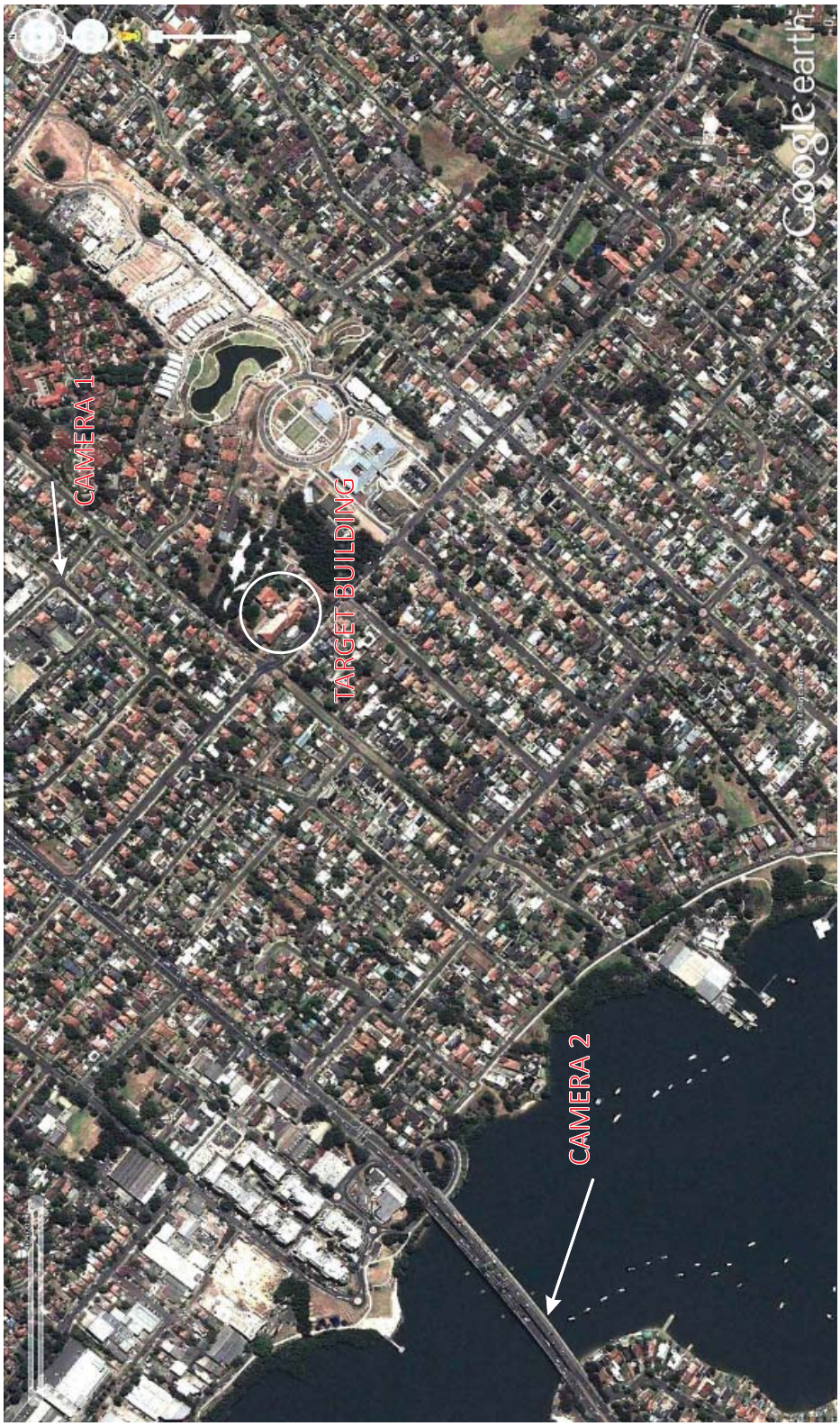
June 2014

Putney Hill - View from Fernleigh Close

Modification MP05_0001

COX

Map of viewing locations for amended montages prepared in May 2014



NORTH

Not to Scale

PUTNEY HILL STAGE 2 2014 EXTRA MONTAGES

rla
richard lamb & associates

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rla
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NORTH

Not to Scale

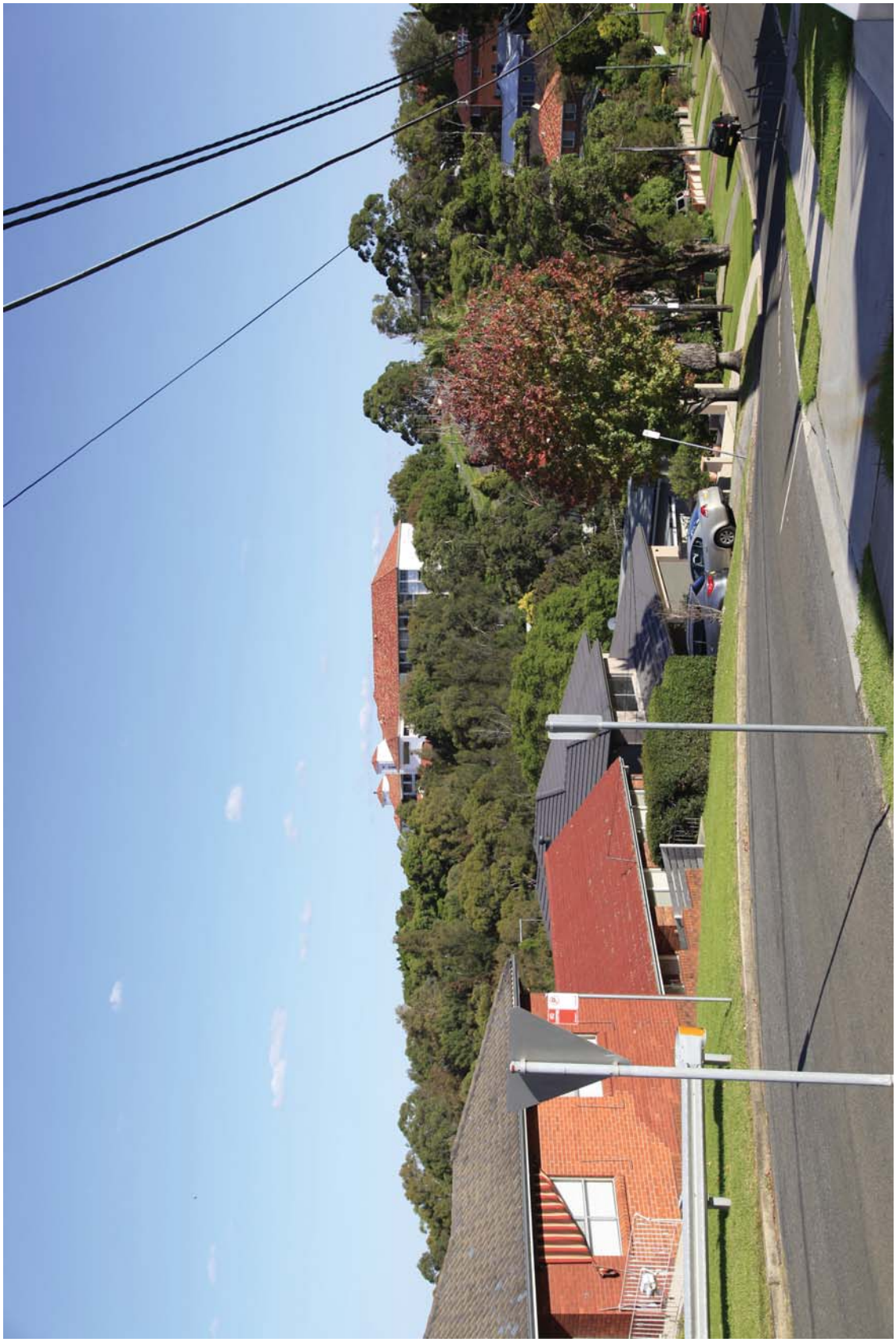
PUTNEY HILL STAGE 2 2014 EXTRA MONTAGES

rla
richard lamb & associates

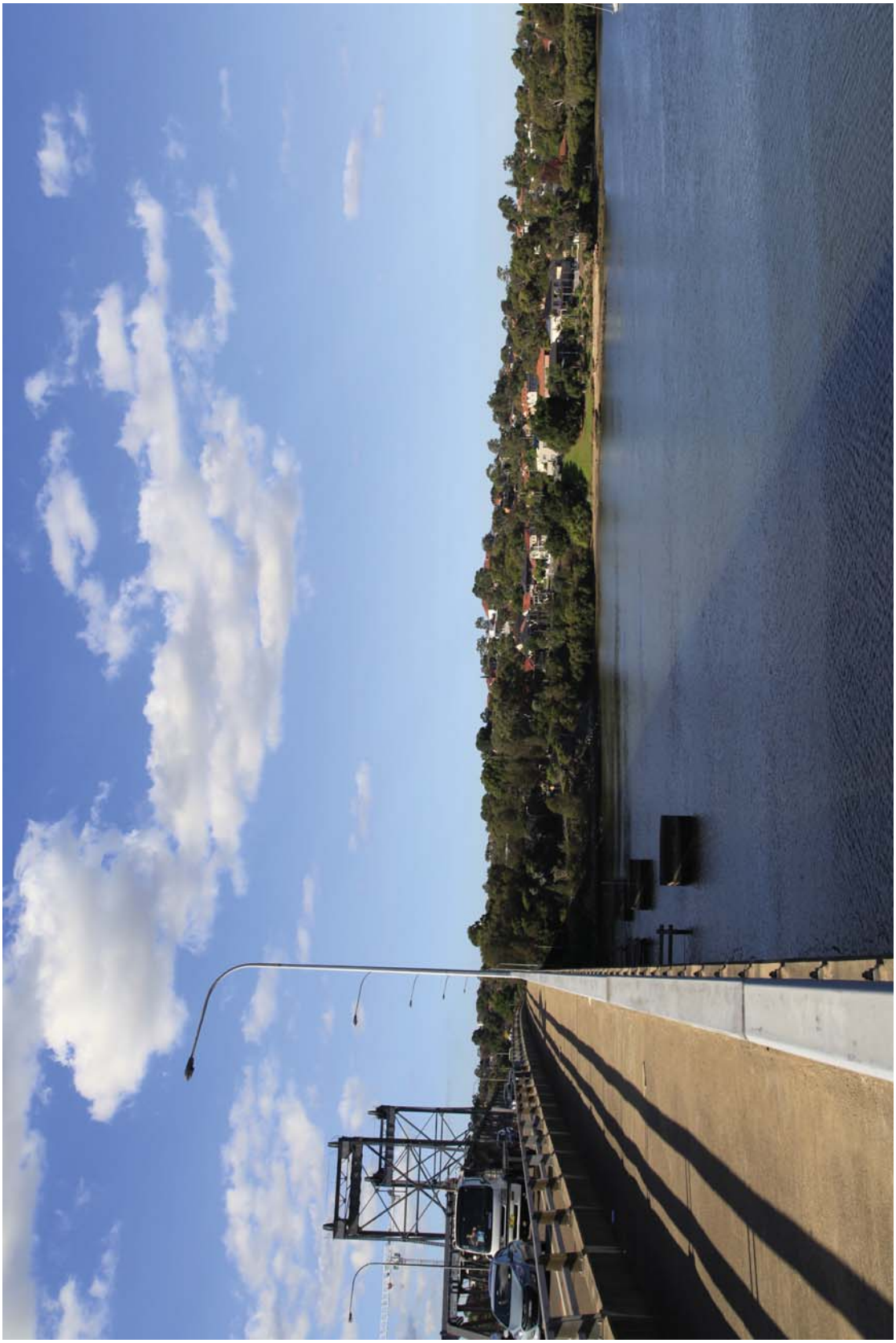
NORTH

Not to Scale

Original Photo by RLA view south from the corner of Gladstone Avenue and Cowell Street



Original Photo by RLA view north east from Ryde Bridge, Concord Road.



Features to be surveyed (Gladstone Avenue and Cowell Street)

Features to be surveyed (Ryde Bridge)

Table showing co ordinates required locations surveyed for Stage 2 amended montages.

Putney Hill Stage 2 -Photo Montage Control

20.05.2014

Gladstone and Cowell, Photo Location 1 (Height of Camera 1.6)				
Point ID	Easting	Northing	Height	Target
Camera Location 1	324704.44	6256432.87	53.38	
Target 1	324711.70	6256400.77	54.83	ROOF RIDGE
Target 2	324692.49	6256090.35	75.43	TURRET
Target 3	324647.32	6256133.62	73.42	ROOF RIDGE
Target 4	324702.64	6256374.30	51.10	ROOF RIDGE
Target 5	324588.97	6256250.90	46.85	ROOF RIDGE

Ryde Bridge, Camera Location 2 (Height of Camera 1.6)				
	Easting	Northing	Height	Target
Camera Location 2	323594.96	6255669.39	10.62	
Target 1	324647.32	6256133.62	73.42	ROOF RIDGE
Target 2	324670.30	6256112.40	73.78	ROOF RIDGE
Target 3	323700.44	6255795.10	35.76	TOP OF BRIDGE

Block Montage from Gladstone Avenue and Cowell Street

Proposed Building Massing

Proposed Envelope

June 2014

Putney Hill - View from Gladstone & Cowell Modification MP05_0001 COX

Proposed Envelope

Proposed Building Massing

Block Montage from Concord Road, Ryde Bridge

Putney Hill - View from Ryde Bridge

Modification MP05_0001

COX

June 2014

Summary Curriculum Vitae: Dr Richard Lamb

Summary

- Professional consultant specialising in visual and herittage impacts assessment and the principal of Richard Lamb and Associates (RLA)
- Senior lecturer in Architecture and Heritage Conservation in the Faculty of Architecture, Design and Planning at the University of Sydne, 1980-2007
- Director of Master of Heritage Conservation Program, University of Sydney, 1998-2004.
- 30 years experinence in teaching and research in environmental impact, heritage and visual impact assessment.
- Teaching and research expertise in interpretation of heritage items and places, cultural transformations of environments, conservation methods and practices.
- Teaching and research experience in visual perception and cognition, aesthetic assessment and landscape assessment,.
- Supervision of Master and PhD students postgraduate students in heritage conservation and environment/behaviour studies..
- Experience in academic empirical research into human aspects of the built environment, in particular aspects of aesthetic assessment, visual perception, landscape preference and environmental psychology.
- Richard Lamb and Associates provides:
    - professional services, expert advice and landscape and aesthetic assessments in many different contexts
    - Strategic planning studies to protect and enhance scenic quality and landscape heritage values
    - Scenic and aesthetic assessments in all contexts, from rural to urban, provide advice on view loss, view sharing and landscape heritage studies.
- Dr Lamb provides:
    - Expert advice, testimony and evidence to the Land and Environment Court of NSW and Planning and Environment Court of Queensland in various classes of litigation.
    - Specialisation in mattes of heritage landscapes, visual impacts, and urban design
    - Appearances in over 150 cases and submissions to several Commissions of Inquiry and the principal consultant for over 400 consultancies.
- Qualifications
    - Bachelor of Science - First Class Honours, University of New England
    - Doctor of Philosophy, University of New England in 1975
    - Accredited Administrator and Assessor, Myers Briggs Psychological Type Indicator
- International Journals for which Publications are Refereed
    - Landscape & Urban Planning
    - Journal of Architectural & Planning Research
    - Architectural Science Review
    - People and Physical Environment Research
    - Journal of Environmental Psychology
    - Australasian Journal of Environmental Management
    - Ecological Management & Restoration
    - Urban Design Review International