BEFORE THE HEARINGS PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER OF Proposed Plan Change E: Roxburgh Residential Area to the Palmerston North City Council District Plan

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STATEMENT OF REPLY EVIDENCE OF DAVID REGAN CHARNLEY ON BEHALF OF PALMERSTON NORTH CITY COUNCIL

SUN STUDIES - 27 TILBURY AVE

Dated: 15 May 2025

REPLY EVIDENCE OF DAVID REGAN CHARNLEY

A. INTRODUCTION

[1] My full name is David Regan Charnley.

[2] I prepared sun studies for 27 Tilbury Avenue on behalf of the Palmerston North City Council (**Council**) for proposed Plan Change E: Roxburgh Residential Area to the Palmerston North District Plan (**PCE**).

[3] My experience and qualifications are set out in the Visual Modelling – Bulk and Form Statement of Evidence also prepared for this plan change.

[4] I repeat the confirmation given in my Statement of Evidence that I have read and will comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023, and that my report has been prepared in compliance with that Code.

[5] The sun studies, initially prepared as a basic digital bulk and form model in early November 2024, were further developed into video animations on November 14th 2024, with these files subsequently transferred to Ms Watson via a third-party service on the 17th November 2024.

[6] My methodology for preparing the sun studies provided to Ms Watson aligns closely with the approach detailed in my Bulk and Form Visual Modelling Statement of Evidence. Key differences include:

- exclusion of any topographic mapping and modelling,
- hours of daylight on June 2021 (winter solstice) being between 7.40am (sunset) to 4.57pm (sunset)
- restriction of subdivision lots to the residential boundary adjoining Tilbury Ave
- exclusion of all other Tilbury Ave dwellings
- use of arbitrary viewpoints
- primary visual outputs of the original sun studies being a series of MP4 video animations
- secondary visual outputs of all sun studies being rendered 2D static images

[7]

[8] June 21 (winter solstice) is set as the date for sun movement in this location. Sunrise being 7.40am, sunset with Key differences include:

B. SCOPE

[9] My reply evidence addresses both the original 1.5m setback sun studies provided to Ms. Watson, and the updated 5m setback sun study agreed upon during pre-hearing meetings with Ms. Watson.

[10] The sun studies aimed to visually communicate the movement of the sun on June 21 and the anticipated shade impact on 27 Tilbury Avenue from adjoining bulk and form possible under the proposed Roxburgh Residential Area performance standards.

[11] Screen shots of the original sun study video animations provided to Ms Watson are included within Appendix 17 of Council's s42A report.

[12] A series of rendered 2D static images of all three sun studies have been prepared and provided to Mr. Guthrie. Please refer to Appendices I – III of this reply evidence.

Original Sun Studies

[13] The two original sun studies provided to Ms. Watson were modelled applying the proposed performance standards of R10.6.1.8 and assumptions as set out in the Visual Modelling – Bulk and Form Statement of Evidence.

[14] <u>Sun Study 01</u>

Model: Single storey dwellings.

Setback: 1.5m from the boundary.

Shade Pattern: Assessing the digital model, **s**hade extends approximately 15m into the north end of 27 Tilbury Ave at approximately 7.46am, moving west to east between approximately 8m-18m into the site until approximately 3.50pm. Shade begins to cover the north-facing façade of the dwelling at approximately 4.05pm, fully covering it by approximately 4.35pm.

Sunlight Duration: Continuous sunlight into the site for almost 9 hours.

[15] Sun Study 02

Model: Two- storey dwellings.

Setback: Approximately 9m from the boundary due to height recession planes.

Shade Pattern: Shade extends approximately 15m into the north end of 27 Tilbury Ave at approximately 7.46am, moving west to east between approximately 9m-21m into the site until approximately 3.35pm. Shade begins to cover the north-facing façade of the dwelling at approximately 3.45pm, fully covering it by approximately 4.25pm.

Sunlight Duration: Continuous sunlight into the site for just over 8.5 hours.

[16] Updated Sun Study (Sun Study 03)

Model: Mixed single and two-storey dwelling**.**

Setback: 5m from the boundary.

Shade Pattern: Shade extends approximately 15m into the north end of 27 Tilbury Ave at approximately 7.46am, moving west to east between approximately 9m-20m into the site until approximately 3.30pm. Shade begins to cover the north-facing façade of the dwelling at approximately 3.45pm, fully covering it by approximately 4.25pm.

Sunlight Duration: Continuous sunlight into the site for just over 8.5 hours.

APPENDIX I – ORIGINAL SUN STUDY 01

APPENDIX II – ORIGINAL SUN STUDY 02

APPENDIX III – UPDATED SUN STUDY 03