

Ref No: R23019
Job Ref. SN8839



GEOFF
NINNES
FONG
PARTNERS
PTY LTD
ABN 56 001 849 289



29th May 2019

Monique Nichols
Senior Sustainability Officer
Environment Resilience & Climate Change
Northern Beaches Council.

Dear Monique,

Re: Structural assessment of solar PV array on roofs at Manly Andrew Boyd Charlton Swimming Centre NSW – Final Report

We have viewed the existing building, and advise that the existing roof structures will be adequate to take the additional load imposed by the proposed solar panels. The existing roof structure that is to carry the loads from the solar panels has been reviewed in accordance with the following Australian standards

- AS4100 – 2002 – Steel Structures
- AS1170.0 – 2002 - Amendment 4 – General principles
- AS1170.1 – 2002 – Amendment 2 - Permanent imposed and other activities
- AS1170.2 – 2001 – Amendment 3 - Wind actions

The roof structure that is available to support the solar panel loads are shown on the attached drawing SK01 & SK02. These drawings show the permissible roof area that the solar panels are able to be placed based on the structural capacity of the roof. The saw tooth roof over the pool hall and the roof over the gym, amenities area is able to support the panel loads.

Assumptions

The following assumptions have been made for the solar panel loads and dimensions (Two examples have been provided)

Example 1

- Solar dimension (LxWxH) = 1640mm x 1000mm x 35mm
Weight = 17.3kg (10.55kg/m²)
- Mounts for solar panel = 3kg/m²
- Solar Panel manufacturer to be confirmed

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Example 2

- Solar dimension = 1956mm x 992mm x40mm
- Weight = 26kg (13.3kg/m²)
- Mounts for solar panels = 3kg/m²
- Solar Panel manufacturer to be confirmed

Solar panels should not exceed 13.4kg/m² refer to attached diagram for increase in spacing between solar panels where load exceeds 10.55kg/m²

Solar Panel layout

Solar panels shall be placed as noted on the attached sketch to allow for the load reductions on the roof and for panel maintenance. Panel layouts will also depend on access to skylights, lights and other areas where maintenance is required. (Refer attached sketches).

The actual layout should be verified by the solar panel contractor.

GNFP to review panel weight/mounts and layout if panel vary from the two examples provided.

Solar Panel fixings

The roof cladding over the pool hall is a kingspan sandwich panel supported by a steel rectangular hollow section (RHS) purlins at approximately 3.5m centres.

Solar panel fixing into the kingspan will need to be discussed with Schletter Australia Pty Ltd fixing to be KingFix 2000. Adjusted height non-adjustable fixings to be coordinated with the solar panel installer.

The roof cladding over the gym amenities building is a conventional colour bond metal deck supported by galvanised steel zed purlins at approximately 1.2 centres

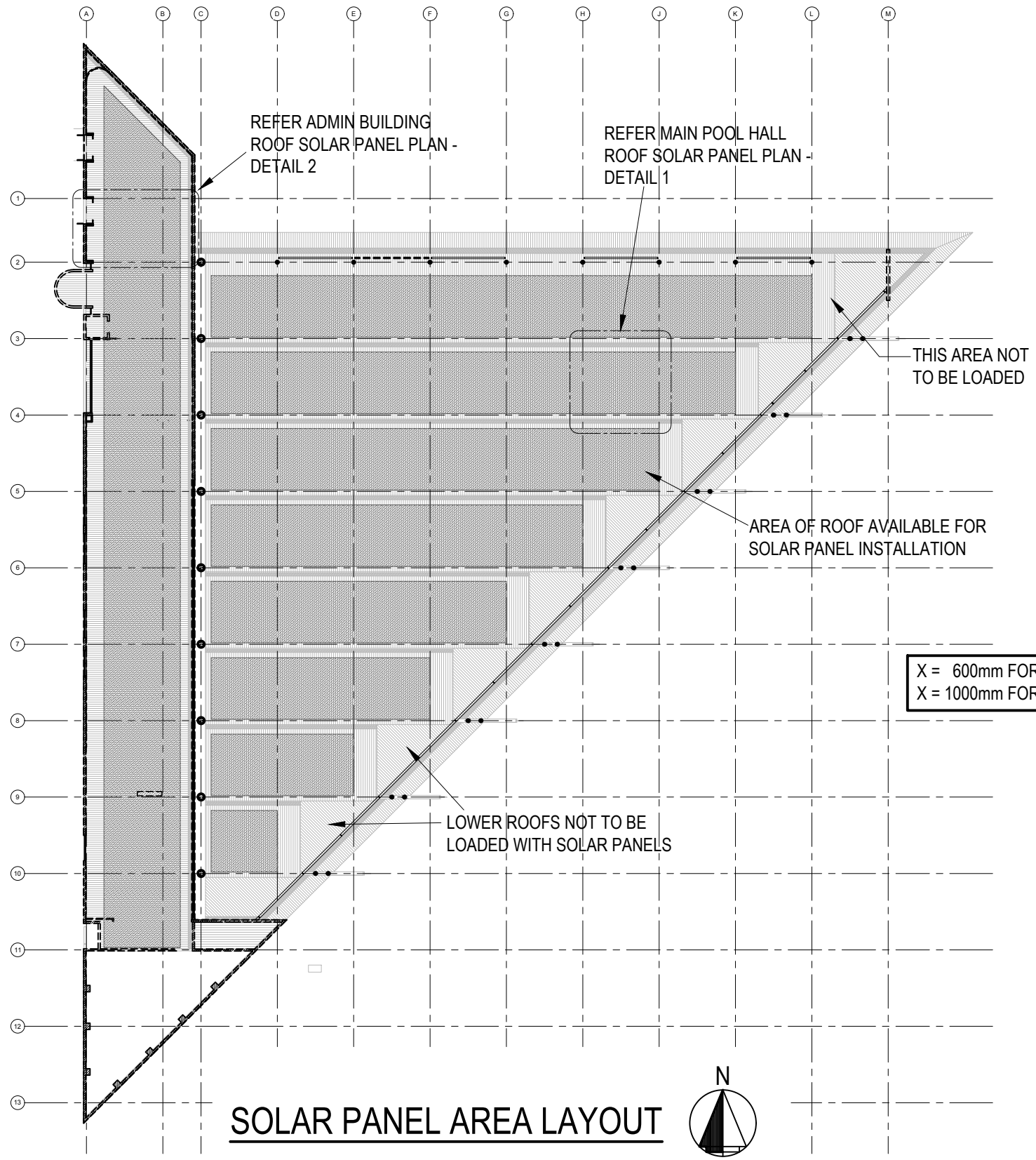
We trust this report explains our observations and recommendation. Should you have any further queries, please do not hesitate to contact the undersigned.

Yours faithfully

FOR & ON BEHALF OF
GEOFF NINNES FONG & PARTNERS PTY LTD

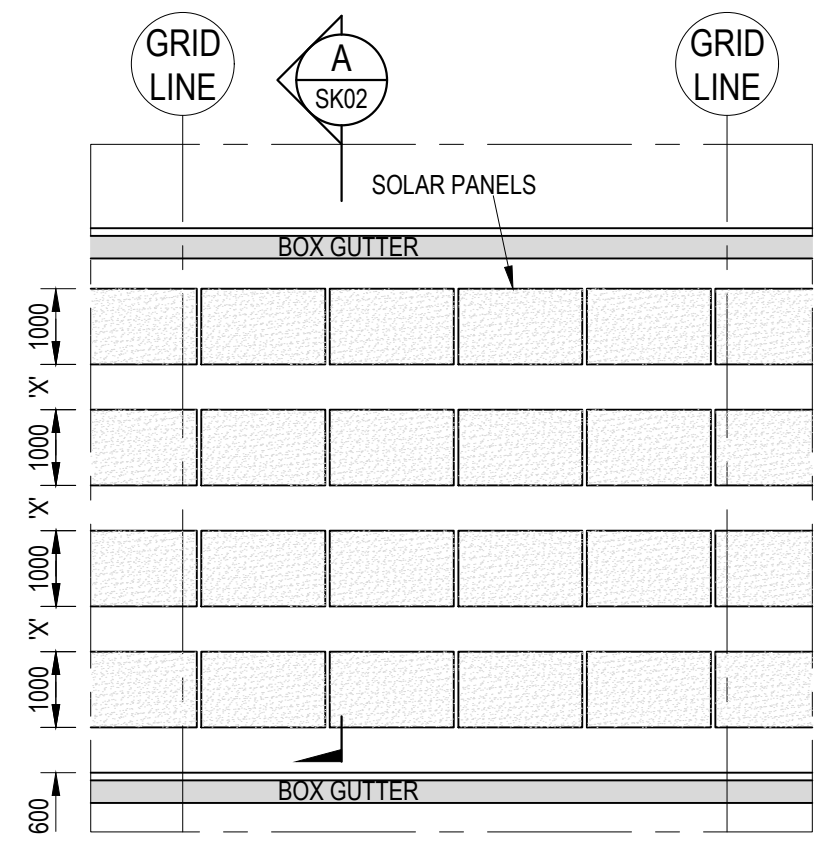


Tony Russo BE (Hons) MIE Aust NER
Associate Structural Engineer



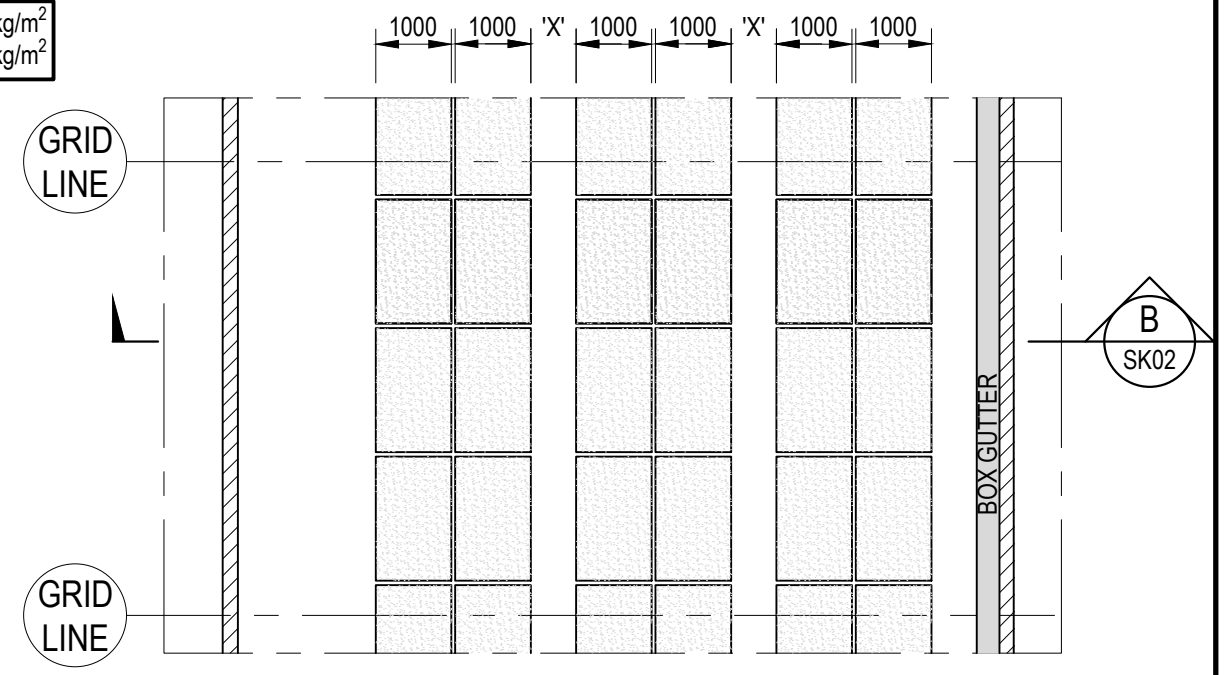
SOLAR PANEL AREA LAYOUT

X = 600mm FOR SOLAR PANELS 10.55 kg/m^2
 X = 1000mm FOR SOLAR PANELS 13.40 kg/m^2



DETAIL 1 - MAIN POOL HALL ROOF SOLAR PANEL PLAN

SCALE = 1 : 100



DETAIL 2 - ADMIN BUILDING ROOF SOLAR PANEL PLAN

SCALE = 1 : 100

A3 ORIGINAL SIZE J:\JOB23-7700-7799\SN7718-MANLY POOL\STRUCTURAL\SN7718-SOLAR PANEL SETOUT.dwg

REV No.	Engineer	Revision Description	Amended By	Date

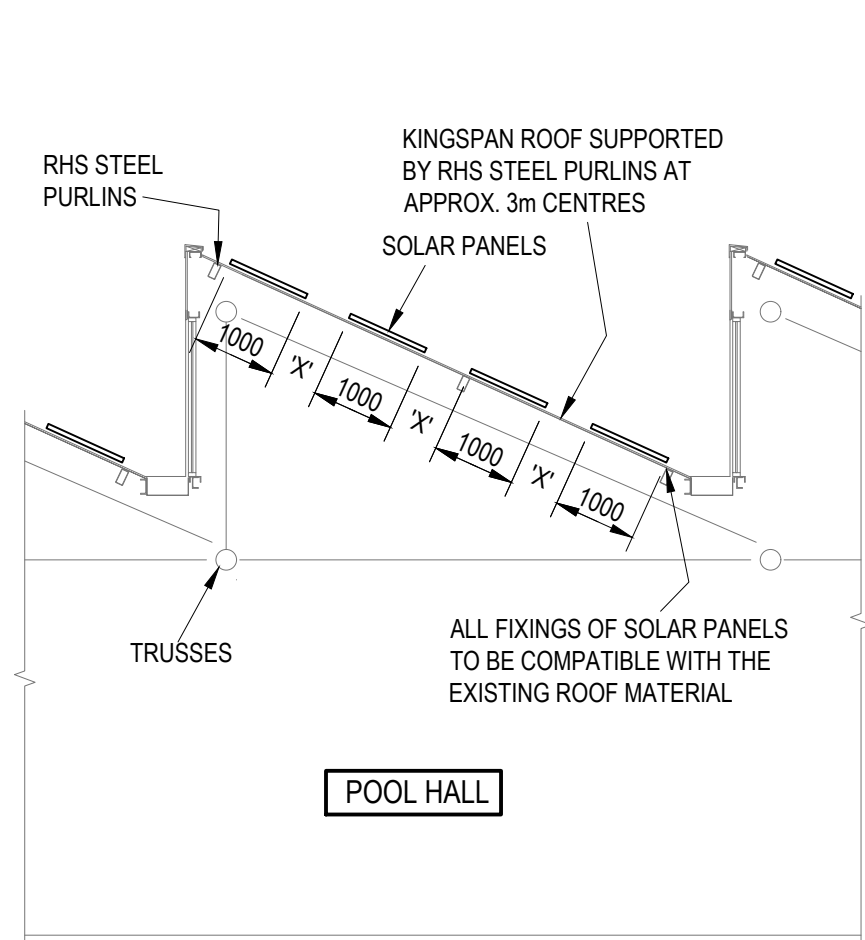


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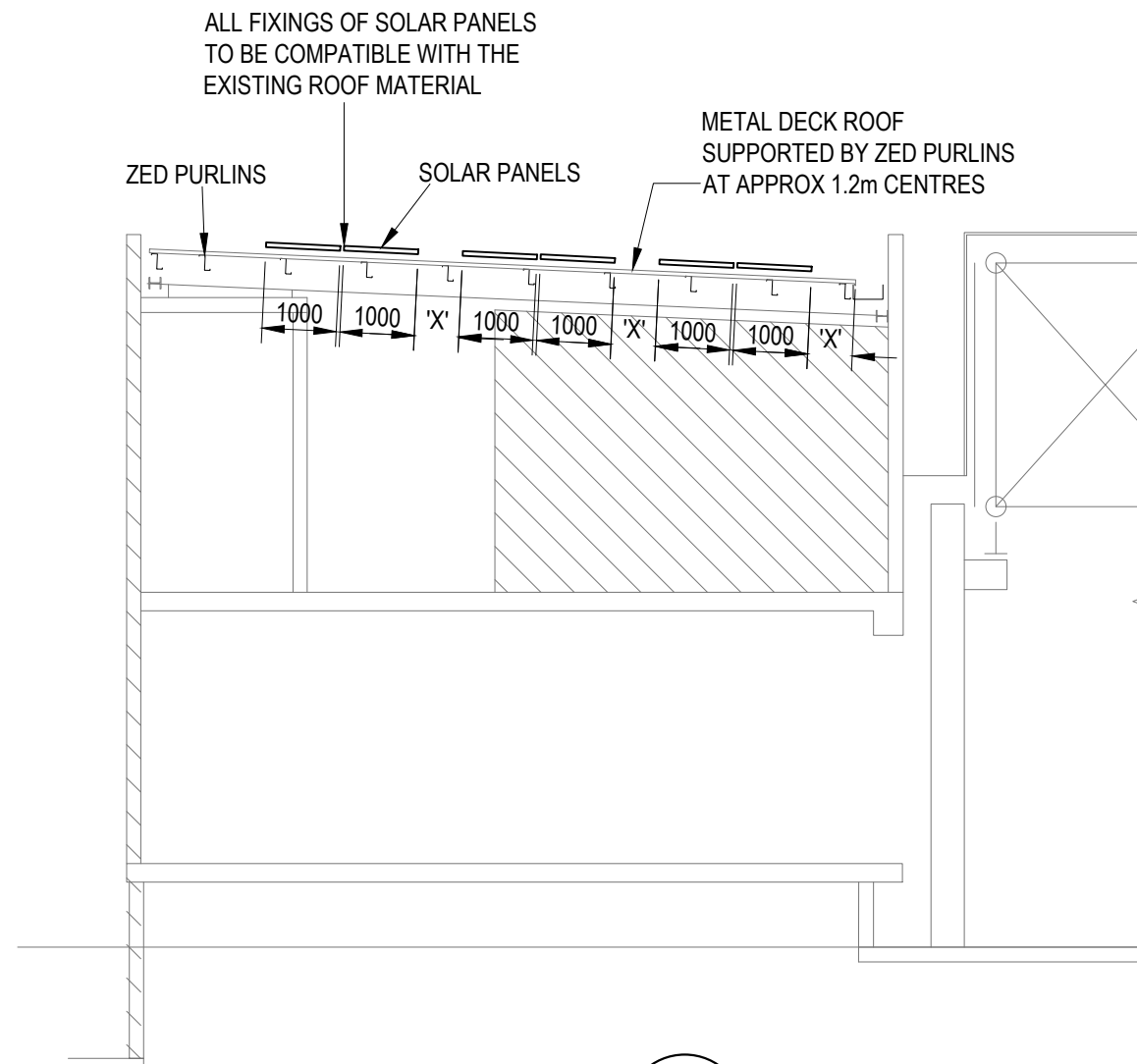
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Project **SOLAR PANEL AREA SETOUT FOR MANLY ANDREW BOY CHARLTON SWIM**
 Title **OVERALL ROOF PLAN**

Drawn L.S.	Checked T.R.	Approved B.F. MIEAust.	Drwg. No. SK01
Scale 1:500	Date MAY 2019	Job No. SN7718	0



SECTION A
1:100



SECTION B
1:100

X = 600mm FOR SOLAR PANELS <math><10.55 \text{ kg/m}^2</math>
 X = 1000mm FOR SOLAR PANELS <math><13.40 \text{ kg/m}^2</math>

A3 ORIGINAL SIZE J:\JOB23-7700-7799\SN7718-MANLY POOL\STRUCTURAL\SN7718-SOLAR PANEL SETOUT.dwg

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Project
**SOLAR PANEL AREA SETOUT FOR
 MANLY ANDREW BOY CHARLTON SWIM**
 Title
BUILDING SECTIONS

Drawn L.S.	Checked T.R.	Approved B.F. MIEAust.	Drwg. No. SK02
Scale 1:100 @ A3	Date MAY 2019	Job No. SN7718	0