July 31st 2018

Anglicare
C/- epm Projects Pty Ltd
Level 2, 146 Arthur Street
North Sydney NSW 2060

Att: Mr Ken Douglas-Hill

Dear Ken,

RE: PRELIMINARY SUMMARY STRUCTURAL REPORT
ANGLICARE SANDON POINT 75W MODIFICATION

1.0 INTRODUCTION

Further to the request of Mr Ken Douglas-Hill of epm Projects Pty Ltd, Mr Rob O'Reilly, Director of Partridge Structural Pty Ltd, consulting structural and forensic engineers, carried out an inspection of the subject property on the 26th of June 2018.

At the time of the inspection the weather conditions were sunny and dry.

The purpose of the inspection and this report was to assess the site, review the proposed Masterplan and related consultants reports and provide recommendations and guidance as to the structural considerations to be factored into the process.

Note: Any preliminary structural design of the proposed buildings does not form part of this report.

2.0 DESCRIPTION OF THE PROPOSED MASTERPLAN

2.1 The proposal is for a mixed-use development covering the majority of the site.

2.2 To the north-west is situated the "Hill Top Precinct" which consists of two-storey townhouse dwellings.

2.3 To the north-east is situated the "Ocean View Precinct" which consists of two-storey townhouse dwellings.

2.4 To the south is the "Village Centre Precinct" which typically includes three level apartment blocks over basement carparking with some commercial allotments and a residential aged care block to the south-west.

2.5 There are exclusion zones encompassing the Turpentine Forest in the north-western quadrant of the site and Cooksons Creek which runs east-west through the centre of the site.

Level 5, 1 Chandos Street, St Leonards NSW 2065 Australia
t 612 9460 9000 e partridge@partridge.com.au
www.partridge.com.au
Partridge Structural Pty Ltd – 73 002 451 925
Partridge Event Pty Ltd – 50 139 601 433
Partridge Remedial Pty Ltd – 89 145 990 521
Partridge Hydraulic Services Pty Ltd – 11 608 027 578

3.0 DESCRIPTION OF THE SITE

3.1 The site is currently predominantly covered by woodland. There is a modest derelict industrial site to the north-west of the site, and a series of derelict industrial units extending across the southern section of the site.

4.0 STRUCTURAL ENGINEERING CONSIDERATIONS

4.1 Geotechnical

Two geotechnical assessments were carried out by Douglas Partners in 2006 and 2008. More recent environmental assessments have been carried out by EIS, however they contain little information with regard to future footing design.

The DP reports describe various ground conditions across the site, including deep fill to the south and rock at closer proximity to the surface towards the north of the site.

There is a creek running east-west through the centre of the site and a disused quarry is also present.

The residual clays are described as highly reactive.

The surface rock stratum is typically described as being of very low strength, with an allowable bearing capacity of 450kPa.

Comments:

i) It is recommended that prior to detailed design, an updated comprehensive geotechnical assessment be carried out across the site.

ii) The removal of an extensive amount of woodland, trees and foliage, may impact the reactive clays which would have a knock-on effect on any structural element supported on the clay. Typically geotechnical engineers recommend a period following removal of the trees to allow the clays to normalise. Therefore it may be recommended to remove trees and foliage a significant amount of time prior to planned commencement of construction.

iii) Due to the varying conditions across the site different footing systems may be required for each precinct.

iv) Structures in proximity to the creek may need to take into account the potential for flooding. A report was prepared by Cardno Forbes Rigby, ref 106062-03 Report 001 Rev P3, in March 2008 which should be referred to.

v) The bearing capacities provided for the low strength upper rock stratum are extremely low (450kPa). Even for a two-storey townhouse of concrete and masonry construction, significant piling will be required if founded on such weak rock. Alternatively the piles will need to be driven through the low strength rock to a stratum with a higher bearing capacity. It appears unlikely that shallow footings will be feasible.

vi) Where shoring and retention is required, it appears that the ground conditions could consist of fill, clay, rock or a combination. It is likely various structural systems may be required across the site.

4.2 Wind Loading
The proposed structures are generally two to three storey low-rise, so wind loading will not play a significant part in the structural design. There are housing developments to the north, west and south, with the eastern boundary facing across some bushland to the surf coast of McCauley's Beach approximately 300m away. Appropriate terrain categories and shielding factors should be considered during detailed design.

4.3 Exposure and Durability
The easternmost boundary of the site is situated approximately 300m from the surf coast at McCauley's Beach. Any concrete design will need to take account of the exposure classification this presents. Any exposed steelwork design will need to receive the appropriate protective finishes necessary.

4.4 Building Materials
The construction methodologies are as yet unknown, however they will be suitable for the latent site conditions found.

4.5 Traffic
It is understood that there may be the potential for a new road overbridge on Geraghty Street crossing Tramway Creek to facilitate site access. Such a proposal is deemed feasible subject to the appropriate geotechnical site investigation and bridge design.

5.0 CONCLUSION

We have inspected the abovementioned site at the request of Mr Ken Douglas-Hill of epm Projects Pty Ltd and have prepared a preliminary summary report of structural considerations which may be taken into account for the detailed design of the proposed development.

Yours faithfully,
Partridge Structural Pty Ltd

Prepared by:

Rob O'Reilly
BE(Hons) MIEAust CPEng NER(Structural) RPEQ
Director