

Project: Sandstone Precinct (23-39 Bridge Street, Sydney) **Project No:** 29212
To: City of Sydney (CoS) **Date:** 24/06/2021
From: Jason Lei / Le Han Tan

RE: Sandstone Precinct – Stage 2 (SSD-7484-MOD13)

Introduction

This memorandum has been prepared at the request for additional information by the City of Sydney (CoS) for the Sandstone Precinct – Stage 2 (SSD-7484-Mod-13) based on the meeting held on Thursday 10 June 2021 with David Zabell (Planner for CoS) to discuss the proposed modification options in lieu of the existing NABERS DA conditions, namely Condition B26, F12 and G4. Per the *Sandstone Precinct – NABERS* report (Rev. 06) prepared by Stantec, these proposed options are as follows:

- Option #1: Adopt City of Sydney's proposed energy performance standards targets for buildings seeking a DA from 2023, as outlined in the *Planning For Net Zero Energy Buildings Briefing*. This would require demonstration of the development to achieve the energy target of maximum 245kWh/year/m² of GFA.
- Option #2: Entering into a Power Purchase Agreement (PPA) for external renewable electricity generation for the 'gap between actual building performance and 4 Star NABERS Energy Hotel benchmark performance' for a period of 5 years.
- Option #3: Retire large-scale generation certificates for the 'gap between actual building performance and 4 Star NABERS Energy Hotel benchmark performance' for a period of 5 years.

To summarise the meeting discussion, it was understood that the Planner acknowledged that the existing NABERS DA conditions are unlikely to be feasibly achieved due to the bespoke nature of the project and was open to discuss the proposed options. The Planner had expressed preference towards Option #1 as it would bring greater environmental improvements in the long term compared to the alternate options (i.e. Option #2 or Option #3).

The Planner has requested Stantec to provide additional information so that the most feasible option could be determined for the development as follows:

- Stantec to advise if Option #1 could be met based on the existing Sandstone Precinct NABERS energy simulation estimation results.
- Stantec to present estimated emissions comparison (in terms of equivalent kgCO₂-e/yr/m²) for the project against the future CoS benchmark for Option #1 and the project's 4 Star NABERS Hotel Energy allowance.

Energy Reduction and Emissions Analysis

With reference to the existing Sandstone Precinct NABERS energy simulation estimation results (*Predicted NABERS Hotel Energy Assessment* report (Rev. 01) prepared by Stantec), a direct comparison was made between the project's energy performance against the CoS's future energy benchmark for new hotel buildings (Year 2023-2025). As illustrated in Figure 1, the estimated NABERS Hotel energy performance of the project design (192-key scheme) including both predicted electricity and gas consumption has exceeded the CoS's hotel energy target of maximum 245 kWh/year/m² of GFA.

As such, Option #1 is unable to be met.

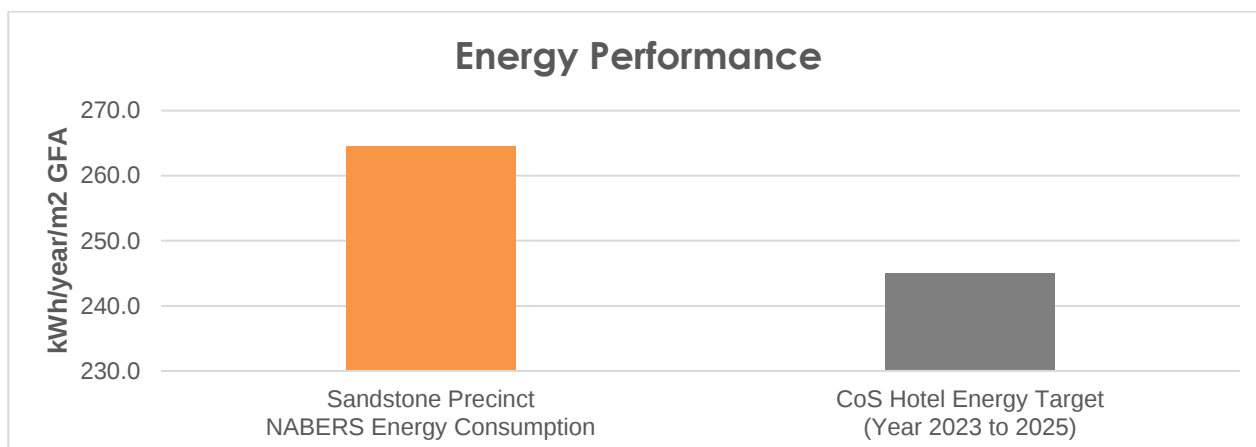


Figure 1: Estimated energy performance comparison between the project against CoS future targets

Energy Performance (kWh/yr/m2 GFA)	
Sandstone Precinct NABERS Energy Consumption Estimation (including electricity and gas)	264.5
CoS New Hotel Energy Target (Year 2023-2025)	245.0

Table 1: Estimated energy performance comparison between the project against CoS future targets

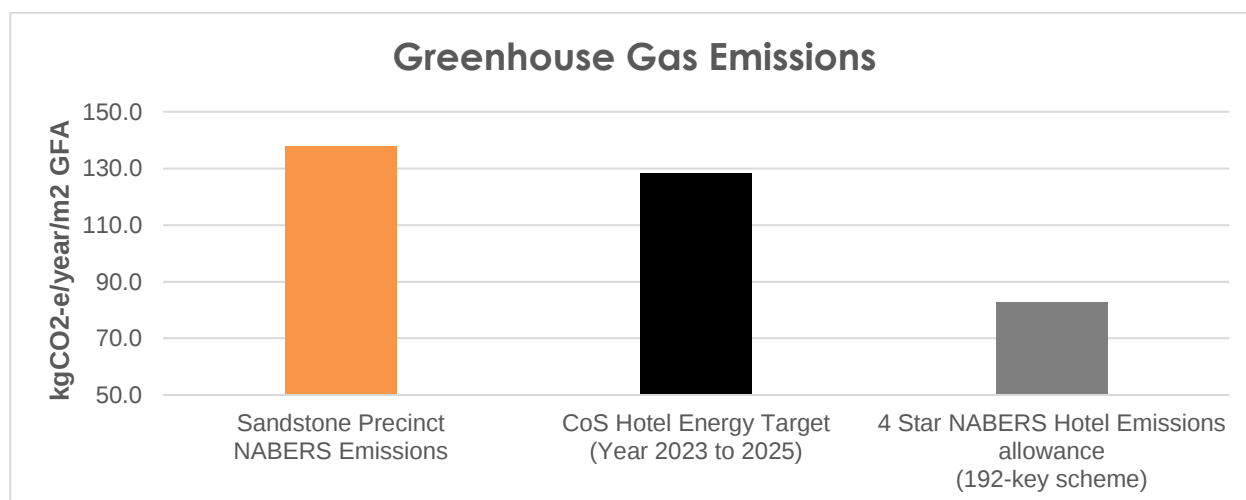


Figure 2: Estimated emission comparison between the project against benchmark targets*

Greenhouse Gas Emissions (kgCO2-e/yr/m2 GFA)	
Sandstone Precinct NABERS Emissions Estimation (including electricity and gas)	137.7
CoS New Hotel Energy Target (Year 2023-2025)	128.1
4 Star NABERS Hotel Emissions Allowance (192-key scheme)	82.8

Table 2: Estimated emission comparison between the project against benchmark targets*

* Note the NABERS Energy emissions figures above is based on Scope 1, 2 & 3 to be relatively consistent with the online NABERS rating estimation tool and latest NABERS Energy reverse calculators for hotel buildings

In Figure 2, an equivalent kgCO₂ emissions comparison (Scope 1, 2, 3) estimation is made between the proposed Sandstone Precinct project design (192-key scheme) against the following benchmarks:

- Equivalent kgCO₂ emissions of the CoS's future energy benchmark for new hotel buildings (Year 2023-2025). This is derived from the 245 kWh/year/m² of GFA maximum limit and using the same predicted percentage breakdown of energy consumption for the proposed Sandstone Precinct project design (192-key scheme), being approx. 43.5% electricity and 56.5% gas end-use;
- 4 Star NABERS Energy Hotel maximum emissions allowance for the current Sandstone Precinct project design (192-key scheme).

It is identified that the estimated (simulated) emissions produced by the Sandstone Precinct project exceeds the emissions allowances set by the 4 Star NABERS Energy Hotel rating scheme as well as the CoS's future hotel energy targets (Year 2023-2025).

For the Sandstone project, it is likely that future operational energy/emissions may further exceed the CoS's future hotel energy targets due to "real-world" performance risk factors such as sustained high guestroom & facilities demand, increased user loads, operational risks such as system inefficiencies & control limitations, etc..

Conclusion

Stantec has conducted an energy and emissions analysis at the request of additional information by the City of Sydney (CoS) to address the issues identified in the meeting discussion on Thursday 10 June 2021.

As outlined in this memorandum, it has been demonstrated that Option #1 (i.e. meeting CoS future hotel energy benchmark of max. 245 kWh/year/m² under Year 2023-2025) is not achievable which is mainly due to the age and nature of the Sandstone Precinct heritage building as well as future real world operational risks.

As such, it is the opinion of Stantec that Option #2 – 4 Star NABERS with GreenPower or Option #3 – purchasing LGCs are the remaining modification options available for the Sandstone Precinct development to pursue in lieu of the existing NABERS DA Conditions.

Should you have any further queries, please do not hesitate to contact the undersigned.

Yours sincerely,



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