POWERHOUSE PARRAMATTA
RESPONSE TO SUBMISSIONS REPORT

APPENDIX L
ADDENDUM REFLECTIVITY ASSESSMENT

Arup

NSW GOVERNMENT

Your ref
Our ref 273467-11/JK
File ref PHM-ARP-LET-ESD-0001

ARUP

Level 5
151 Clarence Street
Sydney NSW 2000
Australia

t +61 2 9320 9320
d +61 2 9320 9658
f +61 2 9320 9321

jorg.kramer@arup.com
www.arup.com

Tom Kennedy
Infrastructure NSW
Level 27/201 Kent St
Sydney NSW 2000

1 September 2020

Dear Tom,

Powerhouse Parramatta SSDA Reflectivity Response to Submissions

This letter is in response to submissions raised as part of the public exhibition of the Powerhouse Parramatta State Significant Development Application relevant to the Reflectivity Report, PHM-ARP-REP-FA-0003 (Arup, April 2020).

Comment:

Provide further analysis and mitigation options for any reflectivity impacts on ferry operations.

Response:

The ferry approach on Paramatta River (Figure 1) has been reviewed for reflectivity impacts on ferry operators using the analysis method as for road traffic. Due to the limited exposure, the Reflectivity Report PHM-ARP-REP-FA-0003 noted that reflections are not expected to result in unacceptable glare towards ferry operators in this location. The below records additional considerations of mitigating factors and extent of reflection exposure to provide further context.

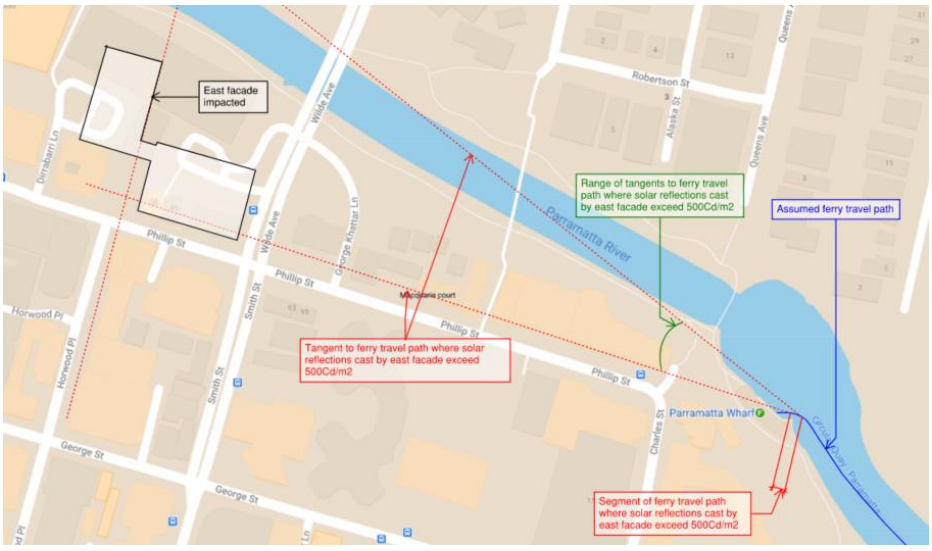

Figure 1: Map of ferry's travel path showing turning circle where east facades cast solar reflections above 500 Cd/m^2

Results summary

Viewed from the river, the east facades can potentially briefly cast solar reflections above the 500 Cd/m2 threshold towards ferry operators (Figure 1). This only occurs at the ferry's turning circle, i.e. when the ferry turns to dock at the wharf (Figure 2). For the ferry travel path assumed, this is an approximately 8m stretch of the ferry's travel path (Figure 1). For the majority of the ferry's travel parallel to the river, the reflectance is below the 500 Cd/m2 threshold (Figure 3).

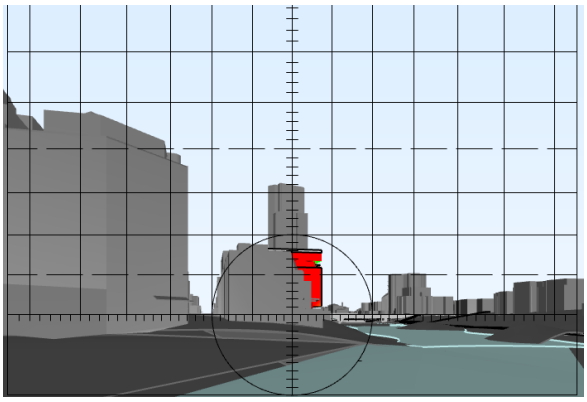

Figure 2: Perspective view from river at ferry's turning circle

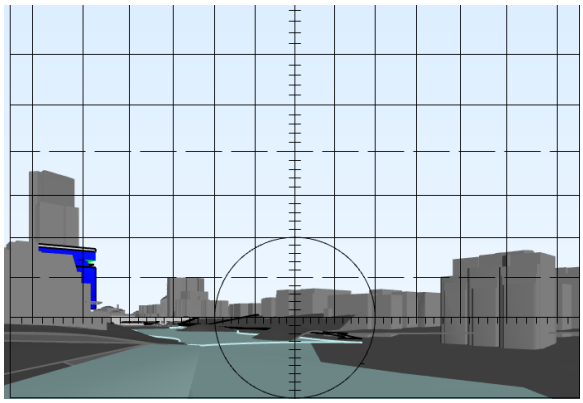

Figure 3: Perspective view from river at ferry's line of travel parallel to the river

Impact to ferry operators

Due to the slow speed of travel of ferries, especially at the turning circle, it can be assumed that analogous to the Hassall methodology assumptions for slower speed roads, ferry operators can adjust their vision to control glare. While the assumption that view follows the travel path is valid for travelling along the river, at this 8m length of turn, it is likely that ferry operators will need to direct their view towards the wharf rather than towards the building.

Temporal extent

As indicated on the stereographic sun path diagram (Figure 4), the reflections above the 500 Cd/m2 threshold occur around 6am solar time for approximately 3 weeks during October, and for another 3 weeks in February – March. Due to partial obscuring effect from buildings in front, they would be visible for less than 10 minutes approx. on clear days.

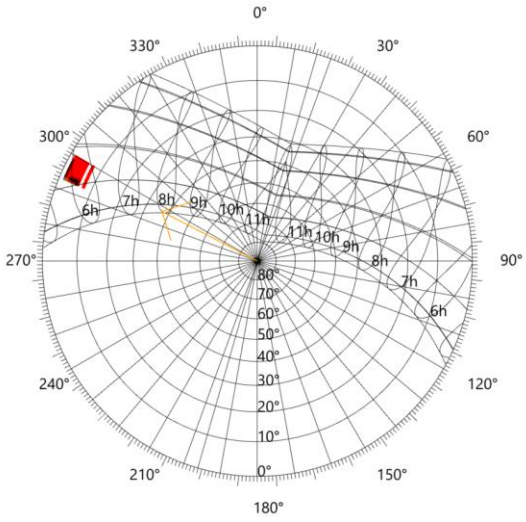

Figure 4: Stereographic sun path diagram of east façade

Existing facades on surrounding buildings

A review of existing facades facing the river ferry approach indicates that these can also cast reflections exceeding the Hassall threshold at similar angles (Figure 5, 330 Church St, Paramatta). Whilst 330 Church St has less extent of glazing, it does produce reflections above the 500 Cd/m2 threshold assuming glazing anywhere above 8% reflective (uncoated clear glass). We are not aware of this having caused any glare problems towards ferries. The reflections cast by the proposed development thus do not create an entirely new reflected glare situation for ferry drivers.

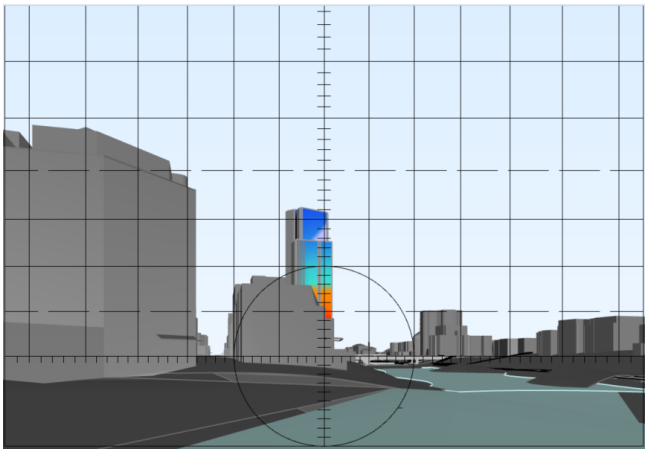

Figure 5: Perspective view from river at ferry's turning circle showing 330 Church Street east facade casting solar reflections above the 500 Cd/m2 threshold towards ferry operators

Reflectivity obstruction by existing vegetation

Trees are situated on the river south bank close to the ferry wharf, which likely would at least partially block view towards the proposed building (Figure 6).

Figure 6: View from ferry wharf. While view from river would be at different angles, per plan the view towards the proposed building is over land, that can be seen here to have large trees which would likely affect visibility

Yours sincerely

Jorg Kramer
Senior Consultant