James Taylor & Associates

Civil & Structural Consulting Engineers

ABN 33 102 603 558 Suite 301, 115 Military Road Neutral Bay NSW 2089 Postal Address: PO Box 742 Cremorne Junction NSW 2090 Tel: +61(0)2 9969 1999 Email: mail@jamestaylorassociates.com.au Website: www.jamestaylorassociates.com.au

Ref:6449:RY:rp

14 July 2022

Iris Capital GPO Box 5479 Sydney NSW 2001 Attention: Warwick Bowyer

Dear Sir

41 NORTH STEYNE, MANLY – CAFÉ BUILDING

Thank you for the opportunity to provide further comment on the condition of the existing façade at 41 North Steyne. Please refer also to our letter of Aril 13 2002.

Since our initial inspection materials testing has been carried out in various areas of the façade. Please refer to the report prepared by BCRC Ref N10348-BCRC-North Steyne Manly Concrete Investigation.

The materials investigation by BCRC concluded:

Chloride ion concentrations at the reinforcement in the unit 42 balcony were measured at two points to be 0.48% and 0.75% chlorides/wt of cement, the second value is almost twice the internationally accepted threshold for corrosion initiation. In view of the very high chloride content measured and the variability in the two results the risk of near-term corrosion initiation is considered to be high, and the remaining service life of the balcony concrete slabs is impossible to predict with any reliability.

The rendered concrete lintel on the Room 4 north balcony (supporting Room 42 floor) showed significant steel corrosion that has led to the cracking and spalling of the concrete, and loss of steel section. It is reasonable to assume that corrosion has initiated in all reinforcing steel in similar lintels on this front façade and these all require inspection, and it is highly likely that all reinforcement in the front facade will require cathodic protection or replacement.

We have carried out a subsequent site inspection to view areas exposed and tested by BCRC.

The façade consists of rendered masonry with lime mortar. Walls appear to be solid despite the presence of ventilation ducts. No brick ties were evident. Brick units are solid commons.

The Level; 1 balconies are constructed from timber framing overlaid by boarding, a thin concrete slab (unreinforced) and a cementitious screed beneath the tiles. The level 2 balconies



are constructed from a reinforced concrete slab, approximately 110mm thick and a cementitious screed beneath the tiles.

The materials investigation by BCRC has identified that the balcony concrete slabs and levelling slabs have no significant carbonation attack, however both contain very high concentrations of chlorides. There was no evident spalling of concrete in the balcony floor slabs.

Despite the lack of carbonation, BCRC are unable to provide any confident estimation of future remaining service life for the balcony slabs given the high concentration of chlorides present.

The brickwork openings and balconies are also supported by reinforced concrete lintels.

The existing concrete lintels are showing signs of significant reinforcement corrosion (including loss of section) with concrete spalling and splitting. Whilst this is apparent in one location, we expect that similar conditions elsewhere in the façade will result in similar corrosion attack in the very near future. BCRC concur with our assessment in this regard.

The ceilings of the balconies are lined with a dense sheet material. This may contain asbestos. The upstands on the balcony edge are also framed in dense sheet material which may also contain asbestos.

In consideration of the retention of the façade as part of a future development in an extremely aggressive coastal environment, the following works are required in order to provide a stable structure with an appropriate design life (50 years nominal) and an appropriate degree of fire protection:

- 1. Remove and replace all concrete lintels. This will require needling and propping of the brick walls above. This will require localised removal of bricks to facilitate temporary support and installation. The hotel rooms and café below will not be serviceable during such works given the scaffolding and hoarding requirements.
- 2. Materials testing of the timber framing is required to ensure the timber is not subject to rot or termite activity, make good as needed. (See point 6 below)
- 3. Remove and replace concrete topping and structural slabs. The minimum thickness of any new slab will be driven by both durability requirements (concrete cover) and fire rating levels. AS3600:2018 Concrete Structures requires a minimum thickness of 100mm for a 90 minute FRL. The existing balcony slab is nominally 110mm. If a higher FRL is required, a thicker slab will be required which will impact floor levels and thresholds.
- 4. Remove any contaminated material such as asbestos linings where present.
- 5. Remove and replace linings to ensure combustible materials are not present in the cladding.
- 6. Advice from a certifier should be sought as to whether combustible material such as the timber framing is acceptable as part of the balcony structure itself.
- 7. Remove render and repoint all brick joints to protect the lime mortar.
- 8. The existing balustrade framing requires exposure and checking for compliance with current loading requirements and height requirements. It is likely to require removal as the supporting slab will be removed.

-2-

Given the above it is likely that a significant portion of the remaining original façade will be removed and replaced to achieve compliant construction with a reliable design life suitable for the exposure to the aggressive coastal conditions.

As per our previous advice we consider that retention of the façade as exposed face brickwork is not considered feasible without extensive replacement and repair.

We trust the above is satisfactory for your current requirements. If you have any further queries please do not hesitate to call the undersigned.

Yours faithfully JAMES TAYLOR & ASSOCIATES

RICHARD YATES B.E. MIEAust CPEng NER 620330 DIRECTOR

James Taylor & Associates