**Level 35.5**

*Proposed Works*
- Re-configure out GLA's utilising existing external corridors as internal space
- Re-configure offices, at east end
- External stair installation

*Issues Arising*

**North side:**
1. Cavity brick panels below windows appear to be suffering from damage due to wind loading on glazing.
   This needs repair, however this is independent of proposed works and needs attention in any event.
2. Some out of plane bulging, possibly due to brick growth, has pushed external bricks off the original full bearing.
3. Stair infill can be achieved with infill slabs however there are numerous columns in the west end which will be difficult to integrate into a new layout.

**South side:**
1. Colonnade structure column grid is not suitable for new GLA layout
2. Re-configuration at east end will expose internal columns which will need to be planned around.

**Level 39.0**

*Proposed Works*
- Re-configure GLA's utilising existing external corridors as internal space
- Re-configure offices, at east end
- External stair installation

*Issues Arising*

**North side:**
1. Cavity brick panels below windows appear to be suffering from damage due to wind loading on glazing.
   This needs repair, however this is independent of proposed works and needs attention in any event.
2. Some out of plan bulging, possibly due to brick growth has pushed external bricks off the original full bearing
3. Stair infill can be achieved with infill slabs however there are numerous columns in this area to be integrated into new layout.

**South side:**
1. Colonnade structure column grid is not suitable for new GLA layout
2. Re-configuration at east end will expose internal columns which will need to be planned around.

**Level 43.0**

**Proposed Works**
- Re-configure GLA’s utilising existing external corridor on the south side.
- Re-configure east end by internal wall removal
- Construct external stairs

**Issues Arising**
1. South side colonnade structure grid is unsuitable for proposed layout
2. Note: Heat build-up in rooms below north side roof terrace is reported as an issue in this building

5.4 **EXTERNAL STAIRS**
For all new external stairs the in-ground services need to be located so that stair footings can avoid them. This appears to be quite feasible in most cases.

5.5 **ADMINISTRATION BUILDING**
This building is proposed to have a new external stair at the north end and an internal stair at the south.

The southern stair will require structural framing to re-support the slab edge where it is cut through.
Cracking in the precast façade panels should be investigated by review of original drawings and possibly also some localised opening-up works.

This work will not be required if the building is proposed for demolition.

5.6 REGIS BUILDING

Proposed Works
Increase size of GLA's by extending to the west. Add a new building to the north.

Issues Arising
1. The northern extension will require consideration of the existing sewer and stormwater infrastructure in this area.
   Sewer and stormwater pits will require relocation.
   There is the potential, with minor changes to footprint to maintain stormwater pits to the east of the building.
2. The westward extension already recognises the constraints of existing in-ground electrical services. The detailed location of electrical services was not confirmed during this inspection.
3. The removal of a cross wall in Level 1 to enlarge the library requires assessment of any buttressing effects that this wall has on the retaining wall that forms the west side of this space. In addition the removal of cross walls may affect the overall seismic and lateral load stiffness of the building.
   However the addition of new structure to the west provides potential for inclusion of compensatory bracing if required.
4. The south wall requires investigation to determine structural form and may have consequential impact on construction methodology and compliance with current codes.
5. The steel beams supporting the floors are likely to require additional fire rating.
6.0 COMPLIANCE ISSUES

Relevant documents:

- AS 1170 Parts 0, 1, 2 and 4 Loading
- AS 3600 Concrete
- AS 3700 Masonry
- AS 4100 Steelwork

Compliance requirements are usually covered by a BCA report.

We have assumed that a BCA report has not yet been carried out, hence the following are our best estimates of likely compliance issues for structure.

General:
Modifications to load bearing structural elements have obvious implications for vertical load bearing capacity (i.e. if a wall, beam or column is removed). However, such modifications also change both lateral capacity and lateral response to wind and seismic loads.

Where modifications are minor and local they can usually be dealt with by local structural compensation (e.g. beams, lintels and frames). However where modifications are substantial, or change of use changes risk, then an upgrade to current codes of practice is usually necessary.

Vertical Load Capacity
It is expected that load capacity of existing structure will be compatible with proposed new uses, subject to detail checks in proposed high load areas.

Lateral Capacity
The structures are predominantly ductile structural frames with a maximum height of four storeys. If modifications do not remove substantial amounts of structure (e.g. columns and beams) then there should be no significant effect on lateral capacity to resist wind and seismic loads.
There appears to be no substantial change in occupancy type or number, or in building usage (e.g. no change from learning area to dormitory area), consequently there is no substantial change to risk profile or building classification envisaged.

**Fire Rating of Structure**

All the reinforced concrete structures have a certain fire rating related to the cover to reinforcing. Regis however has, what appears to be, unprotected steel beams supporting concrete slabs.

Assessment of Building Code of Australia indicates the following requirements.

**Therry, Vaughan, Wallace, Science, Administration**

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<thead>
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<th>No. of floors</th>
<th>3 and 4</th>
</tr>
</thead>
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<tr>
<td>Classification</td>
<td>9B</td>
</tr>
<tr>
<td>Type of Construction</td>
<td>A</td>
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</tbody>
</table>

**Regis**

<table>
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<th>No. of floors</th>
<th>2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>9B</td>
</tr>
<tr>
<td>Type of Construction</td>
<td>A West wing</td>
</tr>
<tr>
<td></td>
<td>B North wing (subject to suitable fire separation for west wing)</td>
</tr>
</tbody>
</table>

**Type A Construction**

| Fire Rating of Structure Required |
| Stairs and Lift Shafts | 120/120/120 |
| Columns | 120/-/- |
| Floors | 120/120/120 |
| Roofs | 120/60/30 (subject to concession) |

**Type B Construction**

| Fire Rating of Structure Required |
| Stair and Lift Shafts | 120/120/120 |
| Load bearing Internal Walls and Columns | 120/-/- |
| External Walls | Varies but typically 120 |
At this stage a detailed assessment of current fire ratings has not been carried out.
7.0 CONCLUSION

Therry Building
The masterplan proposals appear to be quite feasible from a structural perspective, however there is the potential to need a new ground floor slab under the Therry north wing.

Further historical research into archives to determine the cause of patch repairs to the existing building is recommended. This may need to be augmented with cover meter checks and local carbonation tests. This would be for the purpose of assessing long term maintenance on the original structure.

O'Neill/Science Building
The masterplan proposals appear to be quite feasible from a structural perspective with the potential to need to accommodate existing structural columns in only a few locations.

Vaughan Building
The masterplan proposals appear to be quite feasible from a structural perspective however the re-planning of rooms at the east end will necessitate incorporating some columns and will need further investigation of removal of upstand beams.

Wallace Building
The masterplan proposals for the south side are difficult to accommodate without major structural works. The column grid is very closely spaced.

Whilst it may be possible to change the grid with the installation of additional beams and strengthening of columns (and potentially footings) it is likely to be more economical to demolish and rebuild.

The north side of the building is more accommodating to re-planning. The brickwork infill to the north facade has defects requiring attention, however this is independent of masterplanning proposals and the works proposed provide an opportunity to address this issue.
The east end of the building will require columns to be incorporated into planning, however this appears to be manageable.

The west end of the building has closely spaced columns around the stairs and does not look amenable to re-planning as more open space.

**Administration Building**

This building appears to have defects associated with the external panels, which appear to be precast.

Any investment in this building (e.g. re-planning or installation of stairs) should be preceded by a detailed investigation of wall condition.

It is however understood that this building is recommended for demolition in masterplanning proposals.

**External Stairs**

The proposals appear quite feasible.

Footing and ground slab design may need to accommodate in-ground services which tend to follow the perimeter of the school buildings.

**Regis**

It is suggested that Regis has further investigation of structure to confirm any compliance issues. It is suspected that it may be non-compliant for fire rating and the nature of the external support structure in the West Wing has not been confirmed. Notwithstanding that issue and some local remedial works issues, the buildings appear to be in good condition and suitable for the adaptive re-use proposed.

The North Wing would need an economic assessment of the cost of adaptive re-use versus demolition and reconstruction.
APPENDIX A – PHOTOGRAPHS

Stair Location Administration North
Wallace – Brick bulging North Wall

O’Neill/Science East Façade, South section
Strengthening to Carry Walkway Vaughan to Wallace

Wallace – South Facade
Walkways Vaughan to Wallace

Therry North wall under croft (note beams to be accommodated in new GLA)
Therry – North Colonnade

Therry North Façade, O’Neill West Façade. Site of new GLA block
Steel beams support upper floor slab Regis North Wing

Beam structure in Library under Regis West Wing