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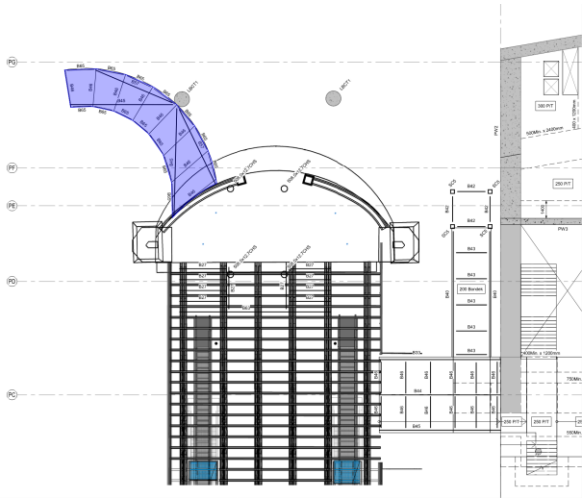
Cockle Bay Park
Pyrmont Bridge Eastern Pylon Structural Design Intent – Rev B

This letter outlines the basis for set-out and structural design of new interfaces with the Pyrmont Bridge Eastern pylon, including a new bicycle link to the East, a pedestrian link to the South, stairs to the East and escalators also to the East.

The design of new structural elements needs to consider the following:

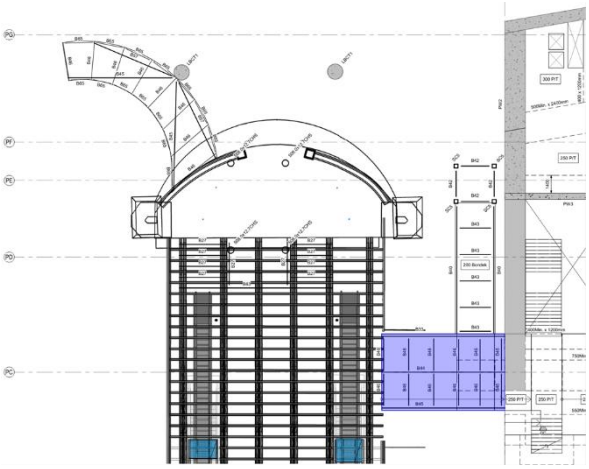
- **Western Distributor Horizontal Clearances**: All new structure is to preserve a minimum 2m clearance in plan from the elevated Western Distributor roadway. This allows for ongoing access and maintenance of the elevated roadway and can only be reduced in exceptional circumstances with express approval from TfNSW.
- **Western Distributor Vertical Clearances**: All new structure is to be located with a minimum 5.8m vertical clearance from any surface of the road to provide for vehicle clearance and servicing.
- **Primary Structure**: Preserving the Pyrmont Bridge primary structure is a priority for the design, including maintaining structural integrity of the trusses, abutment shear walls and diaphragm load path. Works shall seek to minimise any demolition and limit this to secondary structural elements, floor joists, toppings, etc.
- **Minimising Impact**: Design of new structural elements connecting to the Bridge are to utilise the lightest possible structural form to minimise demand on the existing structure.

Eastern Bicycle Link



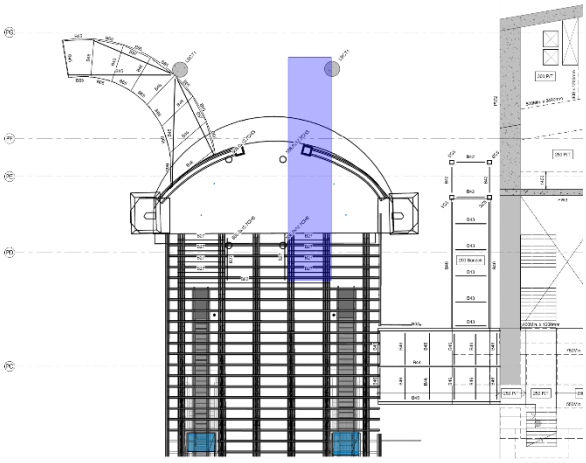
The new bicycle link is intended to replace the existing link connecting Pyrmont Bridge to the Western Distributor suspended carriageway towards King St. The new structure is supported off reinforced concrete walls constructed in 1996 when the Eastern Pyrmont Bridge pylon underwent major refurbishment. The composite steel and concrete structure is lightweight and will not impose additional loading to, or compromise capacity of, the pylon structure.

Southern Pedestrian Link



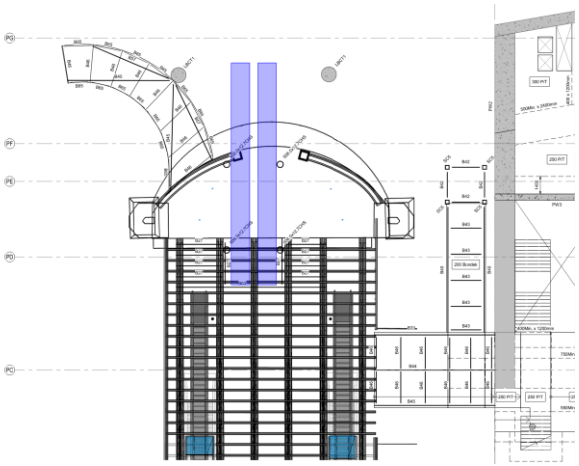
The new pedestrian link is intended to replace the existing link constructed in 1999 connecting Pyrmont Bridge to the monorail pedestrian link and existing Cockle Bay Wharf precinct. The new link is set-out in the same location and will connect Pyrmont Bridge to the new Cockle Bay Park podium second level. The composite steel and concrete structure is relatively lightweight and of comparable magnitude to the existing walkway.

Eastern Stairs

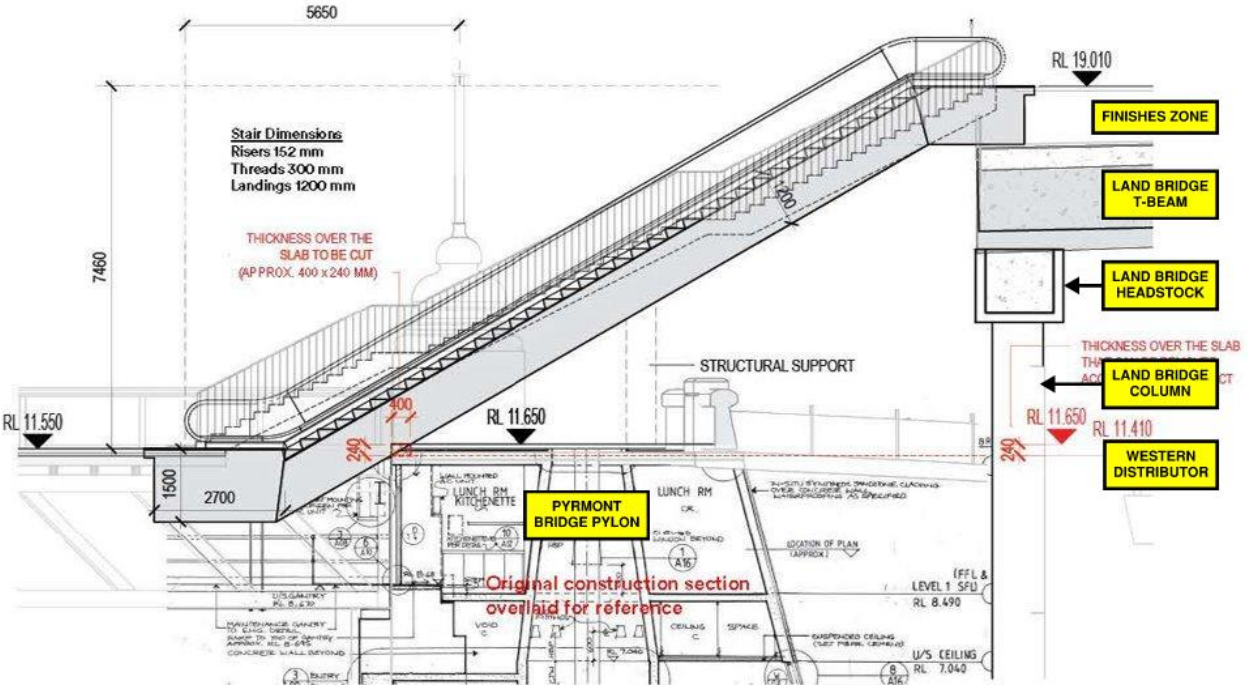


New stairs connecting the existing Pyrmont Bridge structure to the new structure use structural steel stringers to support reinforced concrete treads, minimising the weight of new structure as much as possible. The stair set-out is constrained by the Land Bridge western edge (refer below for more detail).

Eastern Escalators



New escalators, set-out as shown in the base case design option, connect the eastern end of Pyrmont Bridge to the western end of the new Land Bridge. The primary considerations for their support are outlined below with reference to the following section:

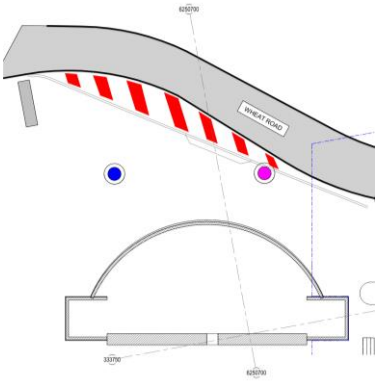


Eastern Stair and Escalator Section

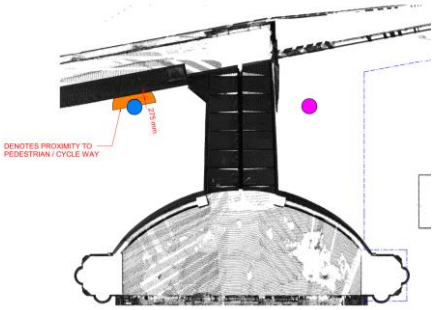
- The Land Bridge T-beams are precast beam elements over 35m in length and require support off the Land Bridge headstock with an uncompromised cross section in order to facilitate pre-fabrication and load transfer. Furthermore, their height is set-out by the road clearances to the Western Distributor roadway below, such that meaningful lowering of these beams is not possible.
- The Land Bridge headstock is a beam element spanning between columns and supporting the land bridge T-beams.
- The columns have been set-out with consideration for their clearance to the roads immediately to the east. The southern column has minimum clearance to Wheat Road and the Northern column has less than minimum clearance to the Western Distributor. This has been the subject of approval from TfNSW. Neither of these columns can be

moved further east by any meaningful amount and these column locations set-out the Western Land Bridge edge.

- The eastern stairs and escalators require support at the Land Bridge, with the escalator pit clearance above the land bridge surface governing the finished level at this location.

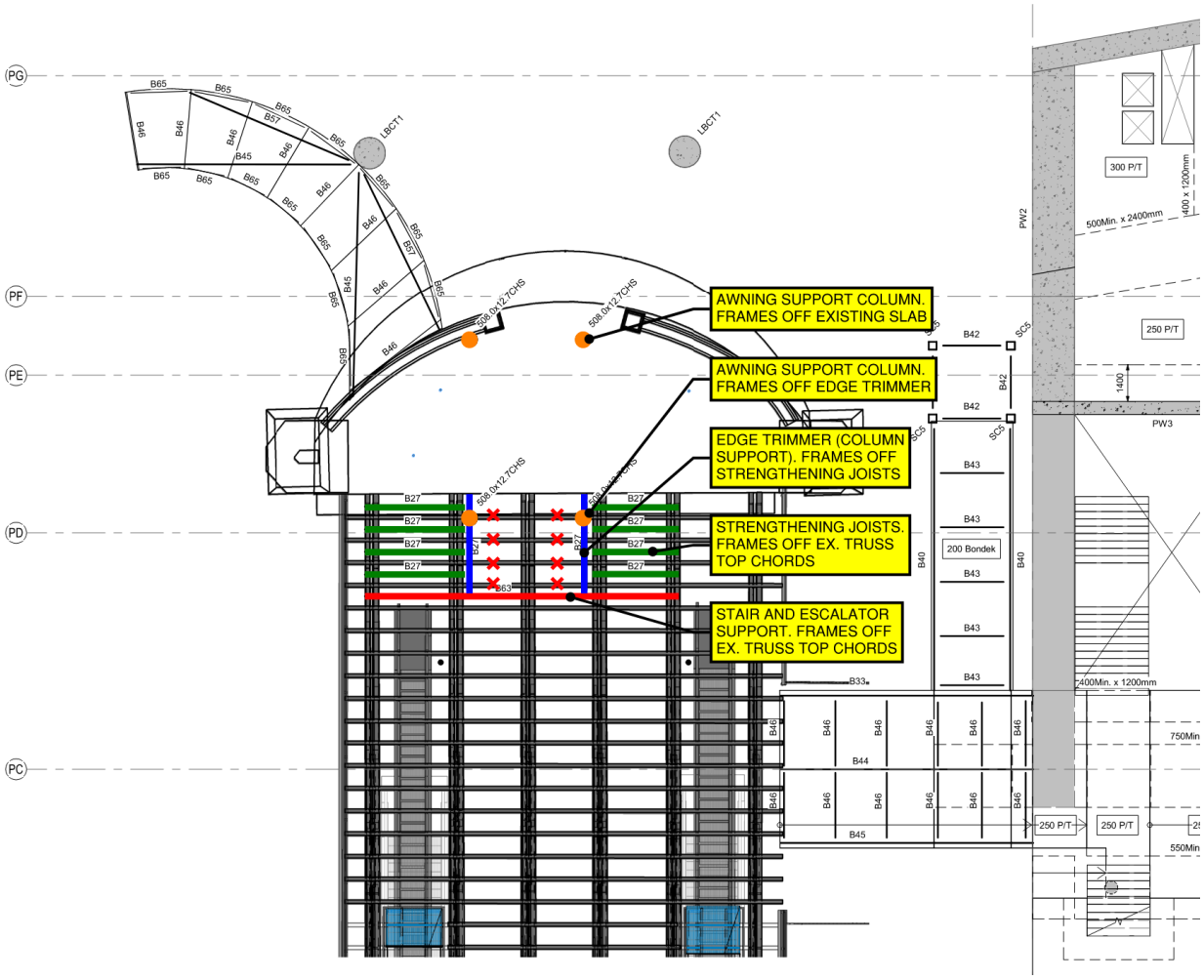


South column clearance to road



North Column clearance to Western Distributor

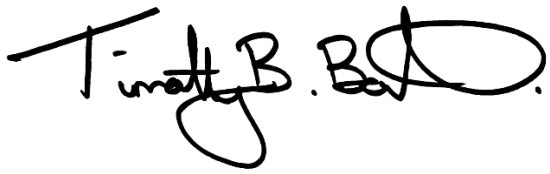
- The existing Pyrmont Bridge deck is supported by hybrid timber and steel (iron) trusses that span onto the Eastern pylon, which in turn support timber floor joists overlain by a concrete deck and topped with asphalt. In order to create escalator penetrations, the asphalt and concrete will be removed and joists will be cut with primary bridge support trusses left in place and not impacted. Trimming and strengthening steel beams will be added in the plane of the joists to form the penetrations and carry the escalator and stair loading back to the trusses.



- Setting out the escalator pit West of the existing pylon wall will prevent the need to compromise the pylon lateral structure by cutting the western wall and suspended slab, which forms the primary lateral stability system for the bridge in the East-West direction.

I trust this clarifies the structural design intent with respect to Pyrmont Bridge. We welcome the opportunity to present the design or answer any further questions.

Yours Sincerely,



for
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Tim Boulton
Director