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23rd March 2023

Brett Hutton
JCDecaux
Level 6, 1 York Street
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RE: Hume Hwy, Ashfield, Sydney, 2131
Column Mounted P50 Signage, Structural Feasibility Statement

This Structural Feasibility Statement has been conducted by Dennis Bunt Consulting Engineers Pty Ltd (DBCE) at the request of JCDecaux.

The proposed sign is documented in the generic DA drawings by the architects Tzannes (JCD Multi-Site P50) 21027/ 001(D), 002(D) and 003(C) and the site-specific DA drawings by DBCE 21235 / DA01(G), DA02(A), and DA03(A).

A survey and a preliminary geotechnical assessment of the site was commissioned by JCDecaux.

The P50 sign is a single sided LED screen with visual screen dimensions of 3072mm horizontally x 4608mm vertically. The top of the LED screen will be located 7800mm above the adjacent footpath. The sign is to be located above a column and horizontal beam that will form an L shape under the screen. The column and horizontal beam will be clad in stainless steel. There will be a door in the rear of the column to store equipment for the LED screen.

Site Description

The site is located between a footpath on the Hume Hwy to the north and Sydney Trains tracks to the south.

The ground from the footpath is flat for about 4.5m until it drops almost vertically at a brick retaining wall approximately 6m to the level of the train track. There is a chain link security fence between the footpath and the Sydney Trains land.

Structural Description

Steel frame

The structure will consist of a fabricated steel column 600mm x 300mm x 20mm thick and a rectangular box section welded to the top of the column to form an L shape.

A door is to be located in the rear of the column to store equipment so the column will act as a C section for most of its height.

A welded steel frame consisting of 200 x 100 RHS vertical members and 100x100 SHS horizontal members will be bolted to the top of the horizontal box section. Spigots will be welded to the top of this section and the vertical members in the welded frame will drop over the spigots and be fixed with bolts.

The LED screen will be assembled in the contractor's factory and clamped to the welded frame so it can be transported to site as one unit.

The L shaped structure will have stainless steel cladding fixed to it also in the contractor's factory and be transported to the site as one unit.

On site the L shaped structure will be bolted to the top of the concrete footing and the welded frame supporting the LED screen bolted to the L shaped frame.

The weight of the structure including the digital screen and the cladding is approximately 3.1 tonnes.

The sign is to be designed for a wind load for region A, terrain category 2.5 and a 50 year design life in accordance with AS1170.2.

Footing

Based on the preliminary geotechnical assessment by Douglas Partners, there is approximately 2m of fill, overlaying 2 to 3m of very stiff to hard clay which overlays siltstone and claystone. ie rock.

Due to the restricted space available between the security fence and the ground dropping away at the face of the existing brick retaining wall a single concrete pile, 750mm in diameter, is recommended. A 1m x 1m x 1m deep concrete pilecap with the top of the pilecap 50mm above the ground to be used for the sign column to fix too.

The report recommends the support for the pile is located below the zone of influence of the retaining wall. This is an imaginary line taken from the toe of the wall and sloping at a 1H:1V plane. The concrete pile to be socketed 2m approx. into the rock which is located below the zone of influence and hence will ensure that the brick retaining wall does not have to support additional lateral and vertical loads from the sign.

Recommendations

Based on the survey and our preliminary design we see no reason why the cantilevered signage cannot be installed.

A detailed geotechnical assessment must be submitted post development consent to provide information on the soil/rock profile and its depth below ground. This would include drilling a cored bore hole that extends into the rock.

A services search is undertaken around the location of the footing.

If you have any questions, please do not hesitate to ring the undersigned on 0400 023 714

Yours Faithfully,

A handwritten signature in blue ink, appearing to read 'J Linsell', is positioned above the printed name.

John Linsell BE(Hons), MIEAust, CPEng, NPER(Struct)
for Dennis Bunt Consulting Engineers Pty Ltd