LONDON BRIDGE BEST PRACTICE

LONDON BRIDGE STATION REDEVELOPMENT PROJECT

Acoustic Barrier

Overview

As part of the construction works for the new viaduct the demolition of a suspended concrete slab in western structures was essential.

To demolish this suspended slab the safest and most efficient option was to use a Brokk, which is a radio controlled demolition machine. The only issue with using the Brokk is that it is a particularly noisy piece of machinery producing noise levels in excess of 105dB.

As the suspended slab was located directly over the live station, these works would have to be carried out at night. Station staff would not be able to work safely or hear emergency announcements with the high levels of noise from the demolition and so the only option was to undertake the works when the station was closed.

However, carrying out work at night posed its own problems. With a hotel, hospital and residential buildings nearby the noise associated with the Brokk would be unacceptable and lead to residents being kept awake during the works. The works also would not be approved by the Local Environmental Health Officer as part of the S61 consenting process.

Thus a solution was needed to minimise the noise of the Brokk in order for the work to be allowed to commence.

The Solution: Acoustic Tunnel

Costain are committed to using Best Practicable Means at all times to reduce noise to a minimum.

Therefore using guidance from the 'Code of practice for noise and vibration control on construction and open sites' (BS5228-1:2009) an acoustic tunnel was suggested. This was designed by Keltbray's scaffold contractor and then approved by Costain's temporary works team, to ensure it stayed upright. The tunnel was constructed using scaffolding and then filled in with acoustic screens, ensuring there were no gaps to let any noise escape.

Connecting acoustic barriers to form a sealed enclosure around the Brokk was the best way to mitigate noise levels. This use of effective screening enclosed the noise source without the operation of the Brokk being adversely affected.

Before the works were undertaken at night a test was undertaken during the day where the peak noise measured from 15m away was 76dB - a 30Db reduction.

With this reduction in noise we were then able to get the works approved by the local EHO and so Section 61 consented.

Benefits:

- Enabled work to continue for the new viaduct
- Minimised disruption to local residents
- Evidence to the EHO that we are using BPM at London Bridge

Objectives and Targets:

- Using best practice in accordance with British Standard 5228-1:2009 - Code of practice for noise and vibration control on construction and open sites.
- CEEQUAL – nuisance to neighbours
- Section 61 compliance