

# the Case Study

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Keeping you up-to-date with the world of **noise measurement**

## Invictus – big noise in the construction industry

Large scale construction projects, especially those located in built-up and residential areas, are often the most difficult to manage in terms of noise levels emitted from site operations.

These produce challenging environments with daily, sometimes even hourly, issues to overcome.

Cirrus Environmental has successfully worked with major contractors worldwide to supply noise monitoring systems that can meet the complex requirements of this type of challenging project. Its UK-based R&D Division ensures that both hard and software capabilities have kept pace with construction industry demands both on-site and with remote data reporting requirements.

One such project was a five year demolition and construction project in central London. Seven locations around the site were deemed the most sensitive to any intrusive noise and so required continuous monitoring.

But the challenge did not end there. As the construction of the new building took shape and the height of the noise sources increased, the locations most affected by noise changed.

Monitors would need to run continuously with the minimum amount of servicing and maintenance



This meant that while the noise monitors needed to be continuously logging data over long periods of time, they also needed to be easily relocated as the project progressed.

The positions chosen for the noise monitors were all on buildings surrounding the site where the demolition and subsequent construction would be carried out. These were all locations with restricted access, such as major international banks.

This added complication meant that all the

configurations of the noise monitors and data download had to be carried out remotely and that, once installed, the noise monitors would need to run continuously with the minimum amount of servicing and maintenance.

The client also stipulated that a set of pre-defined measurement reports should be sent to an agreed distribution list. The real time noise levels would also need to be available via a web portal to both the customer as well as the local Environmental Health Officers overseeing noise level compliance.



### Complex requirements

The noise conditions set for the site were complex, with different noise levels being permitted at different times of day and night as well as separate noise conditions for weekends and bank holidays.

The client required that if any of the noise limits for the site were breached, or if the site was getting near its permitted cumulative noise levels for the day, alerts would be sent to a number of different parties.

### The noise monitoring solution

To meet all of these requirements Cirrus Environmental built a solution around the Invictus Noise Monitor and the Noise-Hub2 software.

The units were compact, unobtrusive and could be easily relocated when required

Portable versions of the Invictus noise monitors were specified and installed running on mains power with the addition of a 7 day battery backup in case of any power failure. This meant that the units were compact, unobtrusive and could be easily relocated when required.

The advanced calendar settings in the Invictus were used to program in all of the permitted noise levels for the different time periods of day and night. Separate rules were set up for the weekend with special rules set for bank holidays. These would override the rules usually applicable for that day.

E-mail alerts were set up to inform the relevant parties if one of the noise levels had been exceeded. SMS and Twitter alerts were also available.

An active email alert was configured that ran during the site's operating hours on weekdays to inform the site manager and other parties when the overall noise from the site had reached 80% of a preset limit. Further email alerts were configured for each additional 5% of the noise limit for almost real time updates.

The alert also specified the site noise level that had to be maintained for the rest of the day to stay under its permitted limit. This meant that as the site approached its daily permitted limit, the site manager could ensure that quiet works were then undertaken to prevent the noise from the site exceeding the allowable daily level.

### Reporting & data download

All of the noise data was downloaded automatically to the Cirrus Environmental Noise-Hub2 cloud server.

Each week, preset reports were distributed automatically by email. The client and the EHO could access live data as well as historical data and generate their own reports on demand via the Noise-Hub Community web portal.

Stakeholders were able to access the secure web portal by entering their e-mail address and password. Additional users could be set up quickly allowing the system to be flexible and able to cope with staff changes.

### Peace of mind

The noise monitoring system was configured to provide email alerts to the client if mains power was lost at any of the noise monitors, as well as when the backup battery was running low, the instrument case had been opened or the microphone had been disconnected.

This gave the client additional peace of mind in the knowledge that their essential noise monitoring was running as required 24/7 and that all of the legal requirements to measure and monitor the noise levels from the site were being carried out.

The system operated as specified from day one allowing the contractor to concentrate on completing the project on time and on budget.

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### Cirrus Products used in this case study

- Invictus CR:247 Portable Noise Monitor
- Noise-Hub2 Noise Monitoring System Software

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