

Environmental Noise: Infrastructure

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PDA

*Manchester Airport Multi-Storey Car Park
– Security Mesh Noise Mitigation*

This project involved the development of a mitigation strategy to address intense wind induced tonal whistling emanating from a huge amount of security mesh at the recently completed Multi-Storey Car Park (MSCP) at Manchester Airport, currently the largest MSCP in Western Europe. The tonal noise generated was causing issues at receivers up to 1km away. Structural damping had been proposed by aero experts but the acoustic consultants identified another approach.

The consultants were brought in post-installation and produced a strategy that would save the Main Contractor money by diverting what would have been an ineffectual proposed treatment programme. They characterised the noise generation at site; recommended a programme of product development and testing which oversaw the selection of a wind tunnel test facility and designed a testing scope of works and strategy whilst simultaneously vastly minimising costs; designed the testing rig; designed the test products; undertook value engineering during tests; oversaw and directed wind tunnel testing; selected

the most practical and efficient mitigation product and strategy from those developed and completed a final interactive report with test video hyperlinks. After installation, on commissioning using long term monitoring all mitigated areas showed zero tonal noise generation over full range of wind speeds and directions.

The judges were impressed by the amount of acoustic investigation and scientific research behind this project. The solutions and processes were clearly set out and produced a very neat outcome. They were pleased to see proper testing and the steps taken by the consultancy to arrange a wind tunnel test. It was a brilliant project that delivered what the client required by way of an acoustic solution as well as saving them money. The consultants produced a novel, bespoke solution which they supported by research as well as extensive testing.

The Operations Manager of the manufacturer said: "PDA advised on a course of action including, desk top study, noise monitoring, weather records and specialist testing at the BRE facility. They were instrumental in supporting us in advising our

client as to the best way to find a solution to the whistling issue. PDA compiled an initial report prior to the off-site testing which included presenting possible issues and solutions. Following the remote testing which was designed to replicate site conditions it was found the recommendation and assumptions presented by PDA were correct with the test vindicating the proposals and solutions. Following the test results PDA produced a detailed report identifying remedial works which Maple implemented and then monitored to verify compliance."

