

# Built Environment Noise and Vibration Service

Finch service offer



**Finch  
Consulting**

[finch-consulting.com](http://finch-consulting.com)

Engineering Confidence.

Finch's team of acousticians are experienced specialists in the field of environmental and occupational noise and vibration. They are also highly experienced and competent in writing technical reports and routinely provide Expert Witness reports to the Courts.

- We offer a unique solution to varying legal issues relating to noise nuisance, be it domestic, commercial and industrial through to environmental noise and vibration for planning applications and compliance with planning conditions.
- We are small enough to be nimble, responsive and flexible on fees, but smart enough to ensure that we deliver what we promise – a first class service, on time, every time.
- We have the added advantage of having a unique combination of skills amongst the company; our highly qualified acousticians are active and responsive to market forces and client needs and have previously been employed in private industry and local authority.
- We can provide rapid expert advice on a wide range of subjects relating to noise nuisance be it a domestic dispute brought privately or a complex industrial problem where the local authority has served an abatement notice.

## Environmental Noise/Vibration, Nuisance & Planning Services

On 27 March 2012 PPG 24 (the technical document providing guidance to local authorities on the use of their planning powers to minimize the adverse impact of noise) was replaced by the National Planning Policy Framework. Concepts such as 'LOAEL' and 'SOAEL' have been introduced to the assessment, management and control of noise via the planning system. However, whilst new policy objectives have been introduced, supporting technical advice and guidance is largely missing and Government has advised that it does not intend to provide such technical guidance. This has created uncertainty for developers, regulators and their advisers regarding the approach to take on the design of the development.

We have found that in the absence of clear guidance there is an increased risk that a development project may be wrongly refused and/or constrained by local authorities. The case studies below demonstrate how our expert acoustic advice has been used by our clients to ensure that their planning applications are technically sound and thereby their projects have a greater chance of being permitted.

However, there are instances where planning applications are refused on the grounds of excessive environmental noise. Our experts have appeared at numerous planning appeal inquires to provide expert evidence on noise assessments in the context of planning applications. We have been lauded on our knowledge of planning policy and noise and the application of current policy to new development projects.

Our experts have also been involved in noise nuisance matters and are able to provide analysis and advice regarding the defence (or otherwise) of such matters, that have manifested (via informal complaints or even the issue of a Noise Abatement Notice from the local authority).

# 60 years

Our specialists have a cumulative 60 years' experience in the fields of local authority, consultancy and regulatory.

# Services

## Services that Finch can offer include the following:

- Impact (noise/vibration) assessment of proposed or existing industrial/commercial developments (including construction phases)
- Impact (noise/vibration) assessment of proposed or existing road/rail developments (including construction phases)
- Sustainability and quality (e.g. BREEAM, Home Quality Mark) assessments of buildings (acoustic performance, noise pollution)
- (third party) Technical review / critical analysis of assessments (disputes, consent, conditions)
- Assessment of noise or vibration nuisance from domestic/industrial/commercial premises
- Advice on mitigation measures (to reduce nuisance, lessen impact, achieve conditions)
- Assessment of (existing or future) noise/vibration impact on proposed residential/commercial developments
- Advice on design requirements for residential/commercial developments to mitigate noise and vibration impacts

The above services typically involve: review and analysis of data (supplied and/or generated from surveys and Environmental Impact Assessments); and, assessment against legislation, guidance and standards.

# Skills & Competences

## Finch has a highly experienced team with skills and competences in the following fields.



**Timothy Ward**  
Principal Consultant



**Dr Chris Nelson**  
Principal Consultant



**Teli Chinelis**  
Senior Consultant



**Peter Milner**  
Senior Consultant



**Tom Gunston**  
Senior Consultant



**Matt Warren**  
Consultant

Finch has worked on and contributed to a number of built environment projects where specialist noise and acoustic advice and assistance was required. The case studies below highlight some of the recent work we have completed.

A wide range of legislation, standards and guidance are relevant to these areas. Finch is fully conversant with relevant requirements, guidance and assessment techniques from the list below. The team has significant expertise in this area and they are proven experts in the noise and vibration field. They provide a best in class service and are capable in all aspects of noise, vibration, and environmental acoustics.

- **Planning and Environmental Noise**
- **Community Noise**
- **Construction and Demolition Noise**
- **Industrial Noise**
- **Environmental vibration**
- **Residential and Hotel Acoustics**
- **Commercial/Leisure Acoustics**
- **Building Services Noise and Vibration**
- **Building Acoustics**
- **Educational Acoustics**
- **Licensing Noise**

# Read our case studies on our Acoustic Consultancy offering

## London City Park redevelopment

### Case study 01

Finch was recommended by a large firm of planners to provide acoustic consultancy services to a west London developer.

A planning application was going to be submitted for the redevelopment of an open car park in London to comprise around 65,000 ft<sup>2</sup> of a mixed-use building providing residential accommodation over 7 storeys with employment space at ground, first and second floors. The site is in close proximity to a train station and is located at the edge of a light Industrial estate with surrounding warehouses.

As the new development was subject at three elevations to light industrial noise including noise and vibration generated by nearby train movements, Finch was appointed to undertake a noise and train-induced vibration impact assessment.

Detailed on-site measurements of incident noise levels and vibration were undertaken over a long-term period in order to obtain data representing the typical noise and vibration climate at the proposed development.

A thorough review was undertaken in order to present suitable assessment target levels in accordance with national and local policies on noise (and in this context noise includes vibration) in order to determine the suitability of the site for its intended use.

Detailed calculations were undertaken in order to assess the noise and vibration impact based on the specifics of the proposed development. Advice was provided in relation to enhancements of the proposed building fabric in order for the aims of national policy to be met.



# Westminster redevelopment

## Case study 02

Finch was appointed by a developer/landowner to provide advice on the redevelopment of premises in Westminster, London. The proposals allowed for the refurbishment and extension at roof level of the existing building (currently a doctor's surgery) with a total of nine new residential units and an extension at ground and basement level to provide a D1 medical facility.

Even though the site was located in Westminster it was set back from the main roads and therefore incident noise levels at the proposed residential development were not excessively high. The suitability of the site for residential development was demonstrated in relation to the impact from surrounding noise.

Appropriate guidance was provided in relation to the impact of the proposed enhanced D1 medical facility to the existing and proposed habitable rooms. Advice in relation to atmospheric plant noise impact was provided alongside the control of plant induced vibration in order to provide a holistic review of the proposals to result in planning permission with appropriate conditioning. A number of objections from nearby residents were addressed and this resulted in the local authority granting planning permission for the proposals.



# Gas works conversion

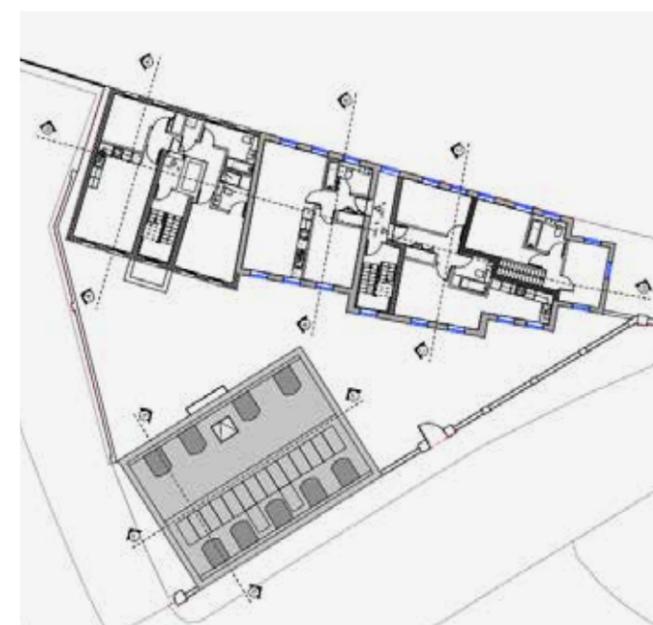
## Case study 03

Planning permission had been awarded by Reading Borough Council for a new residential development at the former Gas Works Buildings along Gas Works Road in Reading.

The approved proposal is for the change of use, conversion, extension and various associated works to the two former Gas Works Buildings to create a part 4, 5 and 6 storey building adjacent to the River Kennet and a 3 storey building fronting Gas Works Road, providing 20 residential units.

One of the conditions of the planning decision stipulates that an acoustic assessment is required to be approved by the Local Planning Authority in order to showcase objectively that the habitable rooms will be protected from the surrounding noise climate.

Finch was appointed to work closely with the Architect in order to undertake a detailed assessment of the acoustic performance of the external building fabric. Incident noise levels were established via a long term environmental noise survey and intricate calculations performed to ascertain whether the proposals offered compliance with the limits prescribed in the planning condition. The results of the assessment were able to showcase a scheme that would offer compliance in order for the planning permission to be discharged and the development to progress through to the construction stage.



# Royal Heights in Reading

## Case study 04

Finch Consulting has been appointed by a developer to provide various pre and post planning acoustic consultancy services for a new residential scheme in Reading.

The proposed development comprises conversion of an existing 5 storey office building and the erection of a one storey roof extension and a part six, part ten storey building, mews houses comprising 4138 sqm (GEA) of new development, providing up to 50 residential units together with associated services enclosures, parking and landscaping.

Since the site was only subject to a (high) level of road traffic noise, the converted office accommodation did not require a noise impact assessment for planning purposes. However, the converted office accommodation still has to comply with the relevant Building Regulations in relation to Sound Insulation.

As such, Finch visited the premises and undertook various sound insulation tests in order to establish the sound reduction properties of the existing and retained structure in order to be able to recommend appropriate measures for Building Regulations compliance.

A detailed noise impact assessment was undertaken for the new residential elements in the various extensions to the building. This included advice in relation to the make up of the external building fabric and the type of background ventilation alongside a review of impact at the various outdoor private amenity areas.

Post planning, advice was given in relation to sound insulation between apartments, between rooms within the apartments and the control of reverberant build up in the common areas of the development. Specialist advice was also provided in relation to noise and vibration impact from the operation of lifts within the properties.



# 7T MRI Scanner in London

## Case study 05

Finch Consulting has been appointed by King's College London to provide acoustic consultancy services for the new MRI scanner at St Thomas Hospital opposite the Houses of Parliament.

The new scanner's field strength will be 7T (Tesla named after the Serbian-American pioneer Nikola Tesla), or to put it another way, 140,000 times stronger than the magnetic field of planet Earth itself.

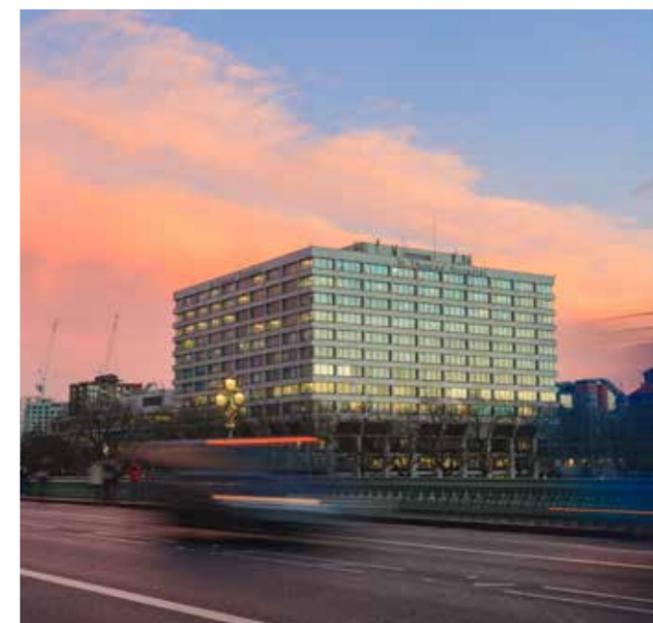
The 7 Tesla scanners are the current most powerful scanners in existence with only a handful in England (Oxford, Cambridge, Nottingham), with one in Wales and another in Scotland.

The unit is manufactured by Siemens, costing around £10m and weighing 18 tonnes. When it is operating, those magnets – but not the patient – will be cooled to minus 269 Celsius.

That is the temperature of deep space. So this particular corner of London will become one of the coldest places in the universe.

Due to its weight, the scanner will be placed on grade at the basement of the hospital, just below the main entrance. The whole area will be remodelled to accommodate the unit.

Since MRI scanners generate high levels of sound pressure when operating the acoustics team at Finch reviewed the noise break out to surrounding noise sensitive areas and proposed enhancements to the architectural build up including the room housing the MRI scanner.



# Nuisance from industry

## Case study 06

Finch Consulting often provides services in relation to nuisance or potentially nuisance claims involving industrial premises. However, if we are involved early, we can often assist using our expertise to alleviate the issue and avoid litigation.

Finch Consulting was recently contacted by a legal team representing a light industrial business in London. New residents in the vicinity of the premises have contacted the premises and raised complaints in relation to nuisance arising from the operation of a building services plant that serves the premises. The residents described the annoying noise as “a jet engine” and said that it was variable and mostly occurred during the daytime but also late in the evening. The residents asked the premises to remove their source of annoyance and gave them a three month ultimatum before they would contact the environmental health department of the Local Authority (in their hope that the impact would be characterized as statutory nuisance and a noise abatement notice served on the premises).

Finch Consulting visited the premises, interviewed the site managers and the complainant residents, took readings of plant noise emissions by switching plant on or off, undertook a long term noise survey at two positions and used all this information to undertake an assessment of the impact using guidance from relevant British Standards.

Finch’s acoustic engineers used their extensive knowledge in noise control for industrial premises and HVAC products in order to propose a variety of different options for the client to consider in order to reduce the plant noise impact. Finch also provided assistance in relation to the potential of the impact categorized as statutory nuisance in order to fine tune the advice and actions in relation to relevant legislation.

The client was grateful to receive a series of options going forward in order to make a holistic decision in accordance with the potential future needs of the business.



# Domestic Nuisance

## Case study 07

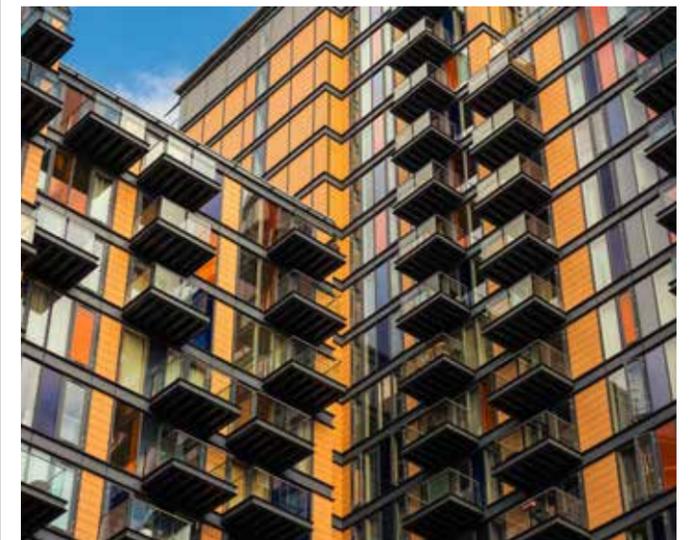
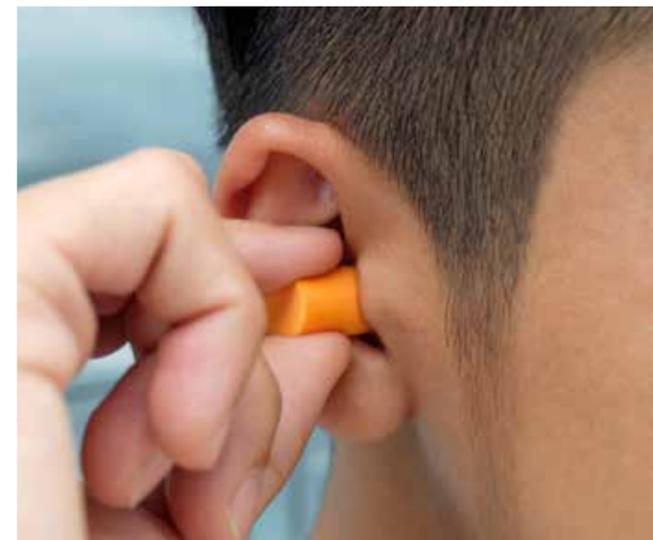
Urban living, especially in residential premises containing party wall and floors, can give rise to noise nuisance complaints. The Building Regulations in relation to Sound Insulation (Approved Document E) concerns the reasonable resistance to the passage of sound in spaces used for “normal domestic purposes”. However not “normal” behaviour can often illicit complaints by neighbours and local authorities have a statutory duty to investigate nuisance complaints.

Finch Consulting were requested to visit two properties in central London in order to investigate a potential nuisance claim before it was escalated to the local authority since the freeholder was keen to implement mitigation measures if possible.

Finch visited the premises and interviewed the tenants complaining about the nuisance and the tenant whose house parties create the nuisance. Finch also staged mock ups of the likely environment during a house party with music playback and undertook noise readings in various locations.

Following a thorough investigation, Finch consulting prepared a document outlining the relevant legislation and the role of Local Authorities, analysed the criteria for statutory nuisance and provided a list of measures that could be implemented in order for the nuisance to reduce. The proposed mitigation measures involved engineering solutions (i.e. enhancements on party walls, doors, sound masking, psychoacoustic modelling of low frequencies), lay out (i.e. type and placement of loudspeakers, suggestions about party room layout), and administrative (i.e. coordination and communication with neighbours).

Finch can provide its unique expertise into what we like to call hindsight consultancy in order to assist in the minimization of legal action against your clients.



# Relevant legislation, standards and guidance

- The Land Compensation Act 1973
- Noise Insulation Regulations 1975 and 1996
- The Control of Pollution Act 1974
- Environmental Protection Act 1990
- Noise and Statutory Nuisance Act 1993
- Noise Act 1996
- The Pollution Prevention and Control Act 1999
- Licencing Act 2003
- Anti-social Behaviour Act 2003
- The Clean Neighbourhoods and environment Act 2005
- **BREEAM PoI05** – Pollution – Noise attenuation
- **BREEAM Hea05** – Health & Wellbeing – Acoustic Performance
- **BS 4142:2014**, Methods for rating and Assessing Industrial and Commercial Sound
- **BS 5228-1: 2014**, Code of practice for Noise and vibration on construction and open sites.
- **BS 5228-2: 2009+A1**, Code of practice for noise and vibration on construction and open sites. Vibration
- **BS 8233:2014**, Guidance on sound insulation and noise reduction for buildings
- **BS 6187:2011**, Code of practice for full or partial demolition
- **BS 6472-1:2008**, Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting
- **BS 6472-2:2008**, Guide to evaluation of human exposure to vibration in buildings. Blast-induced vibration
- **BS 7385-1:1990, ISO 4866:1990**, Evaluation and measurement for vibration in buildings. Guide for measurement of vibrations and evaluation of their effects on buildings
- **BS 7385-2:1993**, Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration
- **BS EN 1793-1:2012**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Intrinsic characteristics of sound absorption
- **BS EN 1793-2:2012**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Intrinsic characteristics of airborne sound insulation under diffuse sound field conditions

- **BS EN 1793-3:1998**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Normalized traffic noise spectrum
- **BS EN 1793-4:2015**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Intrinsic characteristics. In situ values of sound diffraction
- **BS EN 1793-5:2015**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Intrinsic characteristics. In situ values of sound reflection under direct sound field conditions
- **BS EN 1793-6:2012**, Road traffic noise reducing devices. Test methods for determining the acoustic performance. Intrinsic characteristics. In situ values of airborne sound insulation under direct sound field conditions
- **BS EN 61400-11:2013**, Wind turbines. Acoustic noise measurement techniques
- **ETSU-R-97** The Assessment and Rating of Noise from Wind Farms 1996
- Design Manual for Roads and Bridges (DMRB), Standards for Highways
- Calculation of road traffic noise, 1988
- Calculation of Railway Noise, 1995
- Planning and policy Guidance 24 – Planning and noise [Withdrawn]
- ProPG: Planning and Noise: New Residential Development
- Planning and policy Guidance 7 – Sustainable Development in Rural Areas
- Planning and policy Guidance 17 – Planning for open space, sport and recreation
- Planning and policy Guidance 22 – Renewable Energy
- Planning Advice Note Pan1/2011, Planning and Noise
- National Planning Policy Framework (NPPF)
- Noise Policy Statement for England (NPDE)
- Planning Practice Guidance – Noise
- Mineral Planning Guidance MPG11 – The Control of Noise at Surface Mineral Workings 1993
- Mineral Policy Statement 2: Controlling and Mitigating the Environmental Effects of Mineral Extraction in England
- Planning Advice Note PAN50 – Controlling the Environmental Effects of surface Minerals Workings [Scotland]
- Minerals Technical Advice Note MTAN (Wales) 1: Aggregates
- Building Bulletin 93
- Building Bulletin 101

For further insight or to learn  
more about our services please  
visit [finch-consulting.com](http://finch-consulting.com)

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