Acoustics in the Environment

One of the key environmental challenges to communities is noise, as it directly affects the quality of life with serious potential for causing harmful physiological health effects. The traditional approach to acoustics is to seek to identify and mitigate sources of noise. At Stantec however we recognise that noise is only one part of sound, that is, the unwanted part. Value can be derived from a positive acoustic environment, rather than one in which noise is simply reduced or absent.

This appreciation of the positive aspects of acoustics informs our assessments in that we seek to not only appropriately control sources of noise so that impacts on the surrounding community are minimised but also to identify areas where the acoustic environment can be improved.

With this in mind, the acoustics team at Stantec provides noise and vibration advice for clients to support community engagement, enable environmental compliance and help minimise restrictions on production.

KEY MARKETS

We provide a range of acoustic and vibration consulting to clients in the following markets:

Community Development

- Demolition and construction
- Strategic land and residential development including master planning, urban regeneration and public sector
- Regulated water including sewage treatment facilities
- Tourism and leisure including sports facilities and stadia

Commercial, Industrial and Major Infrastructure

- Oil & Gas
- Mining (including quarries and landfill)
- Manufacturing
- Powerstations, power generations and emergency power plants
- Logistical facilities
- Process plants
- Major infrastructure including road, rail and port facilities

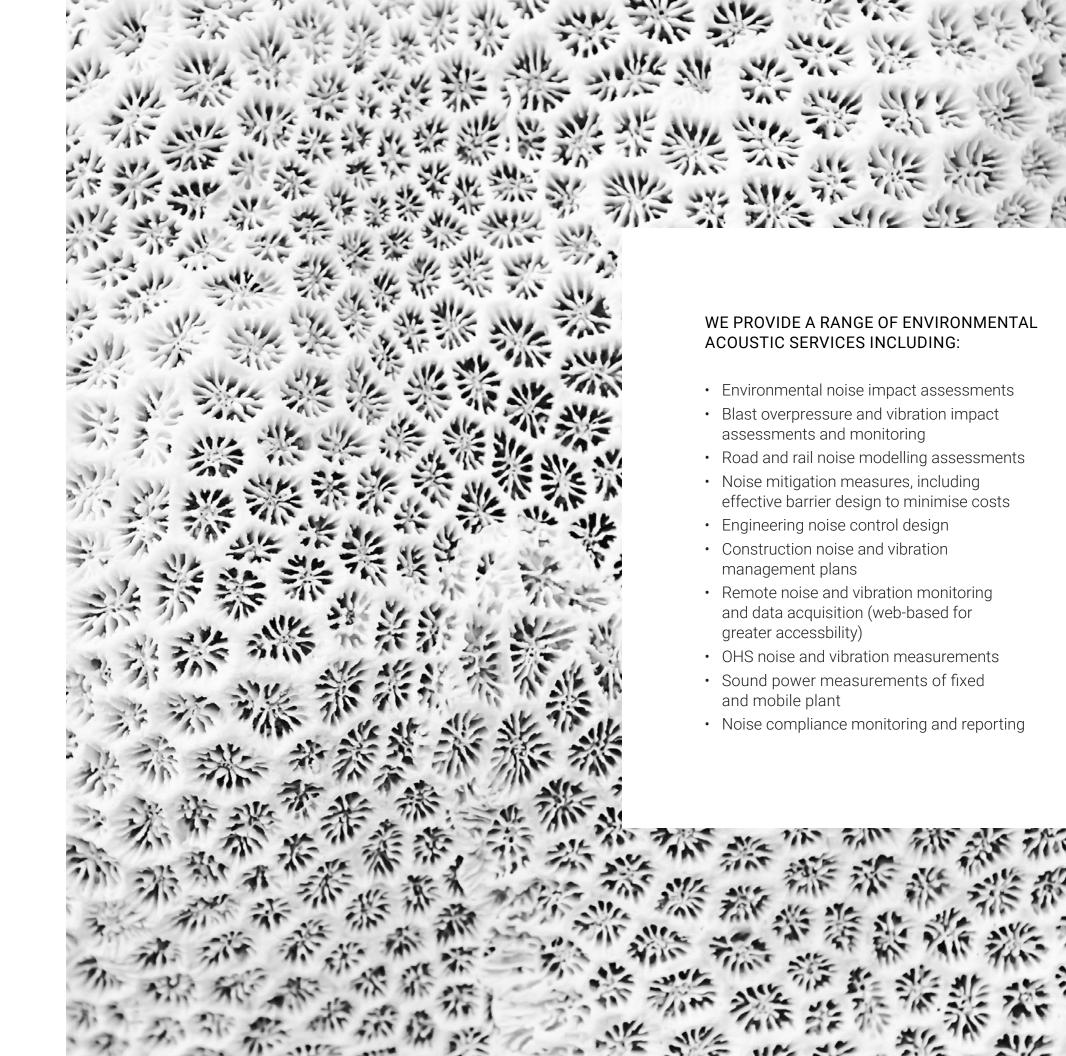
Our key focus areas are:

- Environmental noise and vibration impact assessment
- Road and rail noise modelling
- Assessment of acoustic mitigation including effective acoustic barrier design
- Construction noise and vibration management plans

KEY SERVICES

Fro

From environmental and transportation noise, to monitoring and vibration, our professionals are dedicated to the consistent delivery of quality noise and vibration solutions through innovative problem-solving and smart application of technology. We understand the challenges related to regulatory compliance and public concern over noise and vibration issues. Our acoustic specialists provide noise and vibration solutions to meet your project needs.





Alconbury Weald

In 2009, Stantec were appointed by Urban & Civic (owner of the for Alconbury Airfield), to prepare a new mixed-use vision and master plan for this major 575-hectare strategic site and develop the site from outline planning consent to the overall completion of the project.

We delivered an imaginative and exciting new future for the former airfield, to excellent standards which accommodated multi-purpose uses in an employment led extensive project. The vision encompassed safe environmental factors ensuring a resilient low carbon output for the surrounding community.

Working in collaboration with other disciplines across the practice, the acoustics team undertook the environmental impact assessment of the site.

This involved undertaking detailed environmental sound surveys of the existing baseline conditions and using the results of the surveys to inform the development of a comprehensive acoustic model.

The results of the acoustic model were used to inform the development of the masterplan ensuring that noise sensitive uses were appropriately located. Less noise sensitive uses were located closer to the dominant noise sources with this development further screening noise sensitive uses in other areas of the site.

As the masterplan developed the model was also used to assess the potential impact of the development and associated transportation infrastructure on the existing sensitive receptors.



The Rookery Energy Park

Stantec has had a long-standing role in the development of an energy park at the Rookery clay pit in Marston Vale, Bedfordshire.

Stantec has supported the clients on their respective planning applications to restore the 90 hectare Rookery south brick pit and for the 585,000 (average) tpa Resource Recovery Facility (RRF) within it.

Stantec has provided a number of different services including acoustics for the RRF and low level restoration scheme (LLRS) works. We've also advised on the Construction Environmental Management Plan.

Working in collaboration with other disciplines across the practice, the acoustics team undertook the environmental impact assessment of the site.

This involved undertaking detailed environmental sound surveys of the existing baseline conditions and using the results of the surveys to inform the development of a comprehensive acoustic model.

The results of the acoustic model were used to inform the development of the development proposals and assessment of the potential impact of the development and associated transportation infrastructure on the existing sensitive receptors.

LOCATION

MARSTON VALE, BEDFORDSHIRE, UK

COMPLETION DATE

ONGOING

CONSTRUCTION COST

UNDISCLOSED

STANTEC SERVICES

FLOODING, GEOTECHNICAL ENGINEERING, NOISE & VIBRATION, ENVIRONMENTAL SERVICES

CLIENT

COVANTA ENERGY

FEATURED PROJECT

Blythe Valley Park

Stantec have supported planning applications for the development at Blythe Valley Park for over 10 years. In November 2016, Stantec helped IM Properties secure permission for new housing, alongside new and existing commercial properties providing more employment opportunities for the area.

Stantec prepared the transport assessment, as well as noise, air quality, and transport input for the environmental statement, both of which supported the overall planning application. Stantec worked closely with Solihull Metropolitan Borough Council to prepare the transport assessment, reaching an agreement on the transport strategy, public transport access and off-site highway improvements.

In addition, the acoustic team provided acoustic design advice to the contractor with respect to the part of the residential and commercial aspect of the development.

This required careful liaison and review of proposals to ensure that the proposed constructions would meet the requirements of Building Regulations with respect to noise transfer.

Following construction, the development was acoustically tested with all partitions found to have achieved the required performance standards.

LOCATION

SOLIHULL, UK

COMPLETION DATE

2020

CONSTRUCTION COST

UNDISCLOSED

STANTEC SERVICES

TRANSPORTATION
INFRASTRUCTURE ENGINEERING,
NOISE & VIBRATION

CLIENT

IM PROPERTIES

Amherst Island Wind Energy Vibration Monitoring Program

Stanteo's Noise, Vibration and Acoustics (NVA) group provided construction vibration monitoring services for the Amherst Island Wind Energy Project. This project includes 26 wind turbine generators, a 34.5 kilovolt (kV) underground and/or overhead electrical power transmission line collector system, fibre optic data lines from each turbine and/or wireless technology for the communication of data, a submarine cable, an operations and maintenance building, an island substation, a mainland switching station and meteorological towers.

Vibration monitoring was provided as per the methodology and protocols identified in the construction vibration monitoring program for the Amherst Island Wind Energy Project submitted to the Ministry of the Environment, Conservation and Parks (MECP). A vibration monitoring plan was developed for the turbine installations and transport of turbine components by trucks on area roads, as well as road reconstruction vibration effects on heritage attributes (e.g., old churches, barns, stone walls, and cemeteries). The NVA group installed the monitors, conducted scheduled equipment maintenance and data download visits from approximately 2017-2019. A remote monitoring system was used to automate vibration data download, allow for notifications of exceedances to the team and the client, as well as historical record keeping of the vibration data. The program included monthly reporting as well as protocols for reporting logged exceedances. Exceedances were reviewed and verified by Stantec senior acoustic engineers.

LOCATION

AMHERST ISLAND, ONTARIO, CANADA

COMPLETION DATE

2019

CONSTRUCTION COST

UNDISCLOSED

STANTEC SERVICES

NOISE & VIBRATION, ENVIRONMENTAL SERVICES

CLIENT

ALGONQUIN POWER & UTILITIES CORP



FEATURED PROJECT

Ontario Line

Metrolinx is constructing the Ontario Line that will include fifteen stations between Ontario Place and Ontario Science Centre and potential links to GO Transit and TTC Lines 1 and 2. Stantec was retained with HDR to provide technical advisory services for the project. This includes the development of the Reference Concept Design and associated contract documents for tender, as well as preparing the environmental impact assessment. Noise and vibration services under this project involves technical review, analysis, and mitigation for the alignment. This includes the at-grade, elevated and underground sections of the project for both construction and operational impacts. A noise and vibration impact assessment is prepared for the project. Further, the mitigation and contractual noise and vibration requirements are to be incorporated into the reference concept design. In preparation for the noise impact analysis. Stantec prepared a 3D survey of all of the buildings along the alignment (with hundereds of individual buildings), including a groundtruthing of all potential sensitive receptors. This survey was prepared through ARCGis and our noise modelling software CADNA/A to allow Stantec to prepare a complete noise model of the entire project through the Downtown Toronto and surrounding residential neighbourhoods. The NVA team will be preparing the environmental noise and vibration impact assessment for construction and operations along the alignment. This involves various segments of the project, including Downtown Corridor, Thorncliffe and Pape Corridors. This also involves assessment of at-grade, elevated and underground trackwork. Support is also being provided to RCD design with respect to noise and vibration on the project.

LOCATION

TORONTO, ONTARIO, CANADA

COMPLETION DATE

 ${\tt ONGOING}$

CONSTRUCTION COST

UNDISCLOSED

STANTEC SERVICES

NOISE & VIBRATION

CLIENT

METROLINX



Aylesbury Woodlands

The 220-hectare Aylesbury Woodlands site is a key part of the Aylesbury growth strategy, with a high quality sustainable scheme designed to achieve exemplary standards of design within an extensive green infrastructure framework, including parkland, community facilities and sporting facilities.

Aylesbury Woodlands will provide jobs through developing employment land for a range of offices, industrial and commercial uses supported by retail, leisure facilities and housing set in an extensive green environment.

Other benefits to the area will include creating substantial green infrastructure for open space; providing sports and recreational facilities; supporting biodiversity and supporting infrastructure delivery.

Working in collaboration with other disciplines across the practice, the acoustics team undertook the environmental impact assessment of the site.

The involved undertaking detailed environmental sound surveys of the existing baseline conditions and using the results of the surveys to inform the development of a comprehensive acoustic model.

The results of the acoustic model were used to inform the development of the masterplan ensuring that noise sensitive uses were appropriately located. Less noise sensitive uses were located closer to the dominant noise sources with this development further screening noise sensitive uses in other areas of the site.

As the masterplan developed the model was also used to assess the potential impact of the development and associated transportation infrastructure on the existing sensitive receptors, including the key location of the Grand Union Canal.

As a result of the work undertaken by the acoustic team, a mitigation strategy was devised which protected existing noise sensitive receptors where appropriate, whilst minimising the potential impact on the design of the scheme.





LOCATION

ONGOING

CLIENT

GUILDFORD, UK

UNDISCLOSED

COMPLETION DATE

STANTEC SERVICES

Weyside Urban Village

Weyside Urban Village is a major land development scheme which forms part of a wider strategic site allocated in Guildford Borough Council's (GBC) Local Plan. The 41-hectare development will provide up to 1,550 residential units, employment space, a new local centre, flexible community facilities and the relocation of a GBC depot. The application will also include the demolition of an existing community waste and recycling centre (CRC and WRC) and an existing Sewage Treatment Works (STW), which will be re-provided elsewhere in the site allocation under separate planning applications.

Stantec have been advising on the project since 2017 but were appointed in January 2020 under the ESPO 664-17 Framework (Consultancy Services) for Environmental Impact Assessment (EIA) services which include the coordination of a large multi-disciplinary environmental services team; Biodiversity; Flood risk; Landscape and townscape; Air quality and odour; Acoustics; Lighting; Heritage & archaeology; Ground conditions; Climate change and carbon; Health; Socio-economics; Sustainability; and Waste.

Previous applications prior to Stantec's involvement had not progressed due to risks associated with the relocation of the STW and waste facilities. The client's aspiration was to obtain planning permission for the new development so they could provide the much-needed housing for all ages, new employment opportunities and community space for its local residents.

The acoustic team assisted in the development of the scheme through the EIA stage with assessment work including detailed environmental sound surveys and acoustic modelling. Due to the constrained nature of the scheme, it was necessary to balance acoustic objectives with the wider objectives of the scheme. This meant adopting a holistic approach and using the EIA process to enable these risks to be identified. Suitable mitigation was incorporated into the design of the scheme, or delivered through the demolition and construction process.

FEATURED PROJECT

Gravity Smart Campus

Stantec were originally appointed by BAE Systems in 2007, as part of their framework, to deliver environmental (including Environmental Impact Assessment), economic and transport planning services of the proposed Huntspill Energy Park near Bridgewater, Somerset which has now become Gravity.

Stantec engaged with Gravity in 2017. The Stantec project team had collaborated well previously, therefore, it was a natural step to retain Stantec as lead engineering consultant and support Gravity in their pursuit of the site, for delivery to meet modern demands, supporting due diligence and minimising risks.

Gravity has an ambition to create a smart campus generating more than 4000 green collar jobs, providing both a strategic economic stimulus to drive economic renewal, shaping and connecting to a green supply chain across the UK. The site is positioned as a hub for international business, start-ups and SMEs. Gravity will be a home for 'Clean Growth' and green industries, creating the space to innovate and provide green solutions from energy to smart mobility.

Working in collaboration with other disciplines across the practice, the acoustics team undertook the environmental impact assessment of the site.

This involved undertaking detailed environmental sound surveys of the existing baseline conditions and using the results of the surveys to inform the development of a comprehensive acoustic model.

The results of the acoustic model were used to inform the development of the masterplan ensuring that noise sensitive uses were appropriately located. Less noise sensitive uses were located closer to the dominant noise sources with this development further screening noise sensitive uses in other areas of the site.

As the masterplan developed the model was also used to assess the potential impact of the development and associated transportation infrastructure on the existing sensitive receptors.

Beam Park

On 28 September 2018, Countryside and L&Q secured planning approval for their proposals for Beam Park, creating 3,000 new homes (50% allocated to affordable housing), on a derelict former factory site in the London Boroughs of Barking and Dagenham and Havering.

The proposals also include a new railway station on the C2C line, framed by a high-quality public square, as well as a medical centre, two schools, retail spaces, a gym, nursery, community facilities, a multi-faith space. A new park will be provided at the centre of the site along the route of the River Beam, as well as a network of open space throughout the site, and on-site energy centres.

Working on behalf of Countryside and L&Q, our team were appointed to provide both the environmental and transport advice for the hybrid planning application of the major redevelopment of Beam Park, to bring these proposals forward and deliver the much needed new homes for Londoners.

The site has various challenges to overcome in its delivery, including the need to remediate contamination on the site, manage flood risks, respond to railway noise from the train line to the south of the site and the extensive utilities infrastructure under the site.

LOCATION

LONDON. UK

COMPLETION DATE





THE TEAM PROVIDED US WITH ENVIRONMENTAL AND
TRANSPORT ADVICE TO BEAM PARK FROM THE OUTSET. THEY
COMBINE STRATEGIC THINKING AND PRACTICAL DELIVERY, AND
HAVE BEEN INSTRUMENTAL IN HELPING US PICK THROUGH THE
CHALLENGES ASSOCIATED WITH A DEVELOPMENT THAT WILL
DELIVER 3,000 HOMES, TWO SCHOOLS, A NEW RAILWAY STATION,
MEDICAL CENTRE, TWO ENERGY CENTRES AND SUPPORTING
COMMERCIAL/COMMUNITY FACILITIES"

ANDREAS VASSILIOU

ASSOCIATE DIRECTOR, COUNTRIES PROPERTIES





LOCATION

VARIOUS LOCATIONS, UK

COMPLETION DATE

2018

CONSTRUCTION COST

UNDISCLOSED

STANTEC SERVICES

PLANNING, ACOUSTICS

CLIENT

HB VILLAGES

FEATURED PROJECT

HB Villages

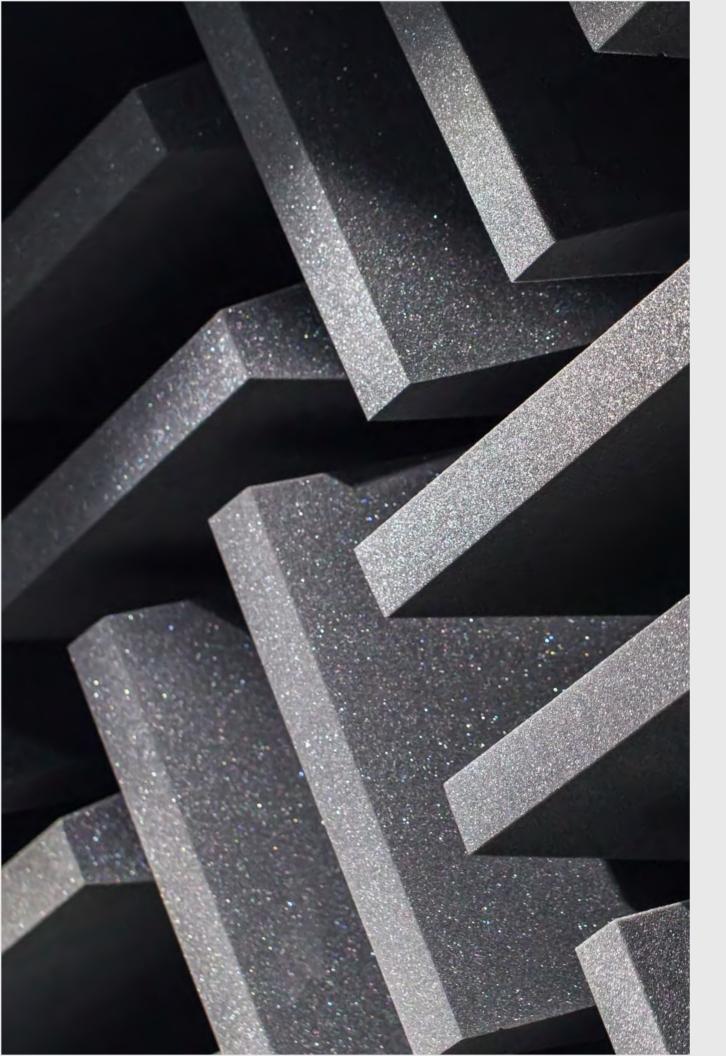
A number of noise impact assessments have been provided for HB Villages, a specialist developer of supported living apartments.

As part of the planning application a detailed noise impact assessment is often required by local authorities to demonstrate the appropriateness of the selected site for the proposed scheme.

Working in collaboration with other disciplines, the acoustics team conducted a detailed environmental sound survey of the site and assessment of its suitability for the proposed development. The impact associated with each acoustic constraint was identified and practicable mitigation measures proposed where appropriate.

Acoustic modelling mapped noise levels across the site and inform the assessment and design of the site.

Sensitive discussions were undertaken with the local authority in order to determine their requirements with respect to noise to ensure that the development met their aspirations. Early liaison with the local authority was essential as it allowed the design to take account of their concerns and helped ensure the smooth progress of the proposals through the planning process.



Leadership Team



OLIVIER GAUSSEN
GLOBAL ACOUSTICS LEAD, DIRECTOR



BASEL JURDY
ACOUSTICS DISCIPLINE LEAD,
PRINCIPAL, NORTH AMERICA



FRANK BABIC
ACOUSTICS PRACTICE AREA LEAD



ALEXANDRE BRIOT
ACOUSTIC TEAM LEAD, QUEBEC



MATTHEW BARLOW ACOUSTIC TEAM LEAD, UK



JONATHAN CHUI SENIOR NOISE SPECIALIST



Olivier Gaussen

GLOBAL ACOUSTICS LEAD, DIRECTOR Olivier.Gaussen@stantec.com





Basel Jurdy

ACOUSTICS DISCIPLINE LEAD, PRINCIPAL, NORTH AMERICA Basel.Jurdy@stantec.com



Olivier joined Stantec in 2009 as the acoustic section manager in the Sydney office. Since 2012, he's served as our national acoustics coordinator.

His experience and understanding of other disciplines relating to acoustics—such as mechanical, electrical, hydraulics, architectural, and structure—allows him to provide an integrated approach to acoustic design. He can ensure that a project's acoustic performance requirements are met without compromising the design intent.

Outside work, Olivier enjoys spending time with his family: Georgina and their two boys Noah and Leo. Olivier also likes to play beach volleyball which reminds him of the years when he used to play in the national league in France. Other than that, he enjoys skiing, playing the drums, and catching up with friends around a glass of Pinot Noir.

Basel believes that listening to a client's desired acoustical end results without preconceived solutions in mind is crucial to achieving a design that enhances a space. Asking questions invites the client to reveal more. Listening to answers and finding the best solutions for that unique project brings the client's vision to life.

With more than 27 years of experience, Basel is a dynamic project leader and a natural mentor. His advice to young acousticians is to listen first. Then, educate the team on the art and science behind acoustics, so it becomes apparent why standard acoustical treatments are not the right solution for every project.

An engineer by schooling, Basel pursued a career in acoustics where he discovered the artist in himself. His activities away from the office reflect his strategic side as an avid tennis player and his artistic side through ballroom dancing. He taps both attributes to create environments that delight project owners and users alike.



Frank Babic

ACOUSTICS PRACTICE AREA LEAD, ONTARIO Frank.Babic@stantec.com





Alexandre Briot

ACOUSTIC TEAM LEAD, QUEBEC Alexandre.Briot@stantec.com



Frank has a deep passion for integrating acoustics, noise, and vibration solutions into the variety and depth of projects offered by Stantec. This stems from combining his passion for music (has a solo project called High Park Society) with his civil engineering education—leading to unique, high-quality engineering approaches for his clients.

As a licensed professional engineer, Frank has over 20 years of engineering consulting experience. Areas of technical expertise include engineering consultation in environmental noise, transportation noise, building acoustics, vibration, and monitoring (noise and vibration). Frank is a recognized subject matter expert in his field, and he's presented at numerous technical conferences in Canada and the US.

As Stantec's Acoustic practice lead, Frank leads a core team of specialists and experts in the field of acoustics, noise, and vibration. This group of highly-specialized individuals offer quality engineering services and client-orientated focus to ensure that we deliver our solutions to the quality expected by Stantec and its clients.

Alexandre is the team leader for the acoustics and vibration services within the province of Quebec (Canada). With more than 21 years of design experience in acoustics, his expertise includes, in particular, acoustic impact studies which, utilize computer modeling, studies concerning architectural acoustics or studies related to rail transportation.

In addition, over the years, Mr. Briot has acquired great expertise in the field of soundproofing of buildings and ventilation. To this end, he is responsible for the acoustic part of the projects inside the Fixed Equipment Project Office of the Metro [partnership Stantec and Société de transport de Montréal (STM)] which aims to renew the fixed equipment of the metro in Montreal, including the repair of ventilation stations, the installation of large-capacity generators or even the construction of the new STM control center. In addition, he participated in the project to extend the metro line to Laval and Blue line with regard to the soundproofing of new ventilation stations, jet fans and ventilation of generator sets. Outside the office, you may come across Alexandre on his motorbike. He likes to discover new landscapes by traversing winding paths like the Alps. In terms of his other hobbies, soccer or kickboxing takes up some of his time.



Matthew Barlow

SENIOR ASSOCIATE, ACOUSTIC TEAM LEAD, UK Matthew.Barlow2@stantec.com



Matt is an acoustic consultant with a broad range of experience in the assessment of noise and vibration for a diverse range of private and public sector clients in the UK and overseas. He has particular expertise in environmental acoustics and building acoustics demonstrated by his work on residential and mixed use projects, infrastructure projects, industrial facilities, schools, healthcare as well as commercial, education, and energy generating facilities.

He has performed numerous environmental noise impact assessments to support planning applications and is familiar with a wide range of policy, standards and guidance including NPPF, NPSE, ProPG, BS8233, BS5228 and BS4142. In addition to more traditional methods of assessment he is an expert in the use of computer models. His involvement in buildings acoustics projects has provided valuable experience and knowledge in creating acoustically appropriate environments through the control of building services noise and vibration, noise and vibration intrusion and sound transmission between spaces.

Design work has been verified by on-site commissioning including pre-completion sound insulation tests, noise intrusion tests on shell constructions and acoustic measurements of building services noise.



Jonathan Chui

SENIOR NOISE SPECIALIST, ALBERTA Jonathan.Chui@stantec.com



Jonathan is a professional engineer with over 19 years of consulting experience in the acoustic industry. He specializes in noise impact assessment, regulatory policy, engineering noise control, source measurement, complaint investigation, baseline noise monitoring, and vibration measurements. He has completed numerous noise assessments for Canadian and international projects in North America, Central American, South America, and Africa.

Over the last decade, Jonathan has lead the Stantec western Canada noise team to serve different industrial and commercial clients in the three western and central provinces of British Columbia, Alberta, and Saskatchewan. The noise assessment projects cover different sectors such as renewable energy, conventional power generation, oil and gas, mining, military, manufacturing, and transportation.

Jonathan's passion includes photography and intrepid travel to far away countries. While at home in Calgary, he enjoys hiking, skiing, and cycling in the Canadian Rockies.

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise; to appreciate nuances and envision what's never been considered; to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers innovating together at the intersection of community, creativity, and collaboration. Balancing these priorities results in projects that advance the quality of life in communities across the globe. Stantec trades on the TSX and the NYSE under the symbol STN. Visit us at stantec.com or find us on social media.