Reconfiguring the Landscape (2019–2022) was an artistic research project investigating how 3-D electroacoustic composition and sound-art can evoke and provoke a new awareness of our outdoor sound environment.

The integration of art and technology was central to the investigation that focused on sound, space, time and the utility of outdoor areas. The ideas were tested in artistic creations, and during a three-year period Natasha Barrett created a series of site-specific, outdoor sound installations. These works were installed in public spaces for durations ranging from a few days to a few months.

The tracks on this CD are remixes of three installations and one two-part work that hovers in between installation and concert format. They are composed from the installation materials and unmodified site-specific recordings, and intend to capture the immersive personal listening experience of 'being there'.

Common to all installations was the approach to sound collection, sound analysis and the aim of each work to be uniquely site-specific. Ambisonic 3D microphones were used to record the sound landscape, sampling seasonal variations from many spatial viewpoints. The aim was to capture the durational character of real-world sound, and to embrace the experience of a 'dweller' who grasps the complete space in a moment of memory. In composition, rather than relying exclusively on the listening ear and conventional autoethnography, Barrett created a new spatial decomposition and analysis method. This method automatically extracts primary spatial features such as static or moving directional sounds and immersive sound-fields from the 3D recordings. Over the course of the project, as recordings became too long and too numerous to rely on autoethnography for a holistic understanding of the site under study, this new method became increasingly useful. Outdoor acoustics were also particularly interesting. 3D impulse responses capturing an acoustic 'fingerprint' of the outdoor space were recorded, and used in composition to magnify subtle acoustic features which everyday listening may easily miss. Finally, each installation

was composed in 3D ambisonics and layered back into the site from which the sources originated.

In an era of urbanisation, exploring ways to manoeuvre our listening to be interested in the everyday outdoor soundscape can enhance wellbeing, especially where noise abatement has limited effect. As the project developed, the installations became increasingly preoccupied with revealing interesting yet hidden details which we ignore or fail to engage with, and to draw them into a new audible reality.

The project was hosted at the Norwegian Academy for Music and funded by the Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education (DIKU).

It was led by Natasha Barrett and included a group of composers, technologists and scientists, each working on their own ideas as well as in collaborative workshop investigations. Project members were professor Natasha Barrett (Norwegian Academy for Music, Oslo) project leader and principle investigator, associate professor Ulf Holand (Norwegian Academy for Music, Oslo), Dr Nadine Schutz (hosted by IRCAM, Paris), Dr Andrew Hill (University of Greenwich, London), Dr Franz Zotter (Institute of Electronic Music and Acoustics, University of Music and Performing Arts, Graz), professor Karen Mair (Department of Geosciences, University of Oslo), Ulf Holbrook (Research Fellow, RITMO Center for Interdisciplinary Studies in Rhythm, Time and Motion, Department of Musicology, University of Oslo, Norway), Elisabeth Sjödahl (Research fellow at the Oslo School of Architecture and Design). Institution collaborators were The Norwegian Academy for Music (Oslo, NO), IRCAM (Paris, FR), SOUND/IMAGE Research Group, University of Greenwich (Greenwich, UK), Conservatorio di Musica Benedetto Marcello Venezia (Venice, IT), The Virginia Tech Institute for Creativity, Arts, and Technology (Blacksburg, USA), and Institute of Electronic Music and Acoustics (Graz, AT).

Norges musikkhøgskole
Norwegian Academy of Music

Norwegian Directorate for Higher Education and Skills

1. Impossible Moments from Venice 2 (2023)

On September 1st 2022 I landed in Venice for the first time. This was to be the final field-trip in the project. Loaded with expectations about history and culture, and influenced by how Venice has featured in the literary fiction of some of our great writers, my goal was to explore this city of islands, canals and bridges. Happy to be there outside the peak tourist season, and a year after cruise ships had been banned from the lagoon, I walked, listened and recorded. The tall and narrow buildings mislead a GPS and cast you into watery dead-ends, while a blind corner may reveal a hidden diagonal bridge leading to a passage the width of a person, transporting you directly to where you had intended to go. Capturing reality seemed impossible. The sounds, the acoustics, the light, the people, and whether the concept of the Venetian as a native inhabitant still exists, created a paradox of past, present and expectations of the future.

Impossible Moments from Venice 1 and 2 are exceptions from the rest of the tracks on this CD. I originally intended to rapidly compose a final site-specific sound installation in the heart of Venice. But despite the fine weather, the threat of rain changed my plans. Impossible Moments from Venice instead became short sound-scape concert pieces. Both unfold from the sound of wooden window shutters opening in the morning. No. 1 creates music from an impossible narrative of floating iron piers,

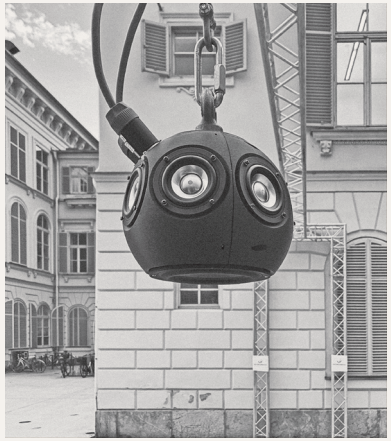
3D impulse response recording outdoors (courtyard of the Conservatorio di Musica Benedetto Marcello Venezia)

vaporetti (water buses) and the behind-the-scenes jostling of the graceful gondolas from 5am to 8pm. No. 2 reveals the outdoor city squares, a fishmonger and church bells, from many vantage points, and ends with a fortuitous recording exemplifying the clash of cultures living side-by-side in this city. The sound materials were recorded with an MHAcoustics EM32 4th order ambisonic microphone, two Dolphin Ear hydrophones and two DPA 4060s. Thanks to the Conservatorio di Musica Benedetto Marcello Venezia for hosting my visit.

2. Speaking Spaces 2: Surfaces from Graz (2021)

The installation 'Inversion 3: Speaking Surfaces' consisted of two parts: one inside and one outside the Mumuth in Graz (AT). This new CD track 'Speaking Spaces 2: Surfaces from Graz' is retitled as a remix of the featured materials from both parts of the original installation, along with some unmodified site-specific sound recordings to set the scene.

'Inversion 3: Speaking Surfaces' was the third installation that I created in the project, and uses similar concepts to the second installation called



Outdoor 170 speaker

'Subliminal Throwback' which was located outdoors in Oslo. The installations in this series were played over an 8-channel loudspeaker array which defined the public listening zone (and in the Oslo version the speakers were hidden inside vegetation). There was also one sub-bass, and new loudspeaker technology engineered for the project by Franz Zotter from IEM. This speaker sends focused sound beams in any desired direction, and when aimed towards surfaces, we hear the reflection of the sound coloured by the materials and geometry of the surfaces. Based on the 24-channel prototype icosahedral speaker that Zotter developed in 2006, our invention called the '170' is an 8-channel compact spherical loudspeaker that takes most advantage of the horizontal axis (vertical is obsolete outdoors). The structure is built using a domestic 3D printer, and is cheap enough to risk in outdoor settings. In 'Inversion 3: Speaking Surfaces', two of these speakers were used: one indoors and one outdoors. The work was commissioned by the musikprotokoll festival (Graz), and played all day from the 7th-9th October, 2021. The onsite installation was made possible by the efforts of IEM. The source materials were recorded with the EM32 microphone around the Mumuth in summer 2018 and winter-spring 2021.

3. Presence / Nærvær (2022)

'Presence / Nærvær' was the last installation that I made in the project. It was located in the courtyard outside the Resistance Museum at Akershus Fortress – a medieval castle in Oslo. The cobbled courtyard is framed by heavy stone walls on three sides and a grassy bank with tall, mature trees. The natural

Installation with public

soundscape changes significantly from hour to hour and day to day. Sometimes the trees dominate with great gusts of sound from the winds rushing in from the harbour. Sometimes it is completely still and silent, at other times throbbing with the bass from idling cruise ships, or cluttered by the noise from nearby construction work. In addition to these physical attributes the site has a long history. Over the centuries the fortress has survived all sieges and was under occupation in WWII. 'Presence / Nærvær'

was the only installation in the series where it felt natural to allude in some way to this history.

The work is created only from sounds that were within ear-shot of the site during a 6-month period. The location is therefore particularly interesting: it is close to both Oslo city centre and the main harbour. Tucked away from the through-flow, people would normally pass by without paying much attention. The sound landscape that drifted into the site included boat horns, hourly chimes and a carillon from the town hall, footsteps, birds, voices of tourists, Norwegian 17th May marching bands, sounds of cruise ships idling, squeaks from ship maintenance and loading, construction work and the hum of the city which has a particular frequency characteristic as the noise refracts around the cityscape. This background soundscape was rich with hardly audible gems which I attempted to draw into the foreground. The sound landscape was recorded with the EM32 microphone. The installation consisted of the 8-channel surround system used previously, and a new waterproof version of the 170 loudspeaker.

The installation played 9.00–21.00 daily in all weather, 16th September to the 2nd November 2022. It was realised in collaboration with Akershus Festning and Stiftelsen Akershus Festning for Kunst of Kultur (SAKK), was also part of the Ultima Festival and opened on Oslo Kulturnatt.

4. Remote Sensing on the Beach (2020)

'Remote Sensing on the Beach' ('Sansing i Strandsona') was the first public space work created in the project, and leans closer to a concert composition than the other installations. The site was a small sandy bay on the east side of the inner Oslo Fjord on the outskirts of Oslo, called Hvervenbukta. The installation

Inside, looking out

was setup inside a beach pavilion dating from 1765.

The work uses winter, spring and early summer recordings recorded with an SPS200 Soundfield microphone, as well as 3D topographical data (elevation maps) describing an arc of small hills surrounding the bay. This was my first attempt at sonifying high resolution landscape topography in 3D sound (sonification is the process of turning non-musical data into sound). The opening of the work is a projection of the landscape falling towards the beach pavilion, where on arrival the sound-world plunges into the tidal zone. Besides the more obvious water, wildlife and people, there are the distant drones of boats resonating across the waters and winter ice layers clinking as the waves roll into the shore.

The work played over a 24-channel 3D speaker array and ran continuously all day from 12th–16th August 2020. Outside sound easily penetrated through the walls and weathered windows of the pavilion, merging the installation with the real-time natural sound landscape. The audience was restricted to only four people at a time, allowing visitors to listen and relax undisturbed by larger groups. Thanks to Oslo Kommune Cultural Affairs for access to the beach pavilion. "Remote Sensing on the Beach" won first prize in the International Coastal Futures Ecoacoustic Music Competition 2021 (USA).

5. Impossible Moments from Venice 1 (2023) (See track 1)

Venice 1

Natasha Barrett (1972) composes concert works, public space sound-art installations and multimedia interactive music using a broad palette of sounds, new technologies and experimental techniques. She is internationally renowned for her electroacoustic and acousmatic music, and use of 3D sound technology in composition. Her work is commissioned and performed throughout the world and has received over 20 international awards including the Nordic Council Music Prize, the Giga-Hertz Award (Germany), five prizes and the Euphonie D'Or in the Bourges International Electroacoustic Music Awards (France), two first prizes in the International Rostrum for electroacoustic music and most recently the honorary Thomas Seelig Fixed Media Award for 2023. She regularly collaborates with performers, visual artists, architects and scientists, is active as a performer of live-electronics and spatial audio, and as a researcher has a track record in both artistic and academic publications.