

Daniela Federer. Interior & Environmental Design. Design and Making.
Duncan of Jordanstone College of Art and Design,
University of Dundee, Scotland.

5.2022



MICRO MACRO

A creative exploration of Landownership
in Scotland



CONTENTS

01. Design Statement	p02
02. Concept	p05
03. Research	p07
04. Spatial References	p29
05. Development	p31
06. Installation	p59

Acknowledgement

01. DESIGN STATEMENT



"As designers we must collaborate with the environment."

As a designer, my interests center around sustainability, nature, and rural areas. Using a creative approach, Micro-Macro allowed me to explore these subjects in depth. During the process, I had the opportunity to spend a lot of time in the wood workshop, learning about materials and gaining making skills. Despite being a proponent of the possibilities that digital tools provide, I believe that nothing can replace the impact of a well-crafted 'real-life' object. This project has been fueled by my passion for the outdoors and my belief that as designers we must try to work with the environment, through sustainable material choices, considering the entire lifespan of our creations.

Daniela Federer

danielafederer@gmail.com

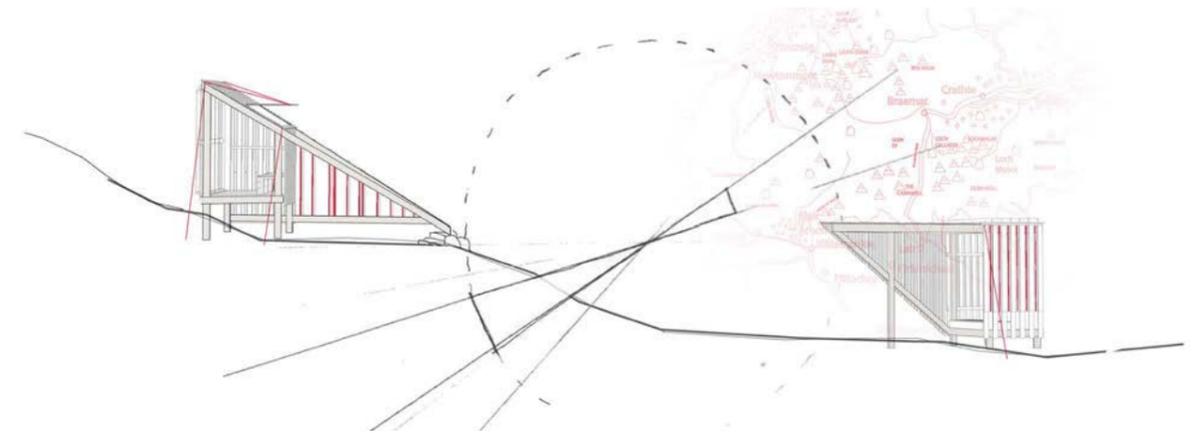
Instagram @dfed.erer

Micro - Macro is supported by:



Dundee Contemporary Arts

02. THE CONCEPT



Micro – Macro is a creative response to Landownership in Scotland, examining its impact on our hills and the environment as a whole. The project seeks to promote discussion rather than make a statement. The concept is built upon the idea of observation. Macro, the larger shelter looks out towards a dramatic mountain view. Walking up a hill just to take a photo, driving to a busy tourist car park, the romanticized view of Scotland. This shelter represents superficial observation.

Macro's sibling, Micro, frames a different experience: as you look closer you begin to develop a deeper appreciation of your surroundings, questioning what is around you, becoming aware that much of what you see has been shaped by those who own it. Micro stands for all the little details found in the Landscape, the plants and animals living in different ecosystems, but also the reality that the Scottish hills are experiencing many environmental issues. These two fundamentally different ways of experiencing the hills are visualized through scale, material choices, interactions, and orientation.

The journey that led to Micro-Macro standing in the Sma' Glen has proven that there are landowners open to conversation, whereby both landowners and other land-users can reach a mutual understanding that preserves our precious hills for all to enjoy.



03. RESEARCH

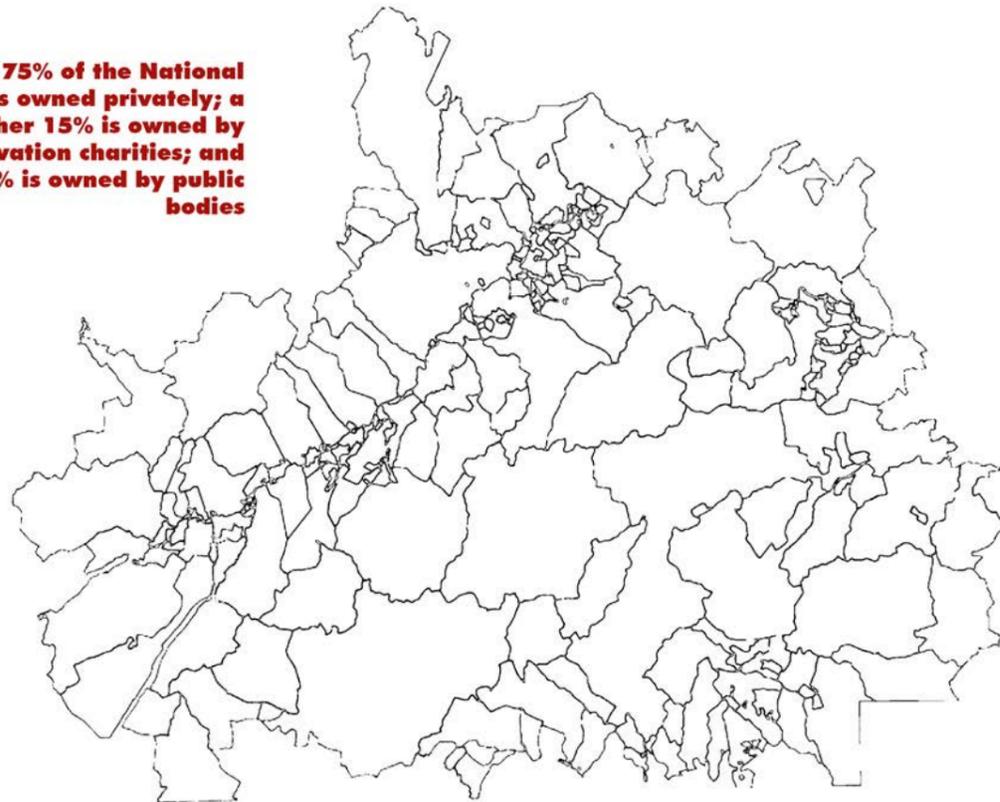
Does it matter who the Land belongs to?

Landownership and Scotland – during my research it became apparent that this is a hot topic, with many strong opinions. With 432 people owning half of all privately owned land in the country, Scotland has the most concentrated land ownership pattern in Europe.

Only after living in Scotland for four years, have I come to learn that the romanticized vision of Scotland pictured in my head wasn't the full reality.

My main point of interest for this project is the Cairngorms National Park. As the name would suggest, I always assumed that the National Park is owned by the Nation. With this being the norm back home in Italy. In the Cairngorms National Park, however, about 75% of the land is privately owned. Whether this is good or bad, should be left for a different debate, however, it is undeniable that the land was and continues to be shaped by the ones who own it. Micro -Macro explores the contrast between natural and 'manufactured' landscapes, inviting visitors to observe and question their surroundings.

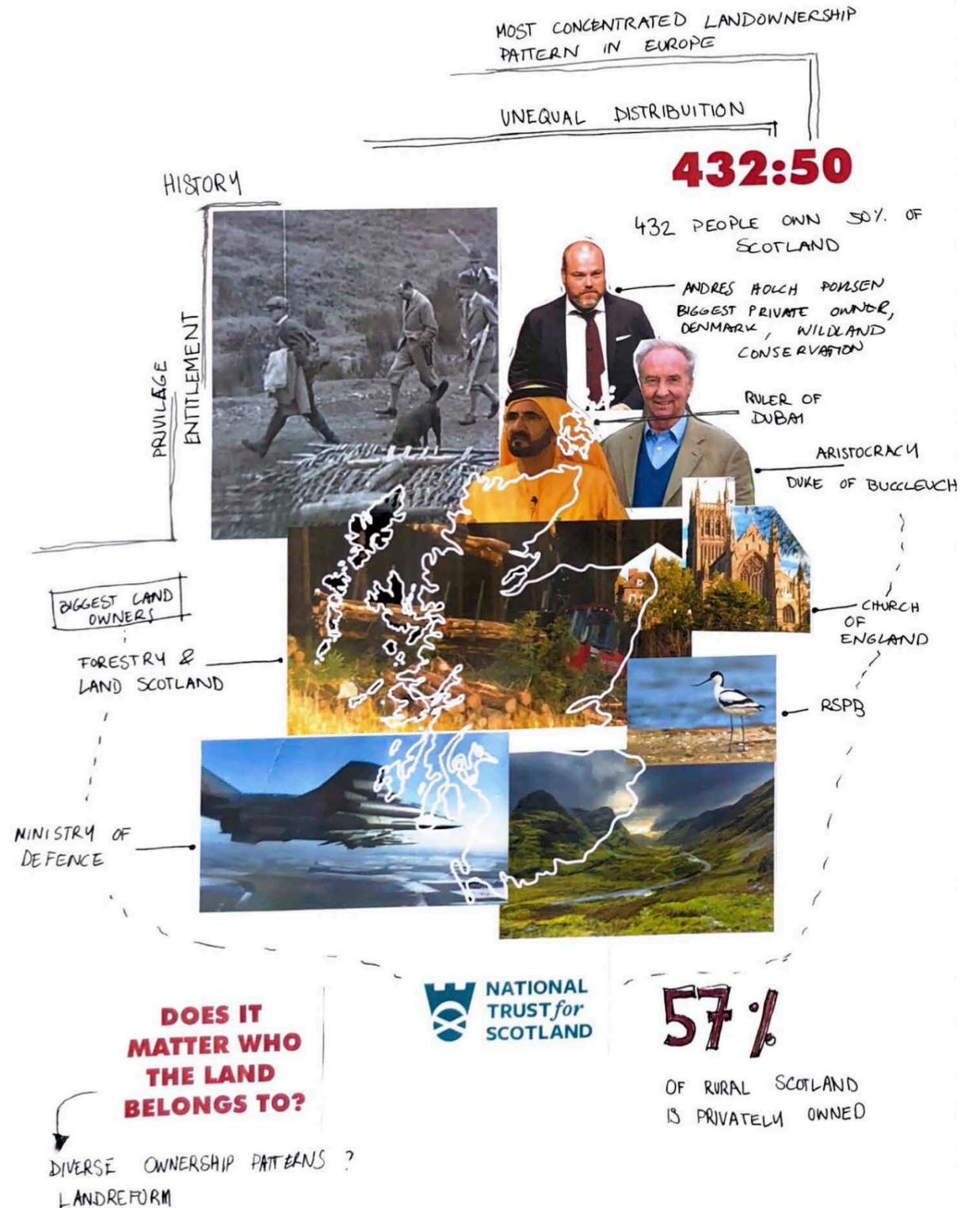
About 75% of the National Park is owned privately; a further 15% is owned by conservation charities; and 10% is owned by public bodies



Map of the Estate boundaries in the Cairngorms National Park

LANDOWNERSHIP IN SCOTLAND

Source BBC: WHO OWNS SCOTLAND



Access Rights

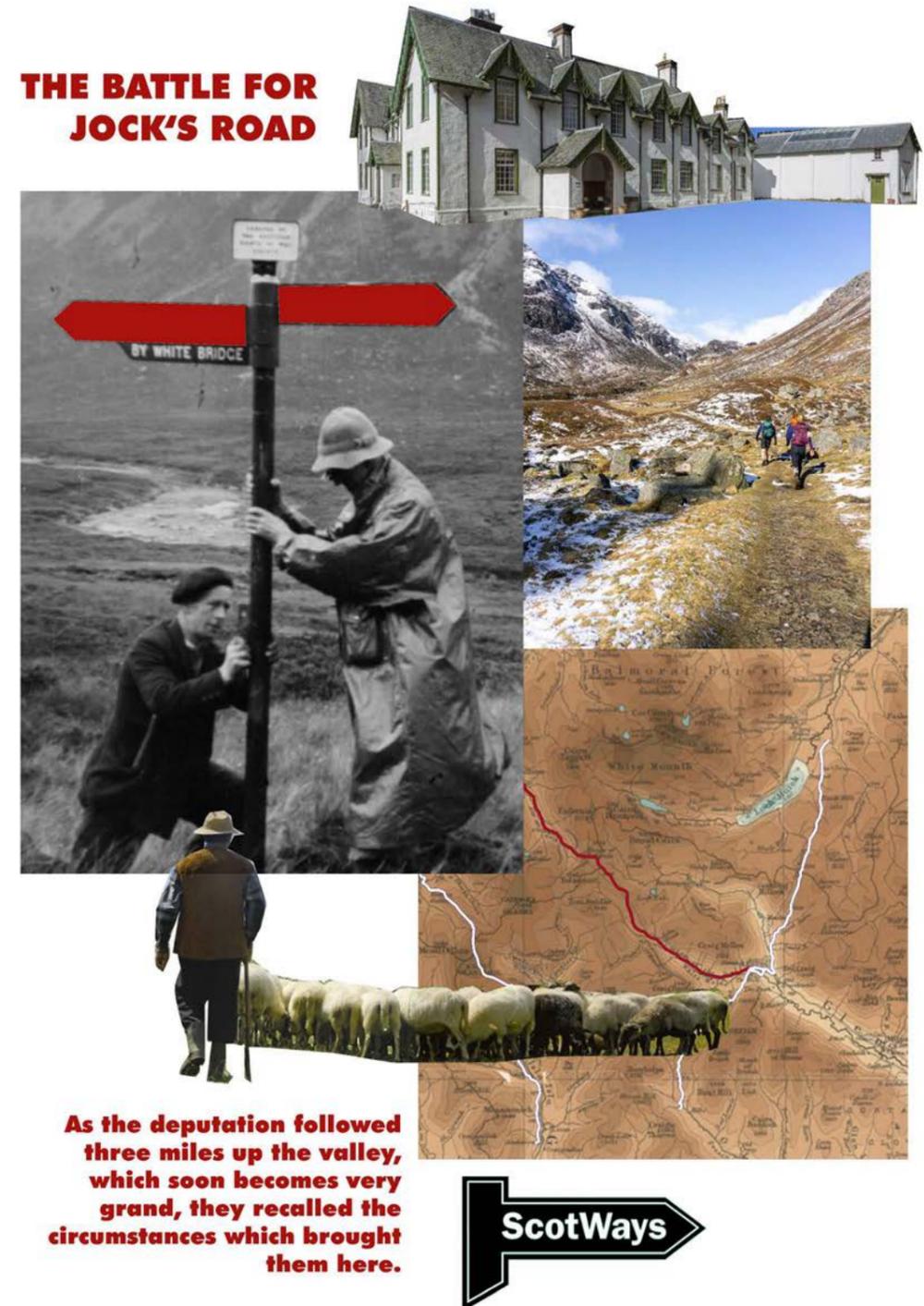
RIGHT TO ROAM



The Land Reform (Scotland) Act gives everyone rights of access over land and inland water throughout Scotland

If you can go wherever you want, does it matter who the land belongs to?

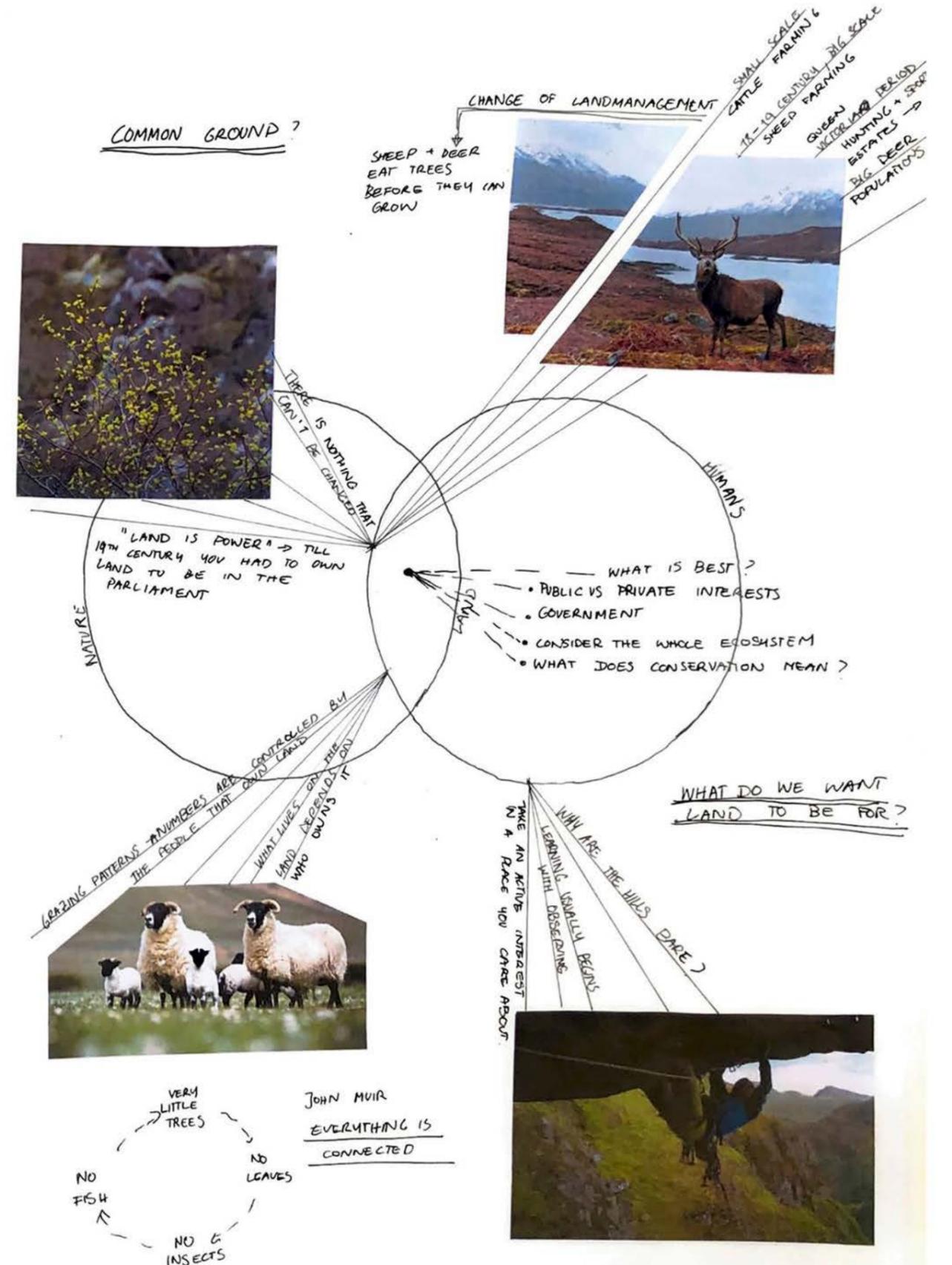
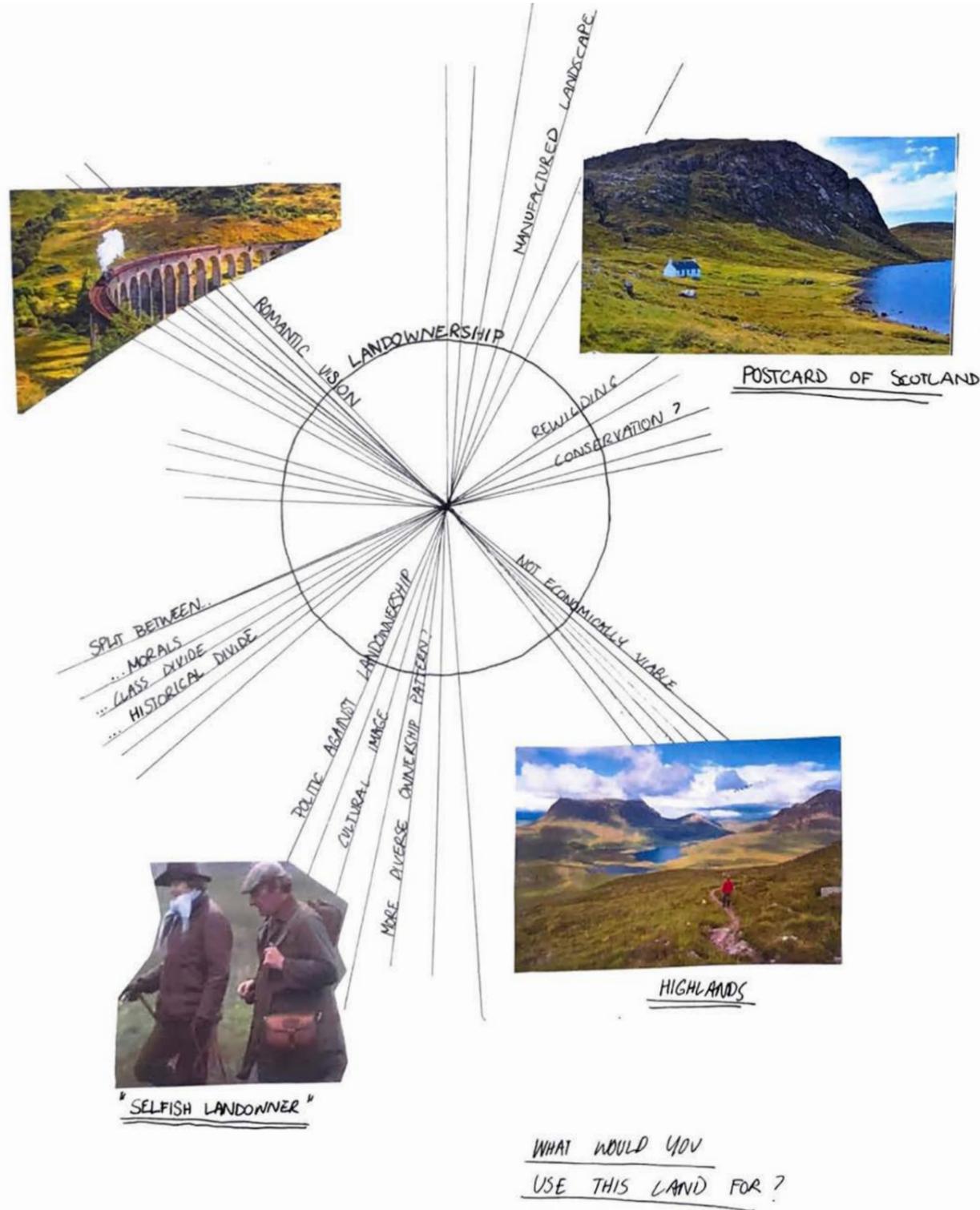
THE BATTLE FOR JOCK'S ROAD



As the deputation followed three miles up the valley, which soon becomes very grand, they recalled the circumstances which brought them here.

The legend: The Shepard Jock was stopped by the landowner during a crossing of Glen Doll with his sheep. He went to court and fought the case for multiple years. Together with the Scottish Rights of Way and Access Society they won the case. Despite there being no proof of Jock Winter's existence, the public footpath from Glen Clova to Braemar was named Jock's Road.

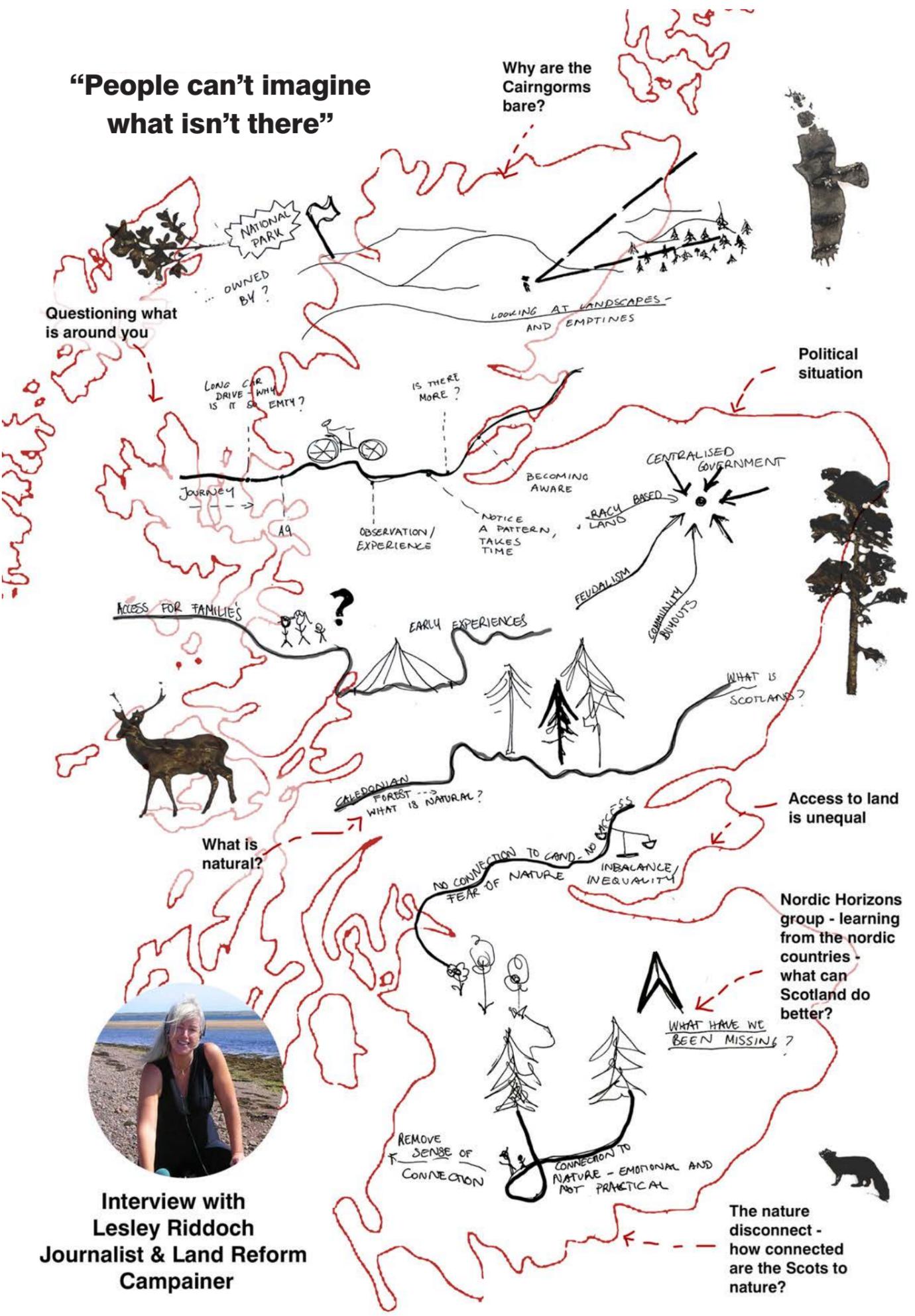
From the sketchbook: exploring opinions surrounding the 'manufactured' Scottish landscapes. Asking why are the hills bare?



Source: Andy Wightman, Scottish Independent politician, Member of the Scottish Parliament from 2016 to 2021

“People can’t imagine what isn’t there”

Why are the Cairngorms bare?



**Interview with Lesley Riddoch
Journalist & Land Reform
Campaigner**

Looking beyond Scotland



Half of England is owned by 25,000 landowners - less than 1% of the population.
92% of the English country side are off limits to the public.
Access to nature is a postcode lottery.



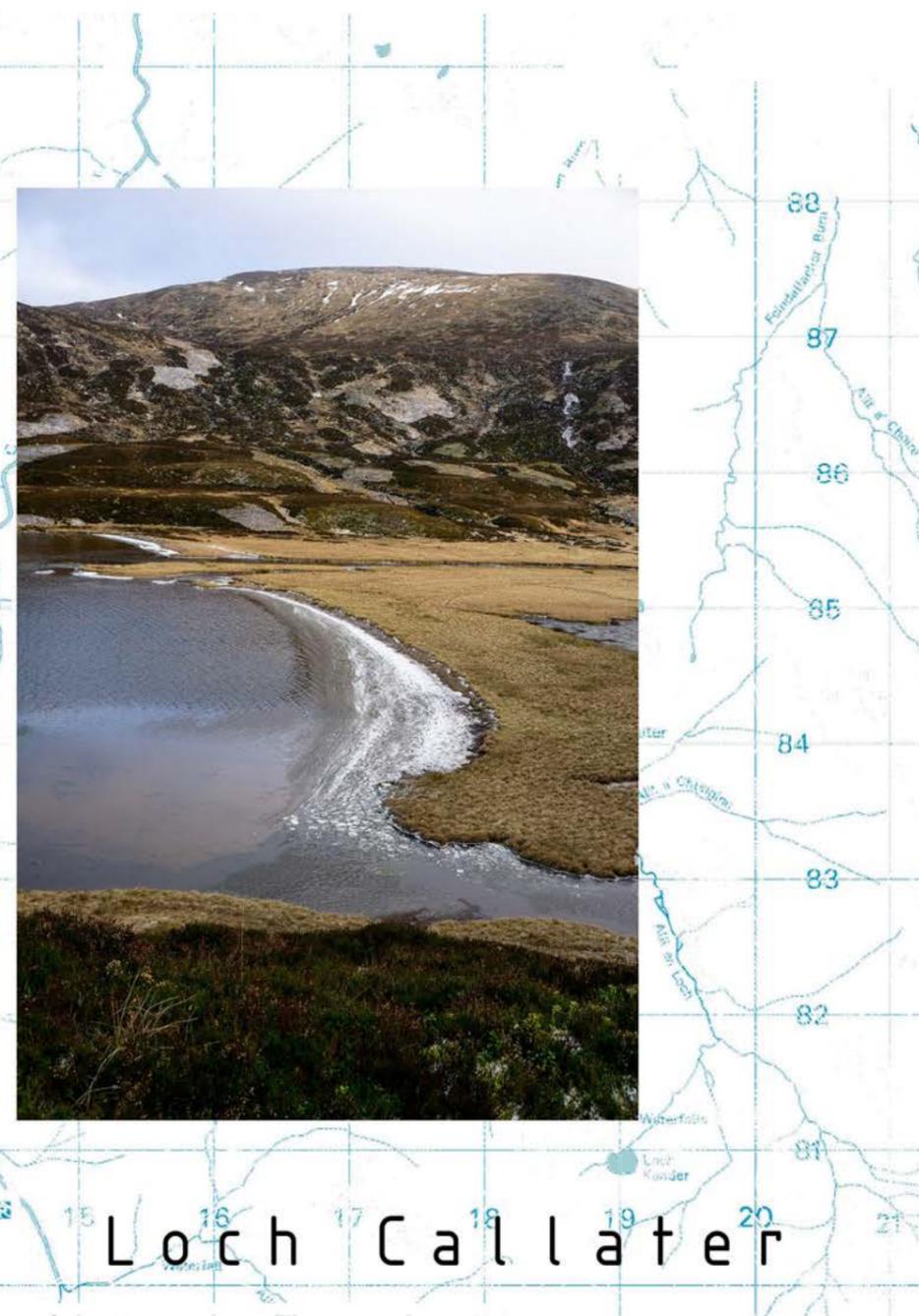
When in 2011 in Austria a mountain peak was put up for sale, the public was so shocked that the sale was stopped by the court.
The Austrian forestry commission and the city of Vienna are the biggest landowners in the country.
Austrian investors are purchasing more land in eastern Europe then ever before.

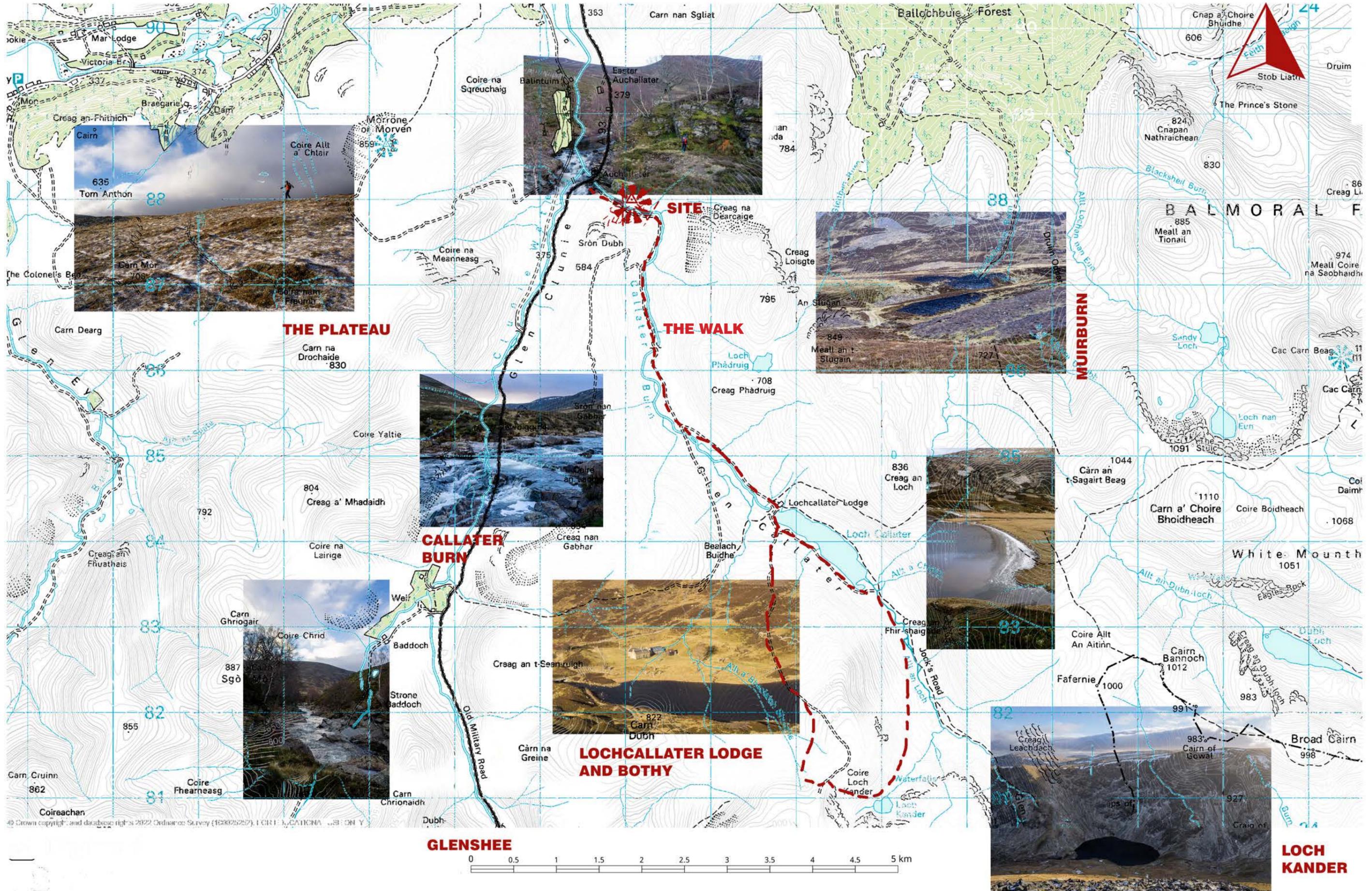


79% of forests are managed by 120,000 private landowners.
According to the Oldesrett law, you can only buy property in Norway if you live on it for the first 5 years continuously.
In Norway, 400,000 huts across the country provide access to nature, compared to the 660 available in Scotland.

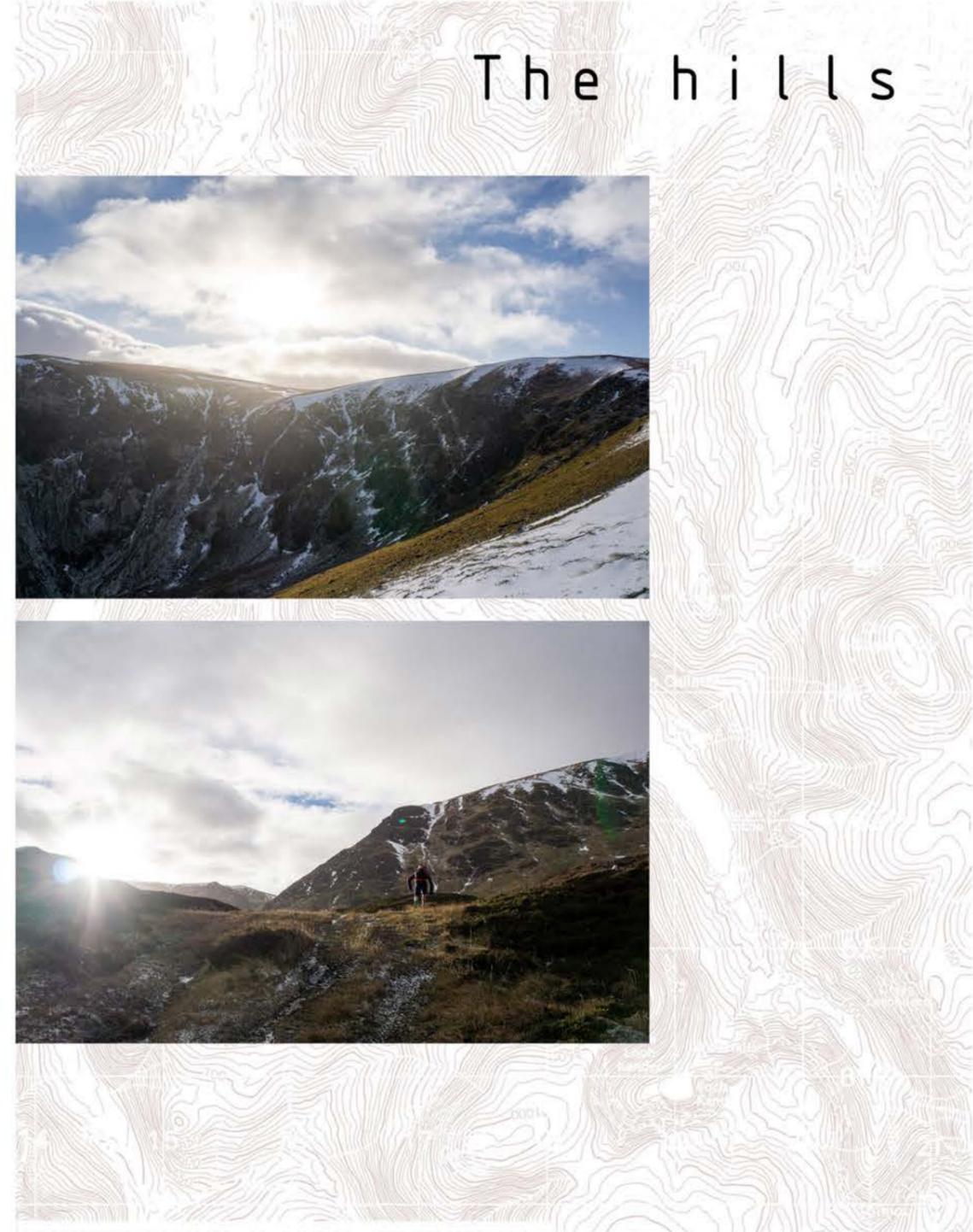
Site Visit

In February 2022 I walked around the center of the Cairngorms, in search of a site and inspiration. What I saw on that walk inspired the concept of Micro - Macro.





Upon reaching the plateau, I was spoiled by a dramatic mountain view. The cliffs towered in front of us as the sunlight hit the ridge line. Truly a spectacular view.



On the walk, I also looked out for the smaller details of the Landscape.



I was fascinated by the repetitive patterns that the elements had created.



R e p e t i t i o n

This area of the Cairngorms has been shaped heavily by humans over the past few hundred years. In reality, most of what you see has been 'manufactured' for a purpose.



Tree
plantations

On the way back to the car park, I spotted a bowl next to the water. When I walked down into the bowl my perception of the surroundings changed. Suddenly, instead of looking at the dramatic mountain view I started noticing what was right there in front of me. The birch trees, the roots, the slate, the sound of water.

What I experienced, I wanted to recreate with Micro - Macro: a place to look out to the distance, and a place to look closer. Micro refers to smaller and macro to larger.



04: SPATIAL REFERENCES

Environment

Weight-bearing paper bridge by Steve Messam, Lake District 2015



Bird observation tower by GMP architects; Germany



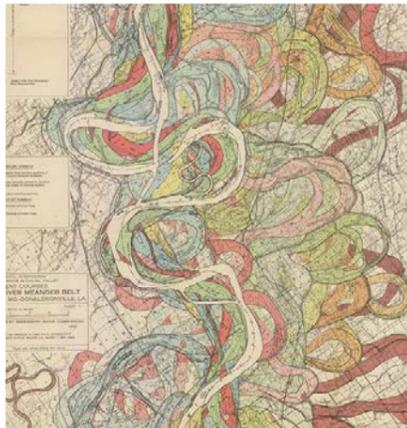
Bothy project Scotland, providing space for accommodation and creative working

Materiality



Skigard Hytte Cabin / Mork-Ulnes Architects; Norway

Sculpture



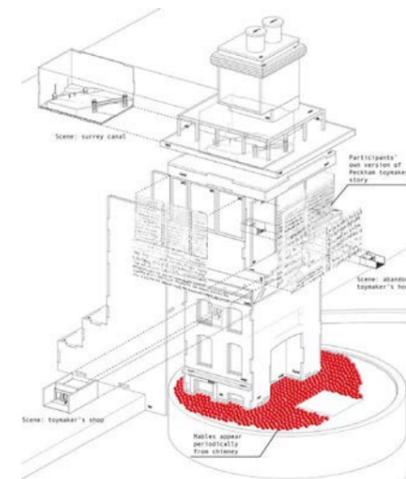
Molalla River Meander, Adrien Segal - A sculpture made from 15 years of river data



Catteran ecomuseum - an outdoor museum in Perthshire



Experience



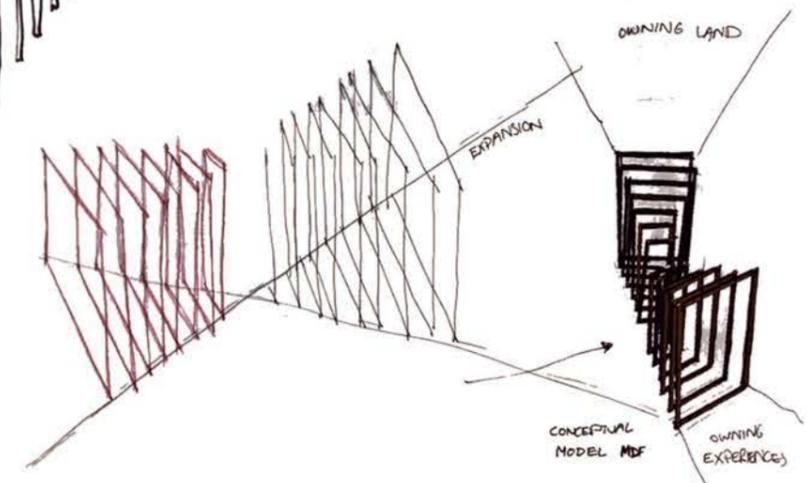
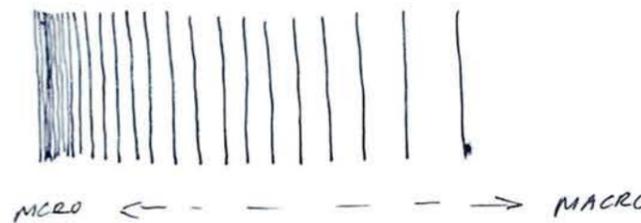
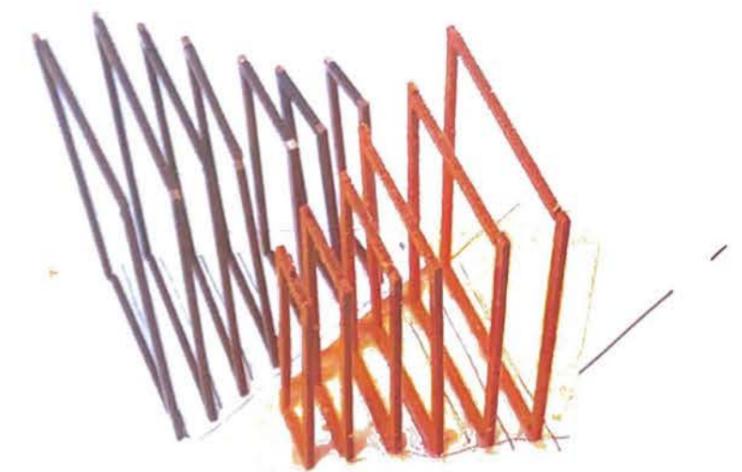
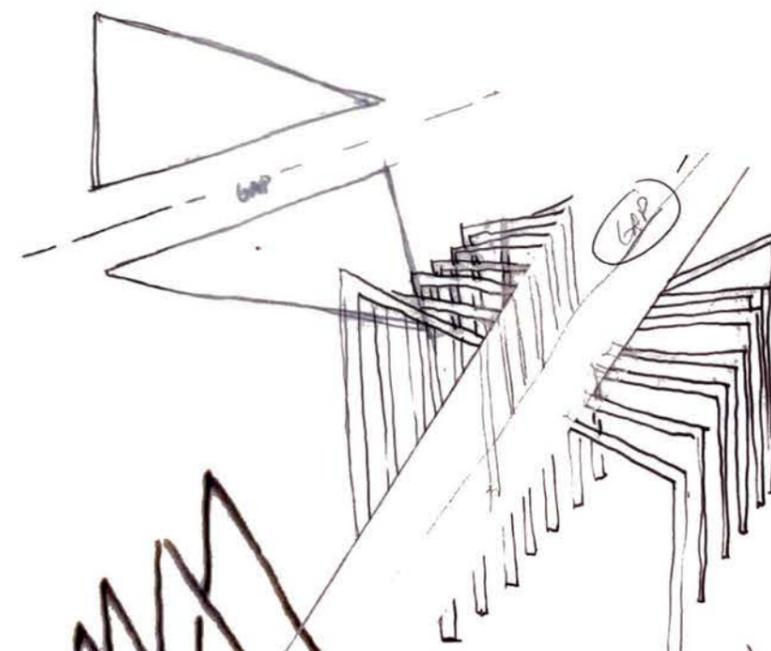
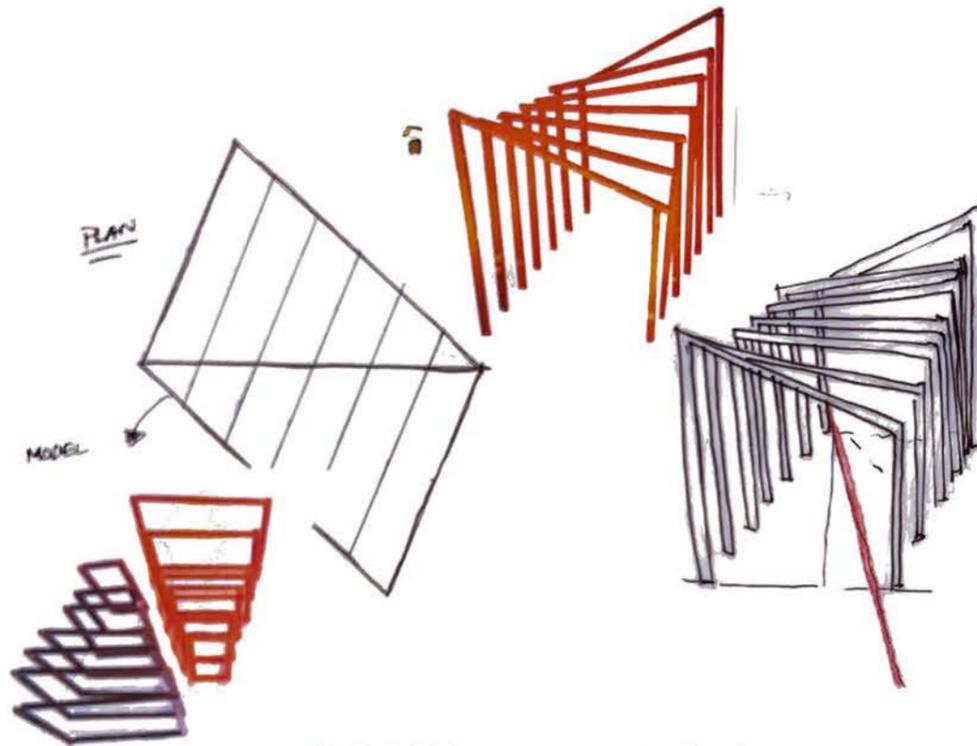
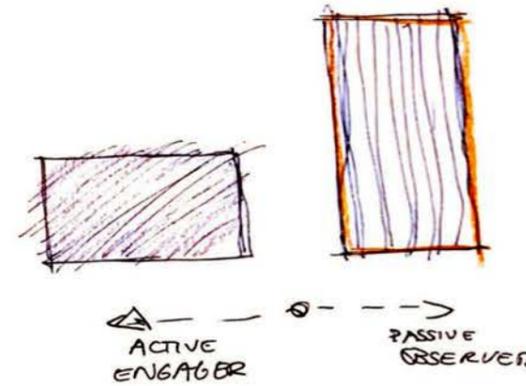
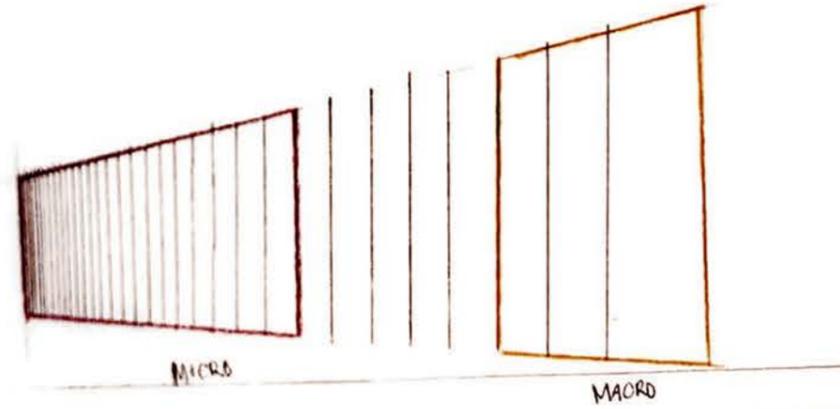
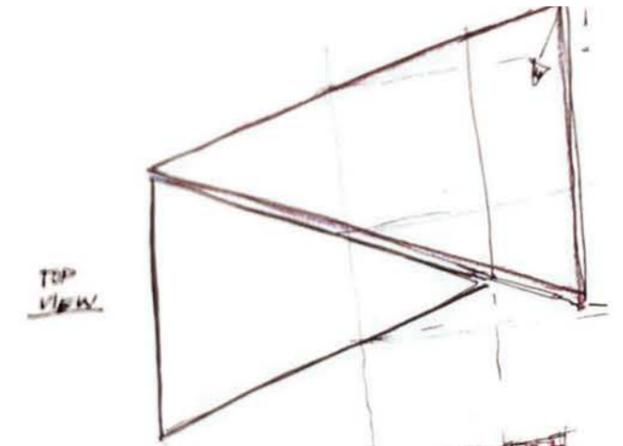
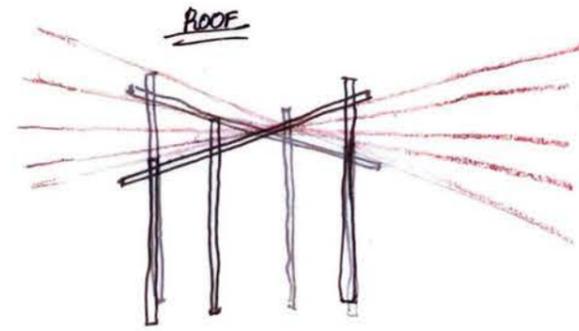
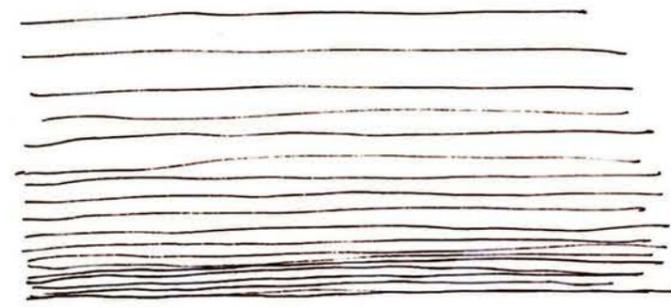
Peckham Toymaker by Tsuruta Architects. London

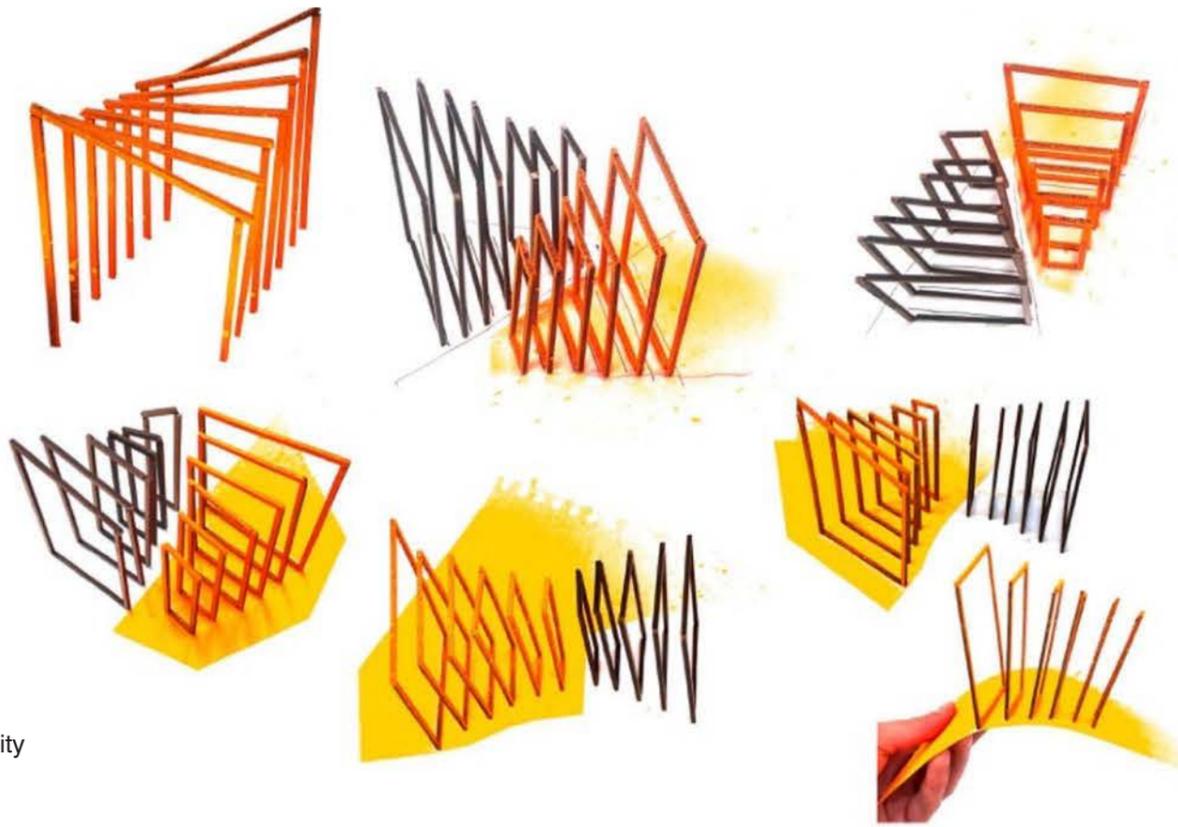
Interaction



05: DEVELOPMENT

Through sketching I explored different concepts, looking at direction, repetition and lines. The idea of duality played a big role in this process. Comparing the ideas of owning the land vs. owning the experiences made on the land. You own these experiences and nobody can take them away from you. While model making, I experimented with openings, colours, shapes and contrast to create 3- dimensional objects from the sketches.

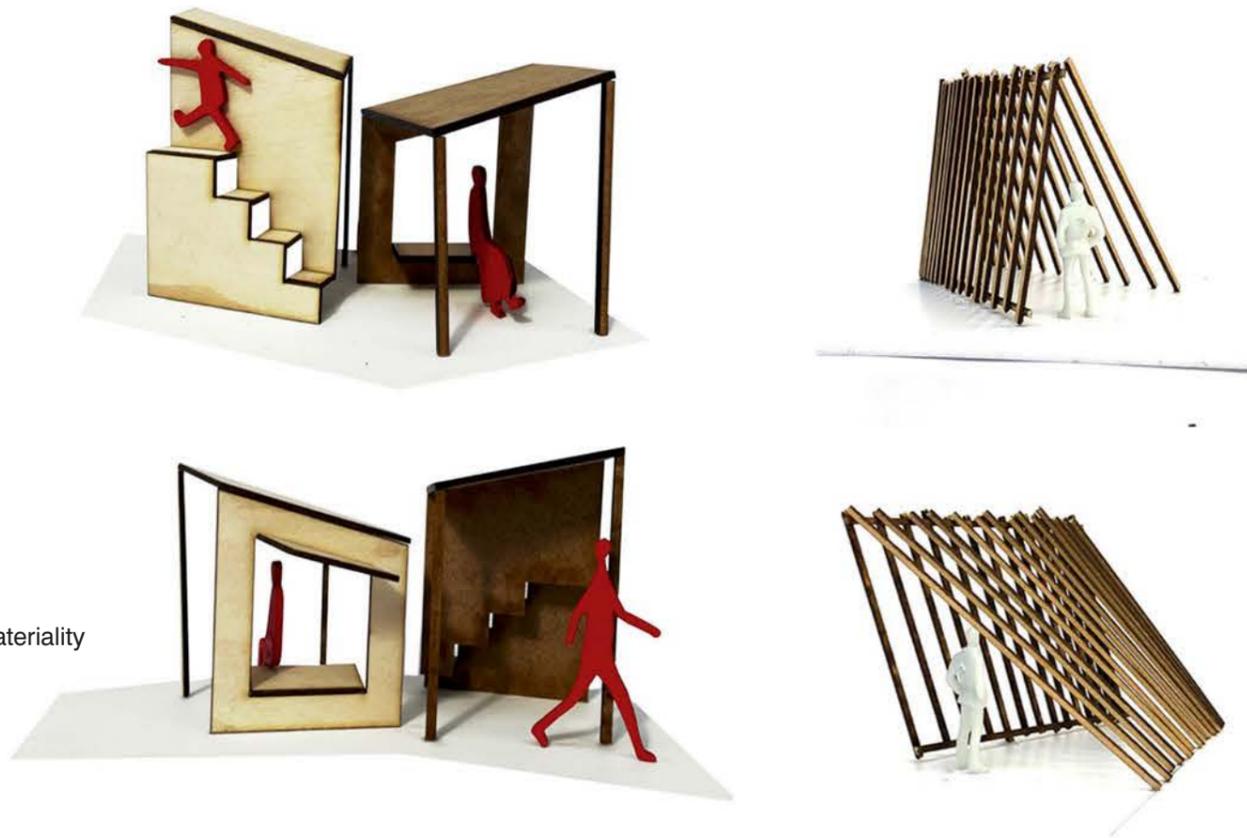




Duality



Open/Closed



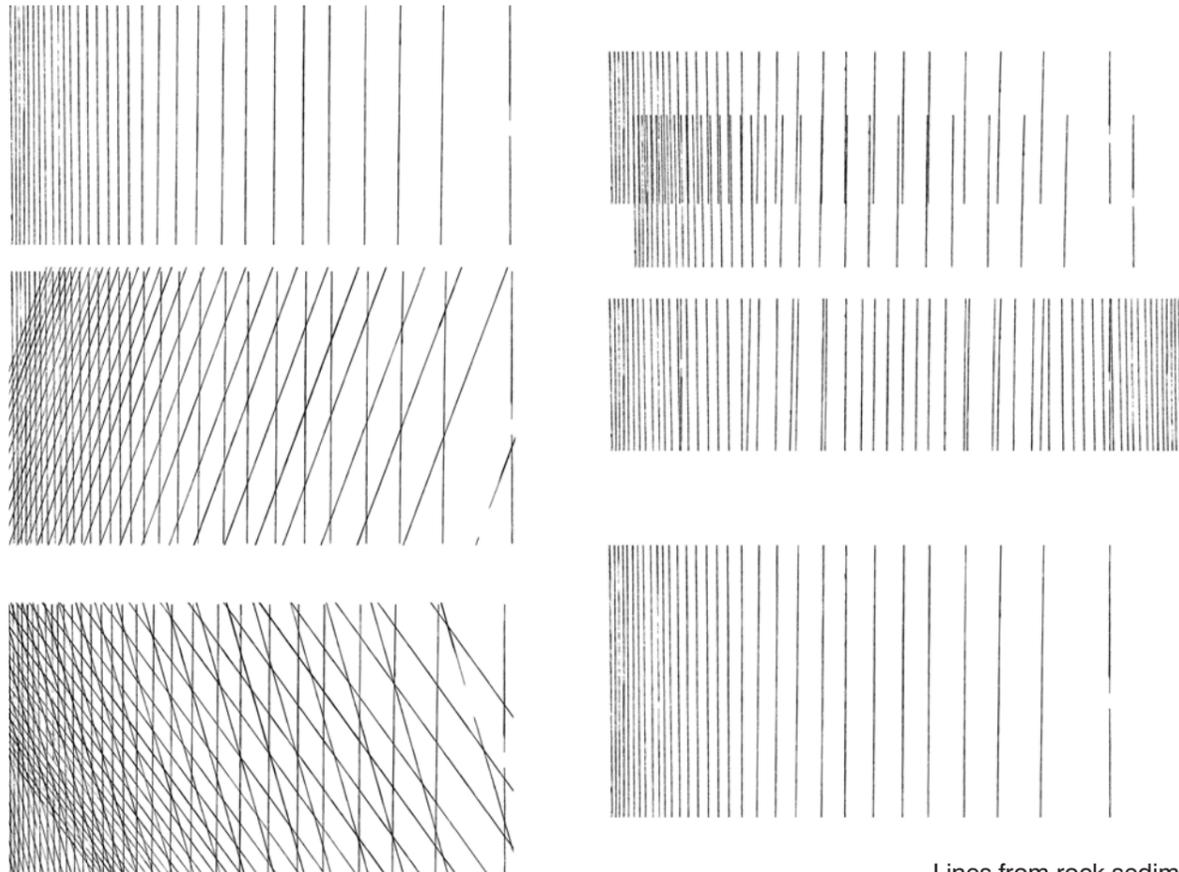
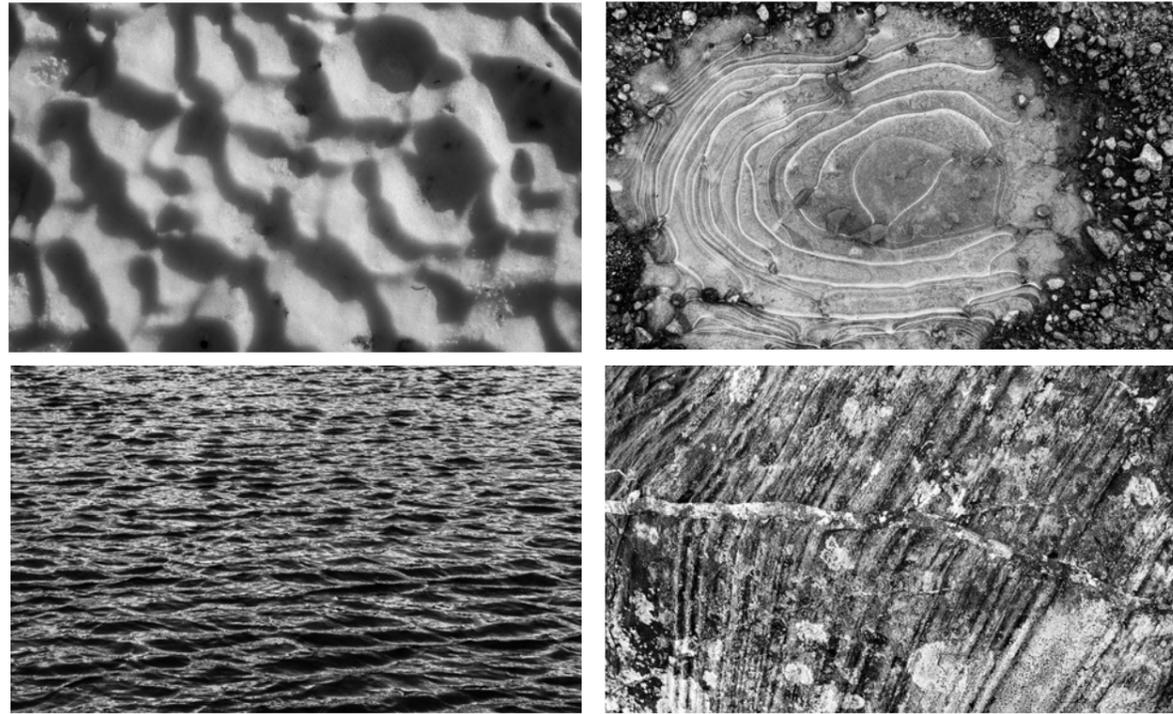
Materiality



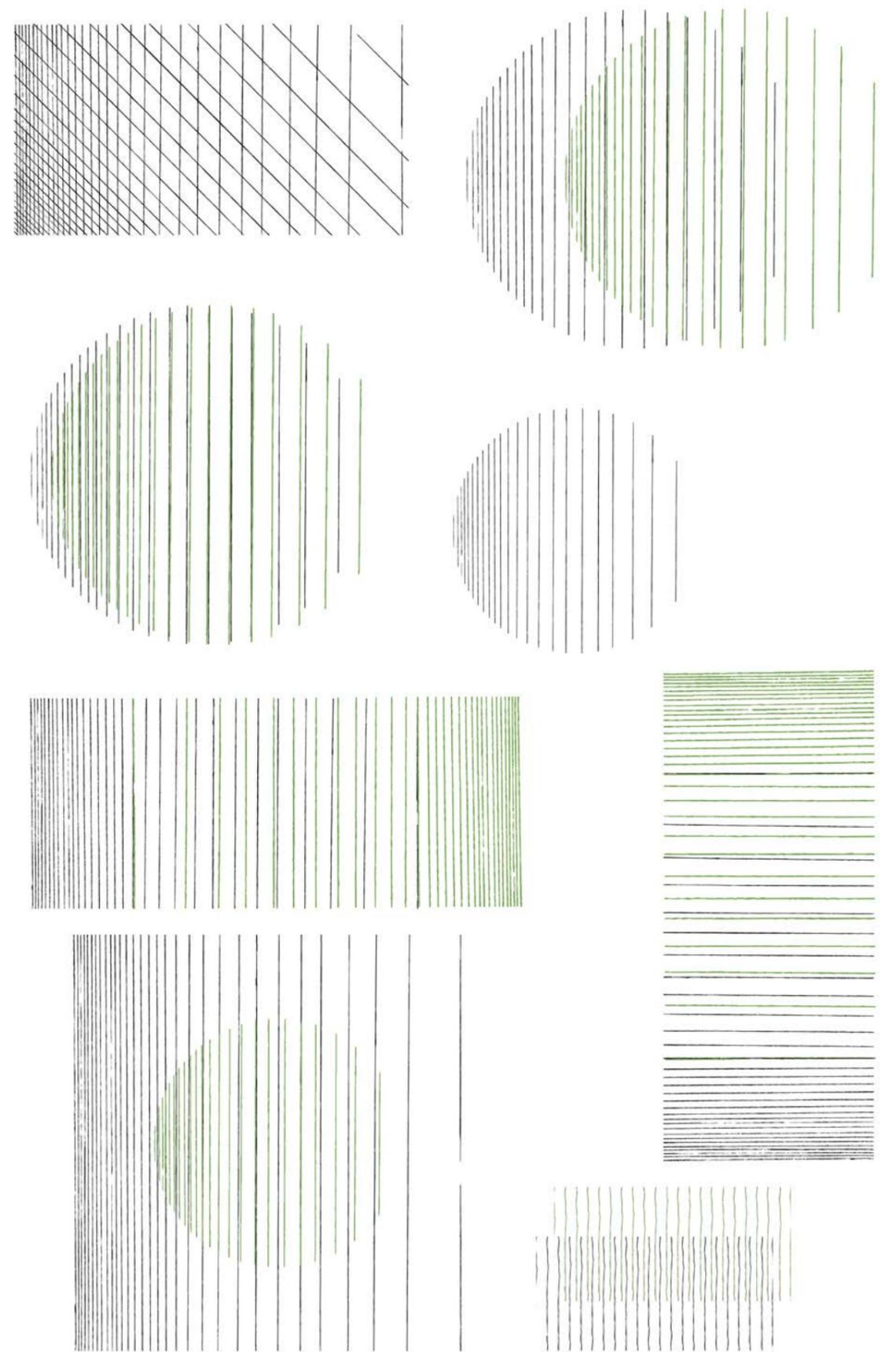
Repetition

Rhythms from Nature

Lines and Rhythms extracted from the site photographs.

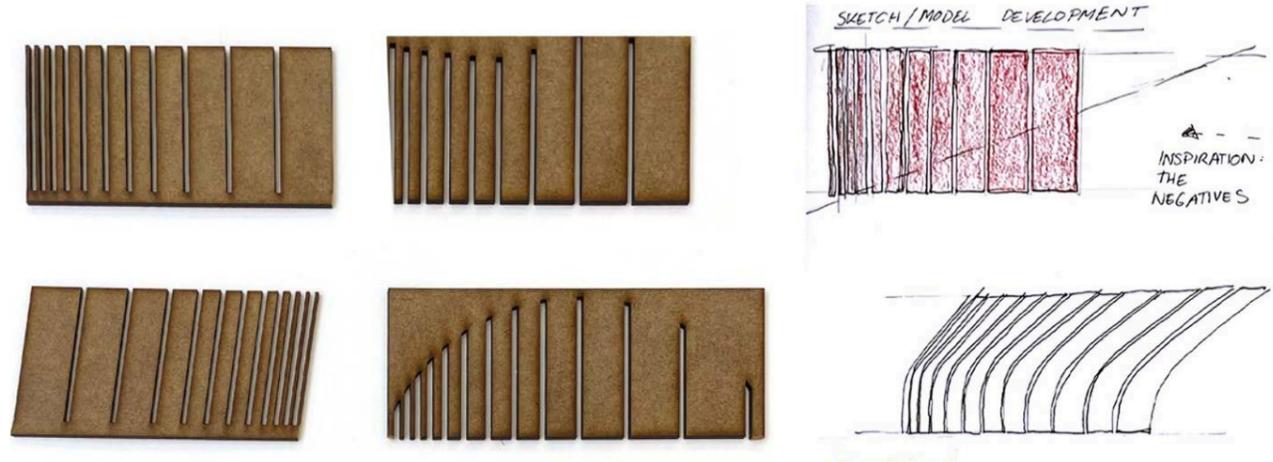


Lines from rock sedimentation

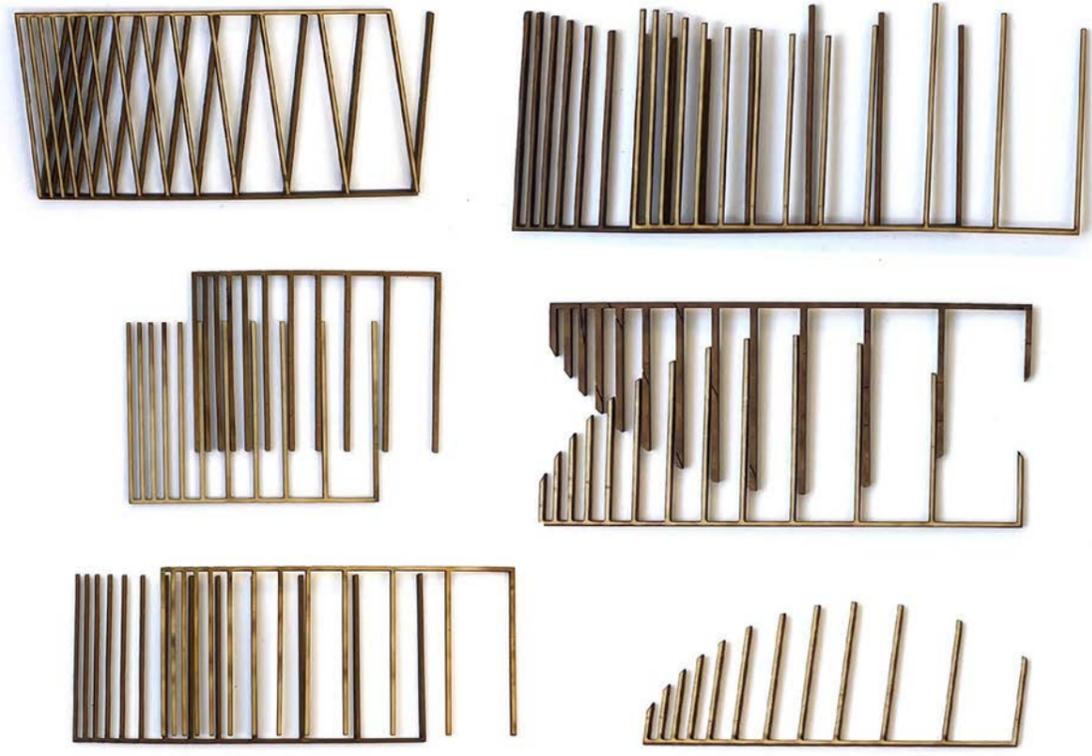


Exploring Lines

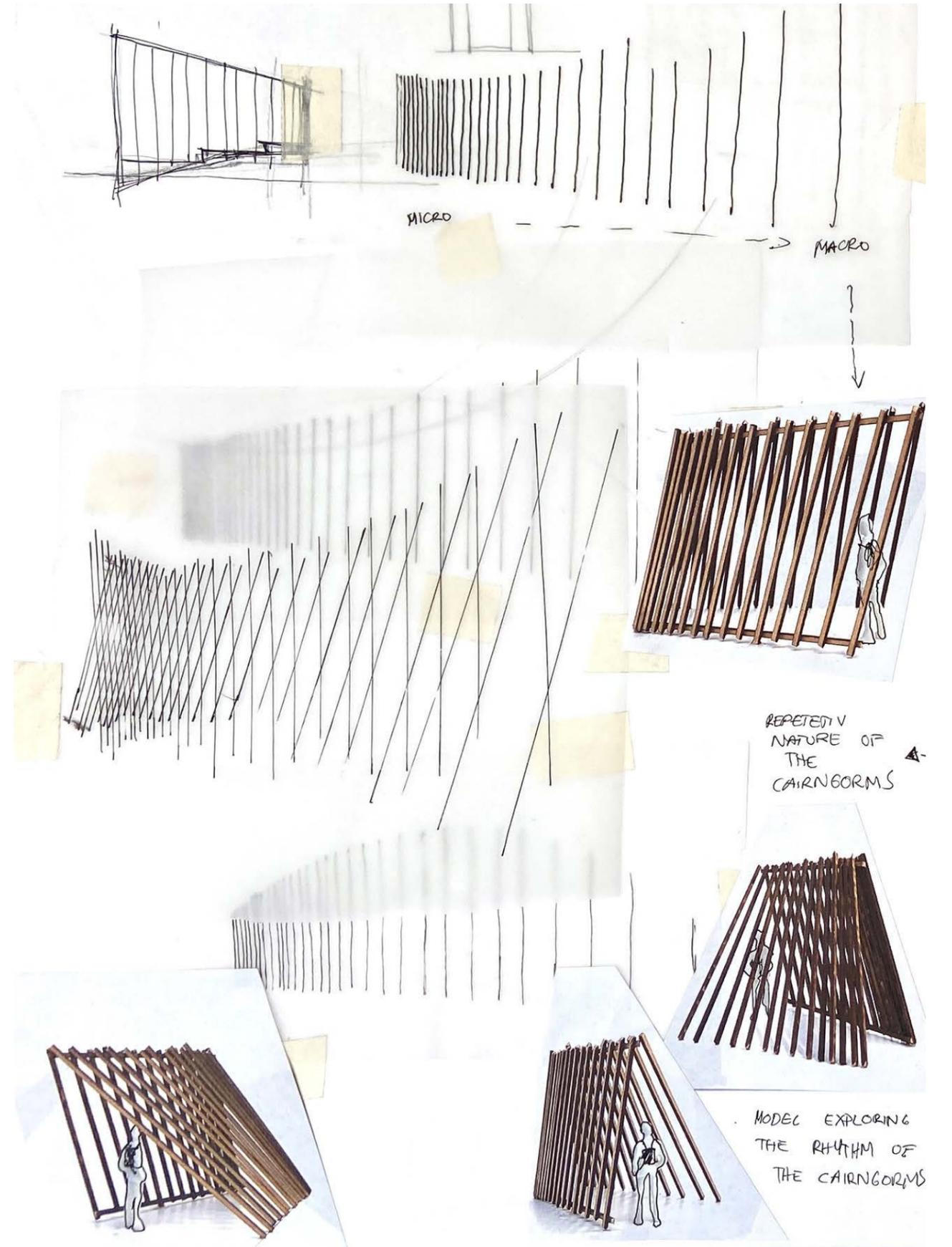
I used the lasers to cut different patterns in order to create space from the flat lines, then using them to build models. The contrast between the lines and the negatives was something I took forward. The micro structure is built on the negatives, creating a more secluded space and the macro structure uses the lines, allowing it to blend in with the landscape.



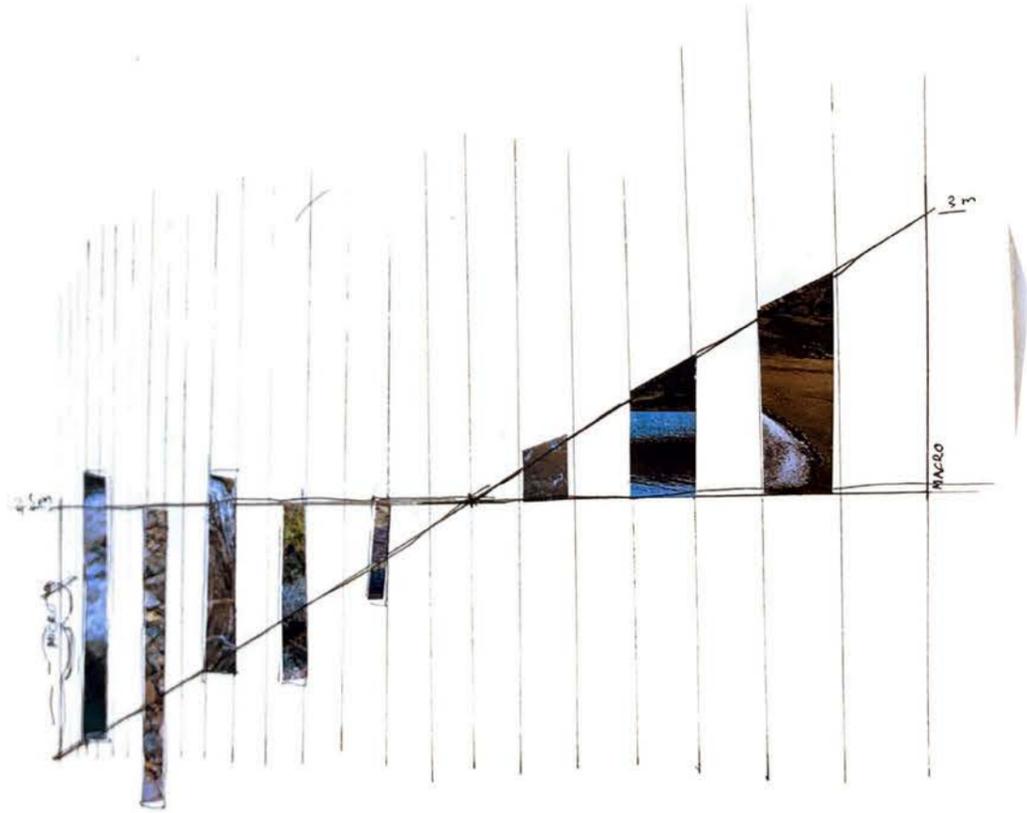
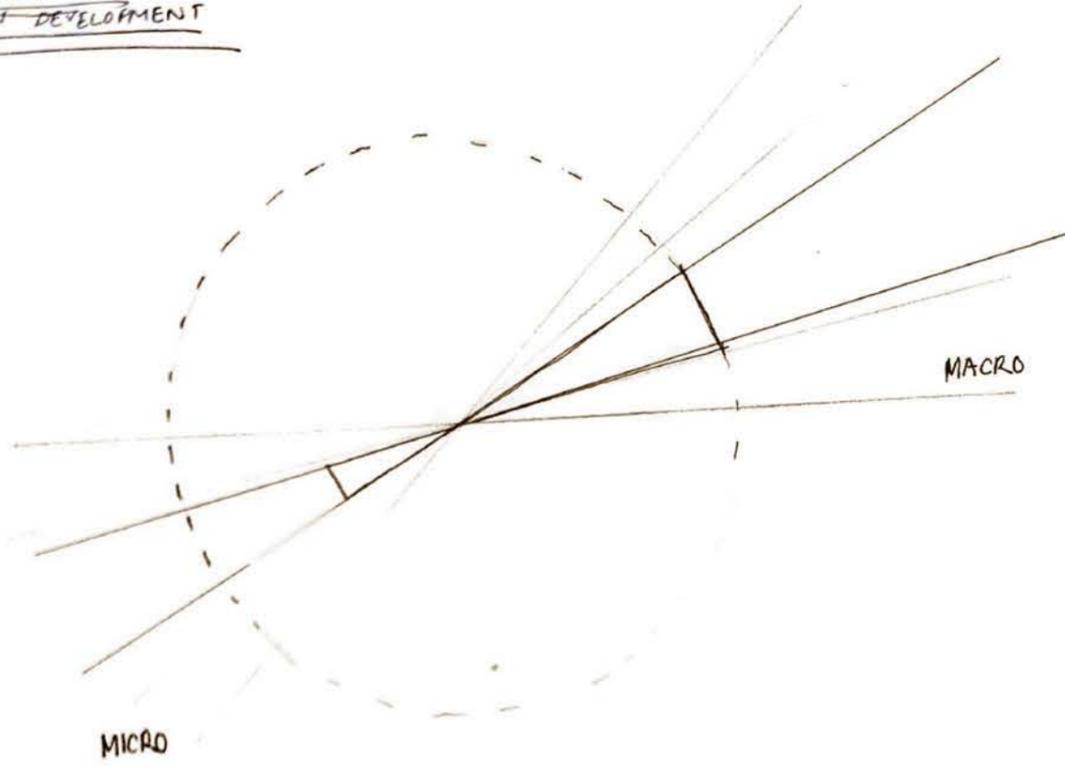
negatives



out-cut lines



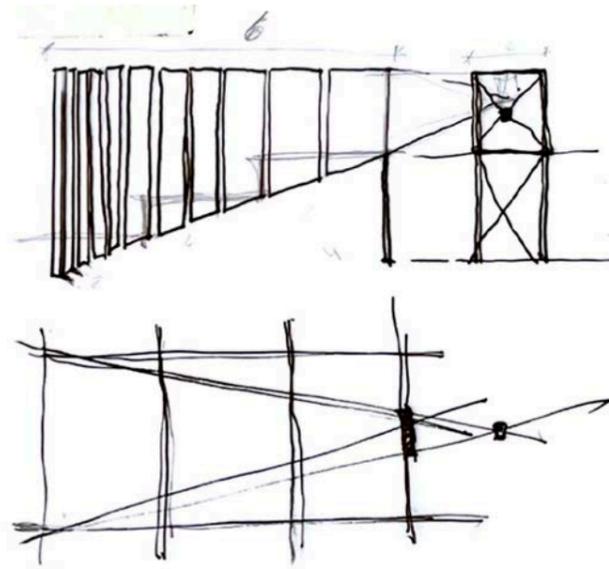
DIAGRAMMATIC
PLAN DEVELOPMENT



The Design

Two structures, two experiences, two ideas. This model shows the design created from the rhythms of the Cairngorms. Micro, in the bowl, is a more secluded space, visitors can peak through the gaps, with the panel sizes increasing consistently towards the big mountain view.

Macro is a more open space with a raised viewing platform creating a place to enjoy the spectacular view. The vertical posts blend the structure with the surrounding landscape.



This sketchmodel formed the base for the final design



MACRO



Shadows created by the changing sun



Adjustable panels to change the view



Adjustable Viewfinders focusing on details in the Landscape

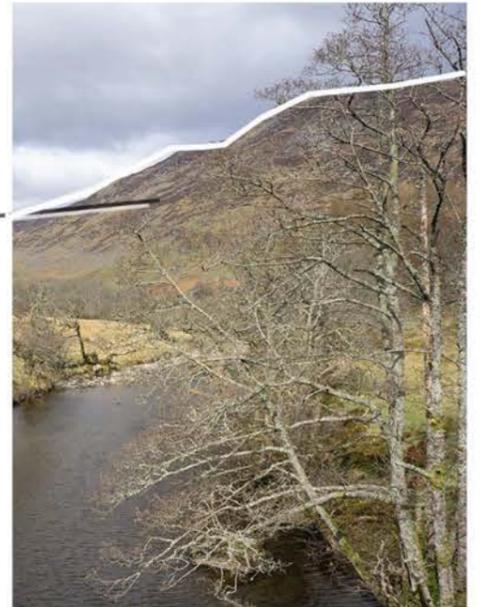


Interactive map - use a magnet to mark your favourite place in the Cairngorms



Engraved photographs capturing memories made in the hills

MICRO



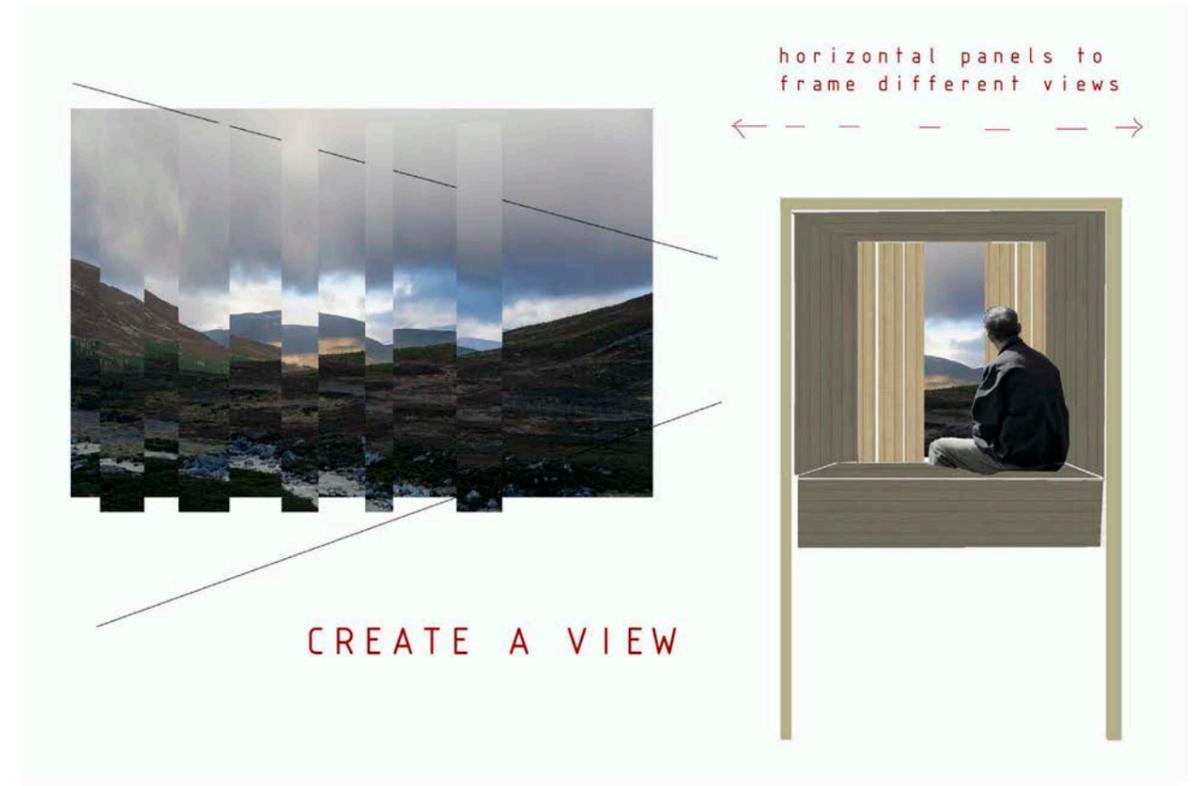
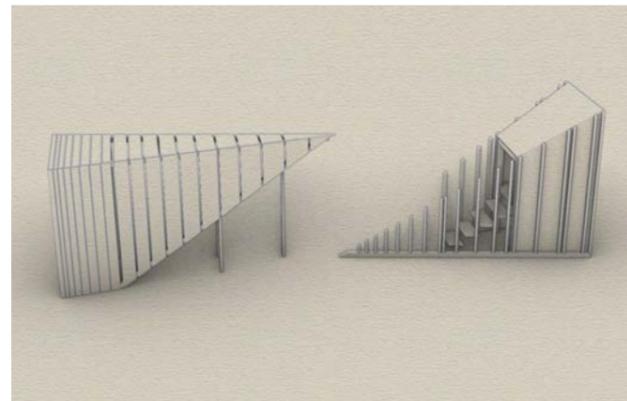
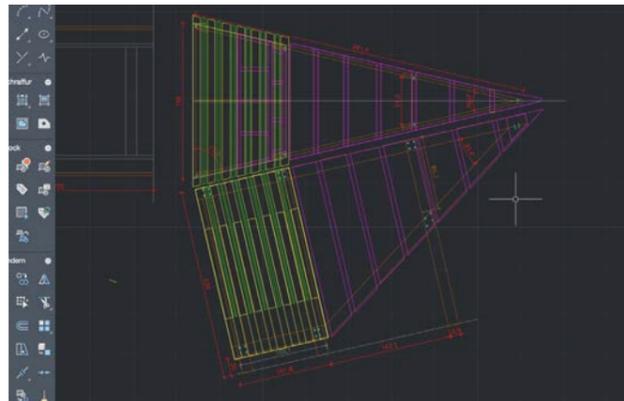




Micro-Macro interaction visuals

Digital Development

While the majority of the development took place in the sketchbook and the workshop, I also used digital tools to visualize the design. I used AutoCAD to create 2D drawings, Rhino for 3D modeling, and photoshop to illustrate the concept. Through the illustrations, I also explored and visualized the interactive elements.



Physical Making

Before I started building Micro - Macro, I spent 3 weeks prototyping the structures in scale. This allowed me to not only work out the details, but also simulate the whole construction process. The frames proved the biggest challenge, with angles at almost every joint. While making the first model in 1:20, I observed the impact of my selected materials. The model in scale 1:5 helped me to understand how much material I needed to source and how to connect all the components.

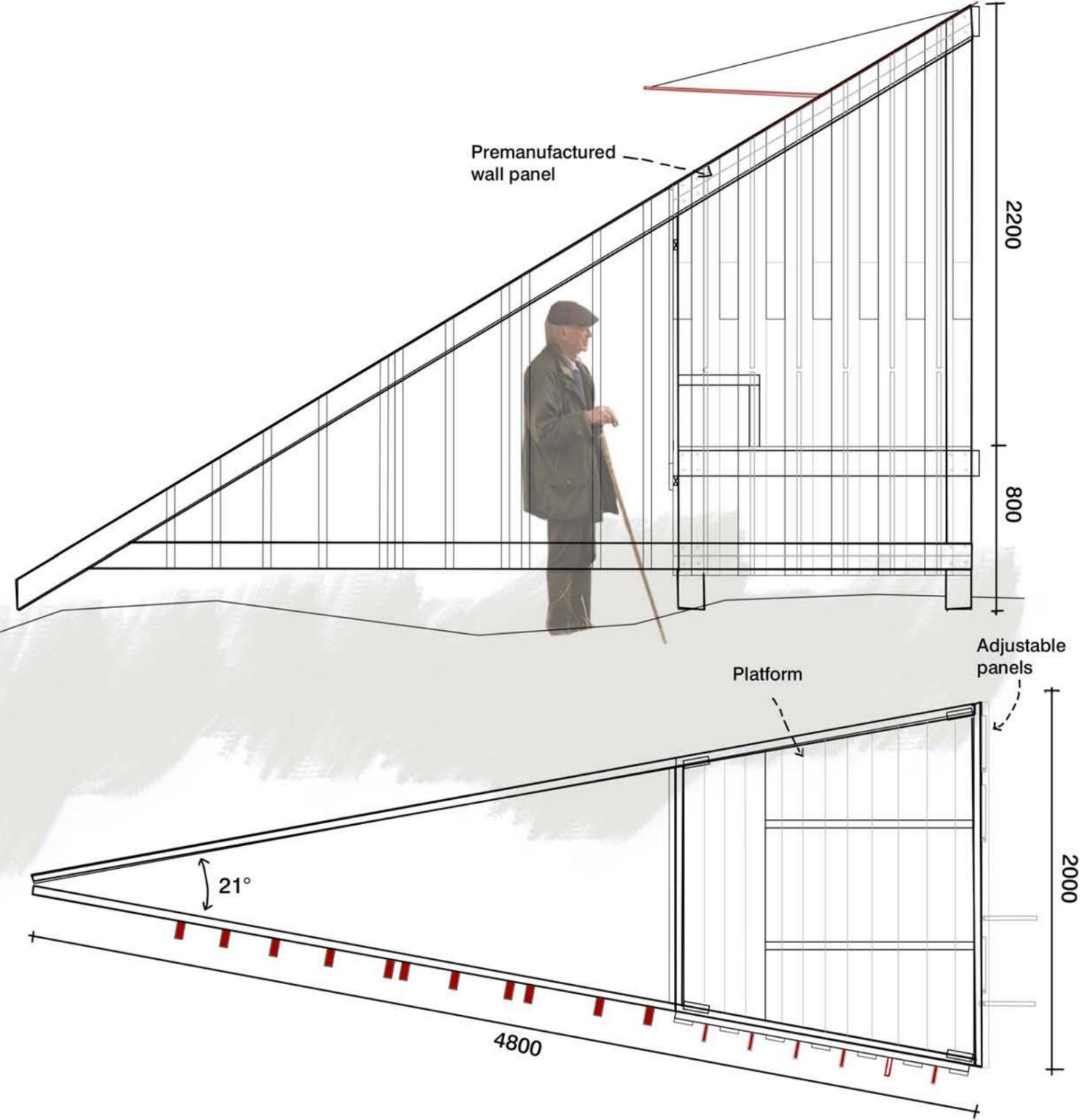
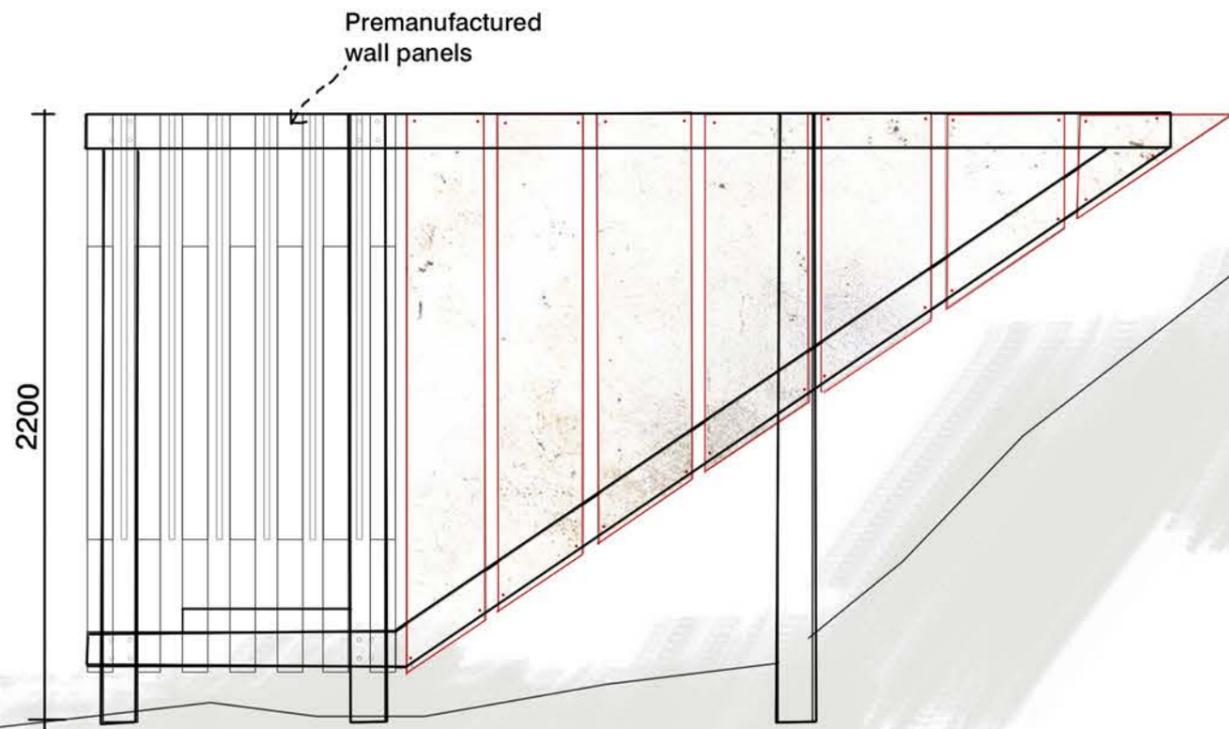
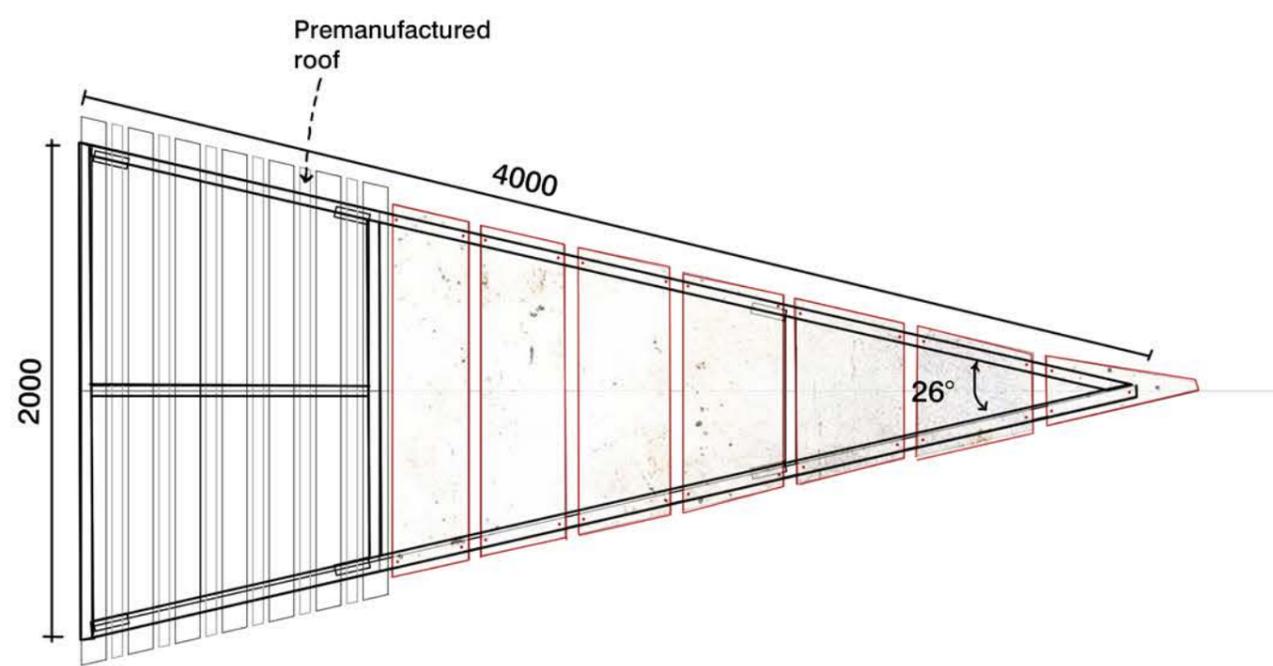


Prototype Scale 1:20

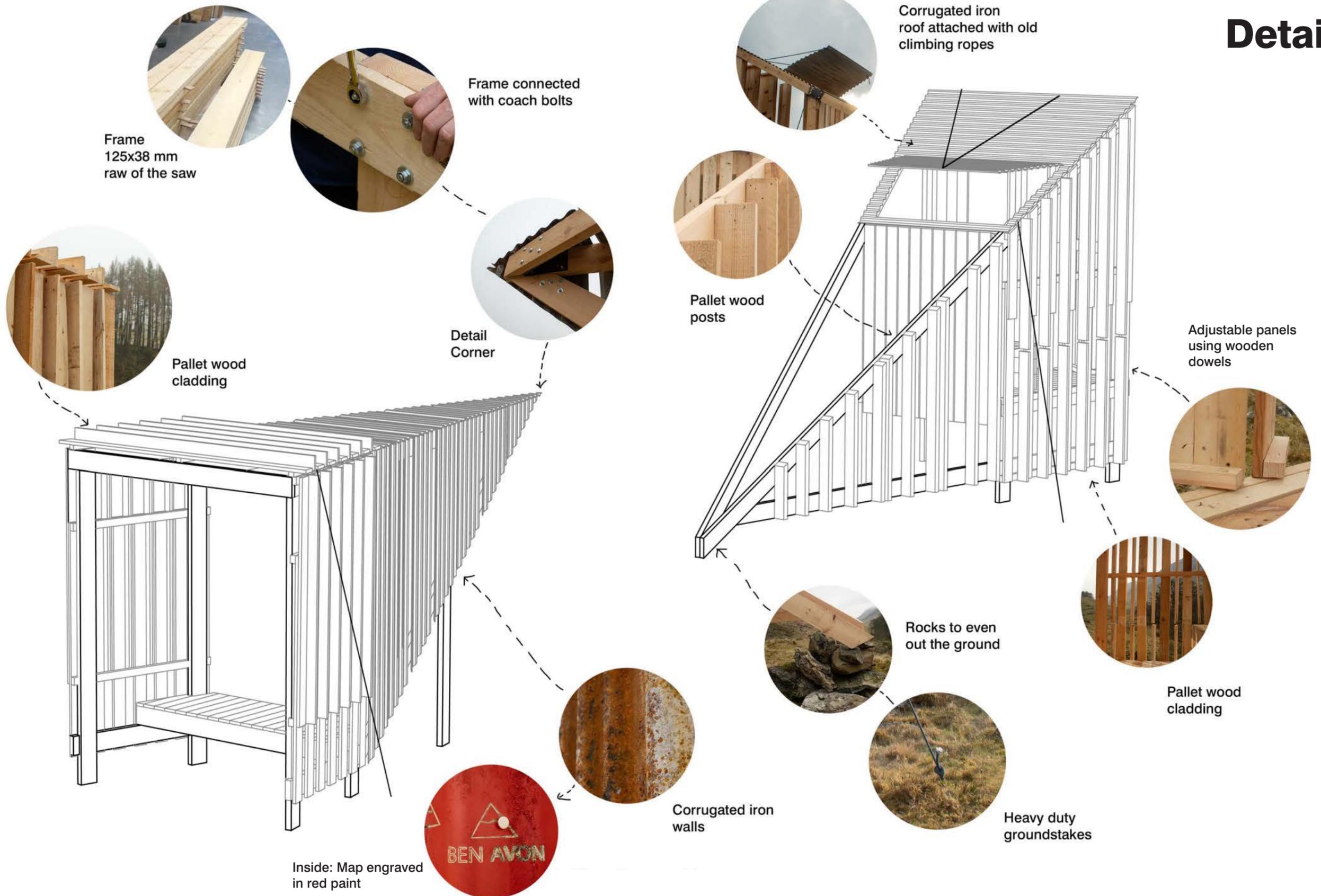


Prototype Scale 1: 5

CAD drawing scale 1:25

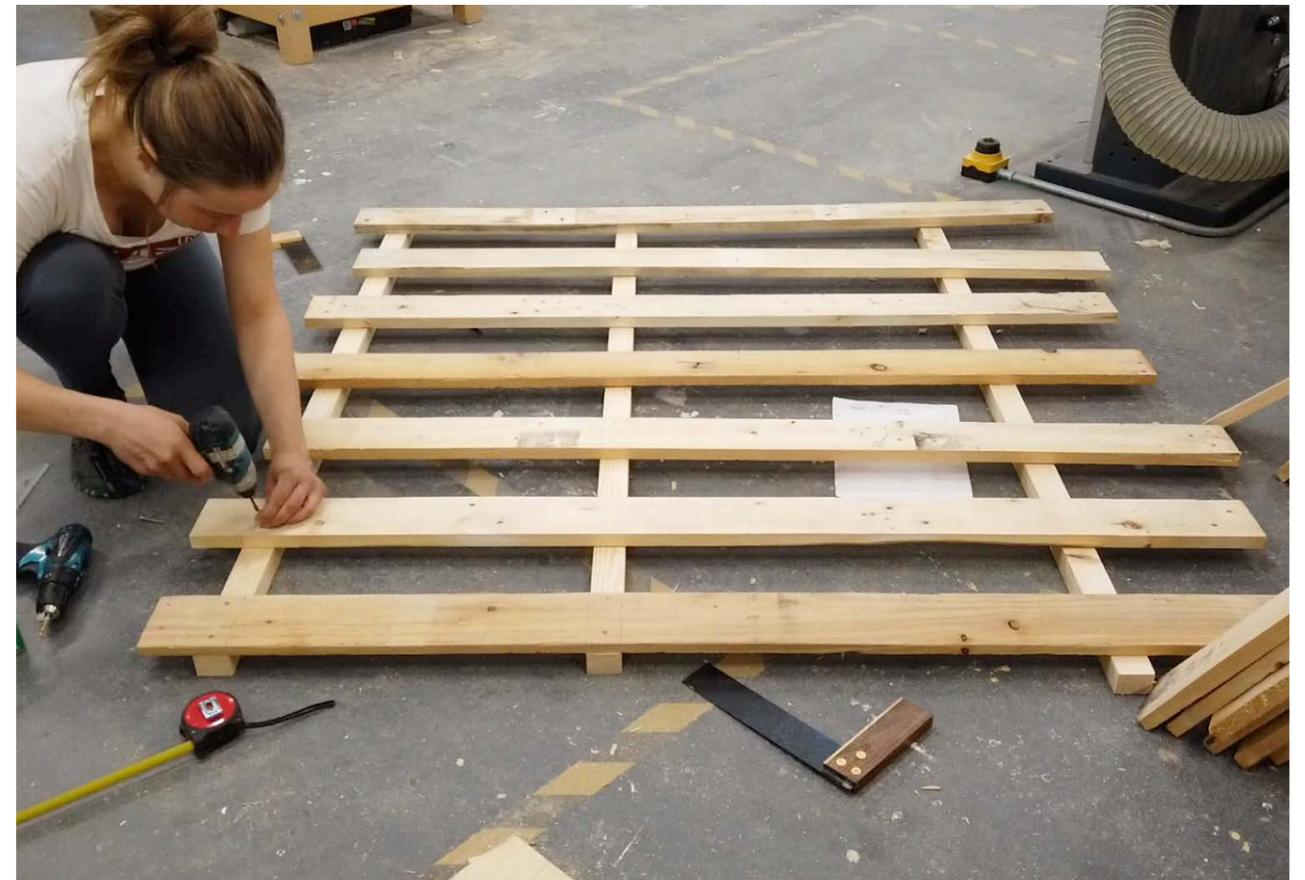


Construction Details



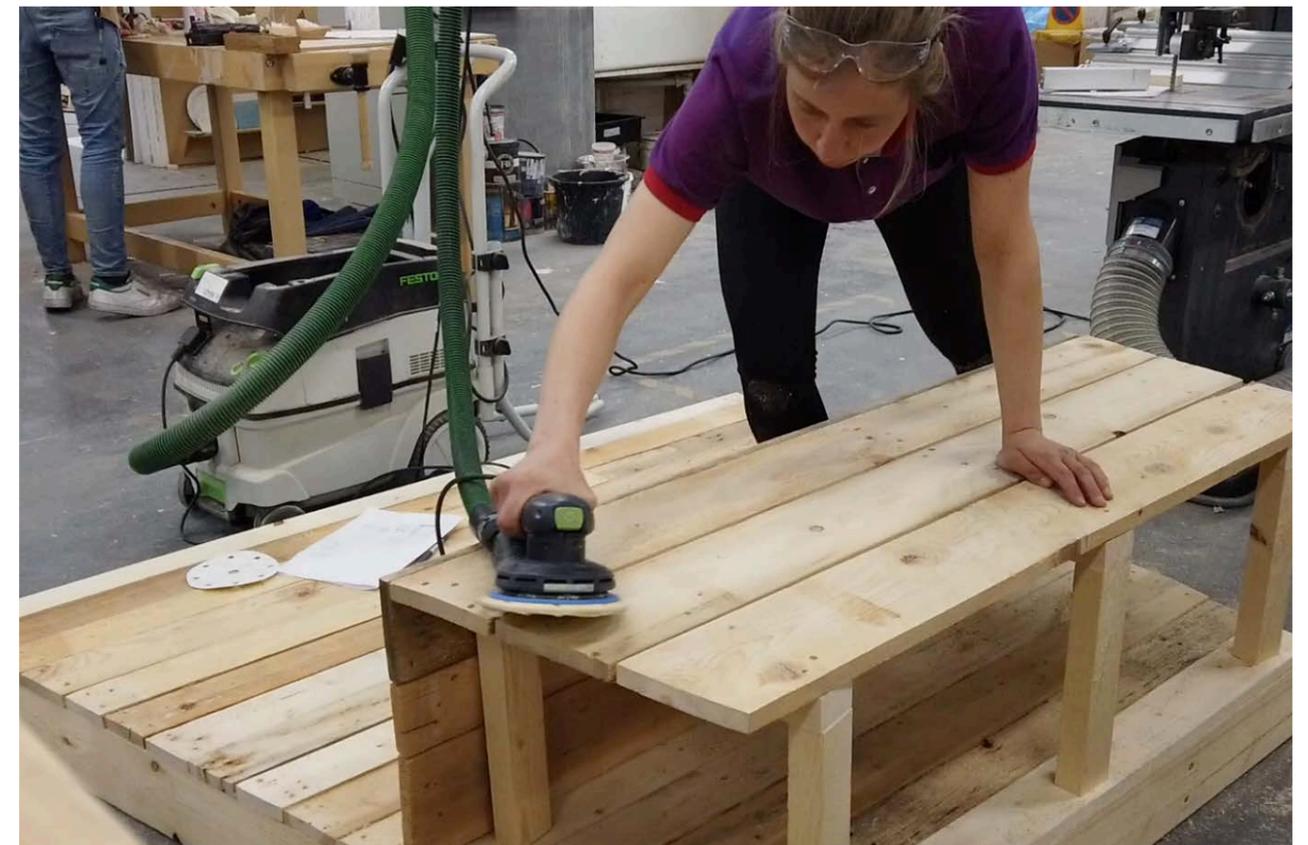
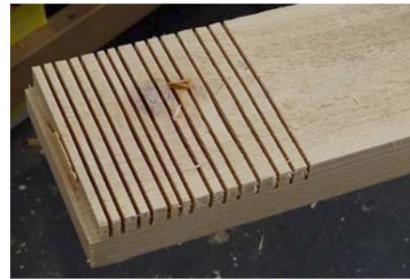
Building Micro-Macro

Another big hurdle that I faced in this project was the sourcing of material. I knew I required substantial amounts of timber and cladding to make the project happen, this proved a big concern with the current prices of materials going through the roof. Luckily, I managed to source enough palette wood to clad both structures from 'The Circle', a community enterprise in Dundee. I purchased 90 meters of 125x38 Redwood for the frame from a local timber supplier based in Dundee. Unfortunately, this wasn't Scottish wood, but time and financial constrictions left me no choice. The corrugated iron was kindly donated by the DCA. Once I had the materials sourced, I adapted the design to fit what I had available.

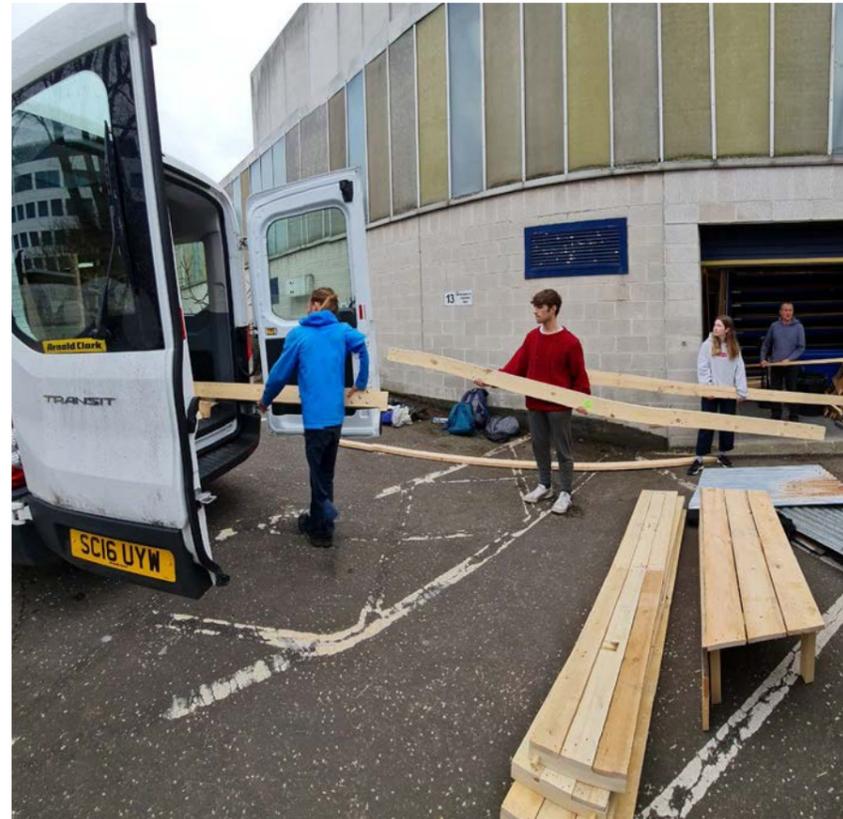




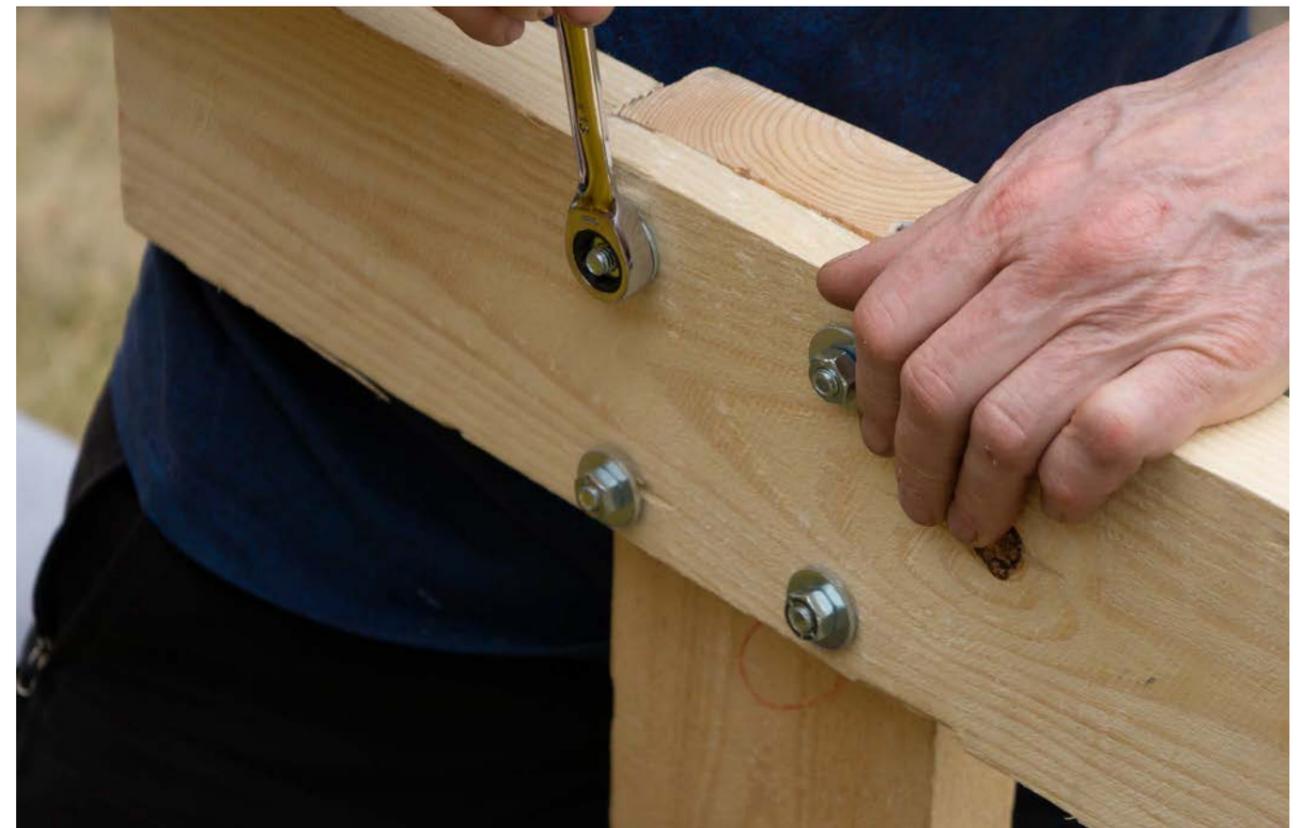
I then spent the following 5 weeks in the wood workshop building Micro - Macro. I started with the frame, then prefabricated the walls, roofs, benches, and the platform as independent components so they could be easily transported and assembled on the site. During the building process, I had the opportunity to expand my skills, learning a lot about joinery and timber frame construction. One day before the installation, we constructed the frame on campus, luckily it all worked out!



06: Installation on Site



At the start of April 2022, after two months of designing, a month of prototyping and material sourcing, and a month of building, it was finally time to install Micro - Macro. Unfortunately, I was turned down when asking for permission to install the structures next to Loch Callater, the place that initially inspired the design. After ignoring my emails for two months, when I got hold of the estate manager, he rejected my proposal stating that planning permission was required to install something of that size. Kindly, I was allowed to install the structures on the Abercairny estate in the breathtaking Sma' Glen. With luck on my side this site proved to be the ideal location, with kind hospitable landowners, and with a situation that accepted Micro - Marco perfectly. On the day, we transported the structure using a bus, a van, and two land rovers to the site with the aid of nine keen helpers. We split up into two teams constructing one structure each, we managed to install both structures within a day.









MICRO - MACRO
SMA' GLEN APRIL 2022



Micro looking out to the river and trees. On the inside panels, a map of the Cairngorms is engraved into the corrugated iron. The idea is that visiting walkers can mark their favorite place in the national park with a magnet. Little telescopes around the structure can be picked up to peak out between the gaps and zoom in on details in the landscape.





Macro is sitting raised up on a hill. Rocks were piled up to even out the ground. The facade of the structure consists of adjustable panels that can be opened and closed to change the view. Photographs from adventures that I've had in the Cairngorms over the past four years in Scotland are engraved in the panels. When the sun hits the structure, the shadows create another dimension.







Micro - Macro was designed for Interaction. Visitors are invited to have a peek through the telescopes, play with the magnets, adjust the panels, climb around, or just take a seat and enjoy the beautiful view. People's interactions are what really make the concept come to life.



With thanks to:

The Circle & Paul for all the cladding material

The DCA and Adrian for the corrugated metal sheds

Malcolm, Grant and Lyle for the guidance, advice and patience in the wood workshop

Jason for the metal work

Anna, Daniel & Noah for providing a beautiful plot of Land

Scott for the endless support throughout the project

& Alice, Flo, Bjarne, Gregor, Jamie, Amy & Gary for helping me install Micro- Macro on site