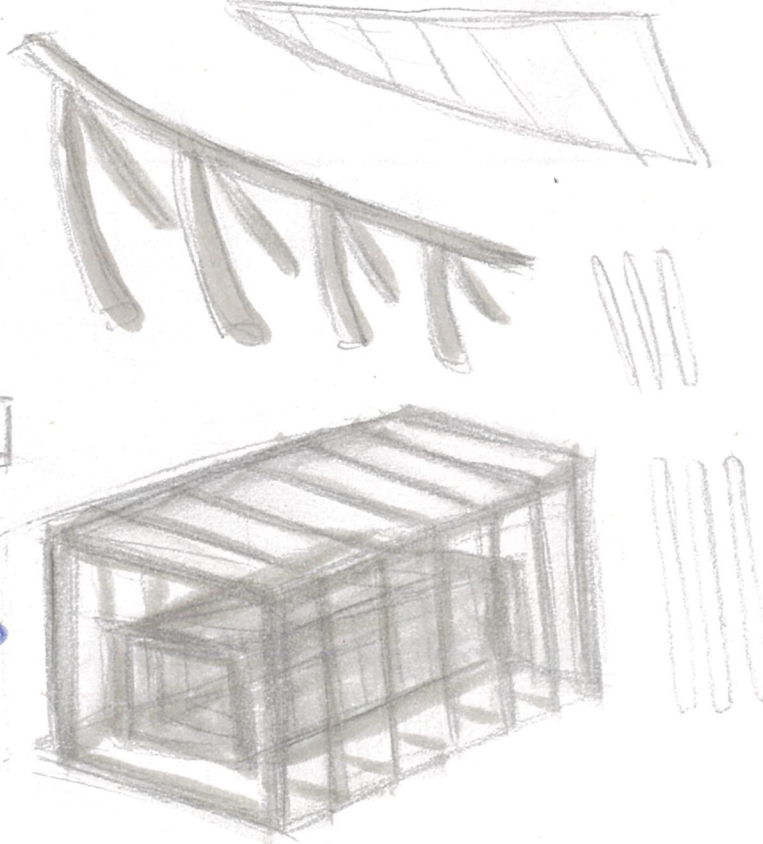
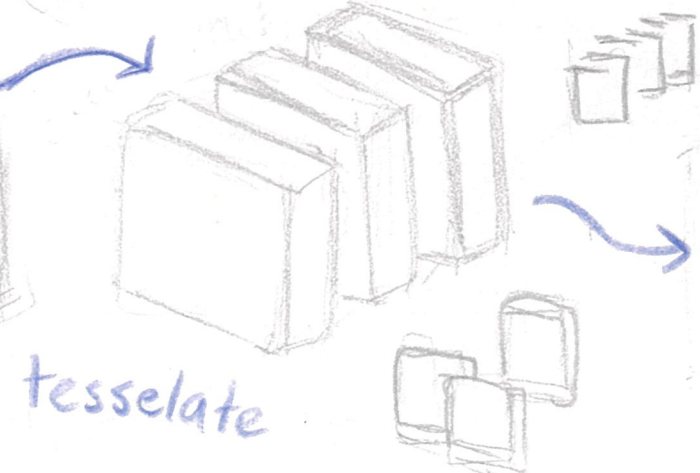
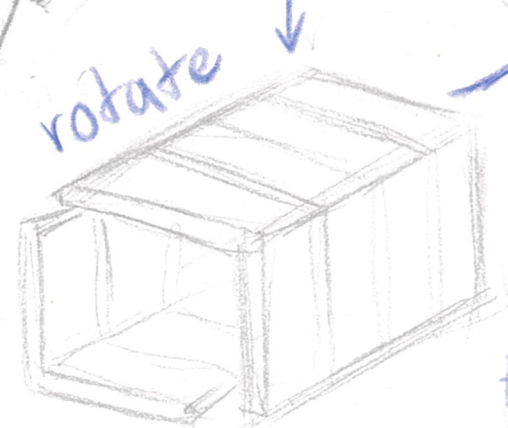
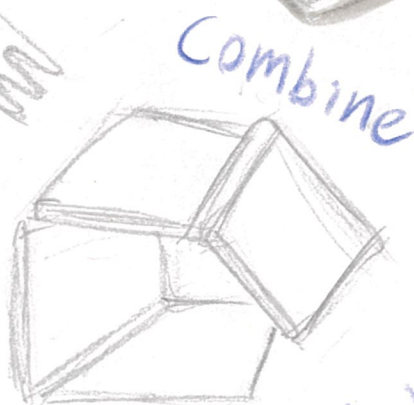
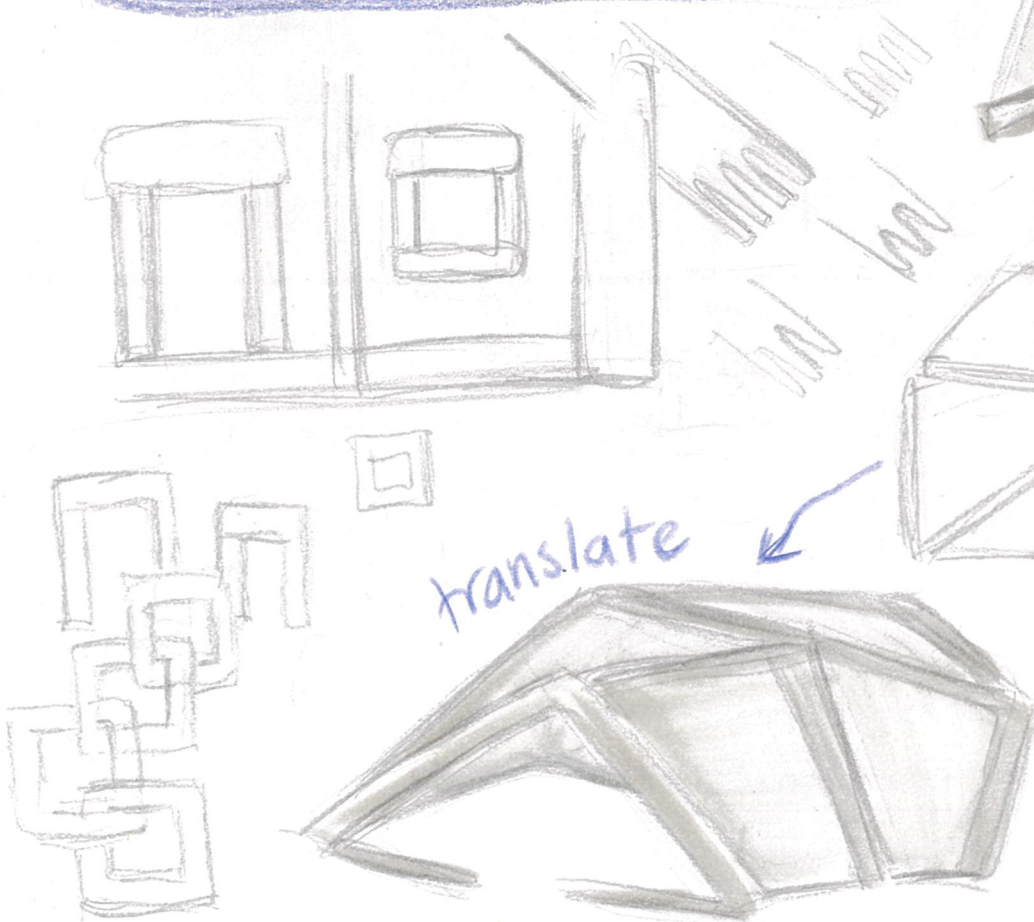
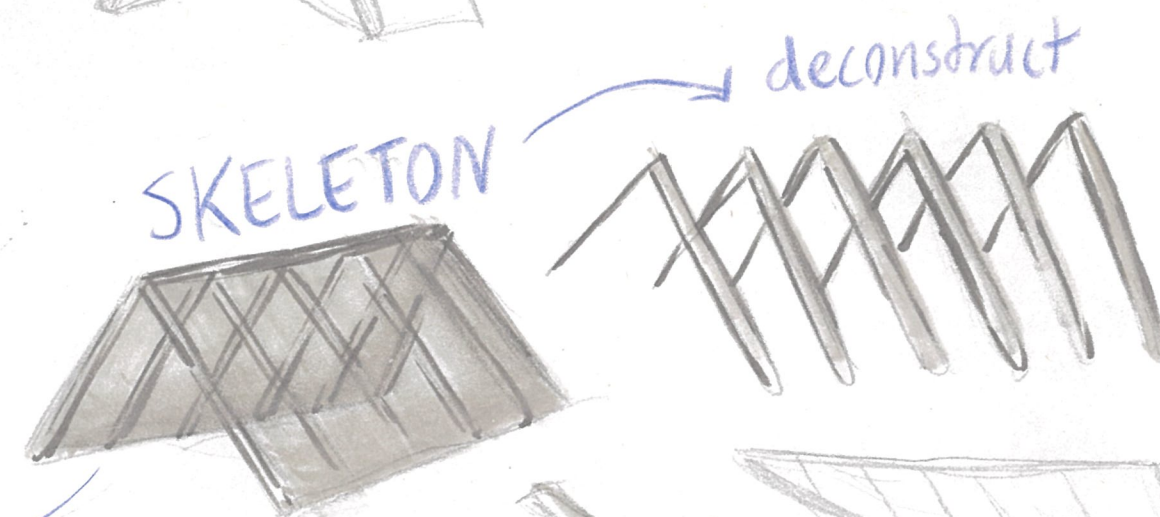
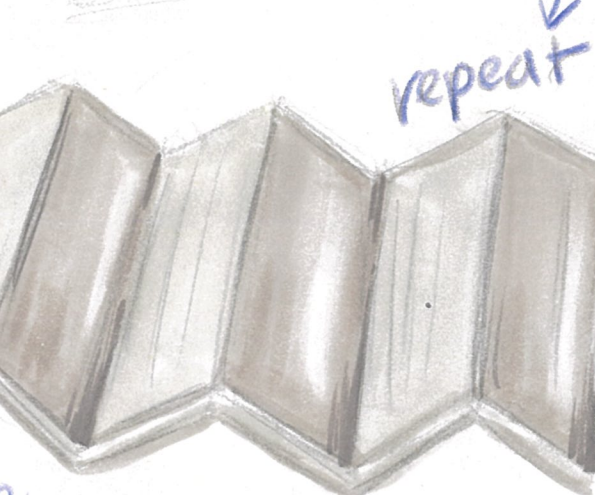
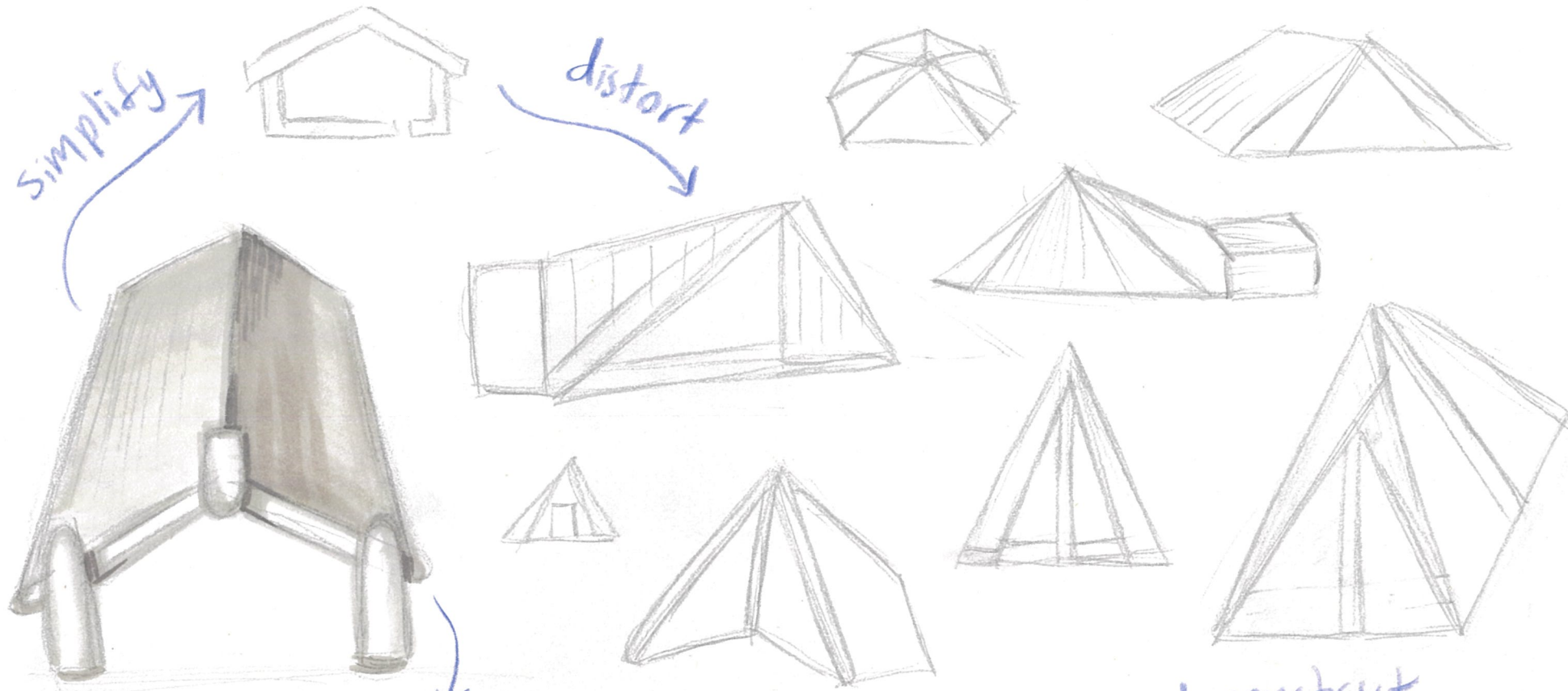
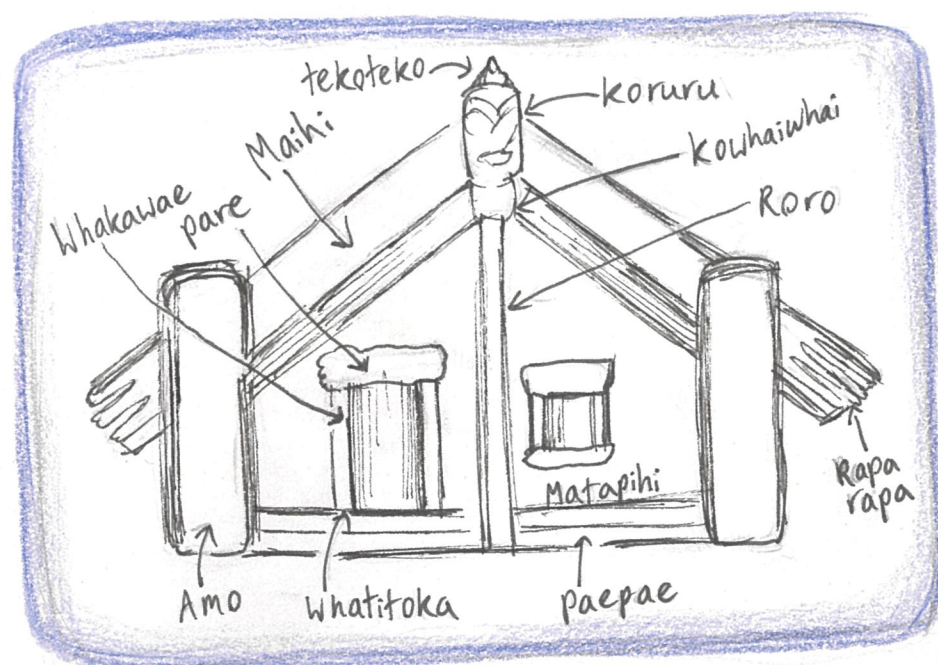


Ideation

EXPLORING THE SHAPES OF THE
MĀORI WHARENUI

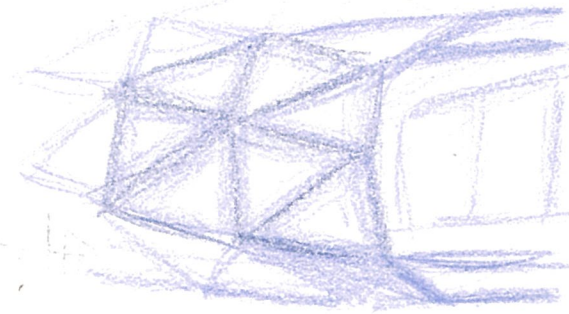


Research

CONTEMPORARY MĀORI ARCHITECTURE



TE ORO
Archimedia Architects



CAMBRIDGE POLICE HUB
Paua Architects



TE ĀHURUTANGA
Paua Architects



NGĀ PURAPURA
Tennent Brown Architects

geometric shapes

diamonds
intersecting lines

triangular features

vertical lines

straight lines

V shapes

patterns

traditional
Maori
Wharehau



PAPILLION TOWNHOUSE
Paua Architects



TE ARA A TAWHAKI
Tennent Brown Architects

Ideation

EXPLORING KEY DESIGN FEATURES



Research

MĀTAURANGA MĀORI



What is Mātauranga Māori?

Mātauranga Māori translates to Māori Knowledge in English. It is the traditional knowledge and wisdom of past Maori ancestors, from before Europeans arrived in New Zealand, which has been passed down through generations. It includes elements such as arts, history, heritage and the relationship between Māori people and their ancestral land. Mātauranga Māori is also the Māori understanding of the world and the way of which we engage with our environment.

Why is Mātauranga Māori Important?

Mātauranga Māori is important, as it links history and tradition to the present day. The preservation of this knowledge means the Maori culture and language is being continually passed down and shared with younger generations. This is crucial for maintaining the cultural heritage of Māori people and their identity. This knowledge is important in modern society as it helps to promote cultural understanding and respect around the Māori culture.

What are the Te Aranga Māori Design Principles?

Te Aranga Design Principles is an approach to the design process that considers cultural, economical, environmental, social and spatial aspects. The principles provide direction based on Māori values and are focused on the final outcome of a quality design. The development and the use of Te Aranga Design Principles means that architects work in partnership with the Mana Whenua, and is a way to incorporate Maori values, principles and aspirations into the final design.

What are the core Māori values that underpin these design principles?

MANA:

- Recognises and respects the Treaty of Waitangi
- A group contributes to the design idea and process to create a successful design for everyone - The involvement of the local Iwi and community.

WHAKAPAPA:

- A celebration of Māori names
- Recognising the traditional names
- Ensuring that naming is accurate
- Honours importance of Mana Whenua naming contemporary places

TAIAO:

- The responsibility to protect the natural environment.
- Creating a natural flow and co-existence of the design with the surrounding landscape, so that the design is both part of the landscape, and the landscape is enhanced by it.

MAURI TŪ:

- Focuses on the health of the surrounding environment
- Prioritising this in the design, with materials used and potential disruptions to the eco-system considered.

MAHI TOI:

- Acknowledging traditional landmarks or cultural sites within the design.
- For Māori people much of their cultural identity comes from the history and narratives of the land - so finding a way to incorporate this.

TOHU:

- The incorporation of Maori creation legends and stories into the design.
- Celebrates unique local community characteristics.
- Allows narratives to inform building orientation and several other design responses.

AHI KĀ:

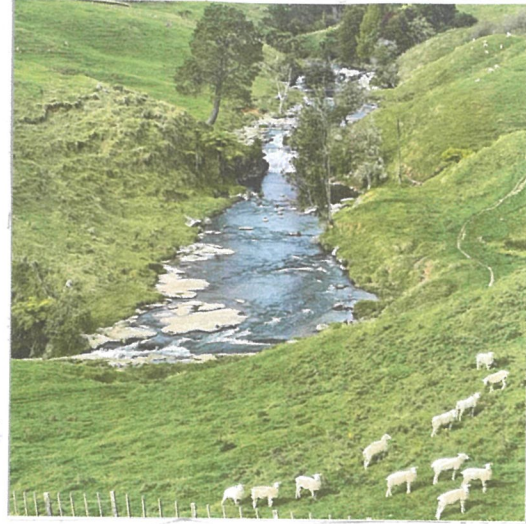
- Ensures that the Iwi have a continual presence and are valued within their roles.
- Involvement in ongoing management.

Research

LOCAL LEGENDS

My riverside retreat will be based on a site that is next to Waimapu river, - on a farm in Oropi Tauranga.

The Scenic farm location by WAIMAPU RIVER



MAUAO



Mount Maunganui is a well known landmark located at Tauranga Harbour.

How does this legend relate to my design?

- relates to the idea of suicide, as well as mental health/self esteem struggles
- the river close by represents Mauao's journey
- The view of Mauao in the distance represents hope and is a reminder that things get better

Inspires the idea for a retreat for people who are struggling with mental health.

The most famous legend for this region refers to the story of how Mauao got its name. This hill originally had no name and was a ponanga (slave) to the chiefly mountain Otanewainuku. The nameless mountain was in love with a mountain to the southwest 'Puwhenua'. Puwhenua, however, was already in love with Otanewainuku. The nameless mountain was in such despair that he decided to drown himself in the ocean. He called on the Patupaiarehe - magical people with powers - to plait ropes with their magic and haul him towards the ocean. As they hauled the nameless mountain towards the ocean, the mountain gauged the valley where the Waimapu river now flows. As he was pulled along, the mountain shed tears which became the Waimapu river. This river now follows the journey/path of where Mauao was dragged. As they were nearing the ocean edge, the sun rose, the Patupaiarehe are people of the night so they fled back to the shady Hauere forests. The mountain was fixed to that place, and the Patupaiarehe gave this mountain the name Mauao which means 'caught by the morning sun'. Mauao is now considered to have greater mana than Otanewainuku.



Brief



Riding horses
across the
farmside
←

WHAT:

I will be designing a single purpose retreat to be situated in a rural landscape. The design will aim to improve the mental health and wellbeing of the users.

Specifications and Attributes:

- Must be single purpose
- Must fit into a selected and measured space from within my chosen site/location
- The design must incorporate contemporary design ideas from my research and ideation starting points.
My starting points will be: Te Aranga design principles (Maori design), the eel (Funa), the flax plant (Harakeke).

Considerations:

- Aesthetic elements and principles relating to the environment.
- Functional elements and principles relating to the design's context.
- How the design considers the current surroundings and landscape, and how does the placement of the design work with the landscape.
- Access to the building - could also consider a way to accommodate for horseback access.

Riverside
retreat

HOW:

I will create a space that is harmonious and not too 'busy' so that it is calming and successful in its purpose as a getaway from the pressures of modern day life.

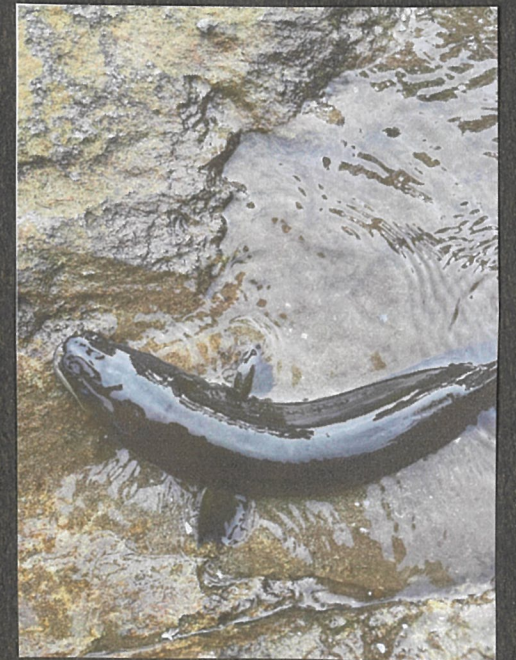
WHY:

Through incorporating Maori world views and key values I want to create a design that captures a sense of peace and relaxation to enhance the mental health outcomes for visitors who stay. The design will highlight the luxury of the natural landscape, so that the user can feel grounded and have an opportunity to reconnect with the natural world.

STAKEHOLDERS:

Designed primarily for private residents and their chosen guests; as an oasis of peace and calm to be offered to people needing respite from busy stressful lives.

Eel
photographed
at Waimapu
river
→



Research

STAKEHOLDER INTERVIEW

MOANA

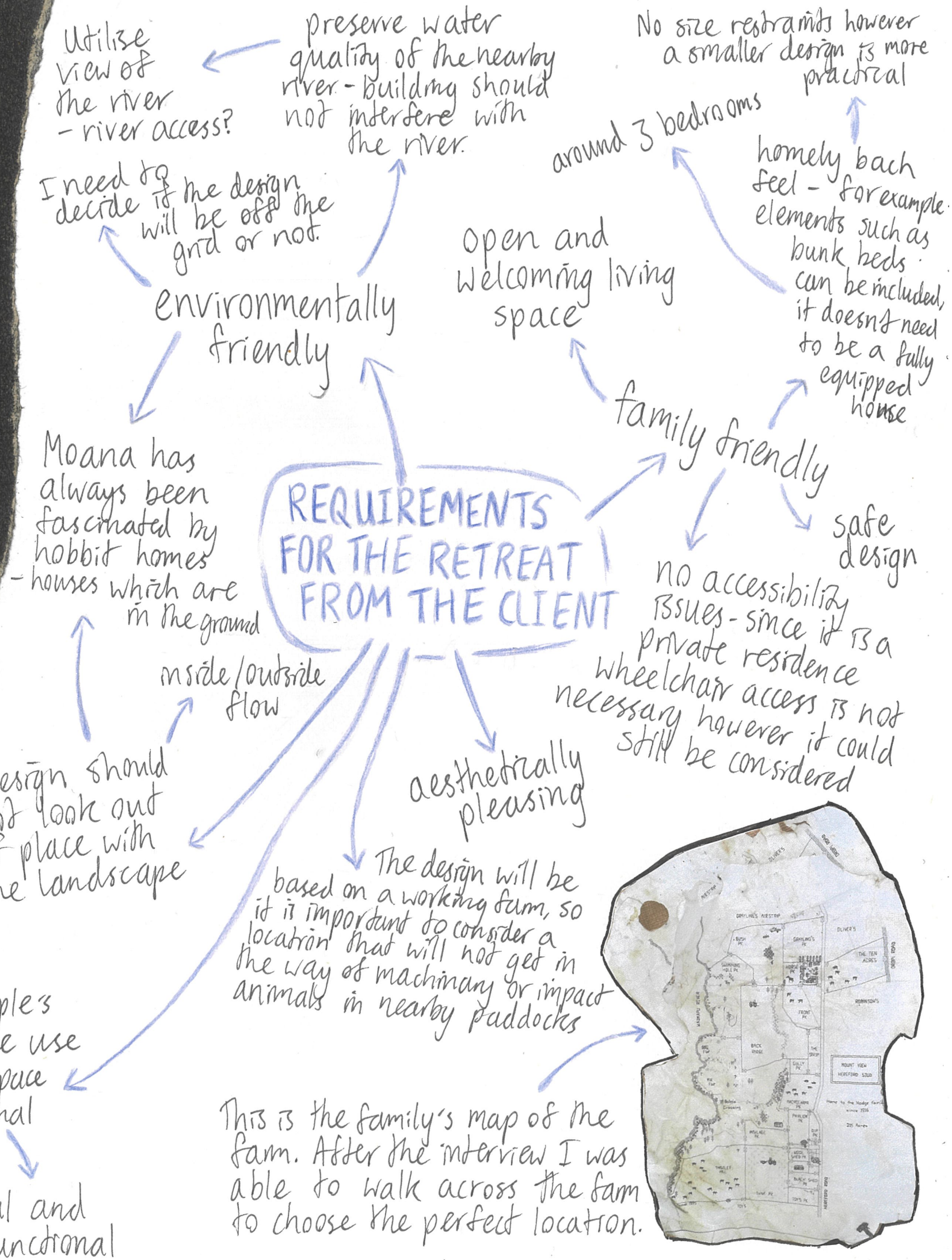
- Stakeholder and owner of the land. The farm has been in her family for 4 generations



CLIENT'S KEY VALUES:

- Family and community
- Connection to the land
- Respecting and caring for the environment

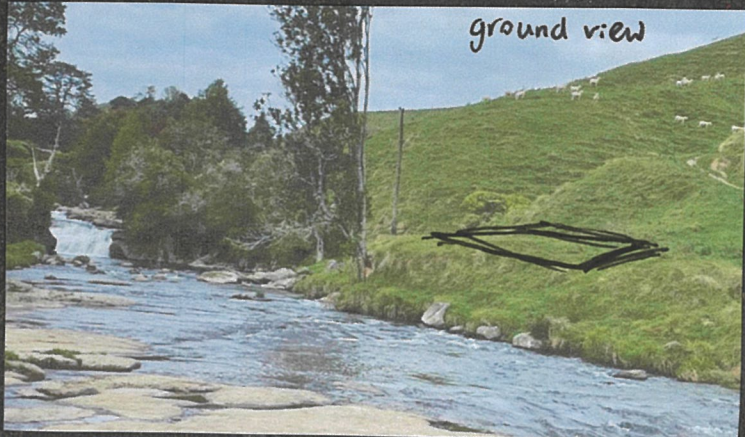
"I have always dreamed of building a retreat" - Moana



Location



Alternative Site Option ↗ - Very scenic site, however the space is a bit too small for a build site ↘



Opportunities:

I have the opportunity to create a retreat to be based beside a river on a farm in Oropi, Tauranga.

Topography/Space/Environment:

The main opportunity within this environment is the river that my design will be built next to. My chosen site is very close to the river and a short walk to the main swimming hole, so during summertime people will have easy access to cool off in the river. I need to figure out how to best utilise the view of the river for the aspect of window placement and outlooks.

The chosen build site is an area of flat land which is approximately 2-2.5m above the water level of the river. This build site therefore allows for the river to run higher in times of heavy rain. As it is a flat area, of firm clay and soil, this means I shouldn't be restricted by any foundation issues.

Lighting:

The valley is not too steep and receives plenty of sun throughout the day. Sometimes this is slightly restricted in the evening due to the sun setting behind the surrounding hills to the west. My design will consider how to optimise the light the building receives.

Traffic:

The building is approximately 800m from the public road. There is a driveway that can be used throughout the building process. Once the building process is complete, the house can be accessed through either driving or horse back. There is no foot traffic, so it is a very private location. There is a waterfall nearby which could create noise disturbance however the house will be a suitable distance away from this, so it's still a peaceful setting with minimal noise levels.

Constraints:

Topography/Space/Environment:

One constraint when choosing a build site is that there are a lot of surrounding hills and sloping sections of land that would not make a good build site. For example it would be difficult to build on top of a hill, although this would have better views. It would also be further away from the river and be harder to take materials to. This is why I had to choose the flat area beside the river banks to be my building site.

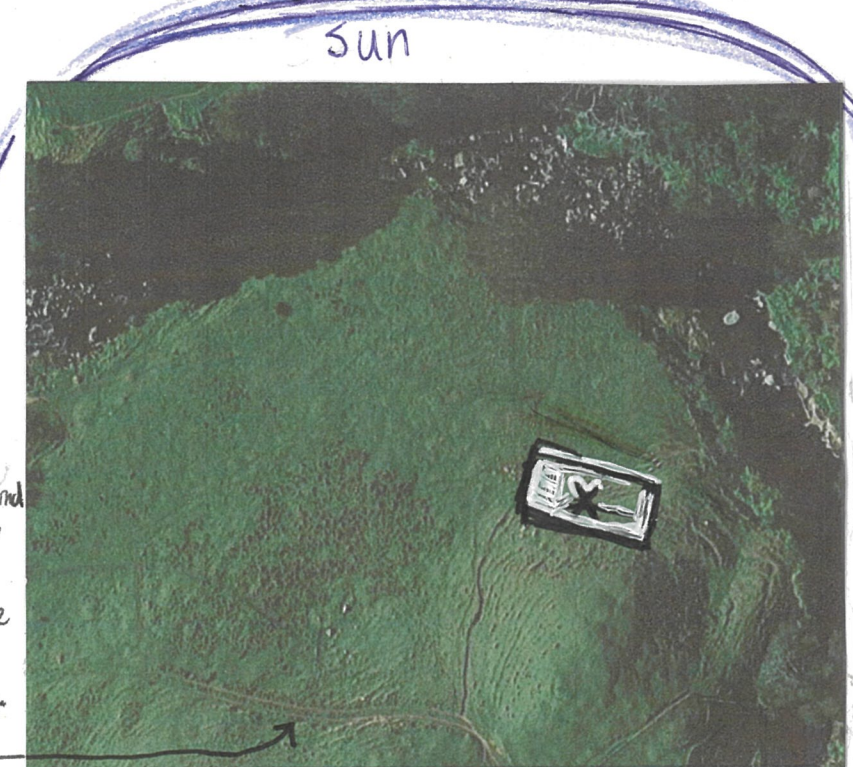
I need to consider what potential defence mechanisms the house could have against flooding if the river was to overflow, (it hasn't in the past, but this could future proof the design for extreme weather events due to climate change.) Potentially creating a water tight design would be a good idea. On my chosen build site there is one existing tree that I would need to work around. I will be restricted to an area of 12m by 25m due to the size of the flat land. (rectangular)

Lighting:

The lighting could potentially be limited due to the chosen site being situated close to hills - this means I need to carefully consider the placement of windows and the design orientation. Maybe a two storey building might have more access to light, or if it was built at a level higher than ground level.

Traffic:

It is a bit of a long drive from the road to the house build-site, approximately 800m, however I do not believe that this is too remote to build on this site.



SITE ANALYSIS

Chosen site

Research

SIMILAR DESIGN IDEAS



- This is a New Zealand bach/beach house, which utilises the opportunity of the surrounding pohutukawa trees, and incorporates these into the design.

- One cool detail within the house design is the tree like structures created from wooden posts along the front windows.



UNDER POHUTUKAWA

Designed by Herbst Architects

- This house uses the material of mainly wood to fit in with the surrounding trees in the environment.



BIVVY HOUSE

Designed by
Vaughn McQuarrie



- The designer was given a brief to create a simple house that's purpose was to fulfill the simple tasks required for it to be a home.
- The building is designed to reflect a bivouac as the architect was inspired by improvised miners' huts from the past. The use of concrete looks like traditional stone.
- The final design incorporates similar geometric shapes and lines to that of the surrounding mountainous environment. The result is a rock-like structure that blends in with its surroundings.
- The designer utilised the view of the chosen build site and carefully placed windows across the front of the house to showcase this, there is minimal use of windows in other parts of the building.
- Overall the purpose of the design was to create something minimalist and humble that had a strong form.
- The interior is styled with similar materials as the exterior, including stone and wood.
- I can take inspiration from this retreat design by ensuring my final design interacts well with the landscape.

ARROWTOWN HOUSE

Designed by RTA architect studio

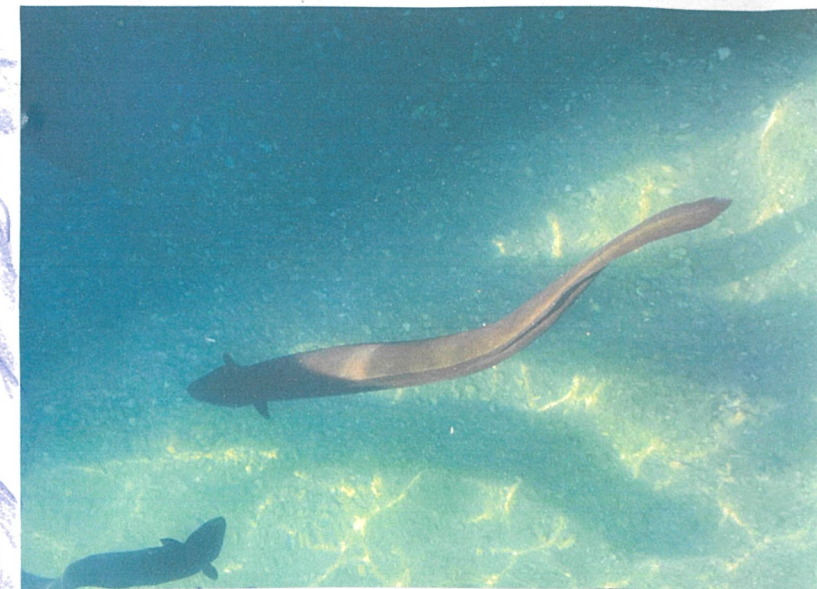


- This building has many different sections which are all at different levels and angles to fit in with the surrounding, slightly undulating open landscape.
- The clients wanted a house built that was sculptural and 'of the land'. Similar to the Bivvy house, they wanted the design to be inspired by miners' huts, relevant to the local area of Arrowtown where this building is situated.

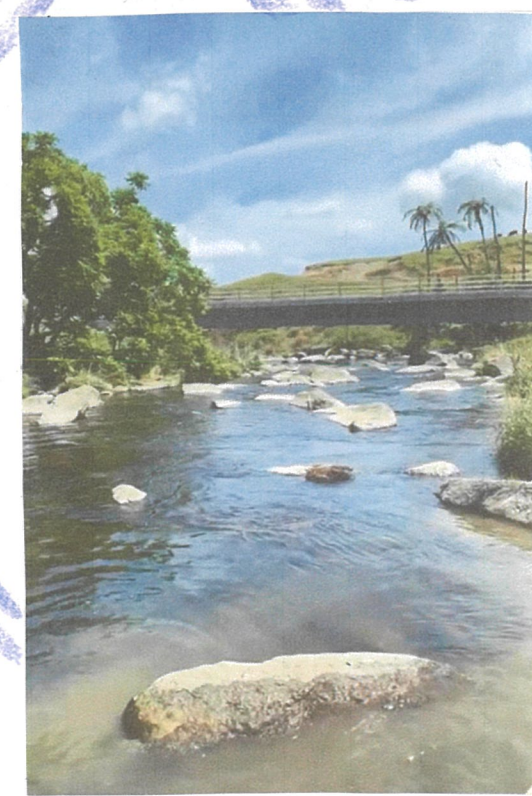
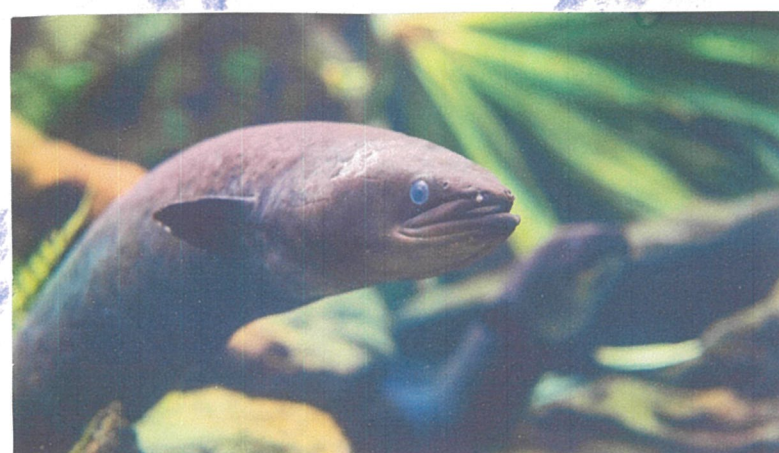
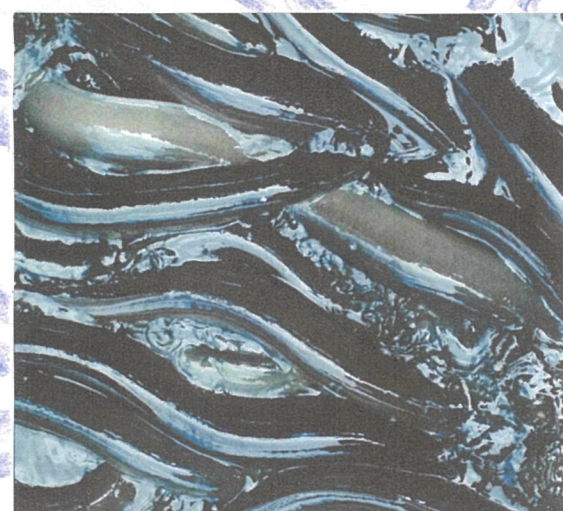
- This building is made from natural materials such as stone schist and wood. Overall the building has a modern finish.

Inspiration

THE EEL - TUNA



In NZ's streams and rivers there are 2 species of eels, the short-finned and long-finned eels. The short-finned eel are commonly found in the Waimapu river, near where my retreat will be located. Eels were an important food source for Maori however the relationship extended further than this and eels were even thought of as guardians.

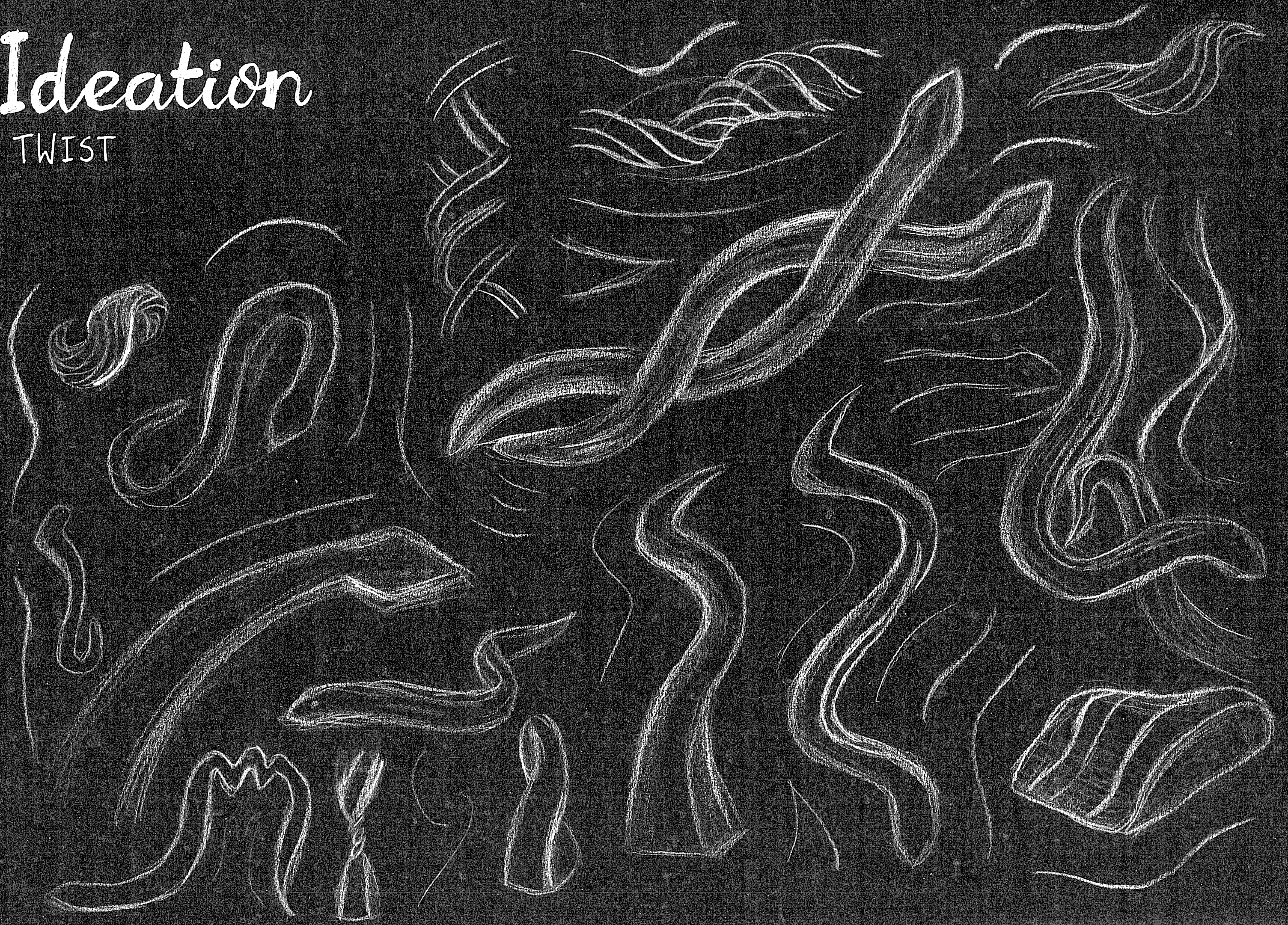


Ideation



Ideation

TWIST



Ideation

EXPLORING THE MOVEMENT OF THE
EEL AND WATER



Ideation

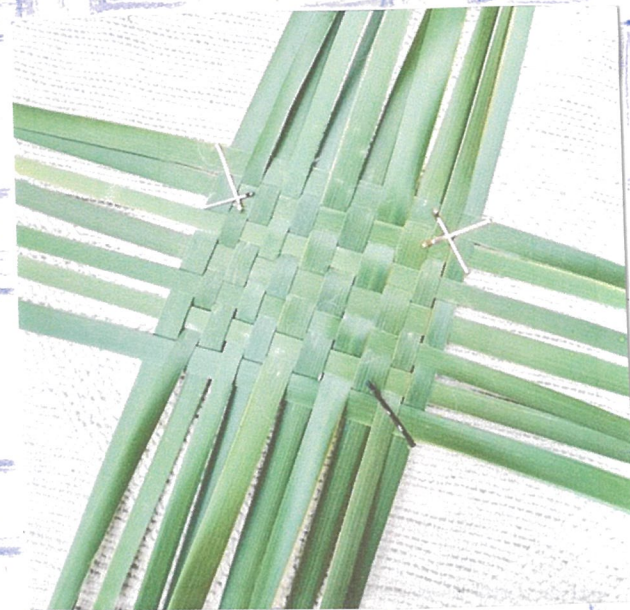
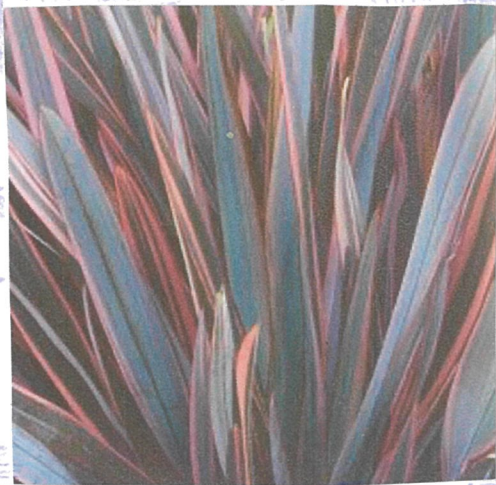
INTERTWINED - ENTANGLED



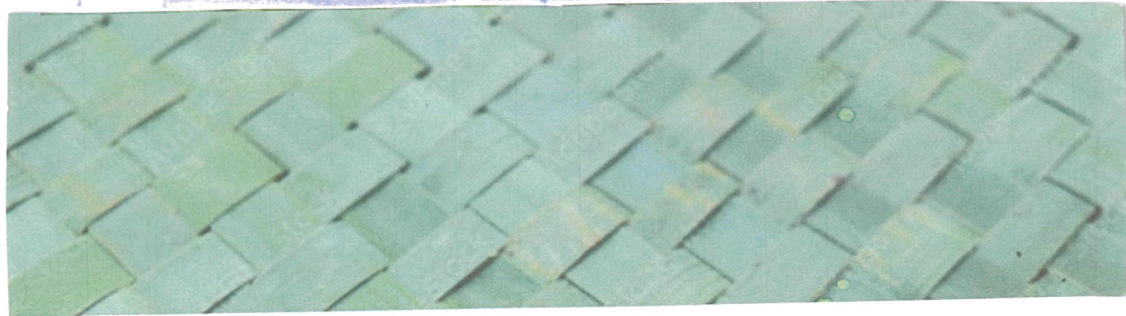
Almost like
flax weaving...

Inspiration

FLAX PLANT - HARAKEKE



Flax was the most important fibre plant to Maori in New Zealand. It is thought to represent Whānau (family). It was used for its strength and was often woven into patterns or baskets. Flax weaving was a way of passing on culture and stories. Flax can commonly be found across the farmland and by the Waimapu river especially.

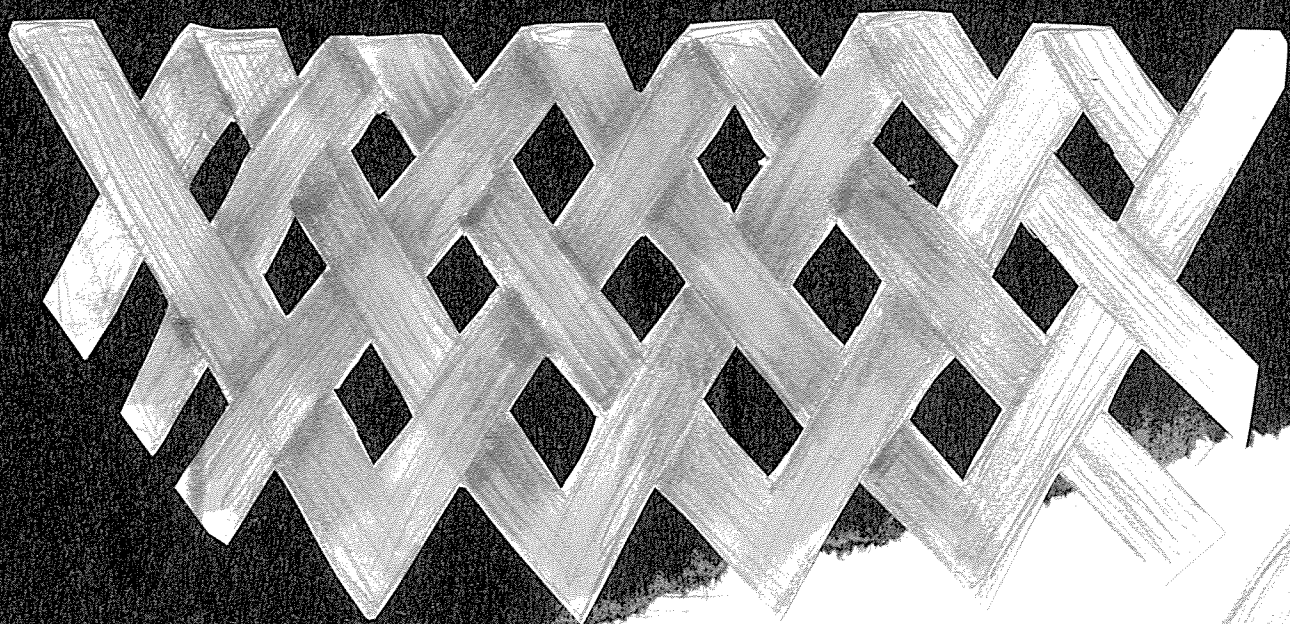


Ideation

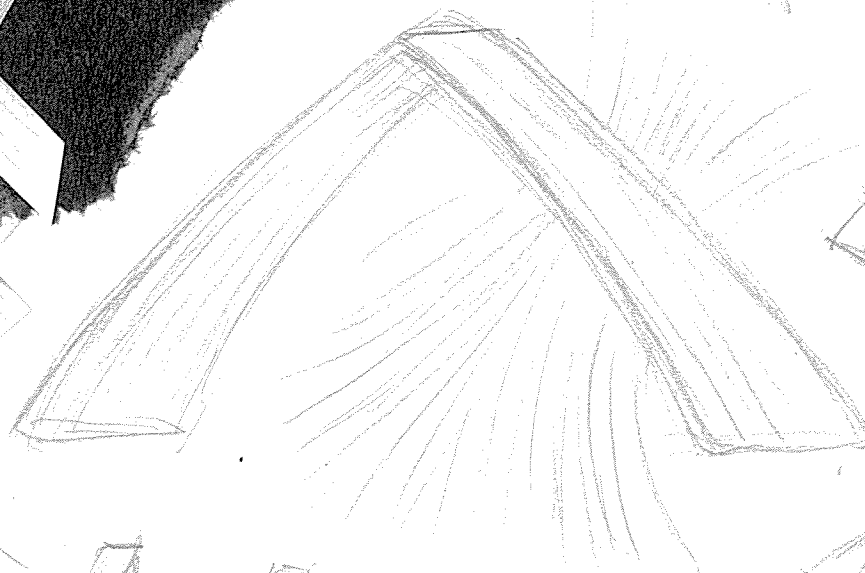


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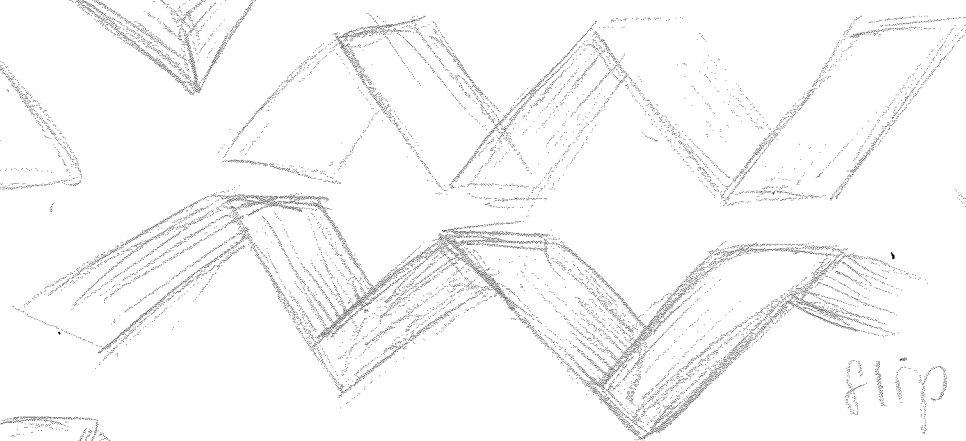
EXPLORING FOLDING FLAX FORMS



interlaced

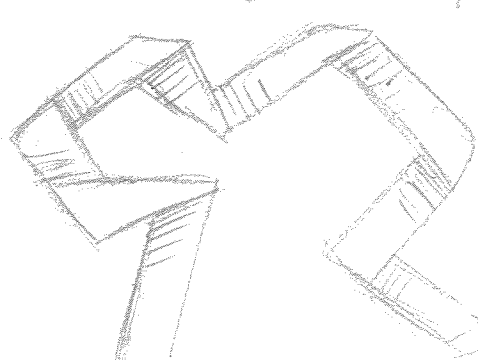
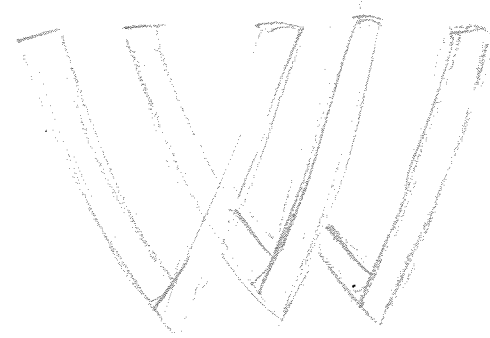
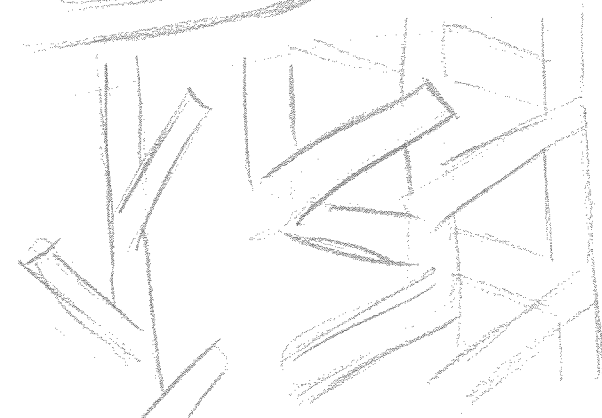


stretch



flip

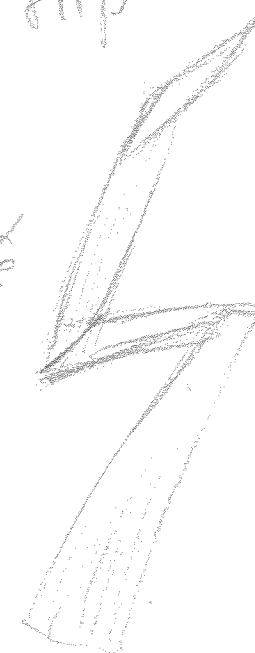
interlink



compress



rotate



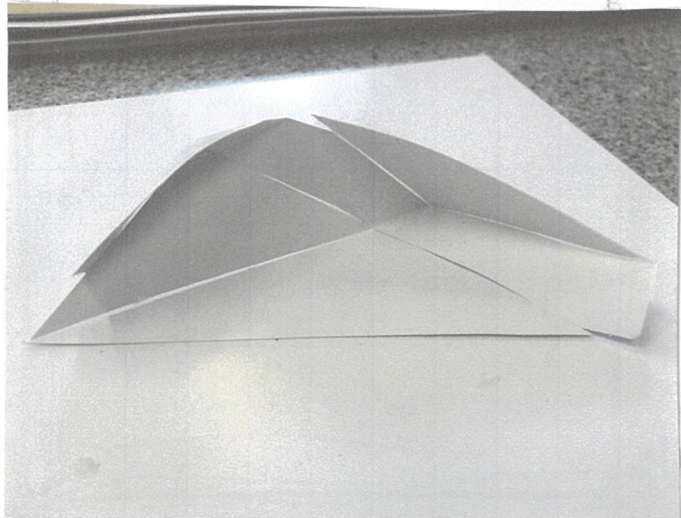
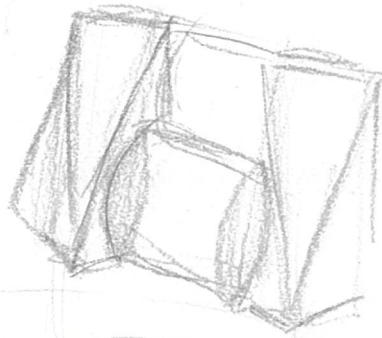
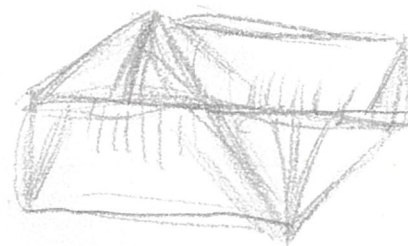
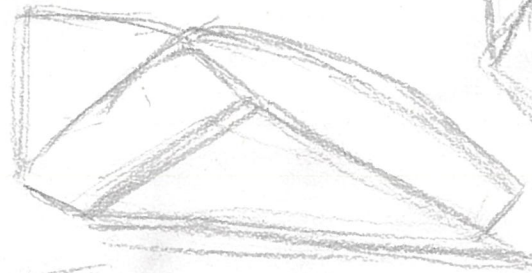
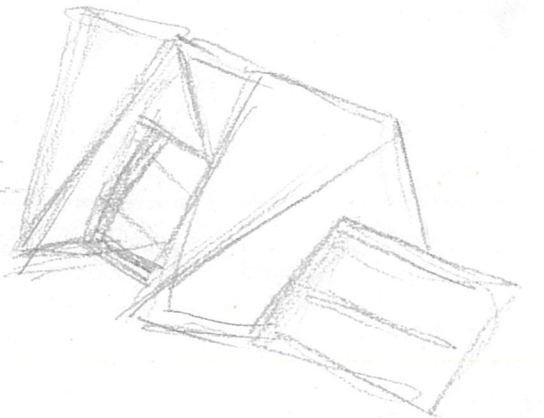
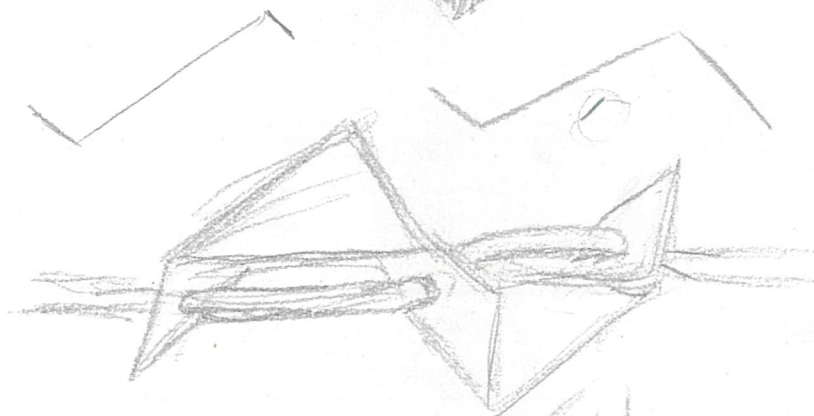
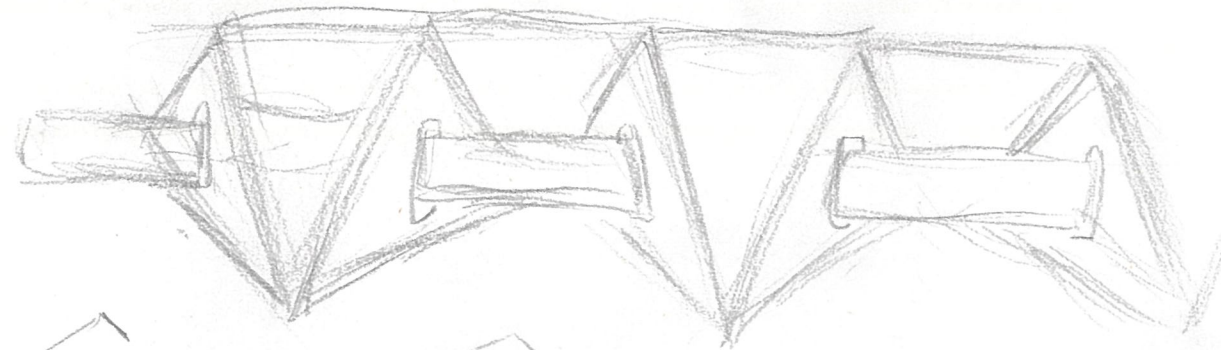
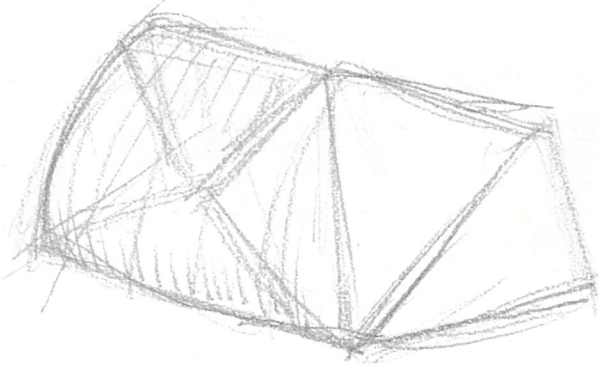
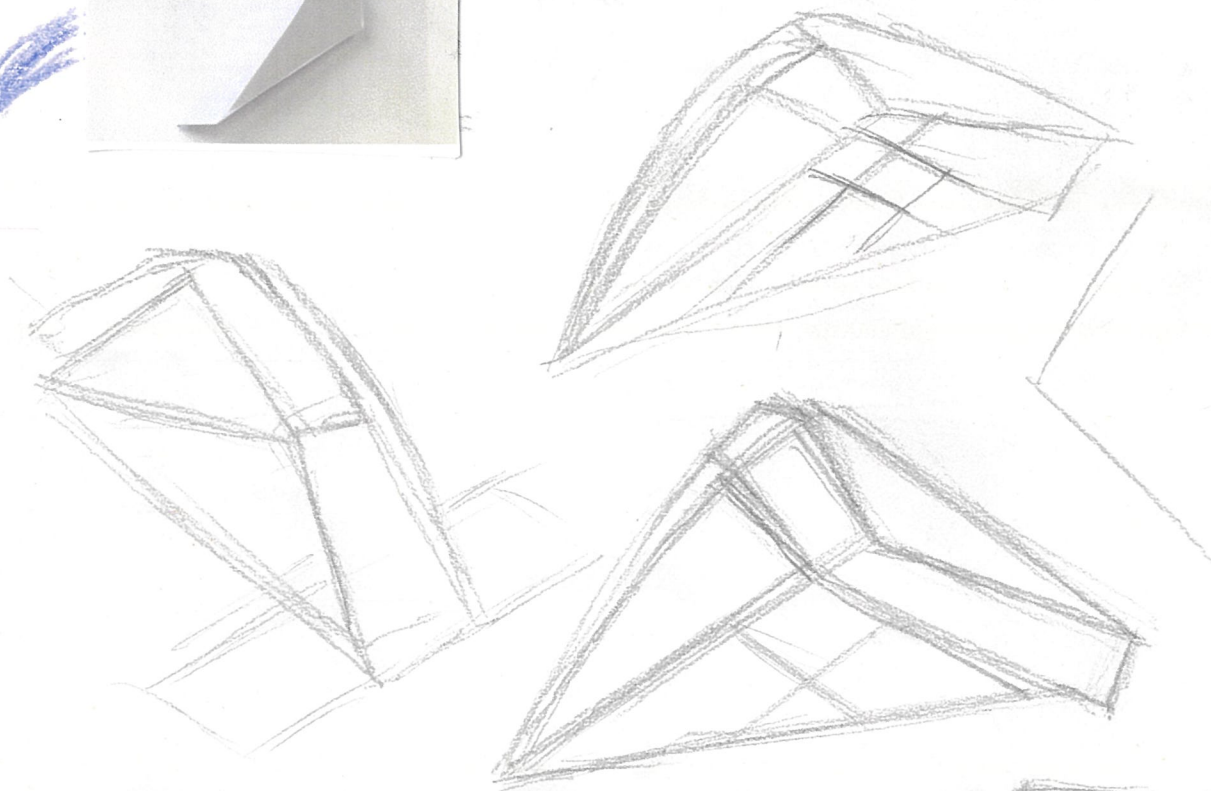
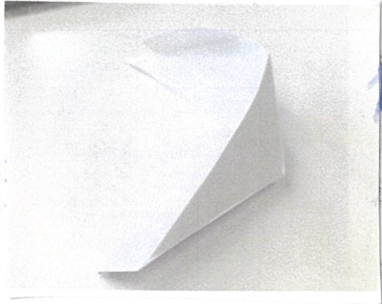
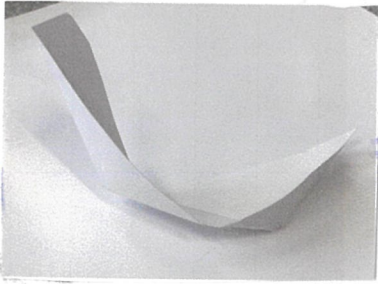
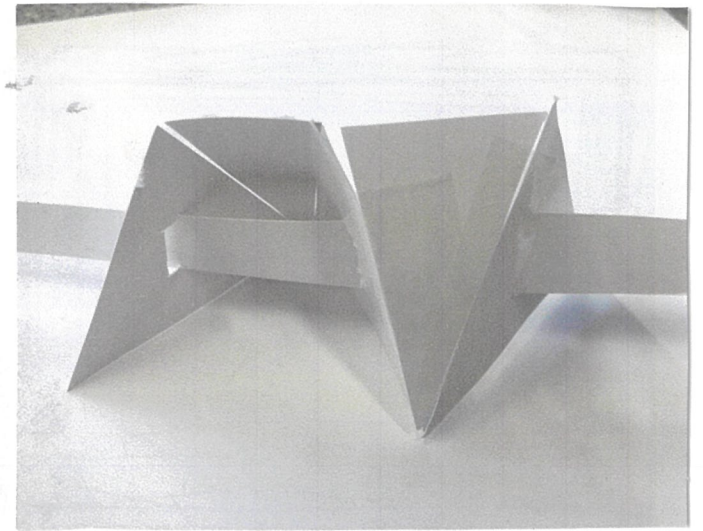
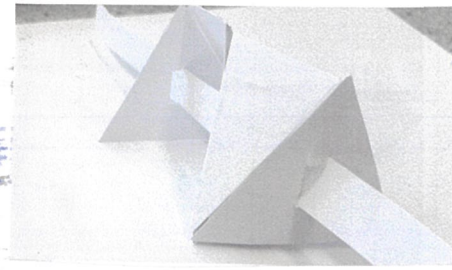
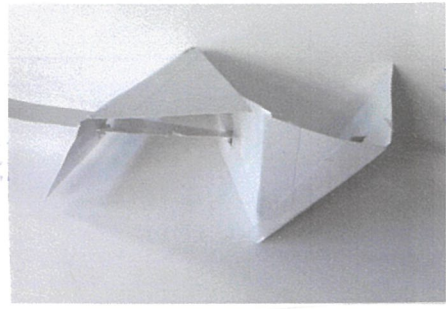
Ideation

COMBINING THE MAORI WHARENUI
WITH THE FOLDS OF FLAX LEAVES



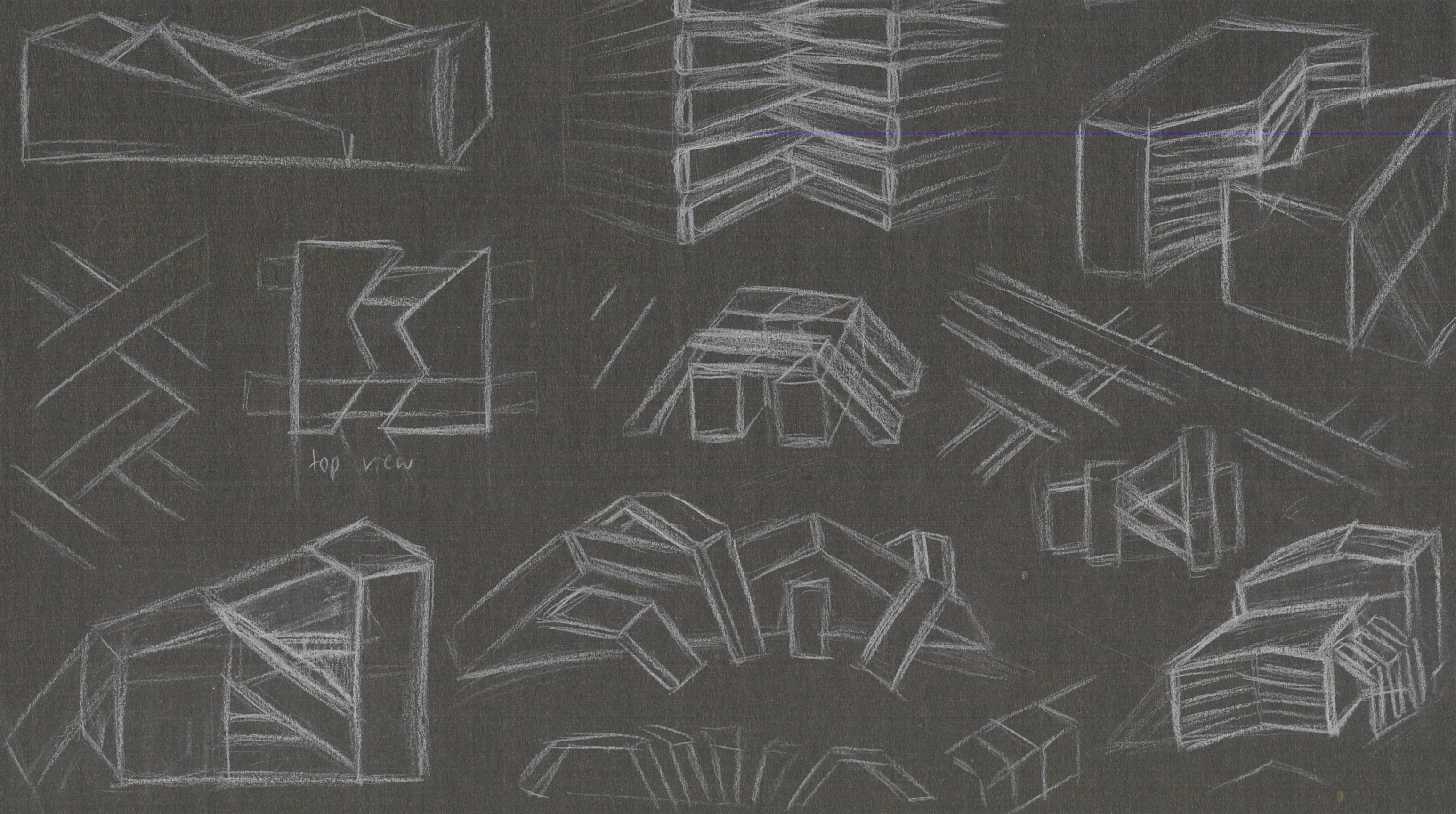
Ideation

MODEL MAKING



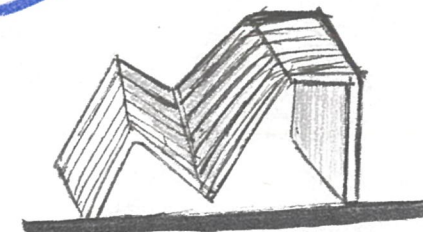
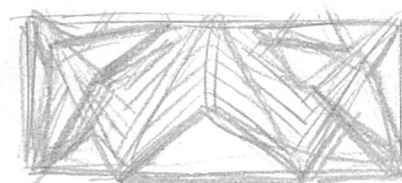
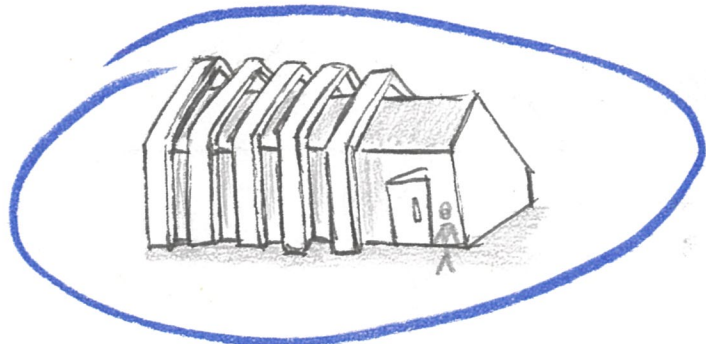
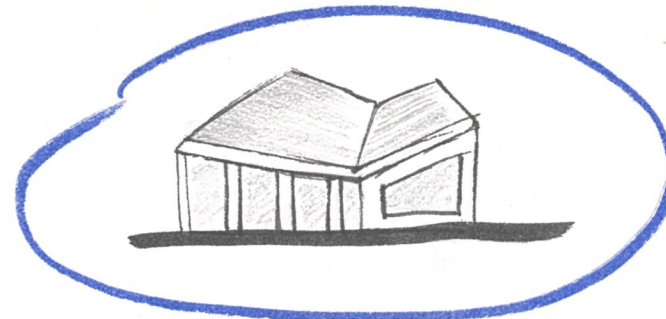
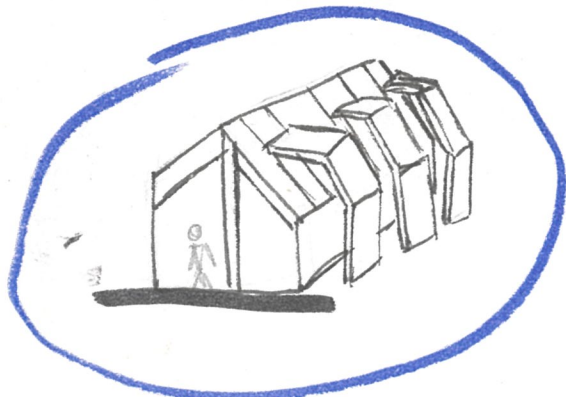
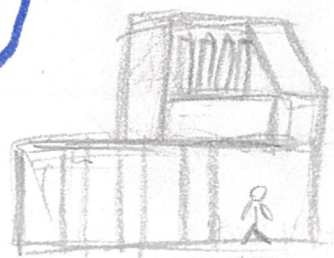
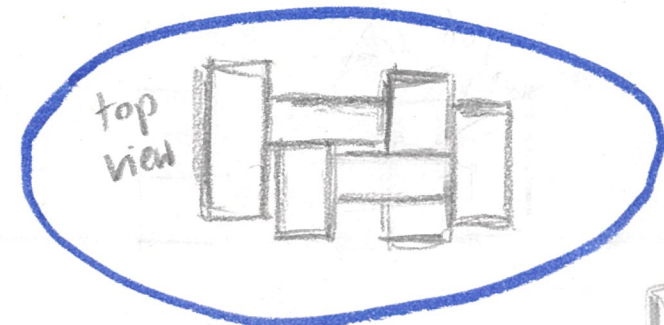
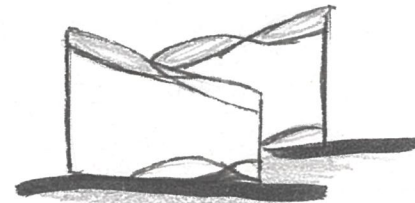
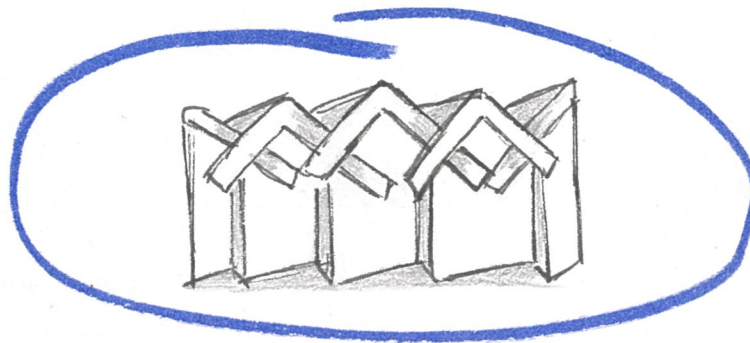
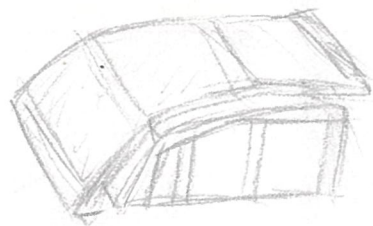
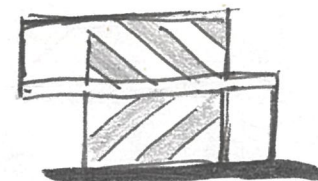
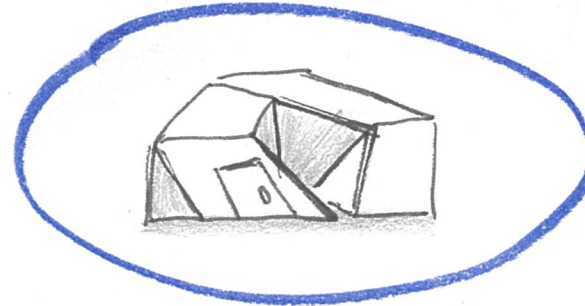
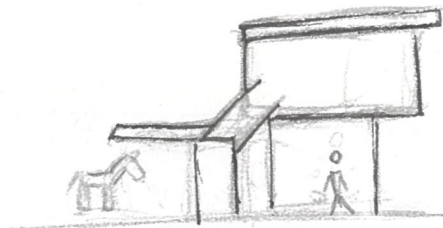
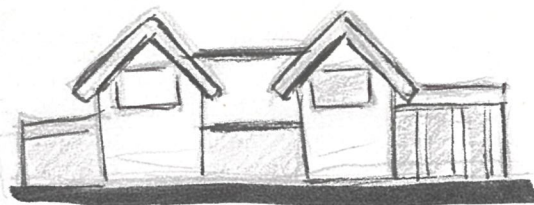
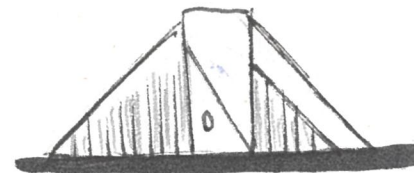
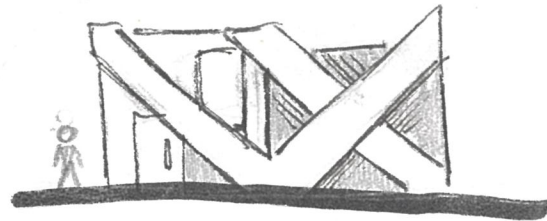
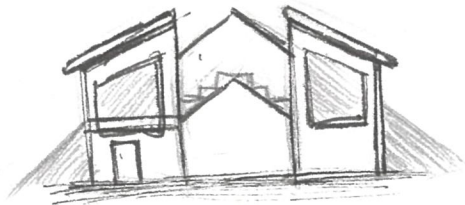
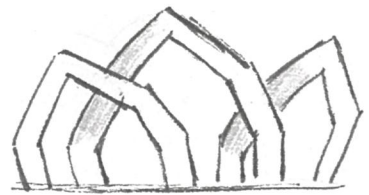
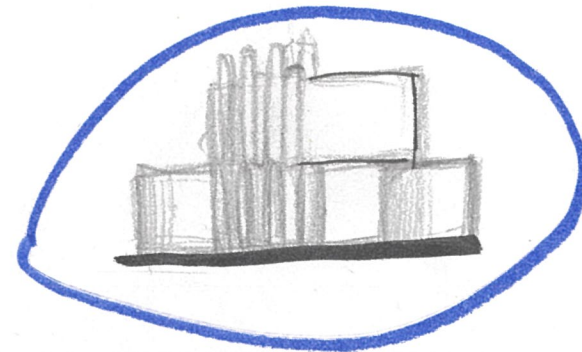
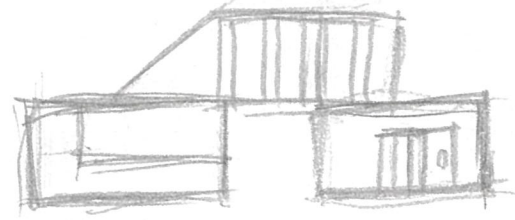
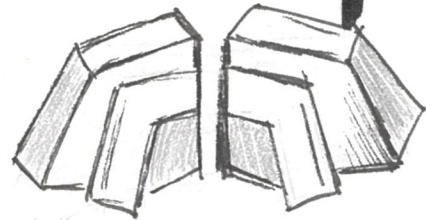
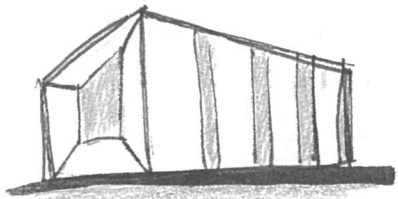
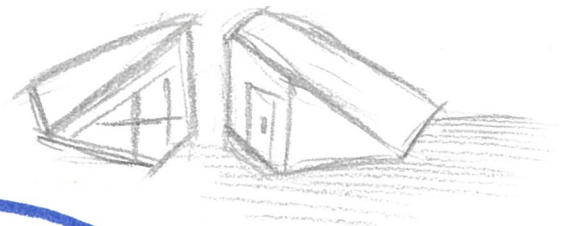
Ideation

EXPLORING MAORI DESIGN COMBINED
WITH FLAX FORMS



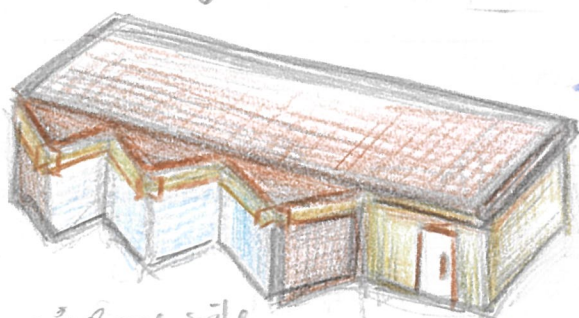
Initial Concepts

BASED OFF THE COMBINATION OF
MAORI DESIGN AND FOLDING
FLAX FORMS

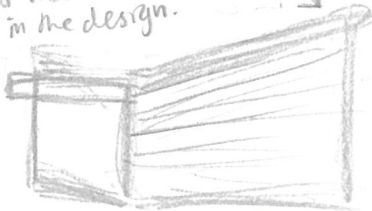


Concepts development #1

Single storey design

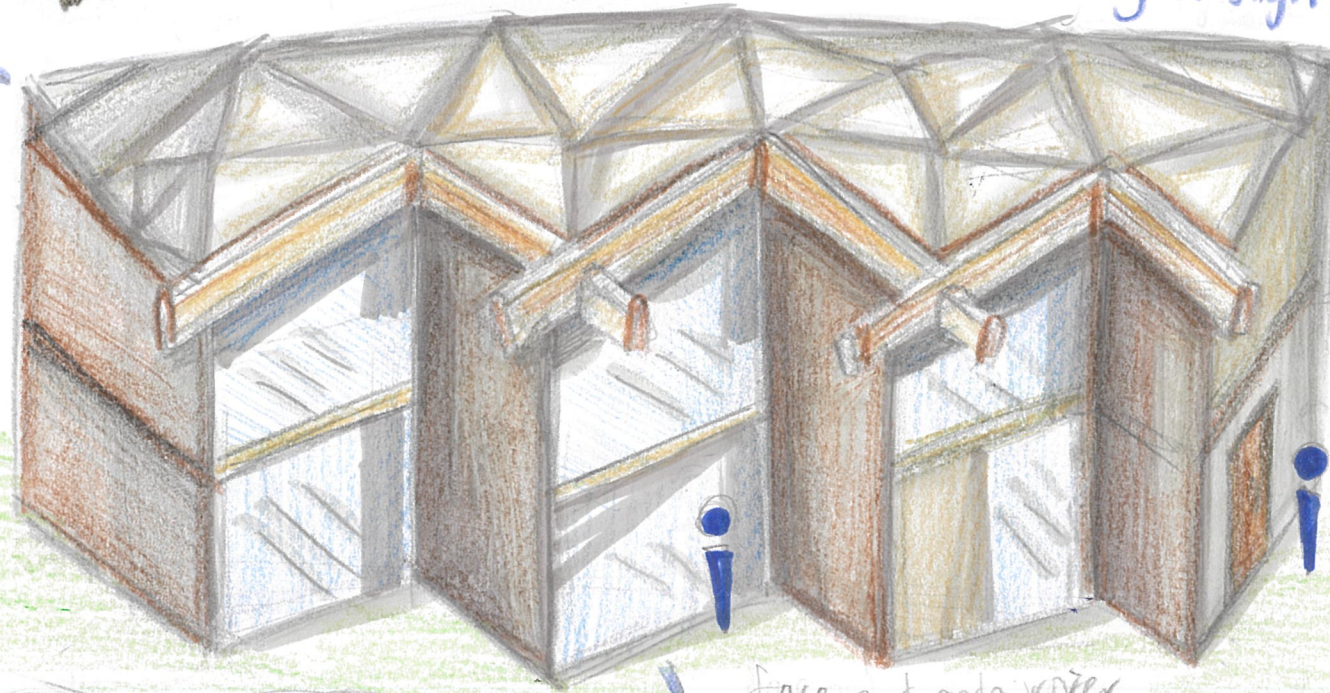


raise one side of the roof to reflect the other angles in the design.



back view

double storey design

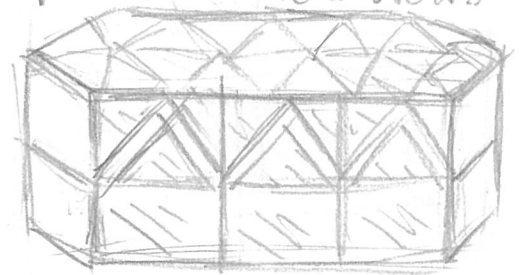


face out onto river

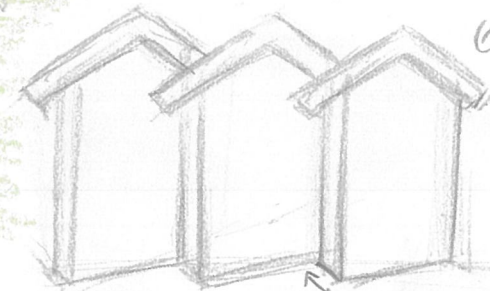
side



Option for back view:



back door

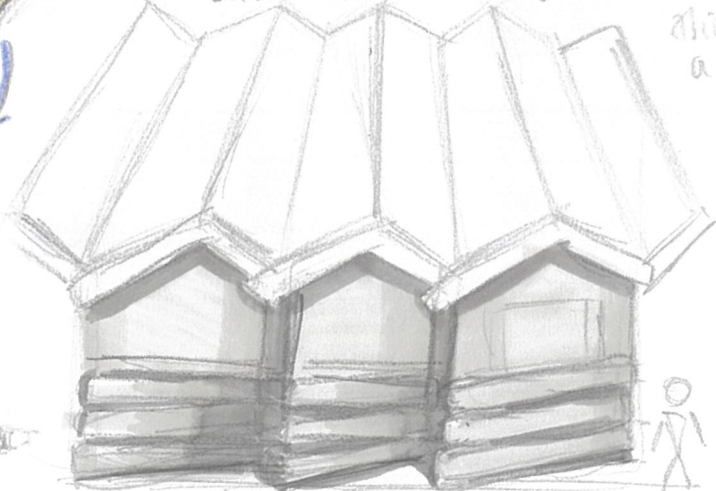


Attempt to make the front more subtle

if it was more subtle the in and out of the design wouldn't affect the interior, - it would just be part of the exterior



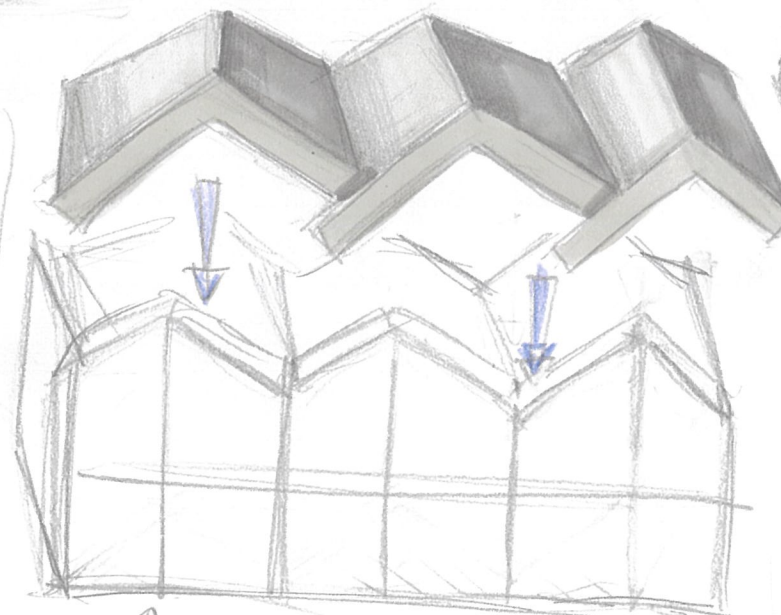
alternative roof:



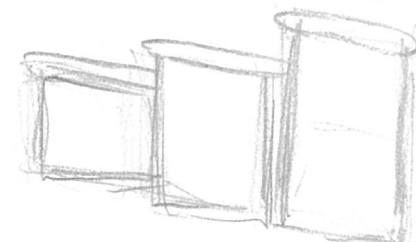
how could this look as a floor plan?



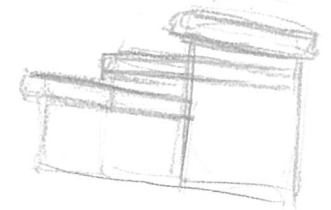
texture to create more interest



Option for flat front



rectangles / square shapes as opposed to triangles



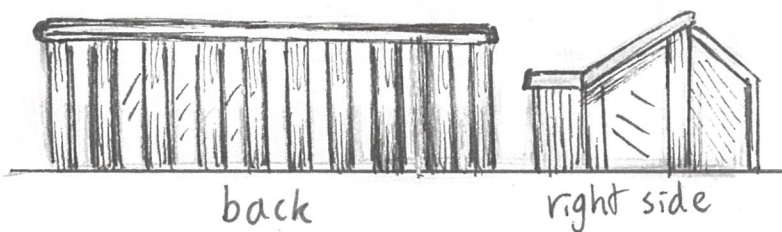
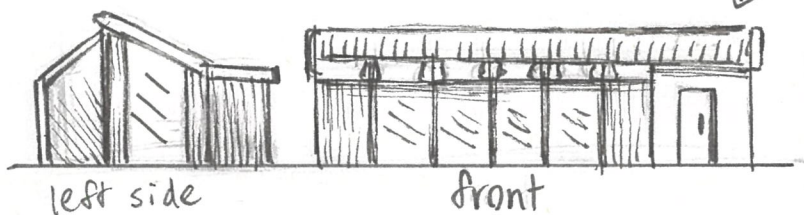
Simplify

Possible approach ✖1

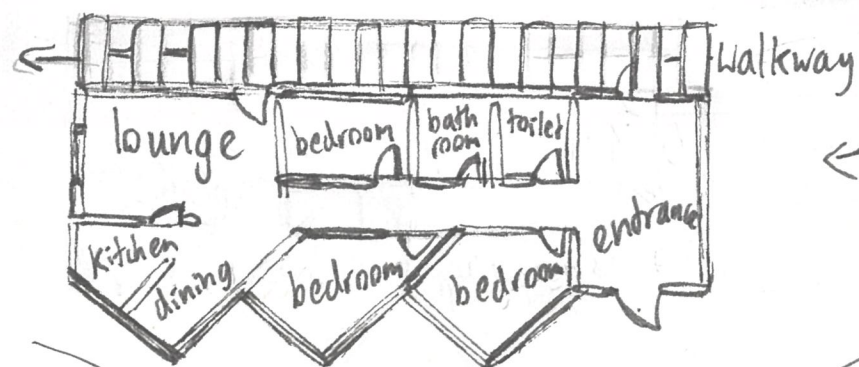
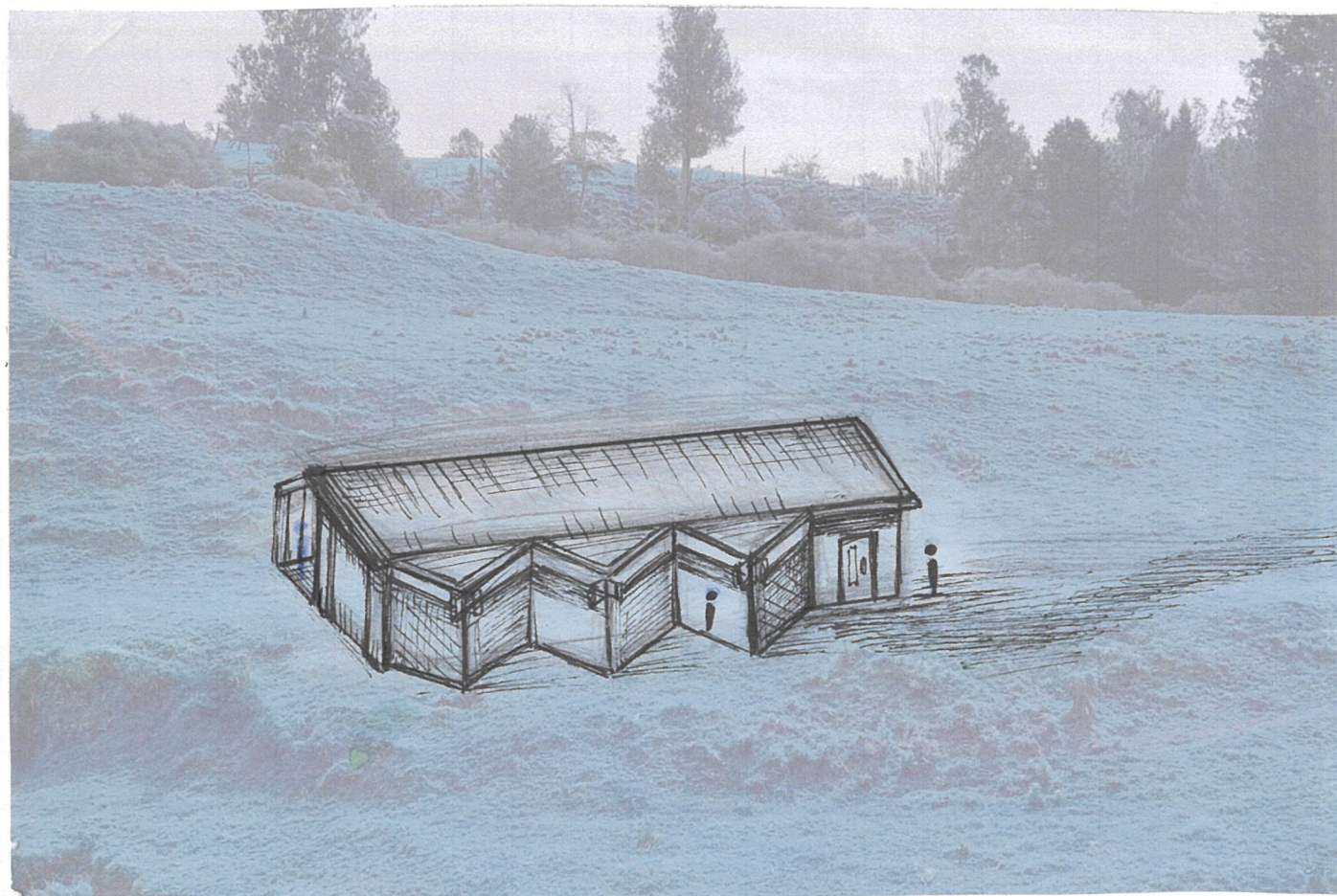
- + The long and narrow layout of this concept fits very well into the rectangular chosen site.
- + The angular front elevation looks effective and reflects the flax-weaving motif, but would be complicated to construct.
- + The main opportunity within this design is the exterior aesthetic. I like the unique design across the front of this concept.

★ I think a more organic shape for the building will create a relaxing interior where people can feel a sense of calm, rather than angular straight lines. The shapes within this concept would not convert well into curves, therefore I will not move further with this design.

- + The walkway across the back of the design helps to make the design look more balanced and complete. It recedes effectively into the hill behind the design.
- I would need to consider further what would go within this walkway, as currently it does not have a lot of functional purpose, apart from being an accessway.

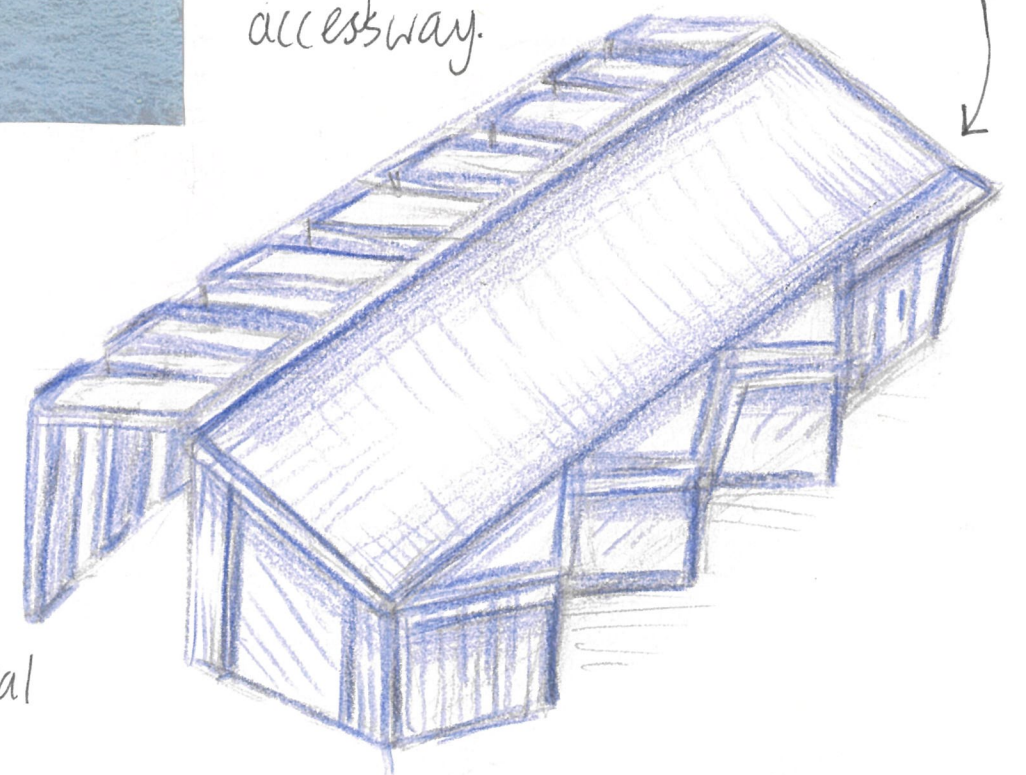


hill



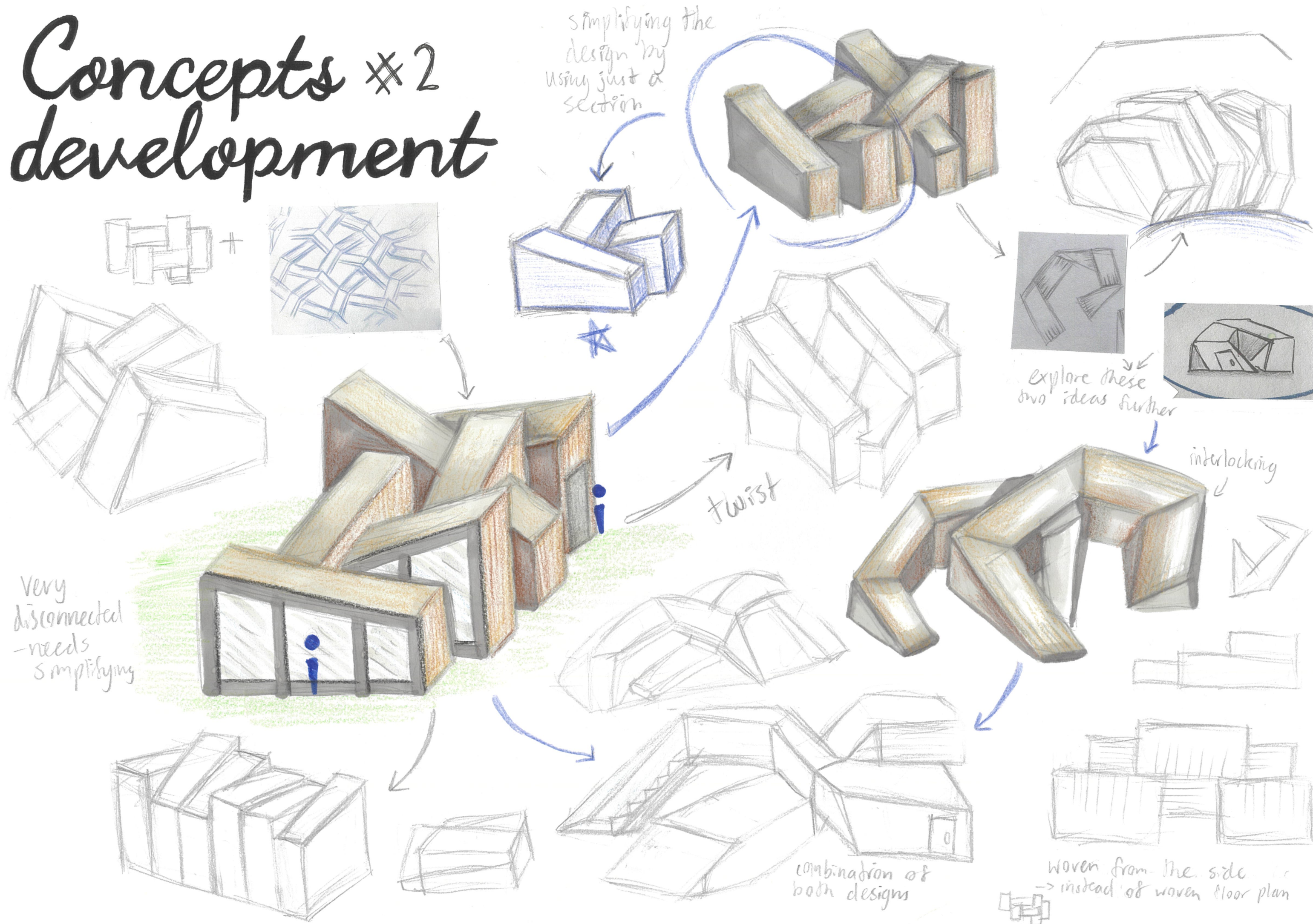
- The floor plan creates awkwardly shaped rooms and would need to be adjusted to locate the living area at the front of the building to take maximum advantage of the views.

- The walkway feature is currently very hidden from view and lacking in natural light.

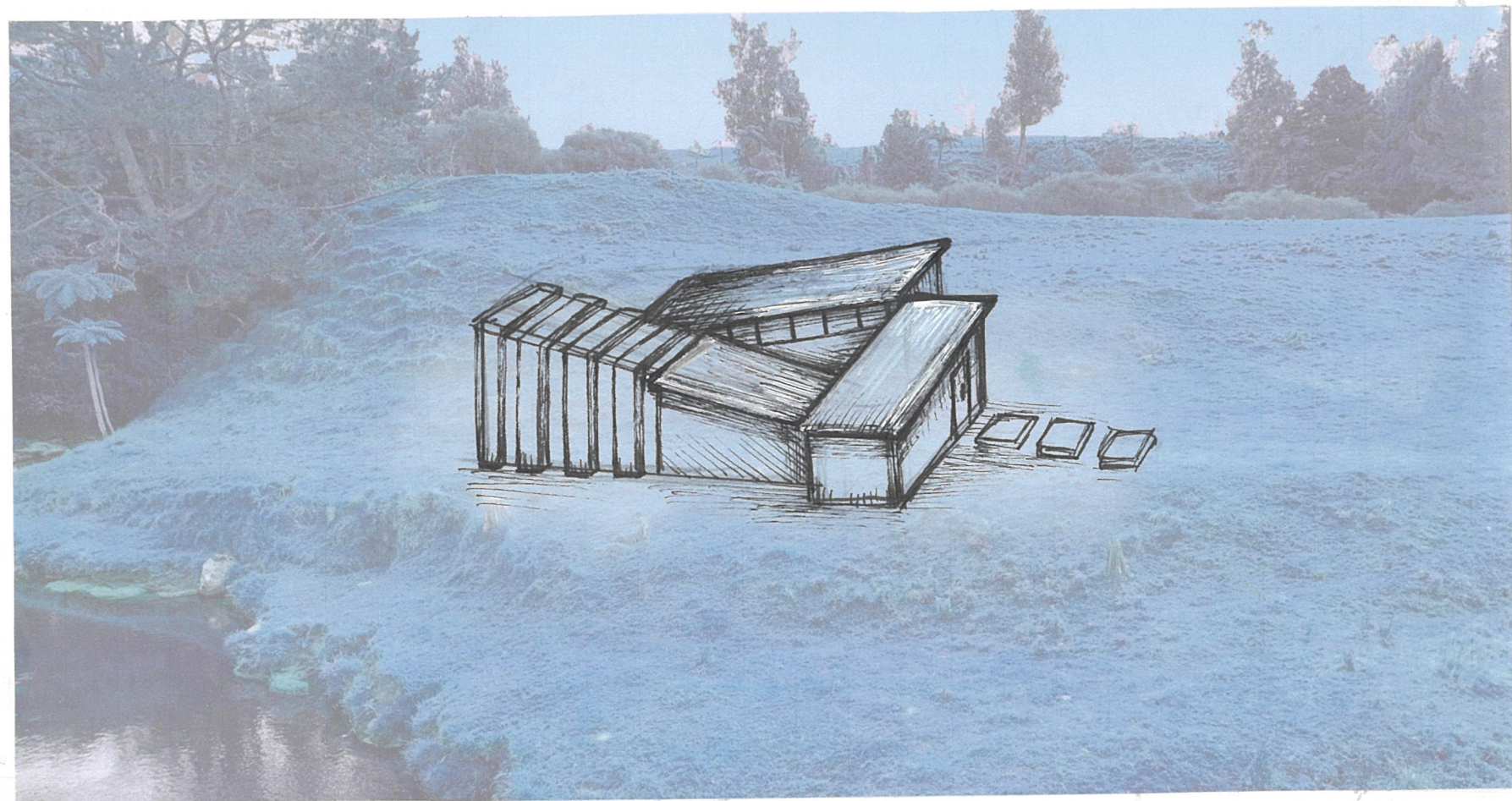


river

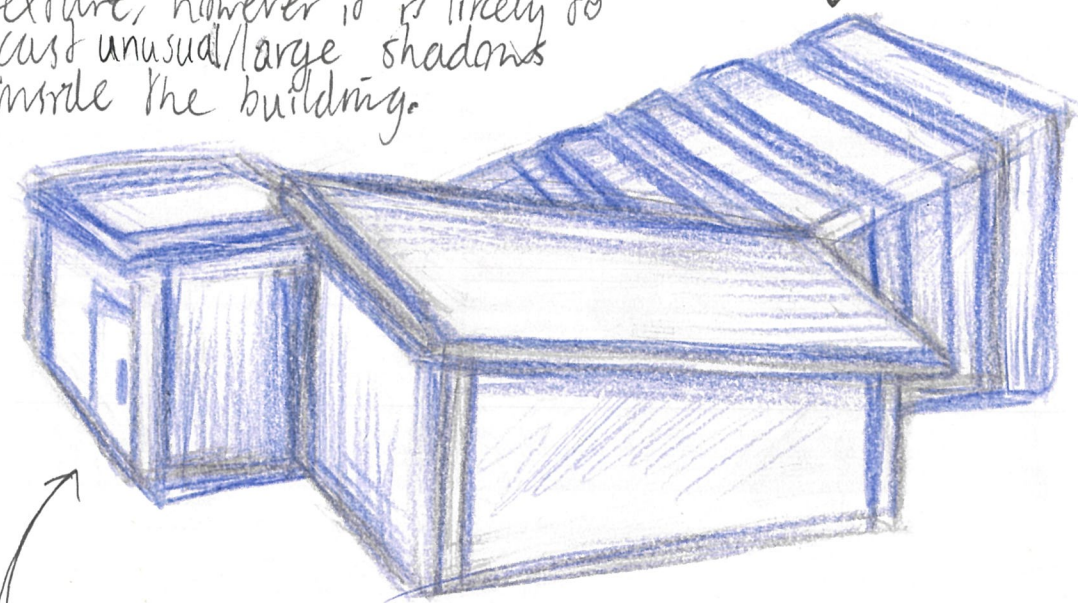
Concepts #2 development



Possible approach #2



- This pattern wrapped around the building creates an interesting texture, however it is likely to cast unusual/large shadows inside the building.

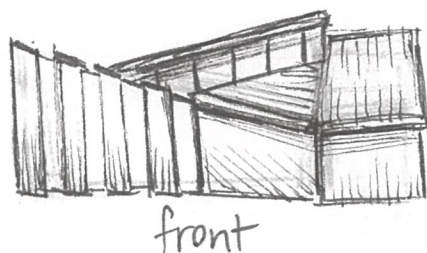
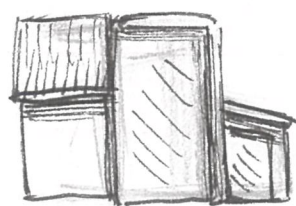


- + The alternating roof angles with variations in height add an impressive effect and echoes the shapes of the hills in the landscape.
- The potential outside space for a seating area or deck would be located across the front of the building, and there is little shelter here from the prevailing winds.

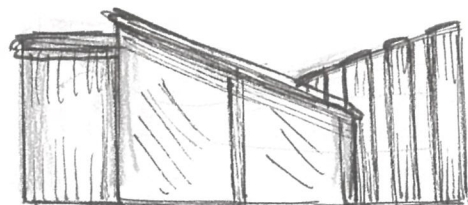
★ Due to the unsuitable floor plan and restriction to natural lighting, I have decided that I won't proceed any further with this concept.

- The floor plan places all living areas at the front of the building for maximum light and views, but there will be limited natural light into the bedrooms at the back of the design, due to the small windows across the front.

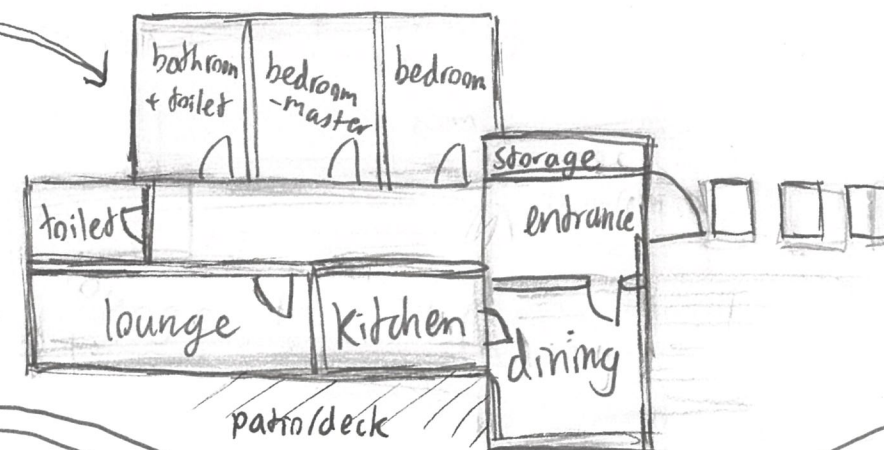
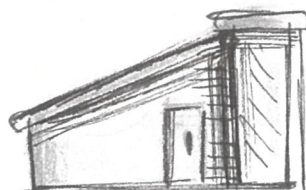
- A constraint with this design is that the layout of this floor plan would be better suited to a square site rather than my chosen site



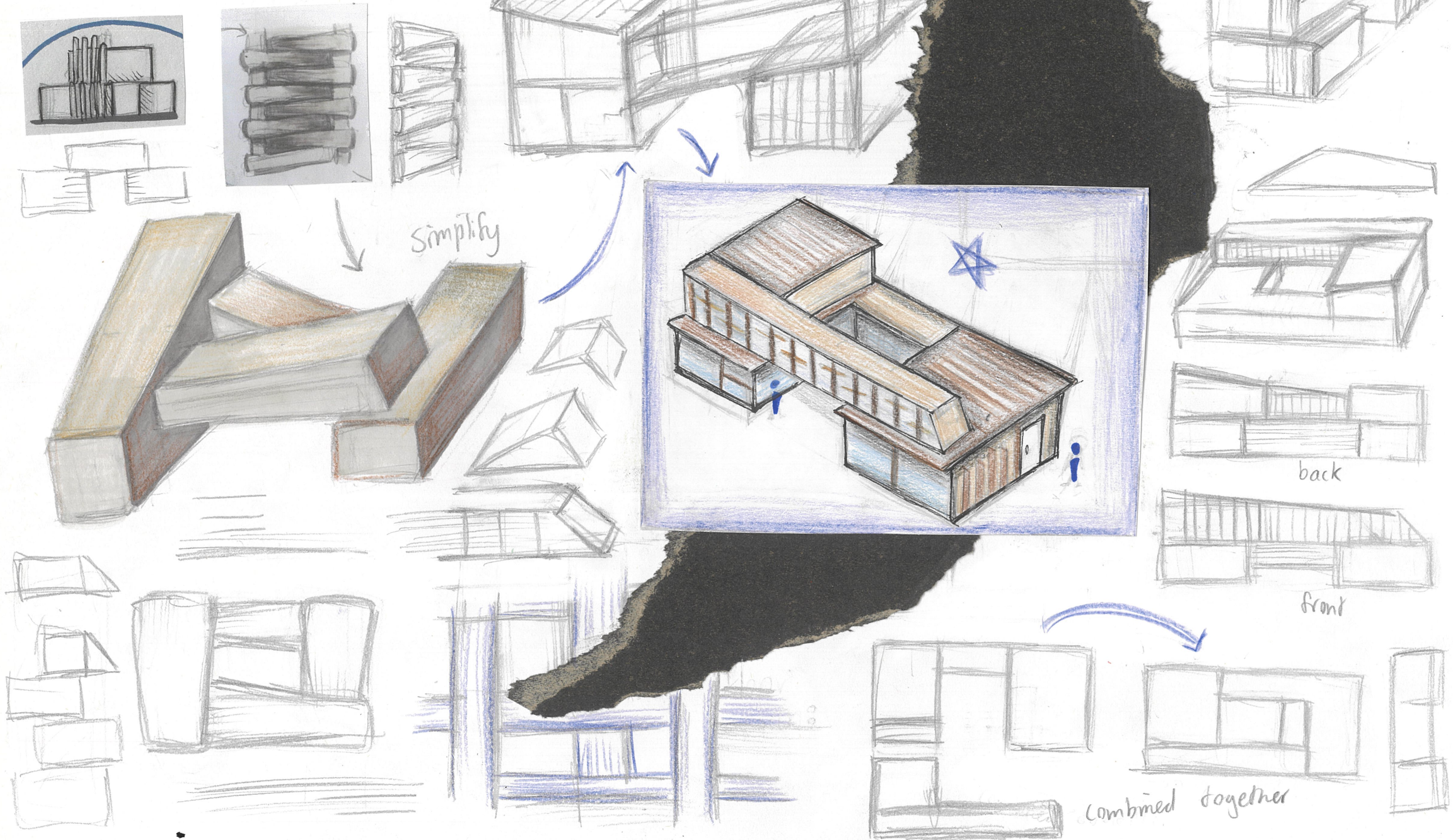
front



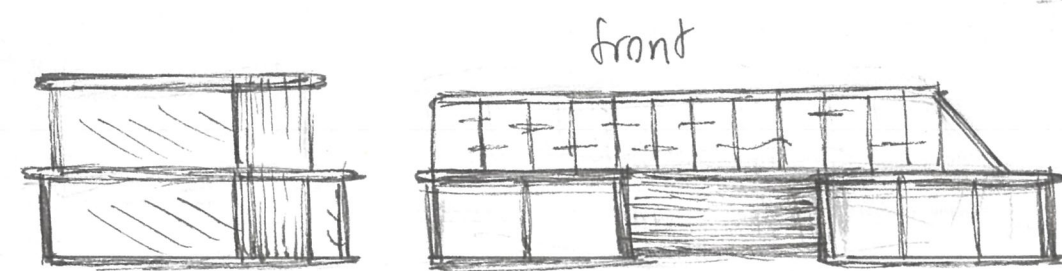
back



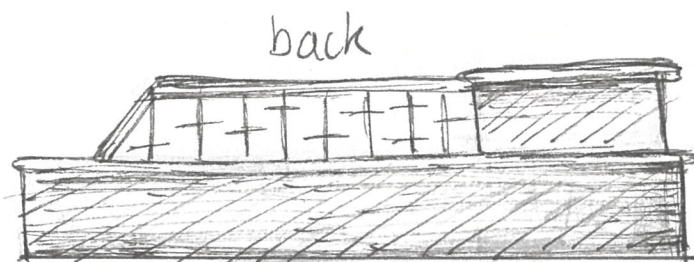
Concepts development #3



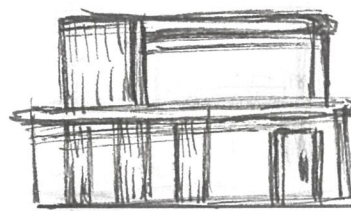
Possible approach #3



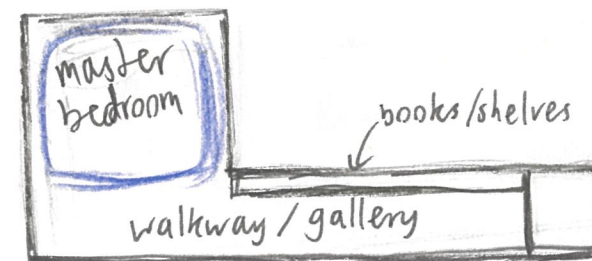
front



back



1st storey

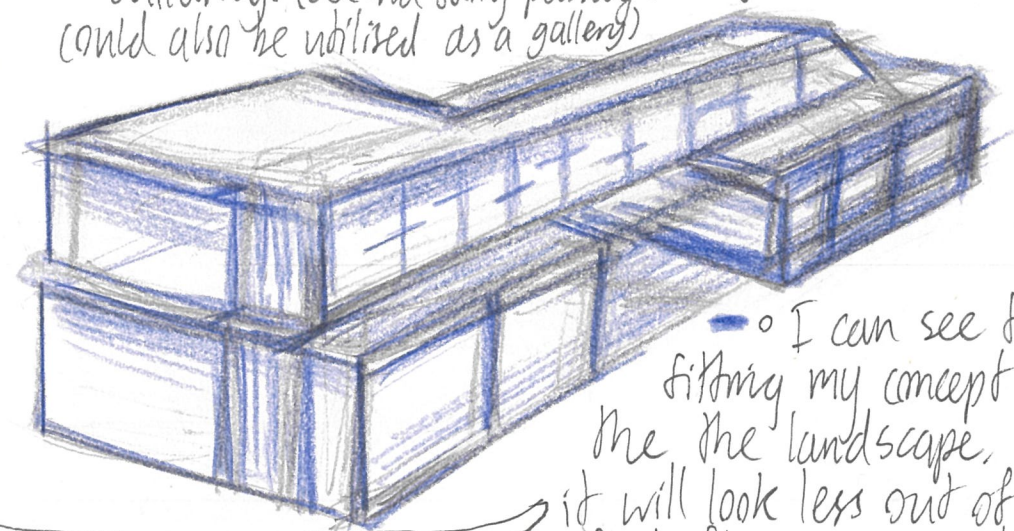


2nd storey

+ The elongated rectangular shape of this concept provides a functional floor plan and fits well into the flat space within the chosen site.

+ The extensive walkways provide views of the landscape as people move throughout the building. (Second storey passage could also be utilised as a gallery)

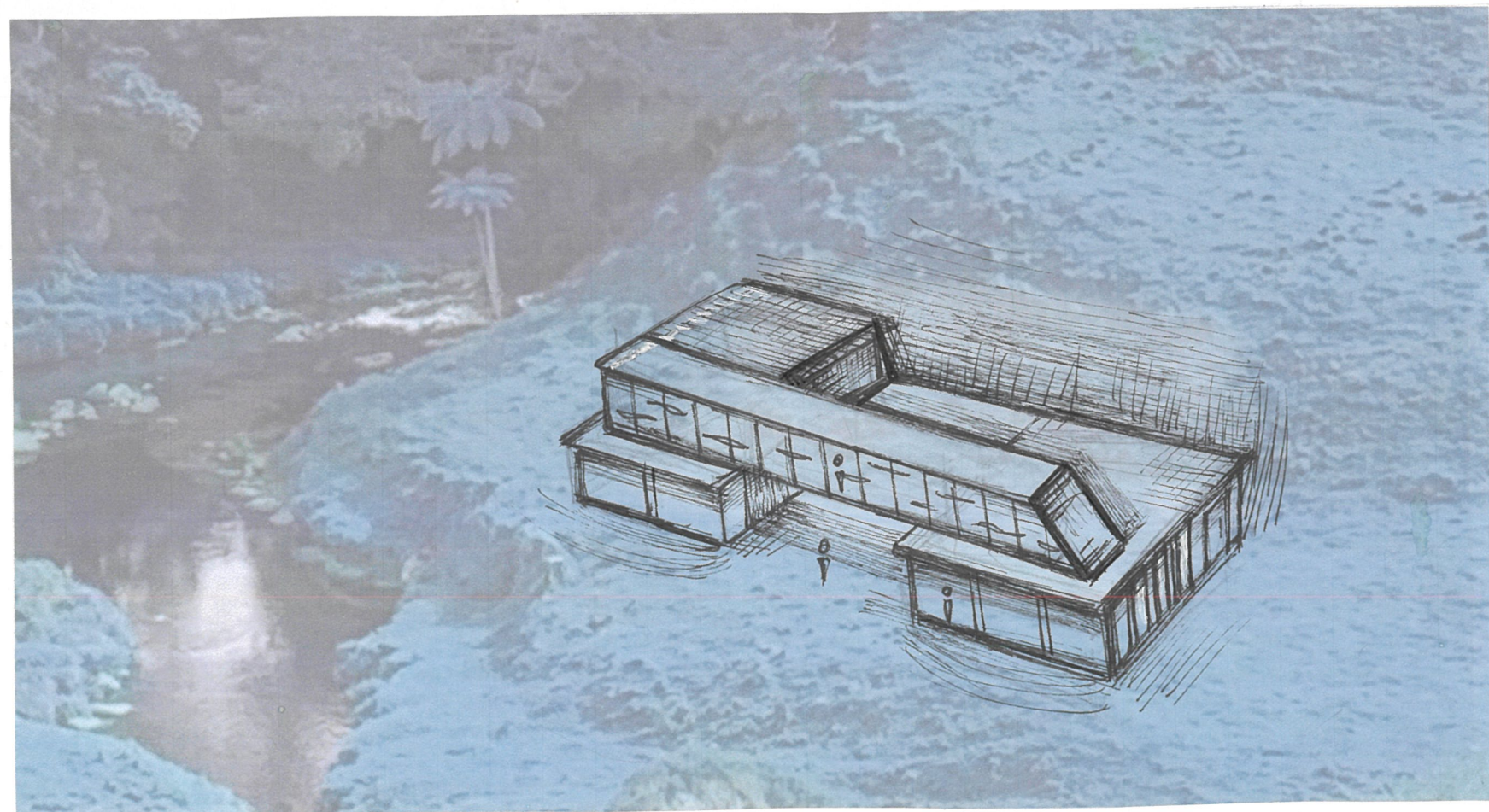
+ This layout allows maximum natural light into both living and bedroom areas, and places hallways and bathroom areas at the rear. Having a two storey concept also maximises natural light, considering the surrounding hills.



- I can see from fitting my concept into the the landscape, that it will look less out of place if it flows more naturally - incorporates less straight lines

+ To fit my design into the chosen site I have decided to place the back wall of my design against the side of the hill. This best utilises the given space within the site. The placement of this design means that the front aspect of the house will be the most important to develop. Setting the design against the hill is a good way to combine the design with the landscape so they appear as one.

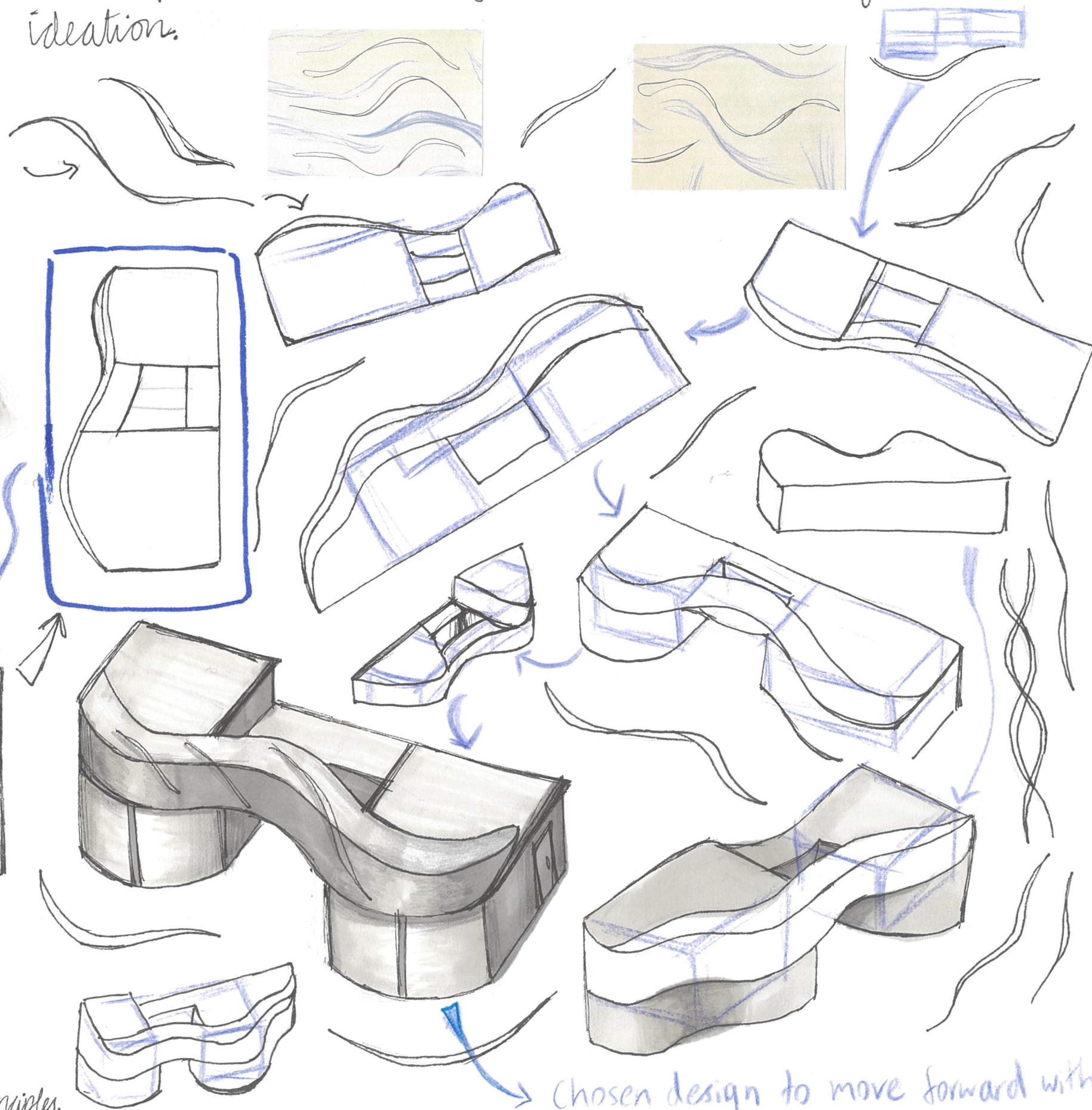
★ I like the potential within this design of the two spaces which are separate, yet interconnecting. It feels important to have spaces which bring people together and encourage conversation, and spaces where people can withdraw and reflect. Because of this potential I have chosen to develop this concept further.



Development

HOW CAN I IMPROVE THE FORM OF MY DESIGN?

To create a form that flows better with the natural landscape, and does not have so many harsh lines and edges, I will use inspiration from the form of the eel, and my initial eel ideation.



new profile of the house

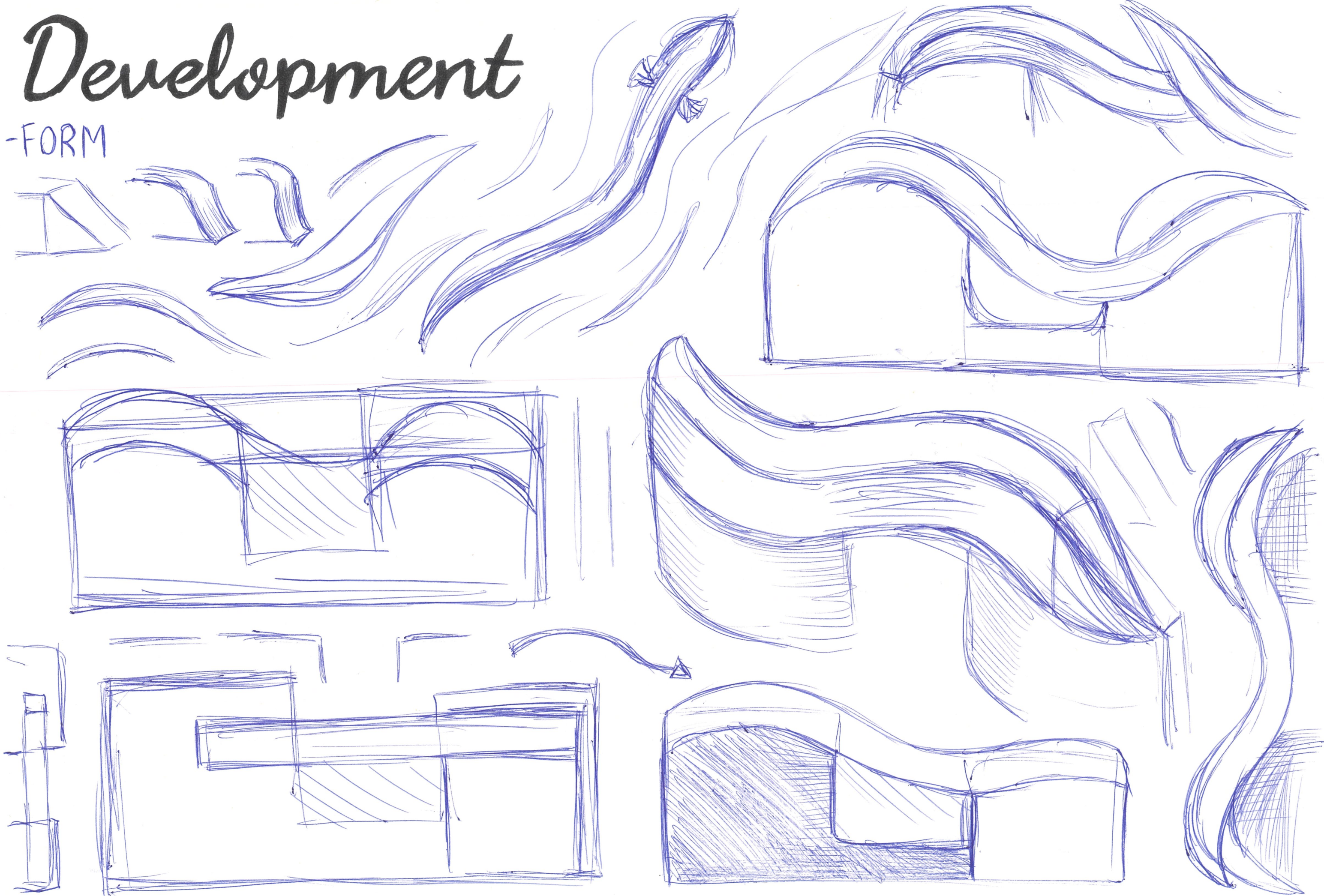
My aim is to keep the layout of the design relatively consistent, this is because it currently has lots of opportunities for communal spaces. The layout of the interlocking buildings was inspired by woven flax forms, however the straight lines and edges are a stark contrast to the environment of which my design will be placed. Therefore I will improve the exterior form and flow of the building with respects to the layout.

→ This change will help the design to reflect and relate to, Mātauranga Māori, and the Taiāo value from the Te Araanga design principles.

Chosen design to move forward with

Development

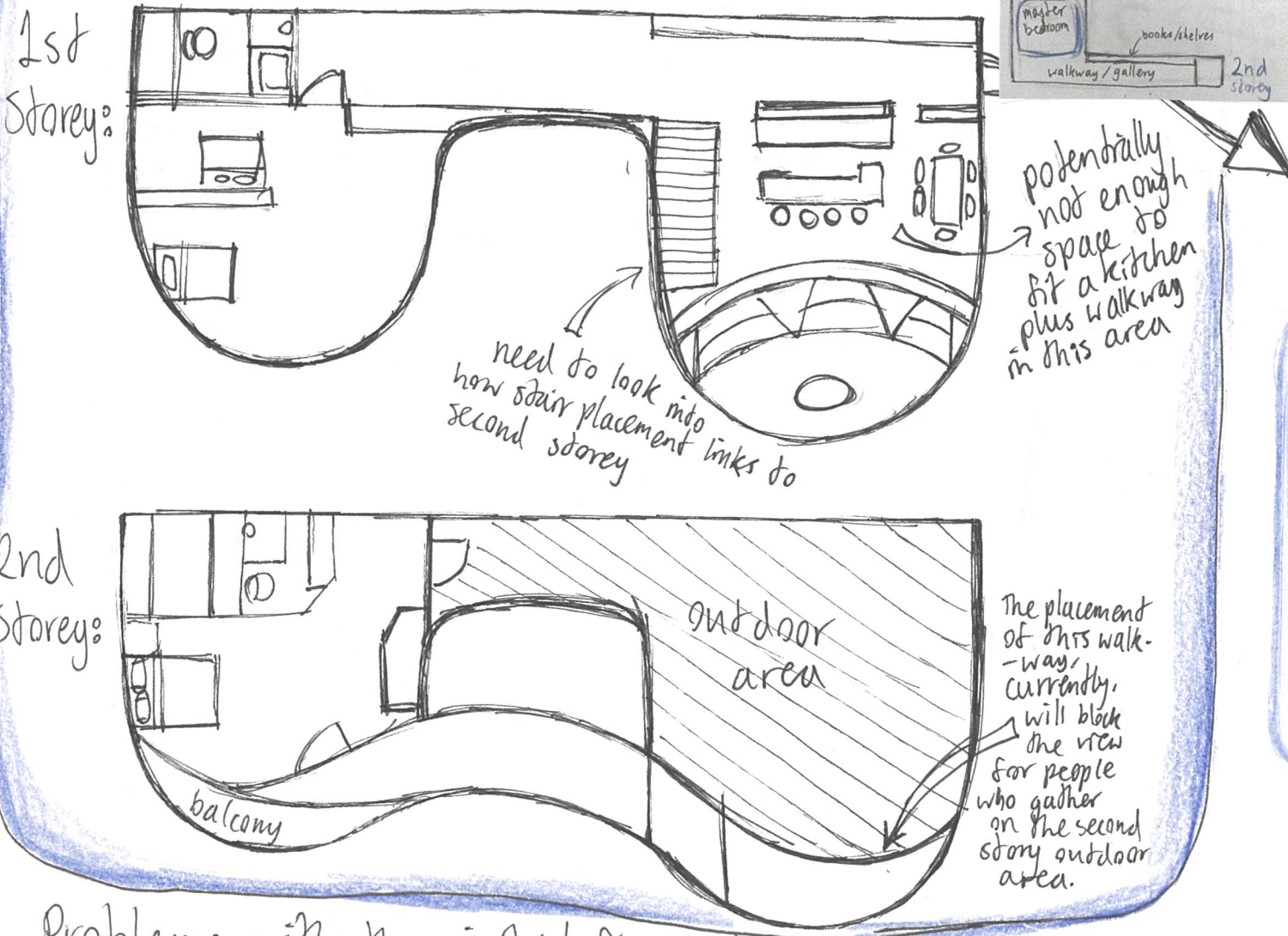
-FORM



Development

HOW CAN I IMPROVE THE FLOW OF THE FLOOR PLAN?

translation from possible approach #3
Current idea for the floor plan:



Problems with this initial floor plan:

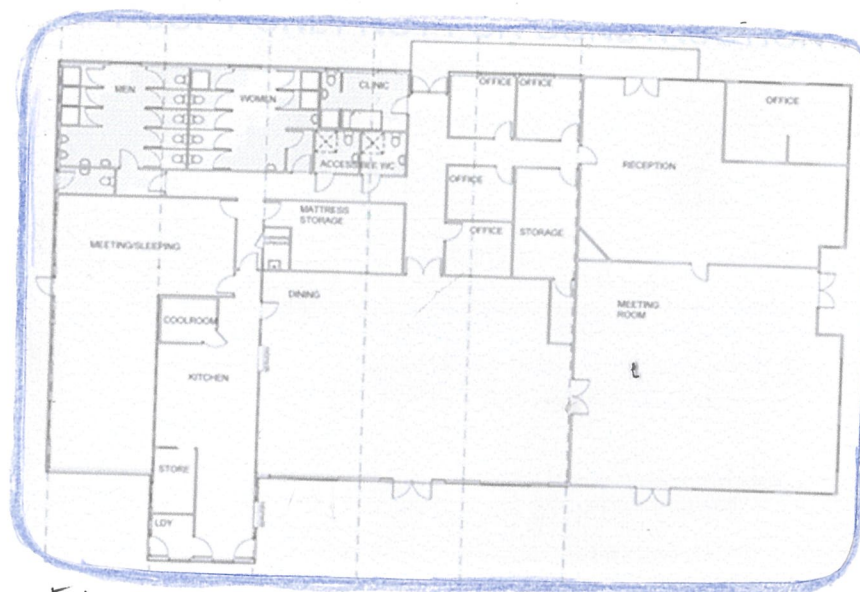
- the placement of the walkway, which currently will effect the outlook.
- how the stairs connect to the walkway on the second storey
- Primarily the current problem is that I want to maximise the use of space within my design. I do not want my design to be 'grand' so the size and scale needs to be carefully considered.

I need to consider how I can create a greater sense of Whanaungatanga within the space. Whanaungatanga means a relationship built through shared experiences, which provides people with a sense of belonging. By creating a house plan that draws people together and creates connections between them, I can improve the humor of the users.

FLOOR PLAN DESIGNS RESEARCH:

New Zealand Bach Floor plan

- Simple design, compact floor plan
- Functional spaces with open plan living.
- Bedrooms off the living area.
- Small kitchen; use of outside BBQ in summer.

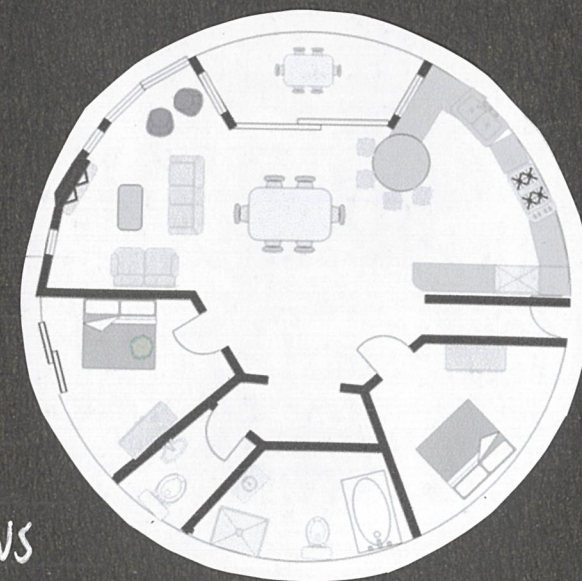


Floor plan of a Maori Wharehau

- Includes many meeting spaces - large areas.
- There is also sizeable entrance/reception and dining
- Smaller spaces allocated to sleeping and storage
- Kitchen interconnects to many spaces

Round House

- Non-standard shapes for rooms
- large communal areas
- Sleeping areas directly off living areas
- Exterior windows provide 360° views



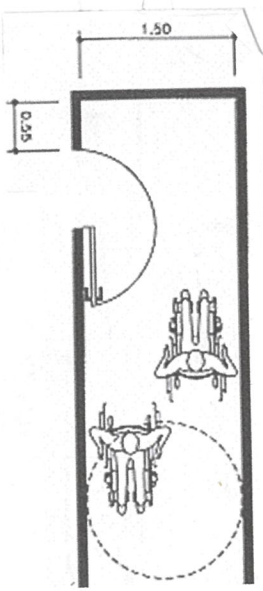
Size



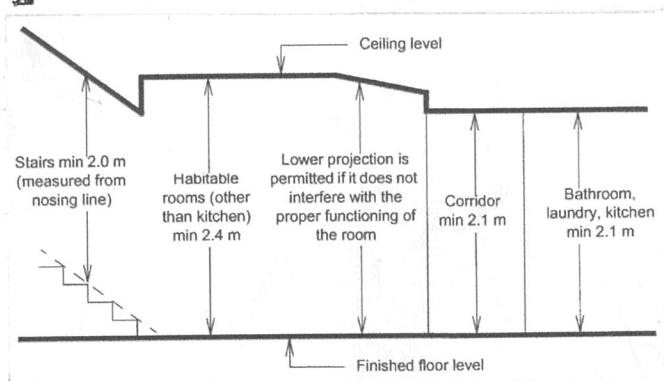
I have based the height of the ceiling above the stairs at 2.0m, which sets the height of the walkway above the stairs.

I chose a wider dimension for the front doorway so that the entrance appears welcoming and so that wheelchairs are able to fit through.

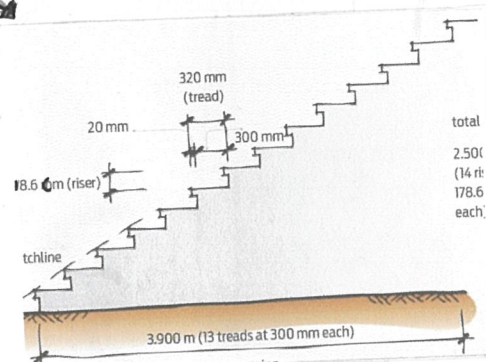
I have based the dimensions of the stairs similar to these measurements, as the stairs rise 2.5m and span 3.9m.



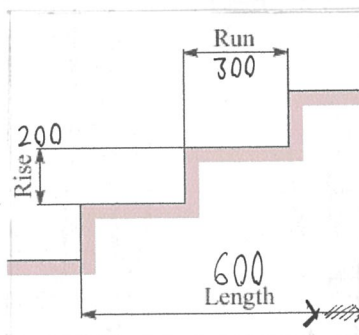
The wider dimensions of the hallway at a value of 1.5m have plenty of space for wheelchairs to manoeuvre.



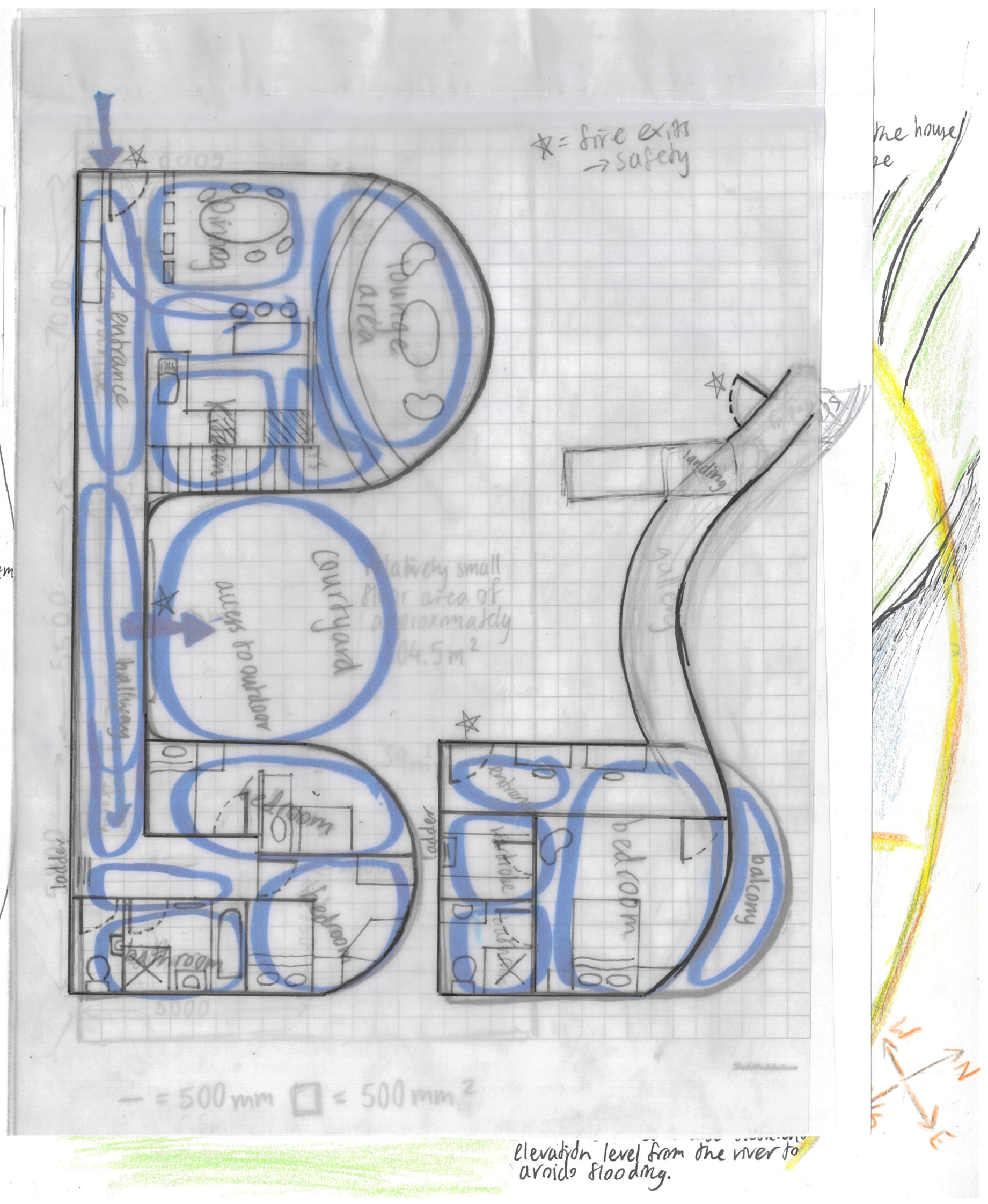
The height of the roof has been set at 2.5m, (higher in the sunken lounge space). This is higher than the recommended heights for habitable rooms of at least 2.4m and comfortable for someone to move around.



The sunken lounge will drop down 40cm, which is the height of two 20cm steps.



Final floor Plan
to a scale of 1:50



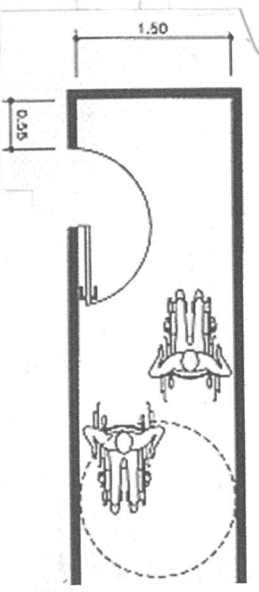
Size



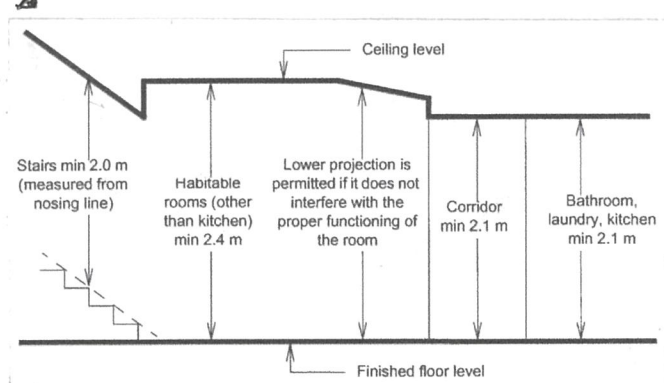
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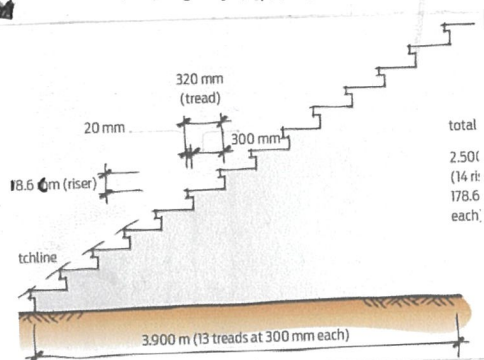
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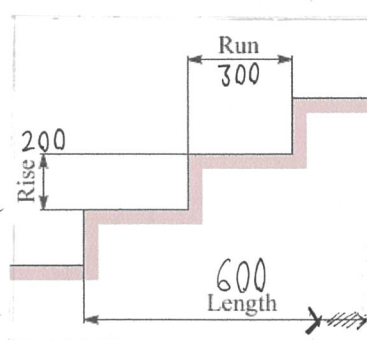
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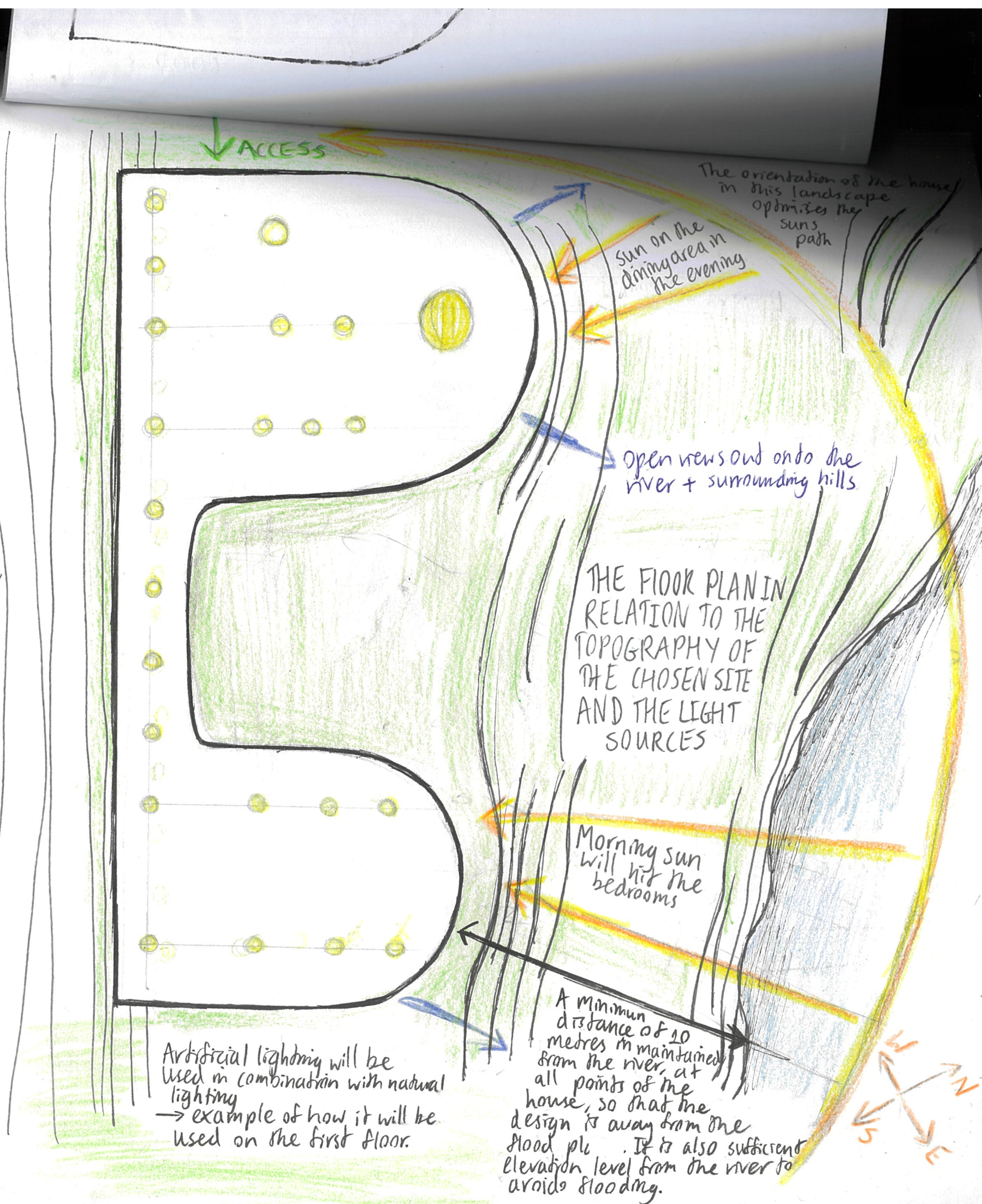
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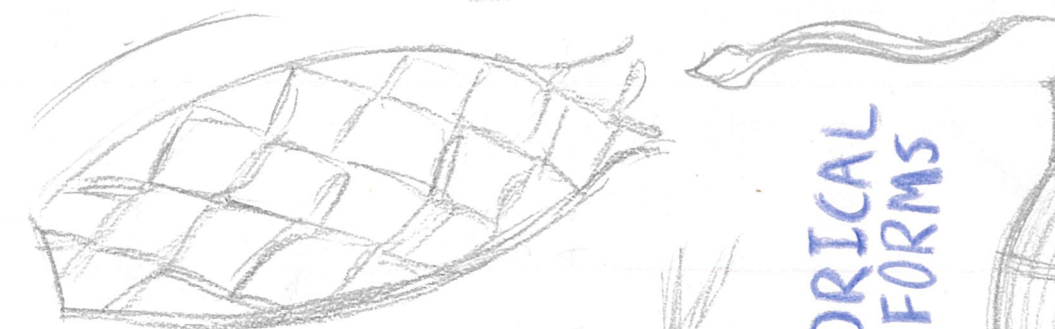
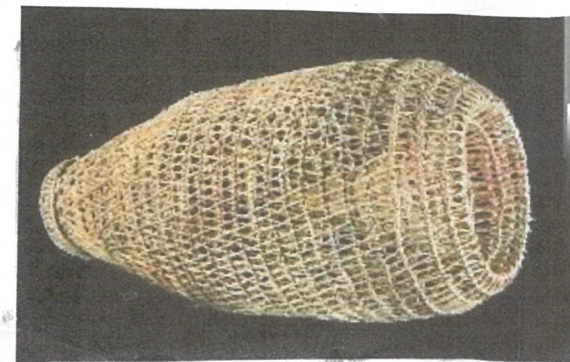
Final floor Plan
to a scale of 1:50



Inspiration

HINAKI - NEW INSPIRATION FOR THE DESIGN
INTERIOR + DETAILS

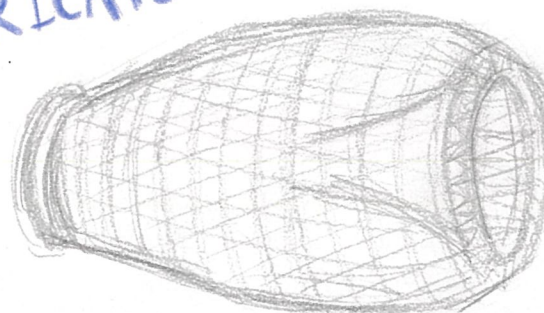
Hinaki To inform the space of the kitchen, living, and dining space I wanted to bring in a new inspiration. I have decided to introduce hinaki (Maori eel trap) as my source of information. Eels were a delicacy for the Maori. Traditional eel traps were made by weaving flexible vines and flax into a cylindrical form.



CYLINDRICAL
FORMS



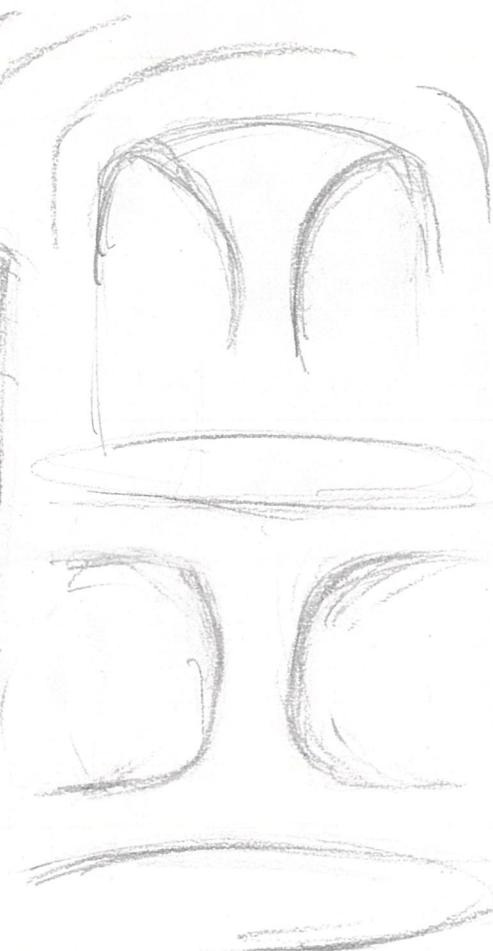
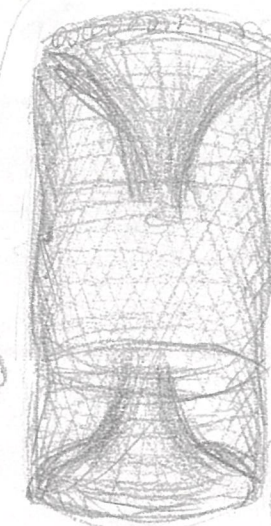
INTRICATE



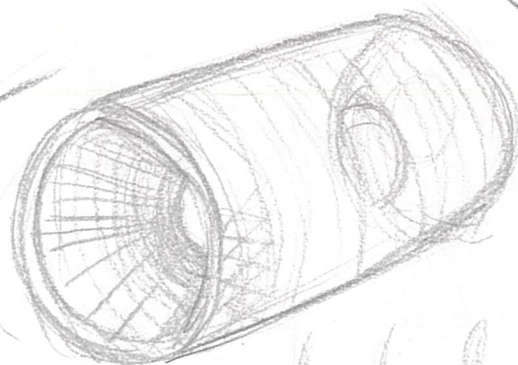
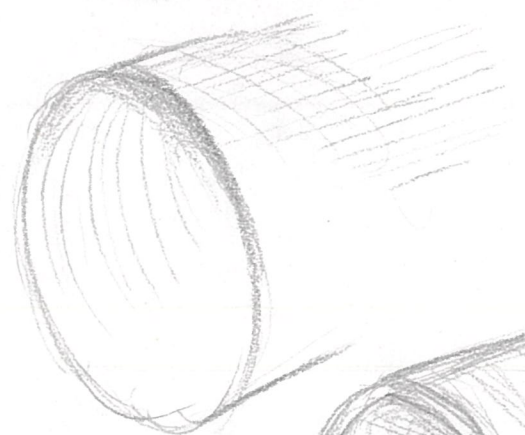
INVERTED



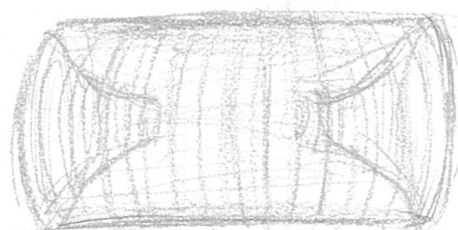
WOVEN



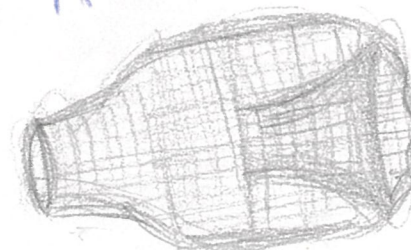
DETAIL



CURVED



ART



FLOW



Development

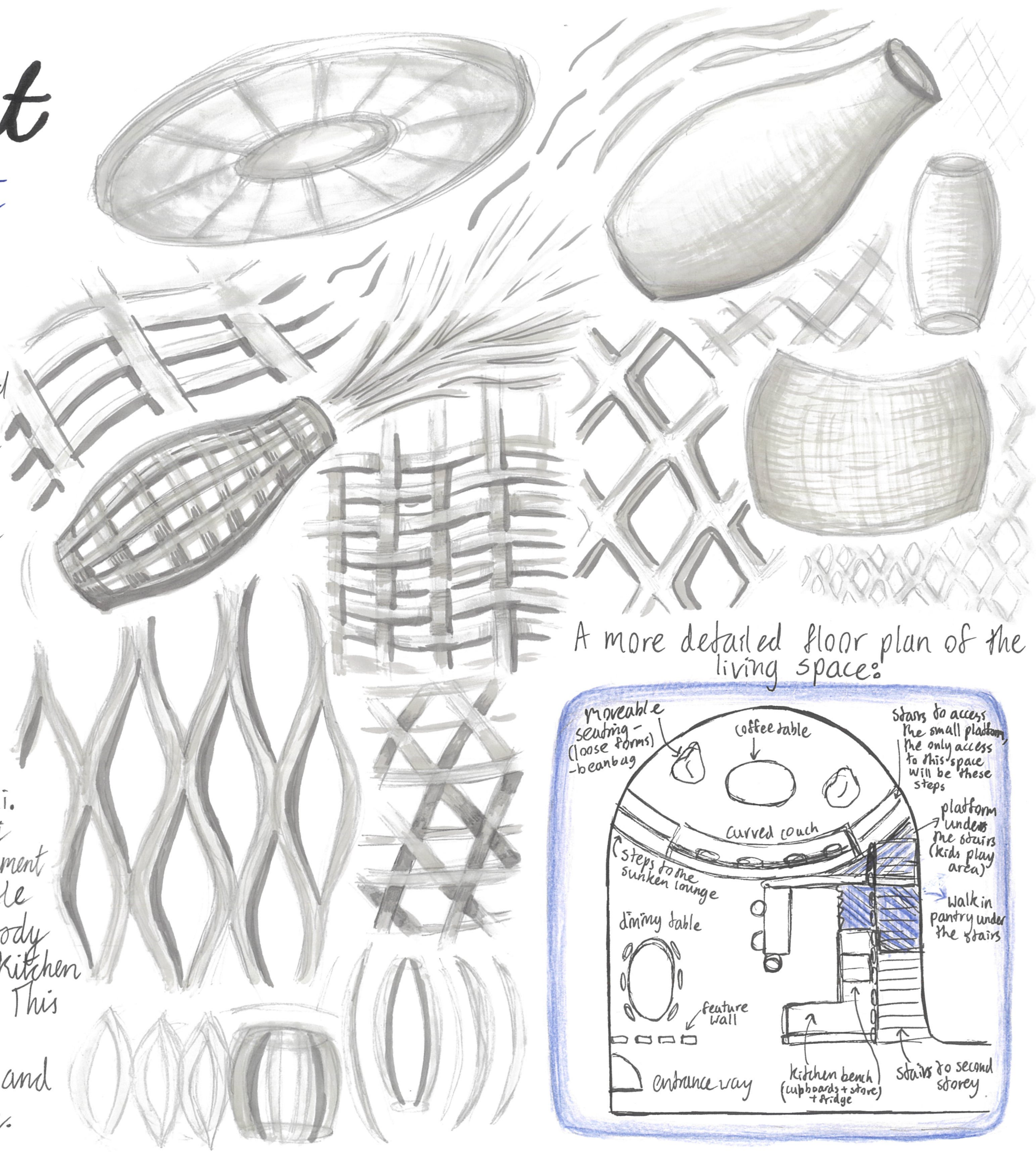
HOW CAN I IMPROVE THE FORM OF THE LIVING/DINING SPACE?

WHY HINAKI:

I want to draw inspiration from hinaki when designing both the exterior and interior of this space within my design. I want to create an experience for the user when they walk inside this space. I have chosen hinaki as my inspiration because of their unique shape and intricately woven and detailed exterior. Using hinaki as an inspiration combines all three aspects of my initial ideation starting points; the eel, flax weaving, and Maori design.

IMPORTANCE OF THE SPACE:

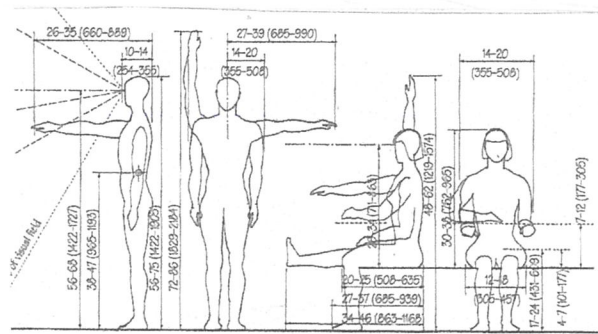
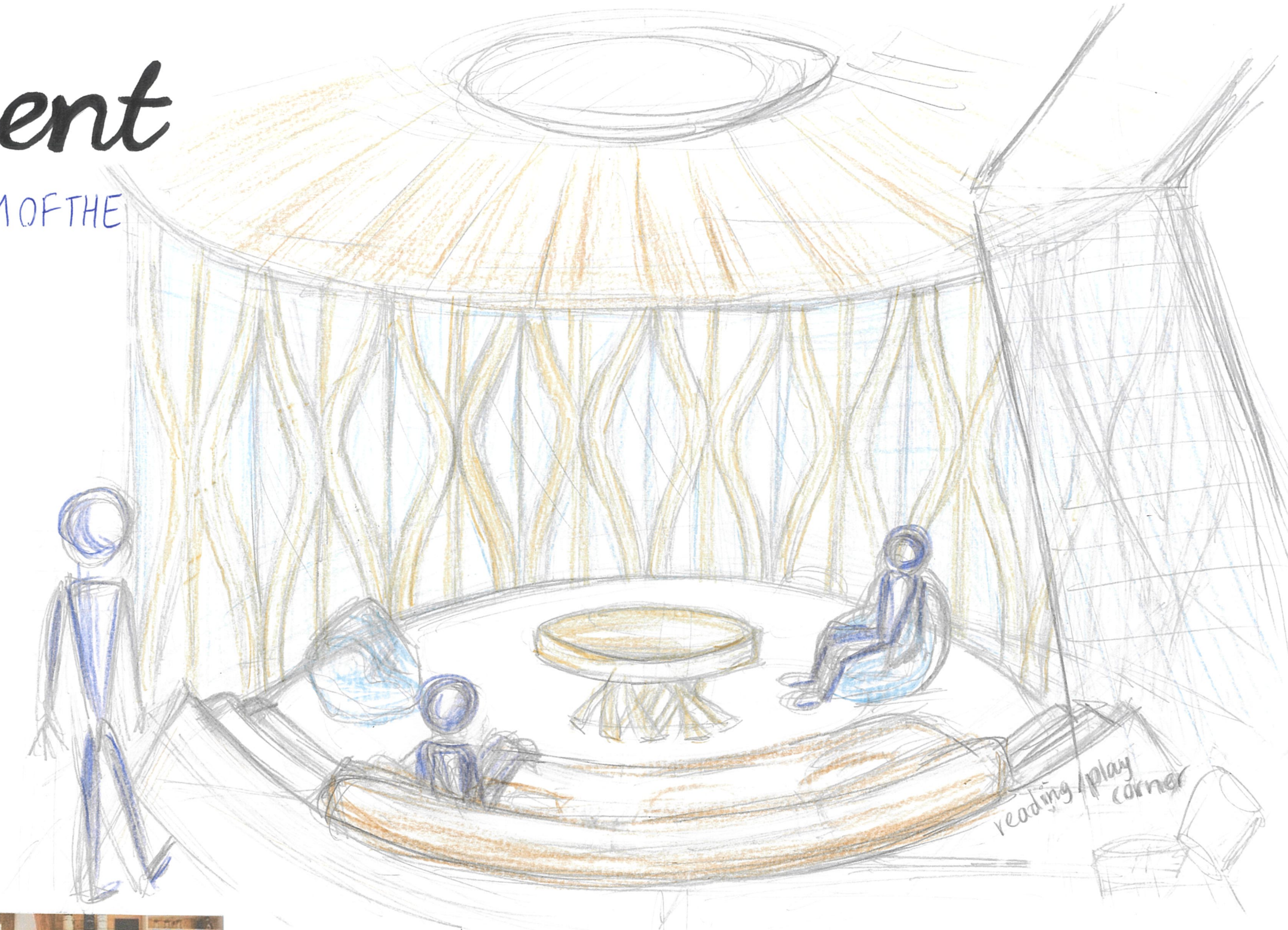
Hinaki were a method of catching Kai. Food is an important part of the Maori culture. Not only does it provide nourishment for the body, but kai also brings people together. Food is a life force for the body and the soul. In many cultures the kitchen is regarded as the heart of the home. This is why I want to place importance on creating an impressive kitchen, living and dining space within the retreat design.



Development

HOW CAN I IMPROVE THE FORM OF THE LIVING/DINING SPACE?

The hinaki has inspired me to create a lattice for the exterior of the building, which will also influence the appearance of the interior. I have also incorporated a roof within the sunken lounge which is inspired by hinaki and highlights the oval shape of the lounge.

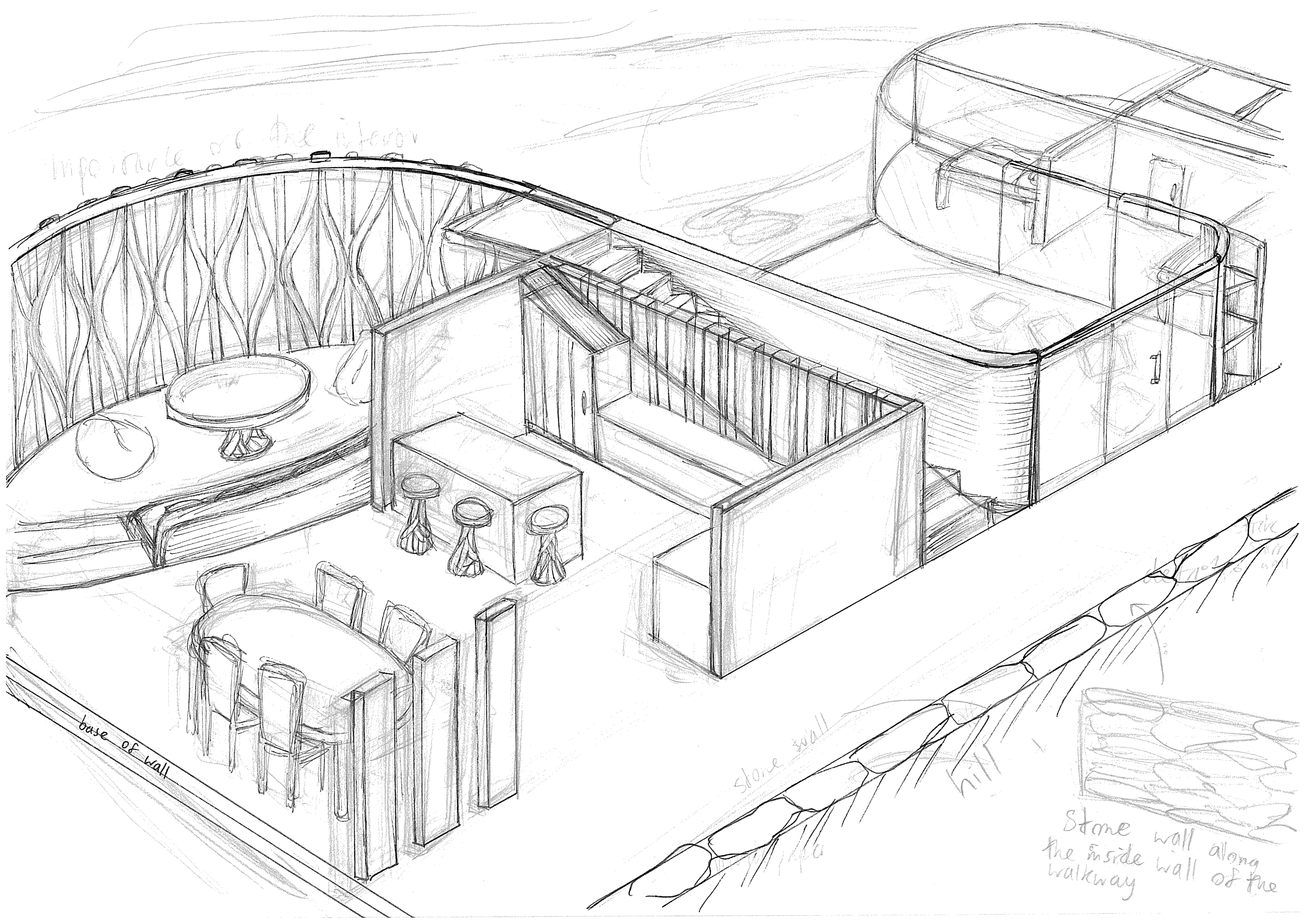


The measurements of furniture such as the couches and other seating (as shown on the to scale floor plan) are based off the average human dimensions.

This is a cutaway view of the sunken lounge, as it does not show the kitchen wall, which covers the right hand side, and separates the lounge from the kitchen. The outline of the stairs has been drawn, however this would also cover the space.

Mood board for interior design





important on the interior

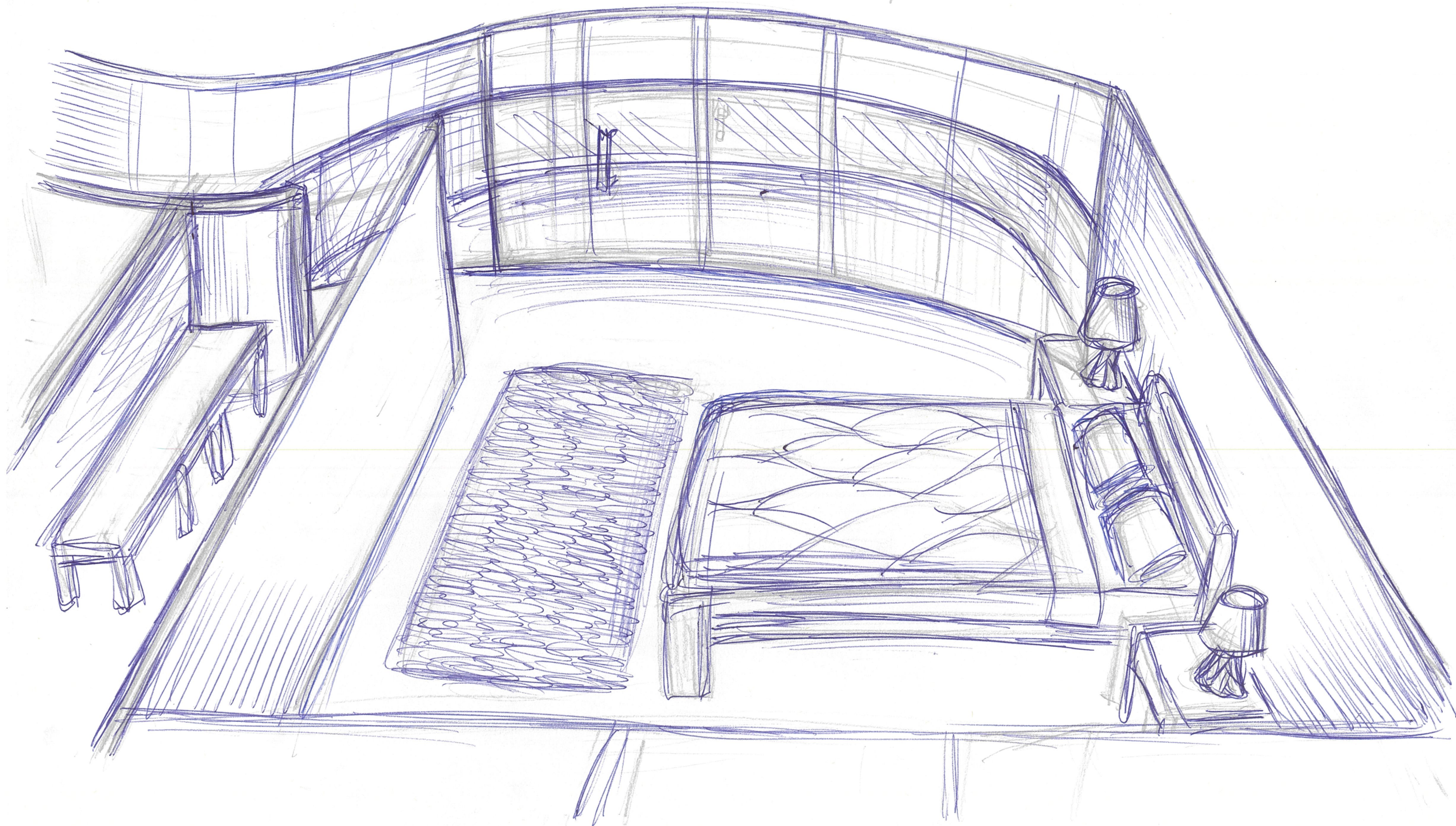
base of wall

stone wall

hill

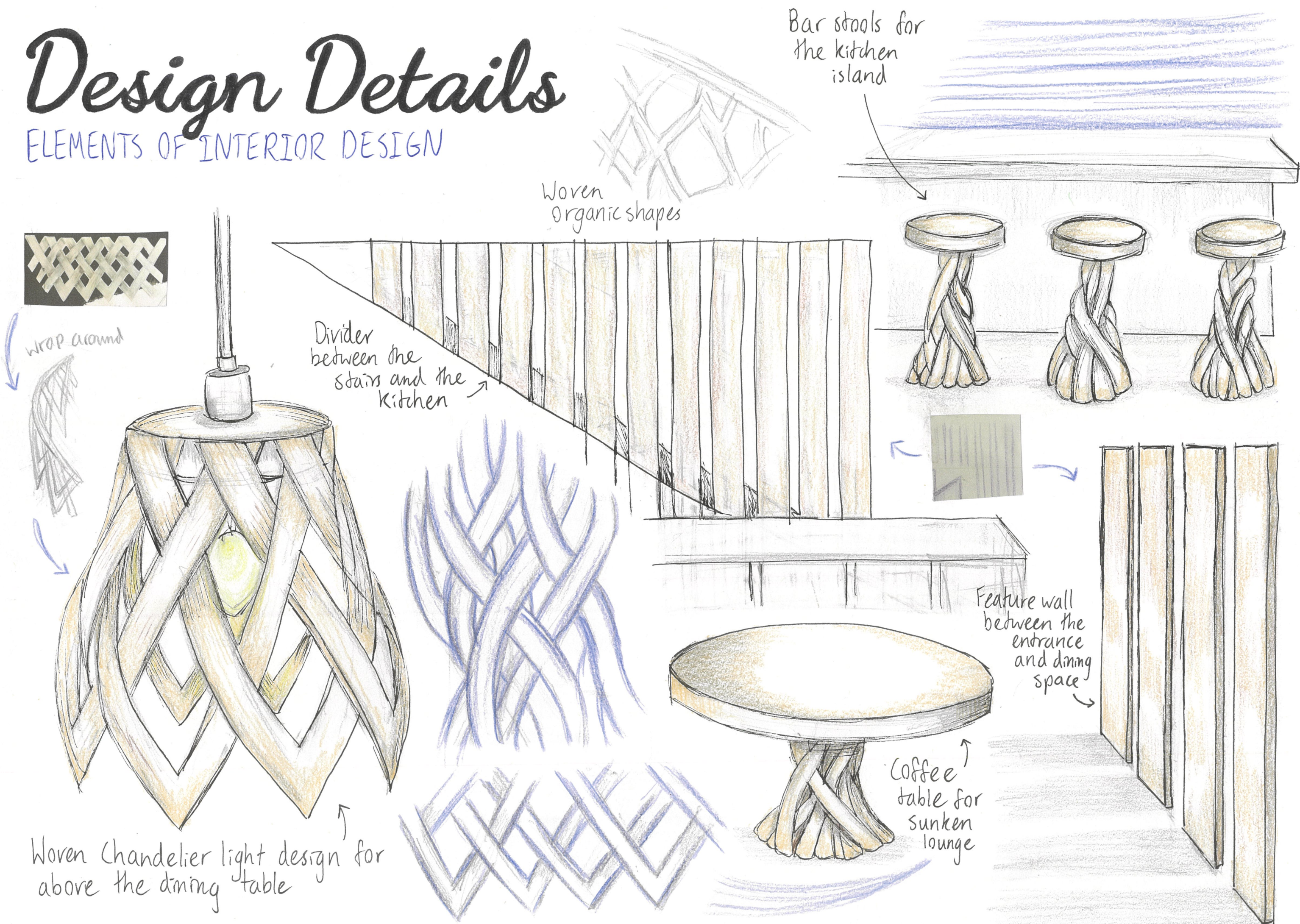
Stone wall along the inside wall of the walkway

Example bedroom interior
top floor



Design Details

ELEMENTS OF INTERIOR DESIGN

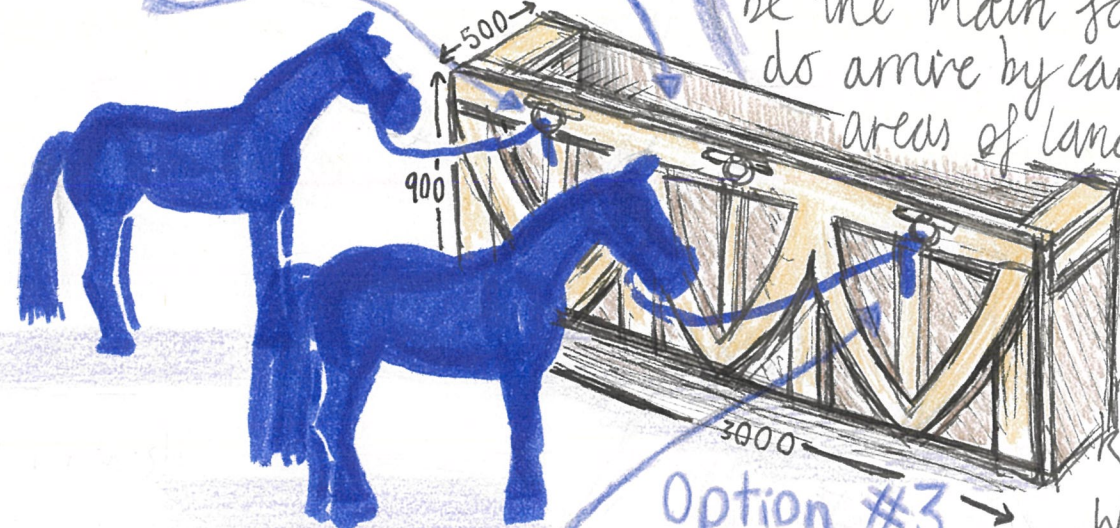


Development

HOW CAN I IMPROVE THE FRONT ENTRANCE TO THE HOUSE?

The rings provide a place that the horses lead rope can be tied to.

The top of this 'box' is open, so that there is a space that food, (hay) or water could be put for the horses.



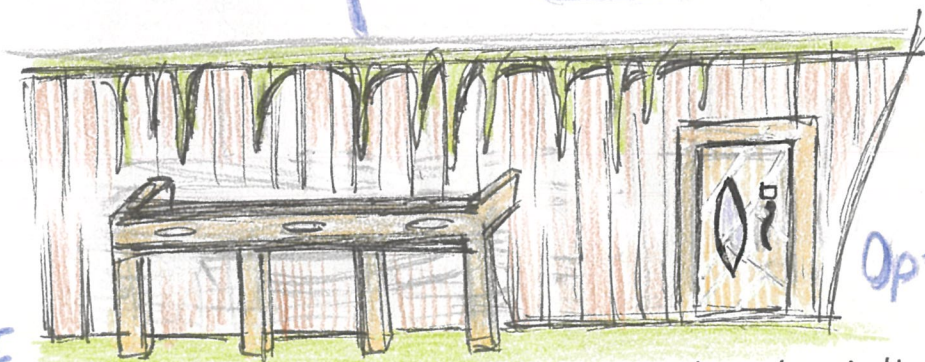
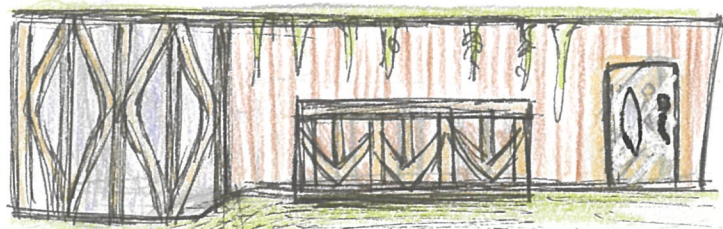
The stakeholder does not feel a garage is necessary to include within the retreat design, as cars will not always be the main form of access. If people do arrive by car there are many flat areas of land close by for parking.

The farm is however often used for horse treks, so I will provide the option of a place for people to temporarily keep their horses. This is so that people who arrive on horseback can use the retreat as a pitstop during their trek.

Option #3 - chosen design

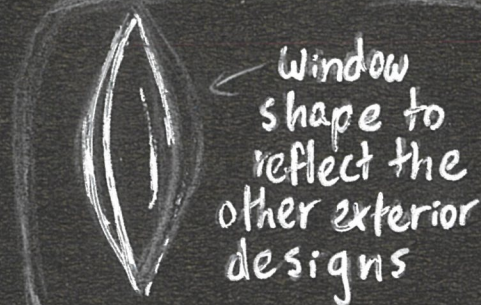
The closed off front is much safer than the previous design. The pattern helps to add interest, whilst not interfering with the horses. The pattern was inspired by part of the exterior lattice, and hence reflects this design.

FINAL SIDE PROFILE FOR THE FRONT ENTRANCE



This tie up space is a smaller alternative to stalls and provides space for three horses to be tethered up. It would stick out from the wall 500 mm so the horses have some space to hang their heads over. The current constraint with this design is the gap between the individual posts and the wall, which could be unsafe as the horses could potentially get stuck.

FRONT DOOR DESIGN:



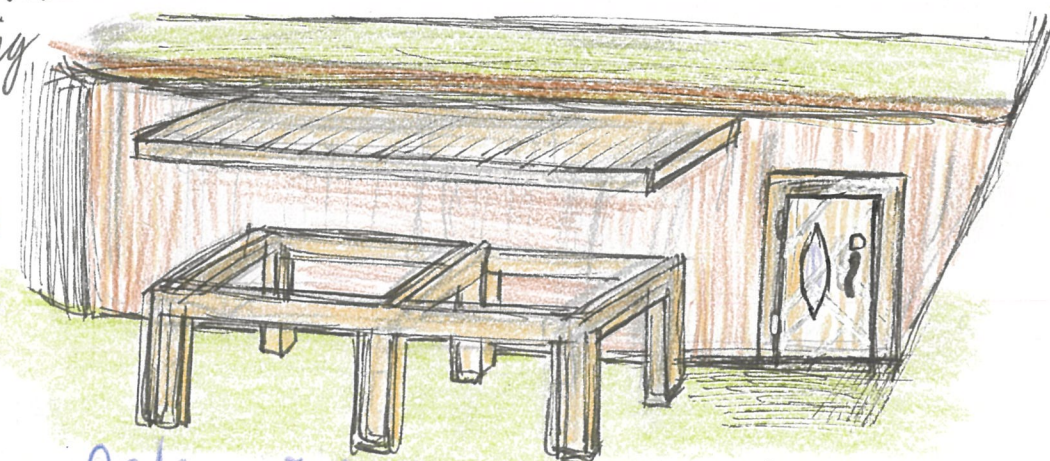
Window shape to reflect the other exterior designs

lockable door system



The curved door handle provides contrast against the straight vertical lines of the wooden door.

ergonomic design



Option #1

This idea provides a stall for the horses, as well as a shelter.

There would only be enough space for two stalls along this wall and they would stick out quite far from the wall. Stalls provide the opportunity for horses to stay overnight, however this would be too large and not practical next to the front door.

Development

HOW CAN I CREATE A SUCCESSFUL AND SAFE GREEN ROOF?

The green roof provides the opportunity of another communal space - for people to gather. It will also provide expansive views out onto the surrounding landscape.

I have drawn stairs here, that would be set into the hill, and go from the top of the hill down to the green roof. This could potentially be an exterior access option, however it could also be steep and impractical.

(option to cover stairwell)
(walkway space for people to pass through)

(angle is too steep for people to climb - so they can't get onto the roof of the second storey easily)

The barriers will be 1200 mm tall based off recommended height to prevent fall risk. Glass barriers create a seamless look that doesn't obscure views or interrupt the flow of the design.

There is a small gap under these fences which will allow for the vines to grow down on the front entrance wall.



example of curved glass barriers

My clients have given me a lot of artistic license as to how the retreat design looks, however, they wanted the design to look part of the natural landscape, fitting with the Taiao Maori design principle. Moana also mentioned her love of hobbit holes, so I thought one way to incorporate this idea in the design would be to create a green roof.



Because the exterior access to the green roof will pose a significant health and safety risk, I have decided that the only access to the green roof area will be the internal stairs. This is not currently wheelchair friendly, however it could always be adapted in the future. The first storey will still be wheelchair accessible, and contains all of the necessities, such as the kitchen, bathroom and bedrooms.

door which leads out to the roof top

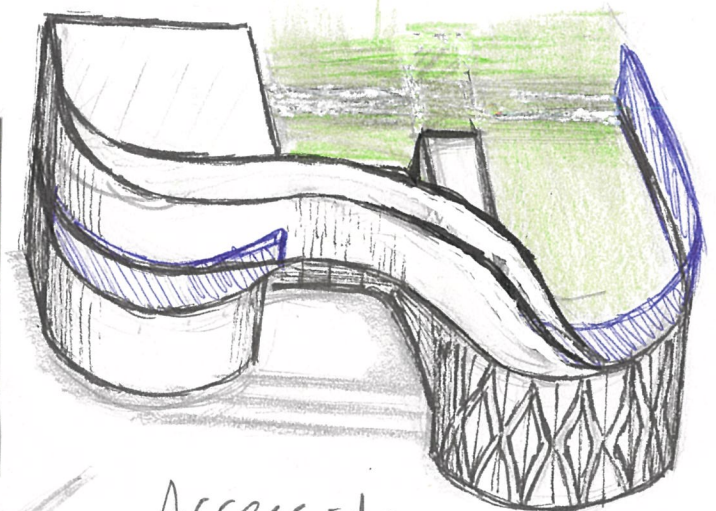
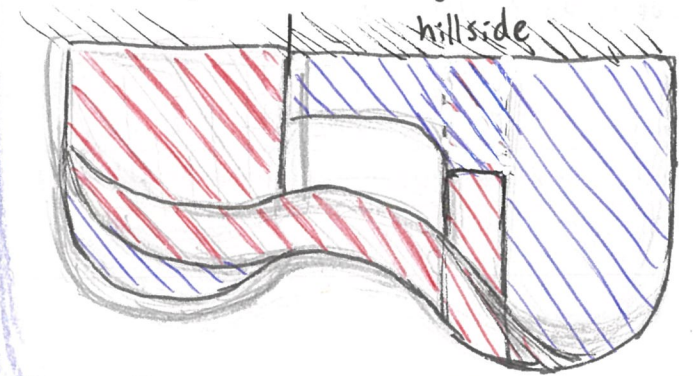
final design for the walkway ending, and the stairwell which connects

walkway

space for stairs to come up

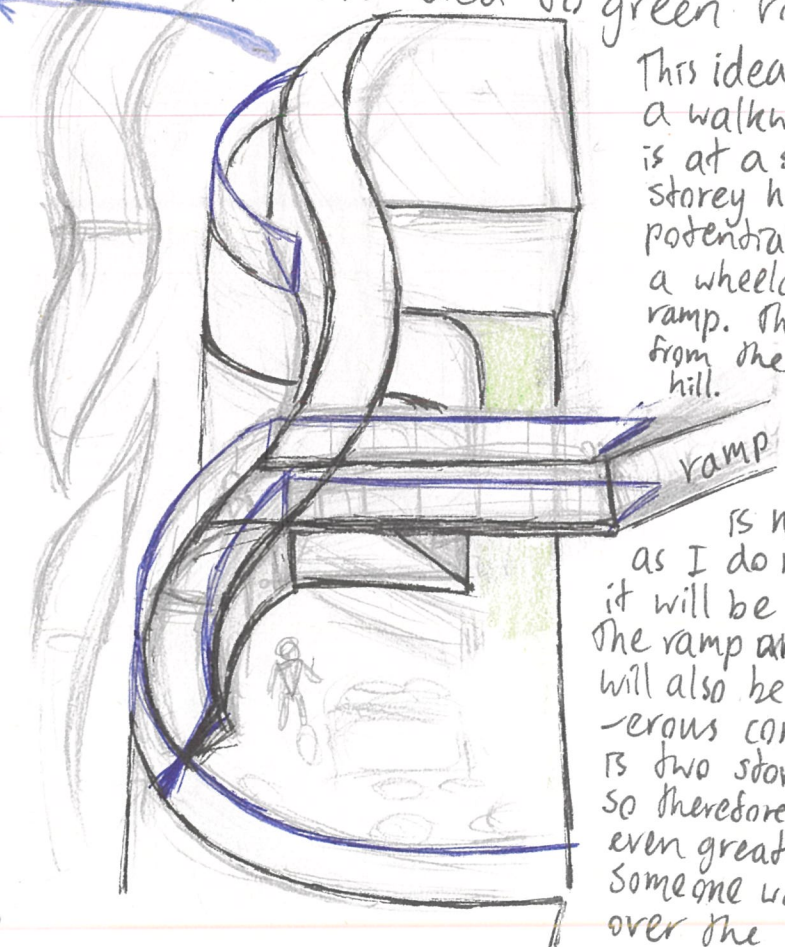
too steep for people to climb

= roof top of the second storey
 = roof top of the first storey
 = barrier



Access idea to green roof

This idea involves a walkway that is at a second storey height, potentially could be a wheelchair friendly ramp. The access is from the top of the hill.



This idea is not realistic as I do not believe it will be practical. The ramp and walkway will also be very dangerous considering it is two storeys high, so therefore poses an even greater risk if someone was to fall over the barrier.

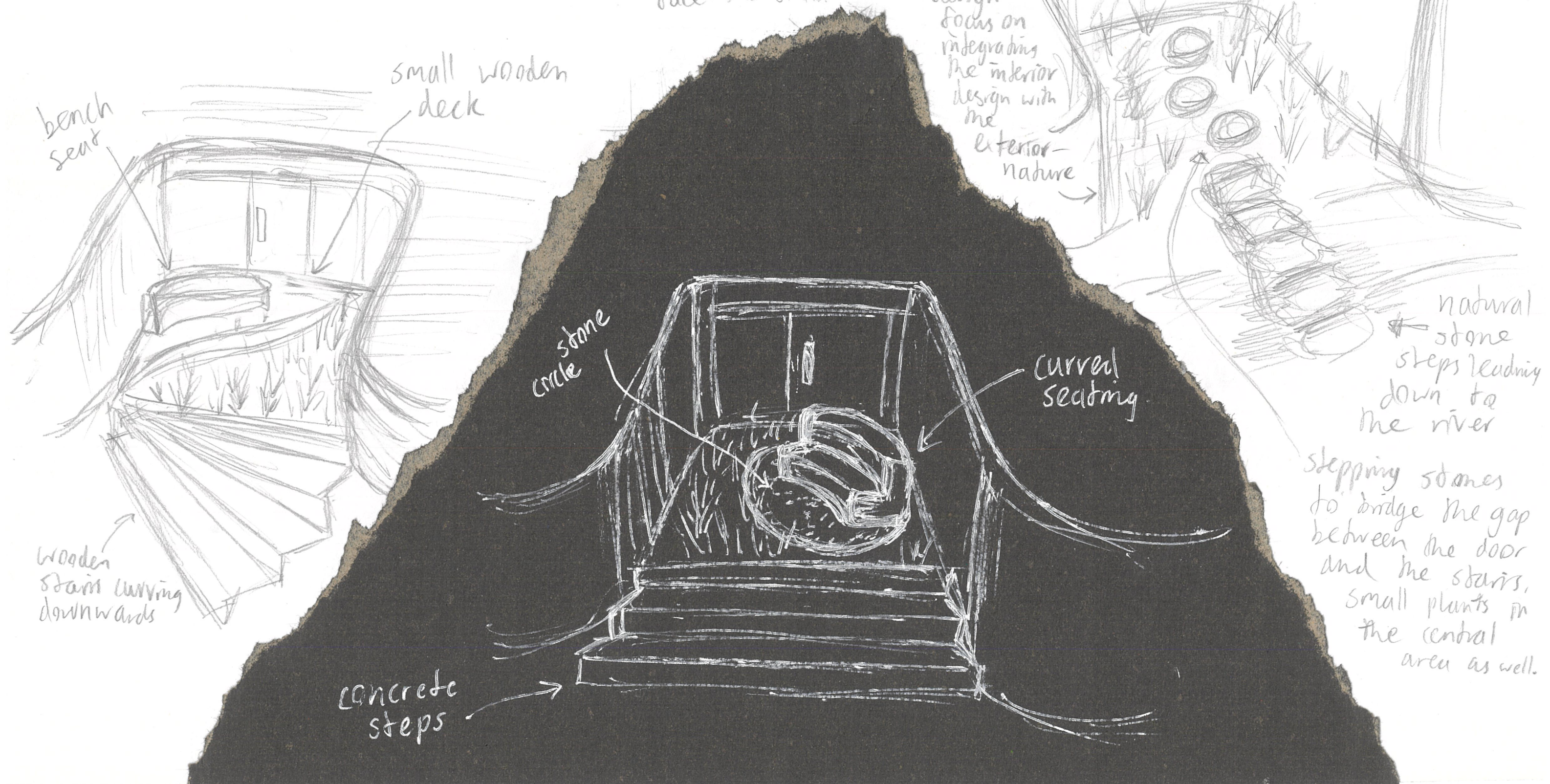
Development

HOW CAN I CREATE MORE COMMUNAL SPACES
THROUGHOUT THE DESIGN? - LANDSCAPING
OF CENTRAL COURTYARD

The idea for the courtyard
was to create a garden
space → potentially
have some seating
→ create an interesting
focal point
for the bedrooms
and corridor to
face out onto.

There is
no seating
in this
design -
focus on
integrating
the interior
design with
the
exterior
nature

★ Chosen Option

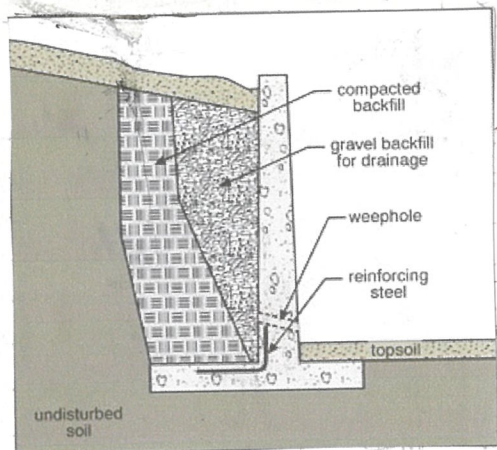


Construction

RETAINING WALL/FOUNDATION

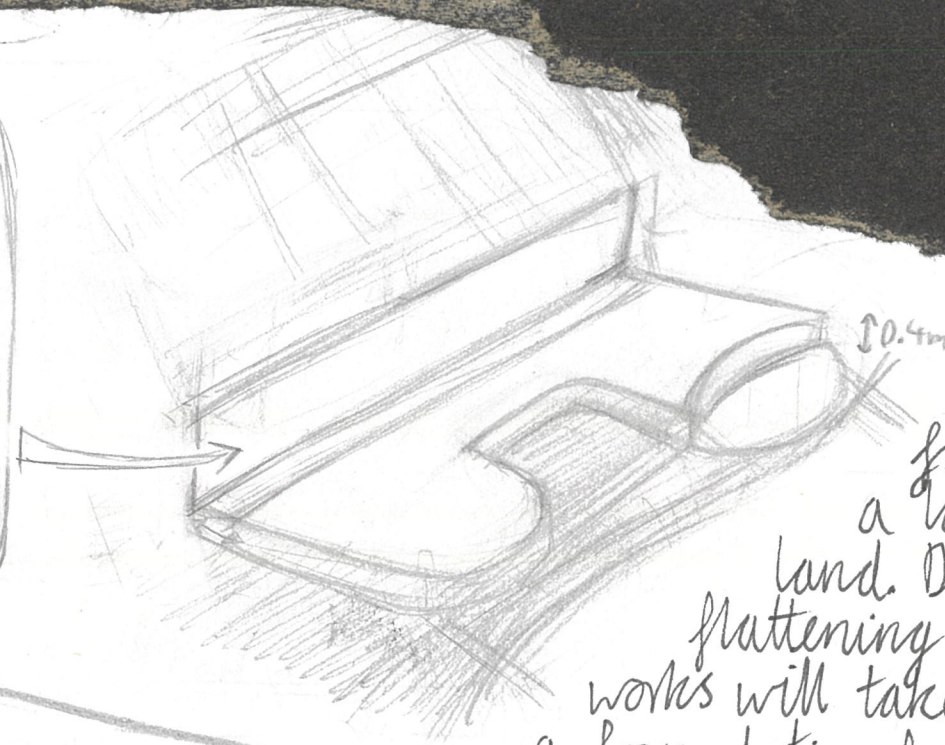
Since I will be placing the design adjacent to the hill, I will need a retaining wall to hold my adjustments to the hill in place.

I will use a cantilever retaining wall.



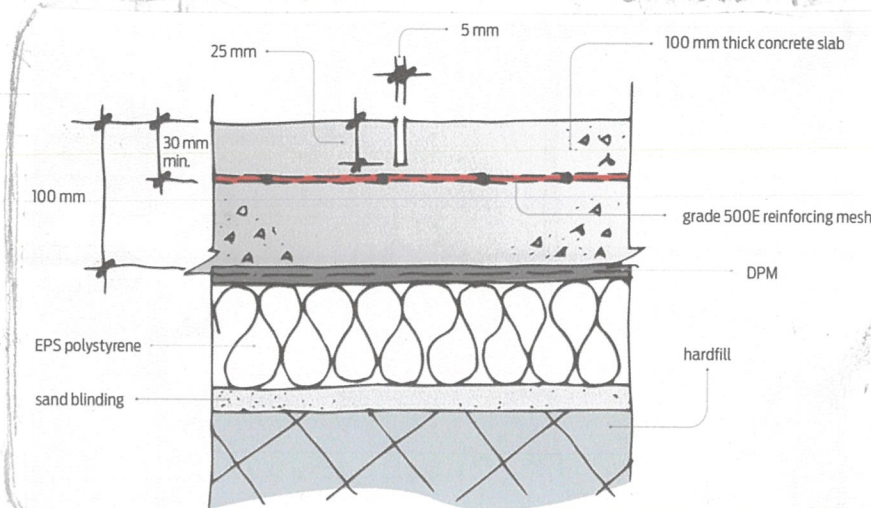
This wall uses the same earth pressure trying to topple it to stabilize itself with a lever arm perpendicular to the rest of the wall. I have chosen this wall because it is strong and able to hold the weight of the hill. It is also vertical and not slanted.

Insulation and flooring can be placed on top of the concrete slab. Once the footprint of the house is excavated and levelled, it will be back filled with sand, and the concrete slab poured on top of this.

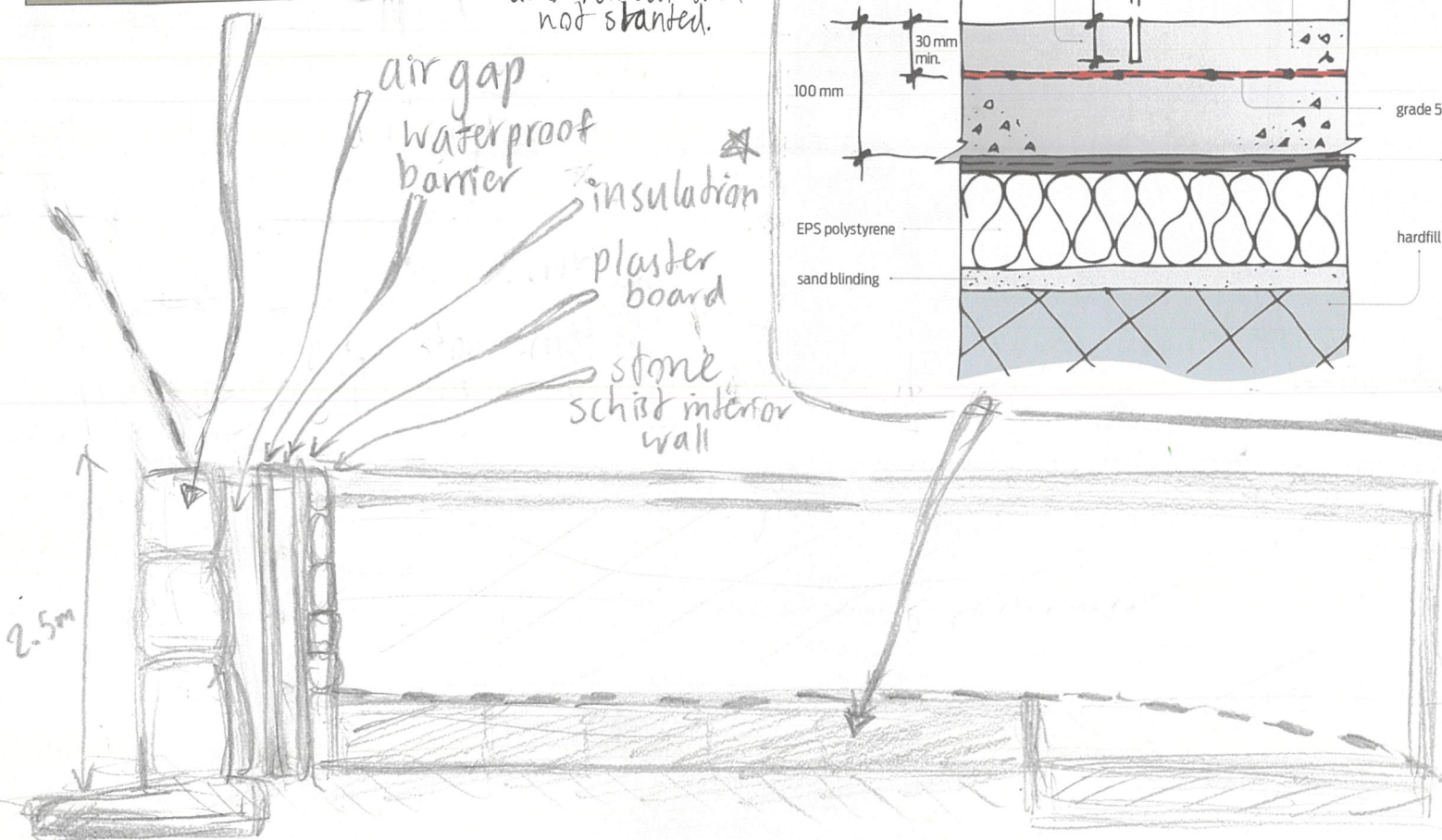


My chosen site in front of the hill is a large expanse of flat land. Despite this, further flattening of the site and earth works will take place to best prepare a foundation for the building. My house design has two different levels as part of the ground floor - this is because of the sunken lounge (0.4 metres below the level of the first floor). Because of the land naturally dropping away, it will be easy to create the sunken lounge, with full height windows that won't be obscured by any earthwalls.

Foundation



The foundation and walls have to be able to support the weight of the two storey building as well as the grass roof. I will use a concrete slab foundation because of its strength.



Cross Section

= ground level

*The insulation which I will use throughout the design is wool insulation. This is environmentally friendly and easy to obtain in NZ.



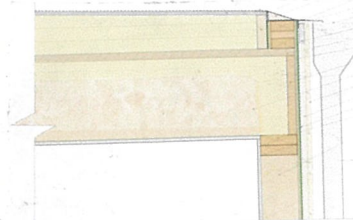
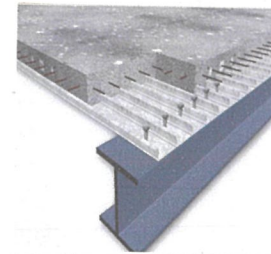
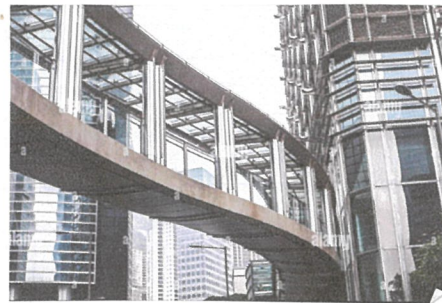
Construction

CREATING AN OFFGRID DESIGN

I have made the decision to design my house off-grid, as opposed to bringing power out to the site. There is an option to connect to mains electricity, however I want my retreat to differ from modern day houses. I have aimed throughout the design to incorporate simplistic elements, and would like the dwelling to be self contained for power sources.

WALKWAY
CONSTRUCTION

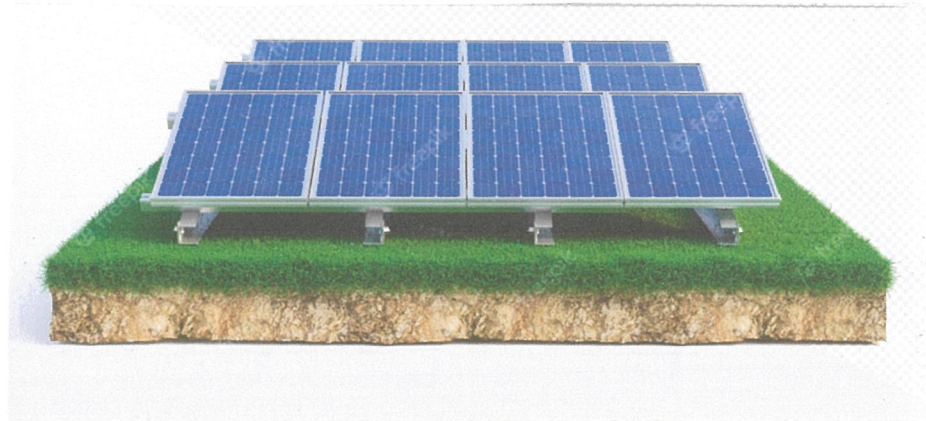
The curved overpass walkway will be constructed using strips of reinforced steel across concrete - as the base of the walkway. The glass and roof can then be built on top of this. The walkway is only a short distance and will be supported on either side by the first storey of the house.



The walkway will not have eaves as this would impact on the desired exterior appearance. The roof of the walkway will have a small overhang, and a drainage system as shown to the left.

Below is the list of appliances I would still want within my retreat, that would normally require power:

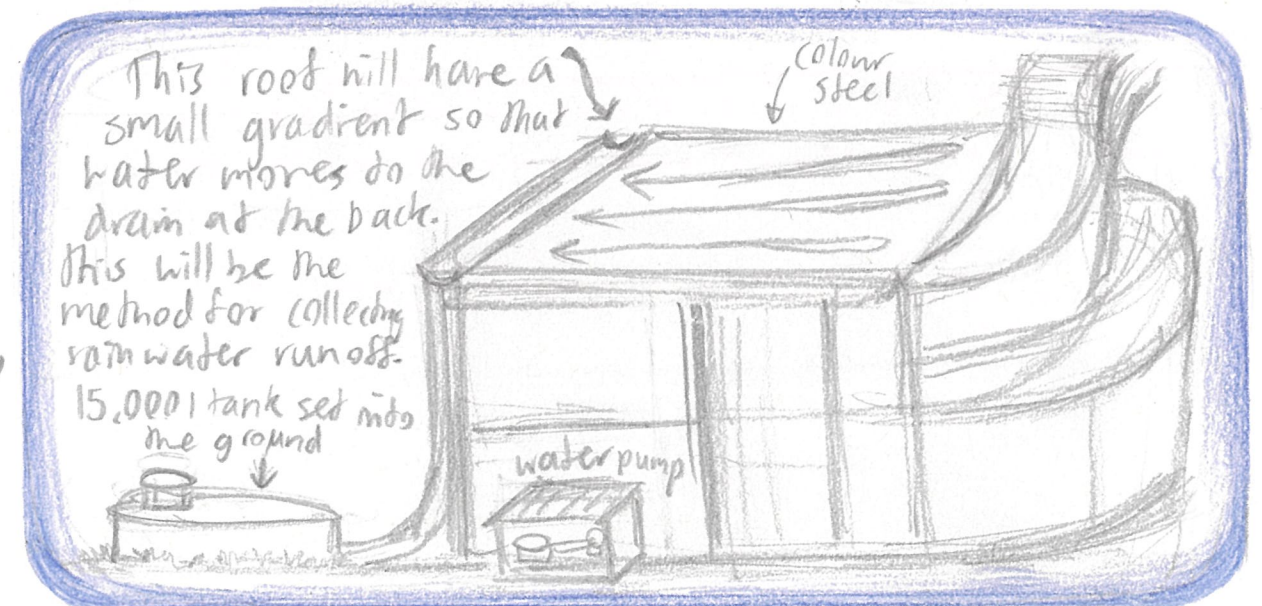
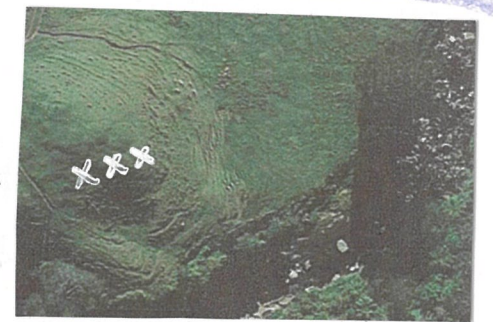
- Oven - stove top cooker
↳ aka woodfired as ovens draw a lot of power
- Lighting
- Electrical outlets/powerpoints
- Water pump
- running water access to:
toilets 2x
showers 2x
sink taps 4x



I can use solar panels to generate electricity (and use a generator as back up)

I can link up a water tank that can provide water for the retreat. The water can be collected off the roof above the master bedroom. The house will also need to have a septic field.

Solar panels can be located on the top of the hill behind the design, in all day sun, but discreetly located. The batteries for the solar panels can be located in a small shed that is a reasonable distance from the retreat.



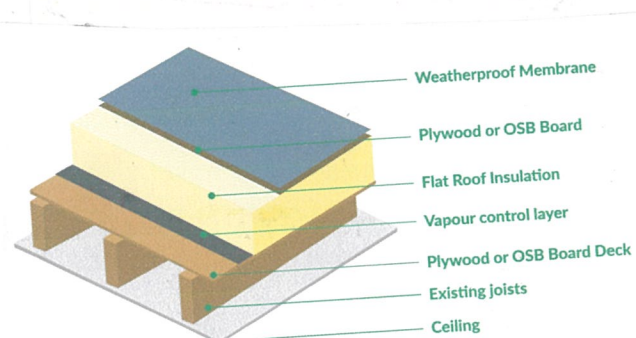
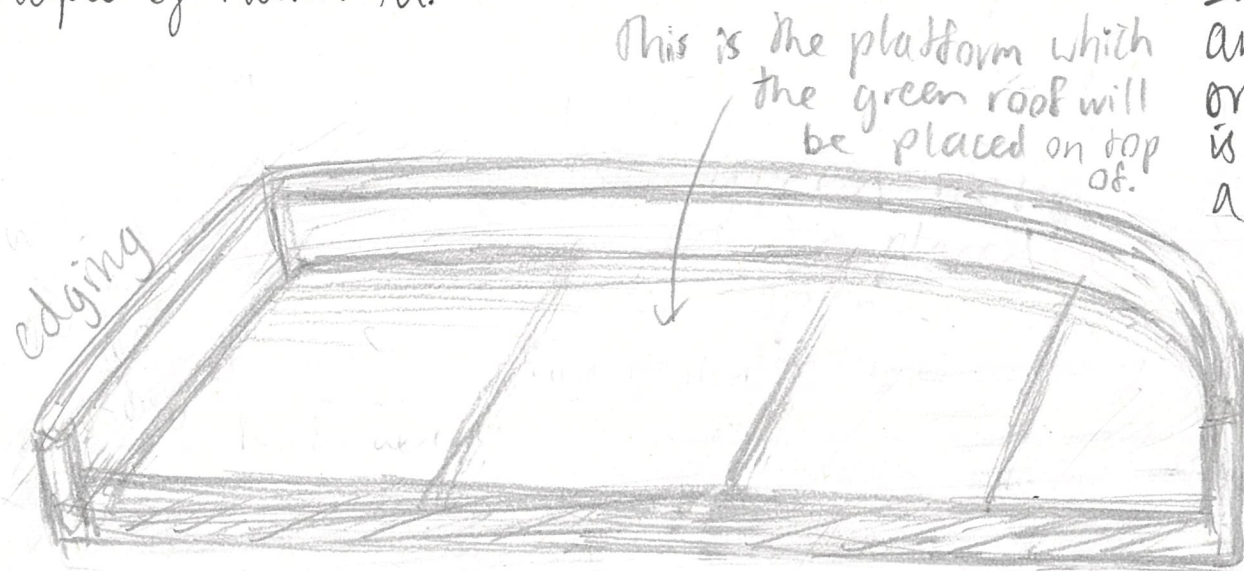
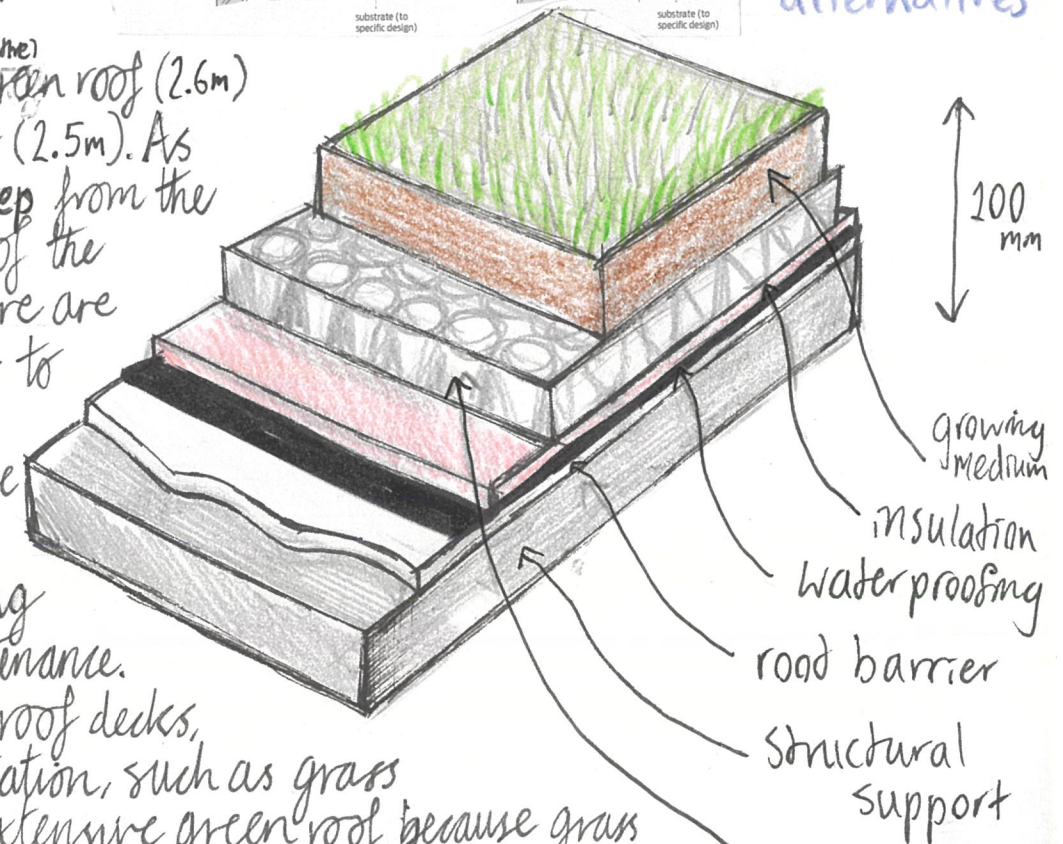
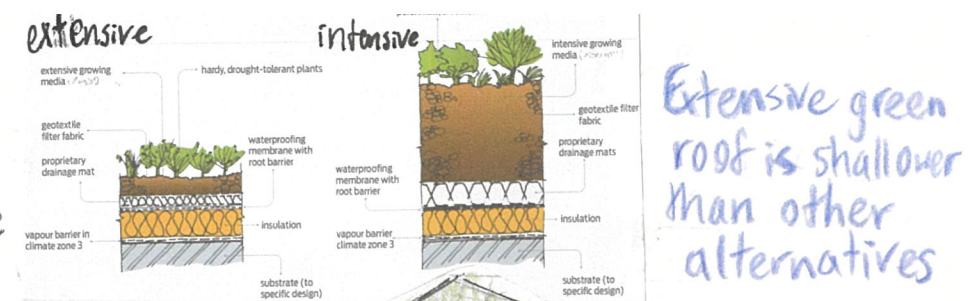
Construction

HOW CAN I CONSTRUCT A GREEN ROOF?

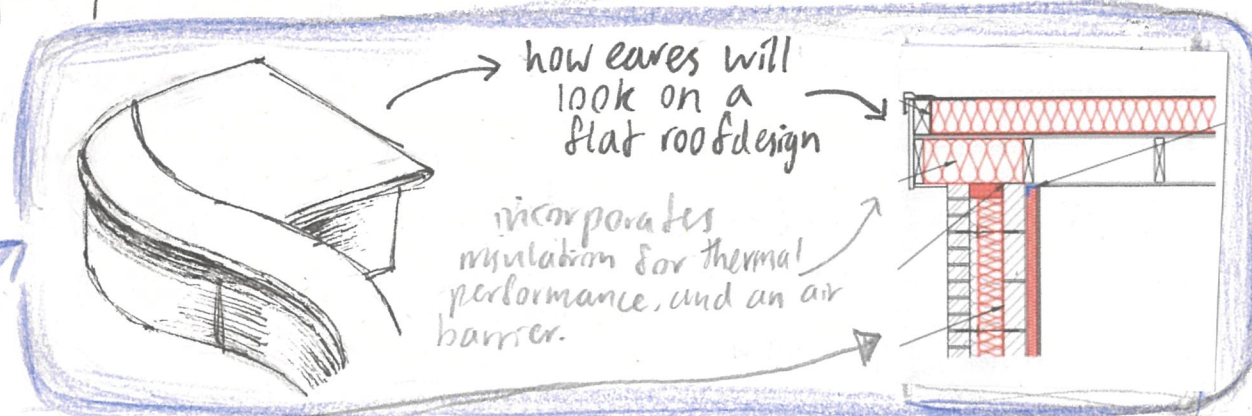
One of my client driven design features is to have a green roof. My client is very invested in caring for the environment, and wants environmentally friendly options to be explored in the building of this retreat. Grass roofs provide many benefits; they provide better sound protection, improved thermal performance, and they are also extremely beneficial to the environment. This links to the Te Aranga principle of Mauri Tu.

Since many layers of materials are required to construct a grass roof, this means the roof will require a greater thickness of 10 cm. This will disrupt the levels of the green roof (2.6m) in comparison to the ^(floor of the) second story (2.5m). As a result, I will need to create a step from the second story height up to the level of the green roof - at the two places that there are doors from the second story interior to the green roof outside.

I have chosen to use an 'extensive' green roof; this is a common type of green roof. It has benefits of being lightweight, and requires little maintenance. It is also suitable to be placed onto roof decks, and can grow a low layer of vegetation, such as grass or small flowers. I have chosen an extensive green roof because grass is all that I was wanting to grow, and therefore I will not need a thicker 'intensive' green roof, as this is better for growing larger plants such as trees.



What the roofing and the structural support under the green roof will look like

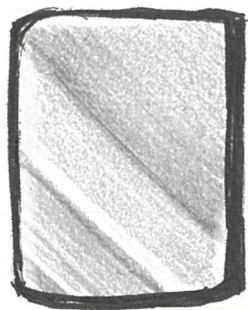


Because of the grass roof on this section of the building, this part of the design will not require eaves. The grass roof provides drainage through the water being absorbed into the extensive layers; barriers prevent water from passing into the roof structure. Green roofs have the ability to filter and reduce stormwater runoffs.

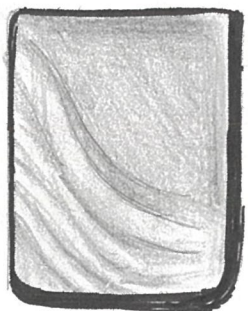
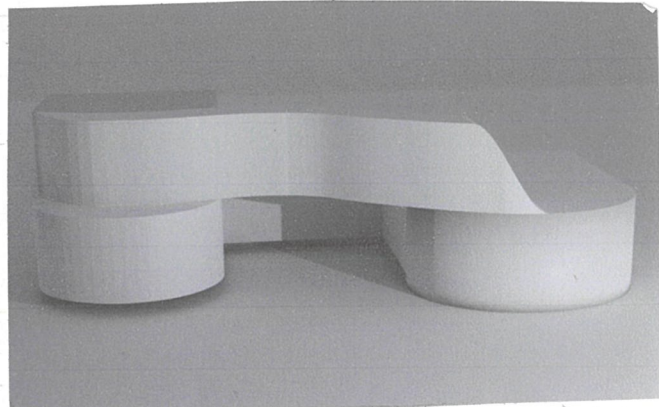
Eaves will still be required on other sections of the design

Materials

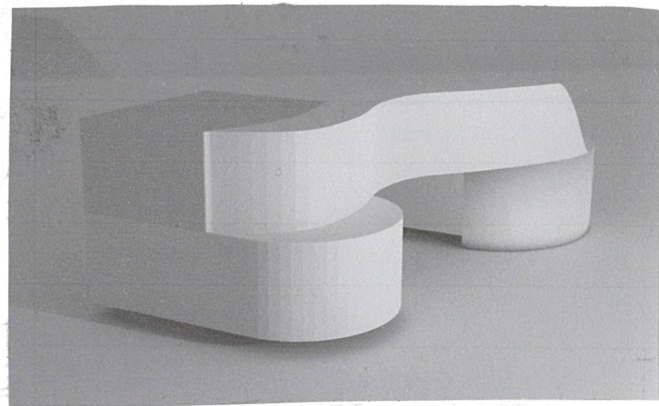
Materials chosen
with consideration
for the Mauri
Tu philosophy.



Steel will be used for structural components within the house. Steel framing is lightweight, and offers strength and durability.



Stone will be used for the three pavers in the courtyard and the stairs down to the river. Not only are these steps robust but they have an aesthetic appeal.



Brown Colour Steel will be used on the roof above the master bedroom.



Stone schist has a unique appearance and natural beauty. It is a long lasting material that is resistant to fading/erosion. It can even be used as a retaining wall - therefore it provides extra protection along the back wall of the house. It provides natural insulation for the house.

Using brown colouring means it will be cohesive with the design's appearance. Colour steel requires minimal maintenance in comparison to other metals. It is a sustainable as it is made from recyclable materials.

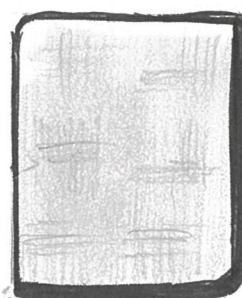


The frequent use of glass throughout the design provides a visual connection between the indoor and outdoor spaces, and allows natural light to enter the house. Double glazed glass can significantly improve the energy efficiency of the house.



Two types of wooden panelling are used often within the design. This natural material fits with the Mauri Tu design principle. I will use Redwood panelling which is a locally grown material in NZ. It is expensive but is a stronger alternative than other woods such as Cedar.

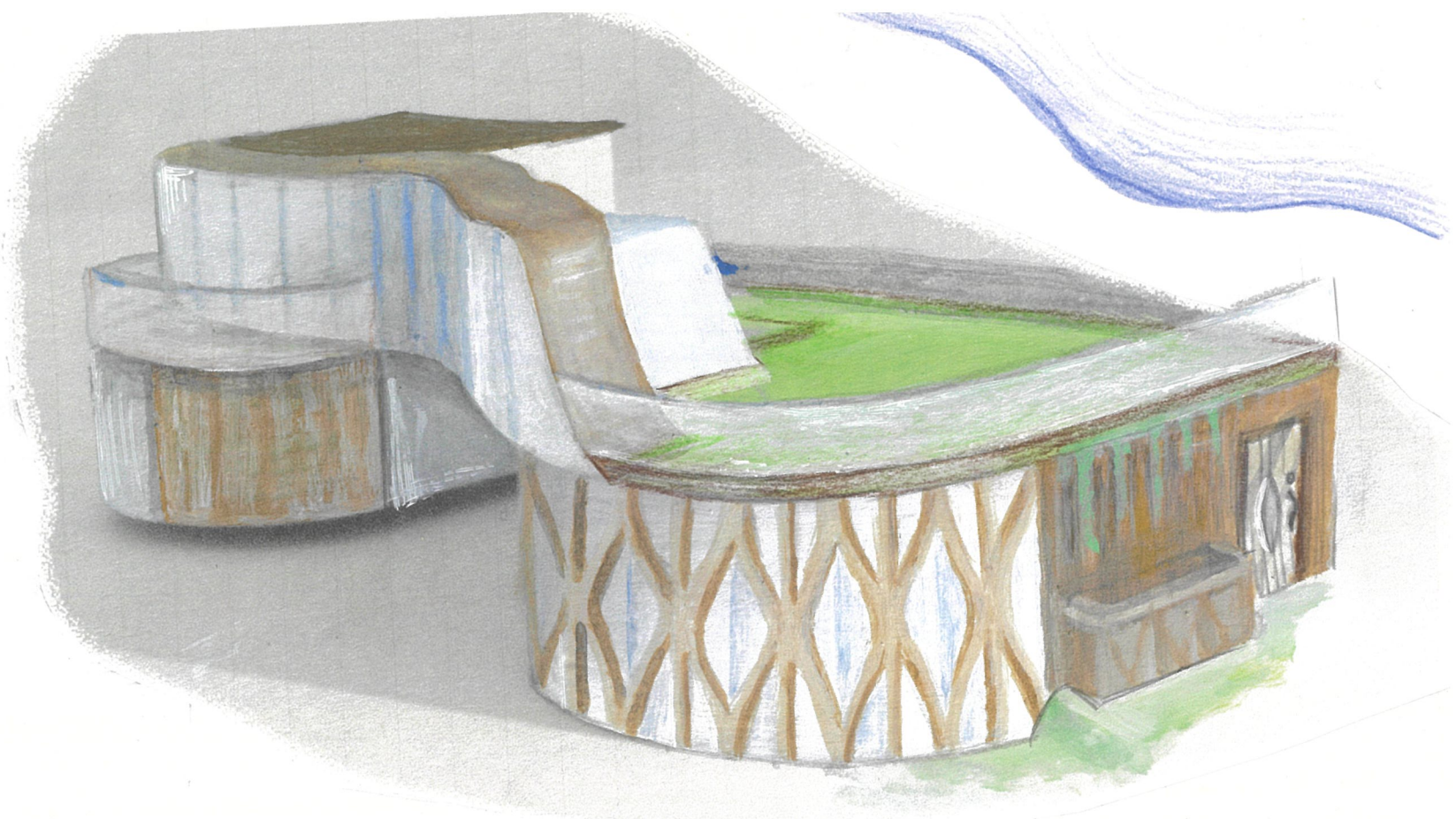
Concrete will be used in the foundation of the building, as well as for the base of the second storey walkway. It is easily customisable in that it can be used to create various forms such as the curves within my design.



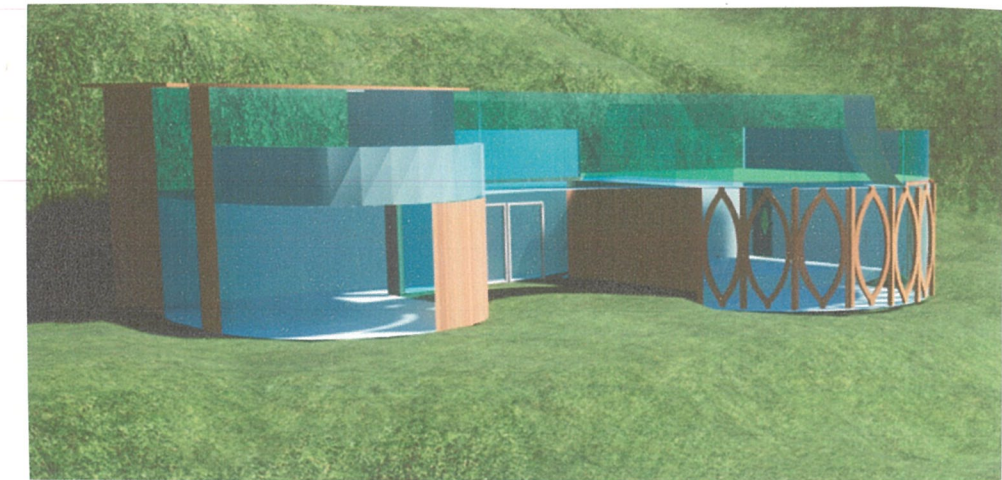
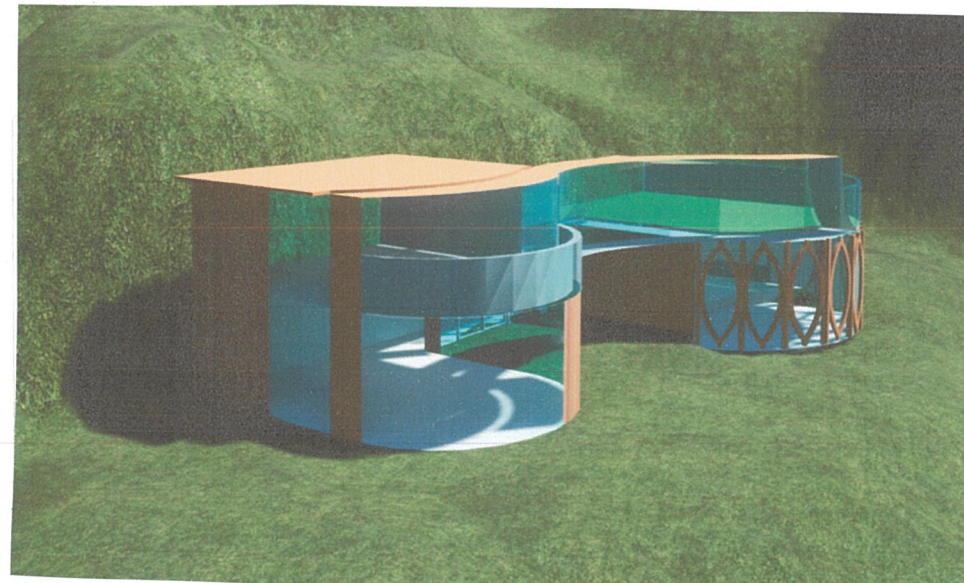
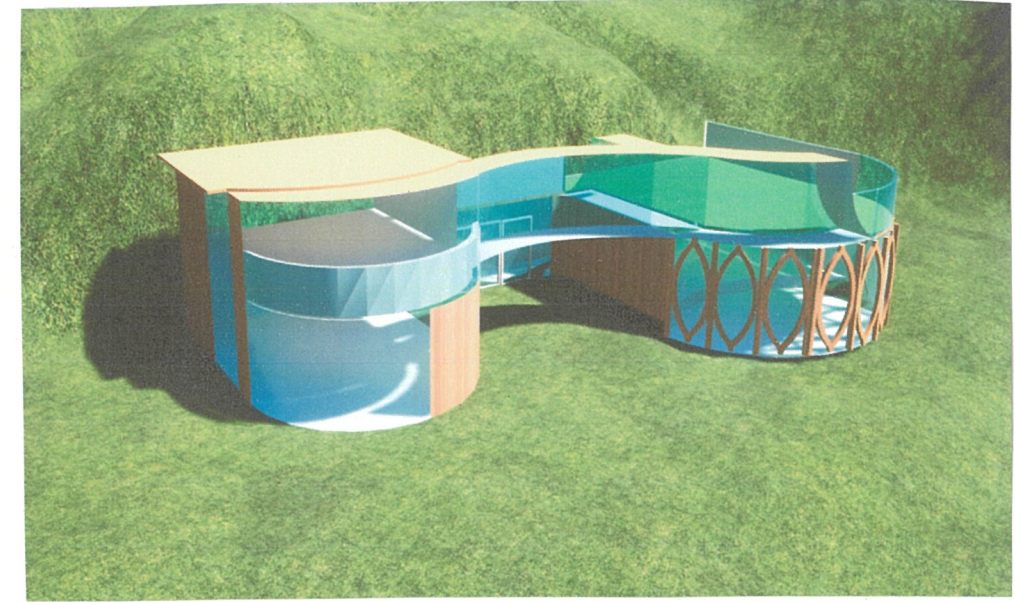
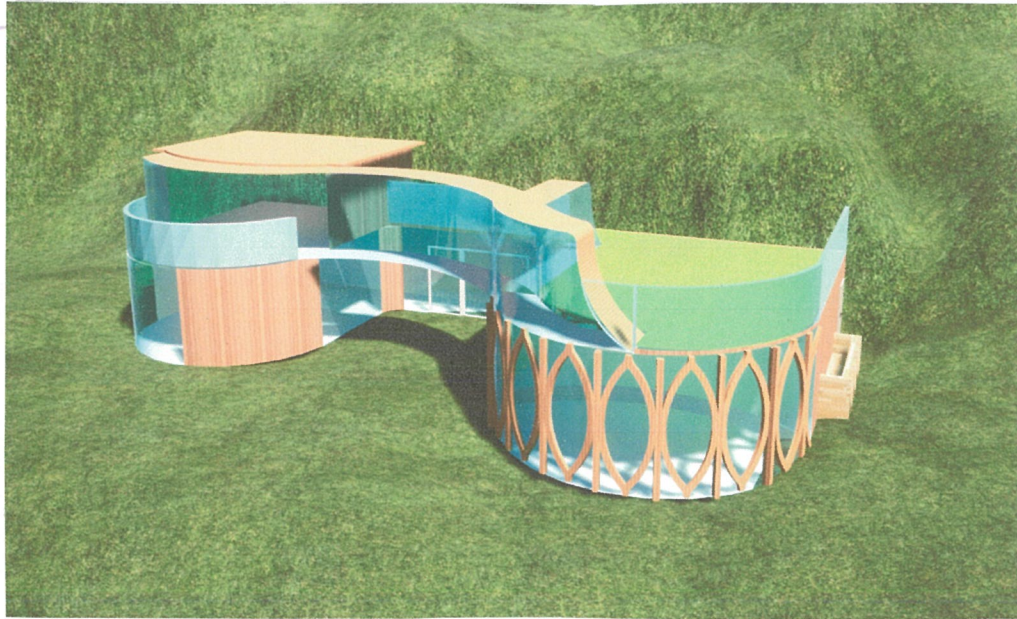
Bamboo wood is very sustainable due to its rapid growth and ability to regenerate. Its light colour and distinctive grain pattern creates a visually appealing and calming atmosphere, as well as it contrasting well with the redwood panelling. Bamboo wood is also very flexible when it is cut thin, so it can be used for interior design - such as the light.



Redwood panelling is a locally grown material in NZ. It is expensive but is a stronger alternative than other woods such as Cedar.



Final design



Digital Design

Final design



“Eel Retreat”

-placed in real life location

Opportunities:

- I have created a Retreat design which can help to improve the wellbeing of the users.
- The details and curves within the design interior help to relax the user. The many communal spaces inspired by the layout of the Maori Wharenui help to bring people together.
- I have utilised the opportunity of the stunning surrounding views and natural landscape by incorporating many windows within the design.
- The design is oriented to face out onto the river, so that the design makes the most of the opportunity for this view. The design is also oriented to capture the morning sun on the bedrooms and the evening sun on the living and dining spaces.
- There is driveway access to the design, as well as a space to tie horses for horseback riders.
- I have incorporated the Te Aranga design principles throughout my design process. One of the main focuses within the design was the Mauri Tu Principle. The design is environmentally friendly, for example the materials within the design are naturally sourced. The natural materials also help with the aesthetic of the design.
- As part of the Taiao principle, the design coexists with the natural landscape. The use of the green roof helps to integrate the design into the hillside.
- I have used the local legend of the Waimapu river as inspiration for my design purpose, which aligns with the Tohu principle. I have also consulted with the stakeholder as part of the design process (mana principle).

Constraints:

- I found a way to create an offgrid design, which means that power does not have to be brought out to the site and the design is therefore more environmentally friendly.
- I have ensured that the design is far enough from the nearby river that it will not be within the floodplain. There is also nothing on the design exterior that would be easily damaged if the water level was to rise significantly in the future.
- Earthworks will ensure that the buildsite is flat and able to be built onto.
- The internal courtyard is sheltered from prevailing winds.
- The second storey helps to optimise lighting and views, considering the design is surrounded by hills.

Aesthetics:

- The exterior form and curves of the building has been inspired by the ideation starting point of Eels.
- The floor plan and layout of the building has been inspired by a combination of Maori design starting points and Flax weaving.
- The interior design was inspired by all three starting points as well as by Hinaki.

Function:

- Sizing of all elements within the design has been considered so that the design is ergonomic.
- The floor plan has also considered how the users will interact with the design.
- There are 2 exits on the first floor as well as two exits on the second floor. The ladder in the hallway can also be used to get from the first floor to the second floor.

Final design



“Curved interiors are scientifically proven to generate a feeling of calm, this is due to their ability to remind a person of shapes that appear organically in nature”

