BRING BACK THE BACH

BY

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"Few realized that natural assets were most threatened by the facilities that were built to enable those assets to be enjoyed"

David Mitchell 19

Acknowledgements

To *Mum and Dad,*

Oli, Marsie, Toastie, Nana and Pa,

Mark Southcombe and the rest of the dream team,

and all my architecture buddies,

none of this would have been possible without your support,
and for that, I thank you endlessly.

The best final year.

Fig. 1.0 ; Woolley family bach, Kawau Island

Abstract

The historic informal architecture of New Zealand's coastline is precise; it's small, modest, individual, and ultimately exhibits the concept that less, is more. This architectural heritage is the bach. It's an icon on the New Zealand coastlines. These occasionally occupied dwellings hold a nostalgic feeling to many Kiwi's. Baches typically sit lightly on the land, and are careful to not outshine the beautiful environment that attracted its occupants to its site.

Through the effects of privatization and subdivision, parts of New Zealand's coastline have been overdeveloped, which has dramatically affected and diminished the coastal environment. The contemporary holiday home is typically a more expensive, large, suburban house, unsympathetic to its landscape. This change in coastal architecture and settlement patterns is making the coastline inaccessible for many. As the old Kiwi bach is being redeveloped and replaced, New Zealand architecture is losing part of its identity. We are ruining that pristine environment that attracted us to the coastline in the beginning.

This research looks towards coastal environments in the northern area of the North Island of New Zealand. Kawau Island serves as the testing ground for the design research, with a historic and hypothetical subdivision as the setting. The design tests the research at varying scales; how the land can be subdivided, how the land can be occupied, and how the buildings can be designed, to collectively and individually have less impact on the environment. The purpose of this research is to find how we can design more sustainably for our inhabitation of the coast of New Zealand. If we still want to inhabit the coastline, how can this happen in a more mindful way? We inhabit the coast to enjoy that environment, so we need to build with the least impact so that it can be retained and enjoyed.

An understanding of building with low-impact to the environment is at the forefront of this research, to ensure that there is minimal impact throughout both construction, and occupation. Building with minimal impact was investigated through theoretical sustainability principles, precedents and design testing. This impact is interpreted through several different aspects of the development; the way that the development is owned and operated, the siting and clustering of buildings within the land, the tectonics and constructions of individual dwellings, and the way that this development connects on a larger scale with the island.

"The experience of the coastline was to be shared, not sequestered in separate private ownerships, and there would be large areas of commonly held land that would ensure the perpetuation of the coastal ecology"

Donlyn Lyndon 19

Contents

Fig. 1.1 ; view from Kawau Island

How can coastal housing be designed to have less impact on the environment?

Introduction

Visiting beaches in New Zealand, two different scenes can be found. The old, small, DIY bach, which has been grounded and weathered in its context, simply enjoying the environment rather than overtaking it. On the contrary is the contemporary, unsympathetic holiday house, that overshadows its environment, and is not sympathetic to its prime position in the landscape.

Growing up near the coast, and spending every holiday at Kawau Island, I have become attached to the escape that the coast gives. With a family bach in Hokimai Bay, of Kawau Island, it is a dwelling that has grown incrementally, mostly due to family growth and looking for further comfortability. It is subtle in its position on the coastline, and is careful to not ruin the environment that surrounds it. It is well integrated with its surroundings, and the landscape remains the hero, not the bach itself.

In contrast to this informality, there are coastal settlements that reflect suburban Auckland, rather than their coastal environment. Along with its architecture, the subdivisions that allow these holiday houses to be built, reflect suburban plots. There are rows that maximise profits of developers, maximise views, and creep closer to the coast. The houses that fill these plots are typically large and expensive, and sit empty for most of the year. Much of this comes from financial accessibility, and the increasingly exclusive nature of who can afford to build on the pristine coastal environment.

Alongside this issue, is the fact that the beautiful environment is being destroyed through over-development, and is challenging the very reason that we go there. Where there was once an untouched white sand beach, now lies a suburban development that takes away from that pristine environment. If we wish to continue to occupy this coastline, then how can it be enjoyed without ruining the very reason that took us there?

New Zealand is a country quite literally defined by its coastline, much of which is still untouched and undeveloped. The aim of this design research is to provide a framework in which that untouched land could be developed in the most gentle way, whilst providing greater access to the coast.

"I fear too that as we travel further, faster, and in greater comfort, we carry too much with us and our destinations look increasingly like the places we left"

Pip Chesire 9

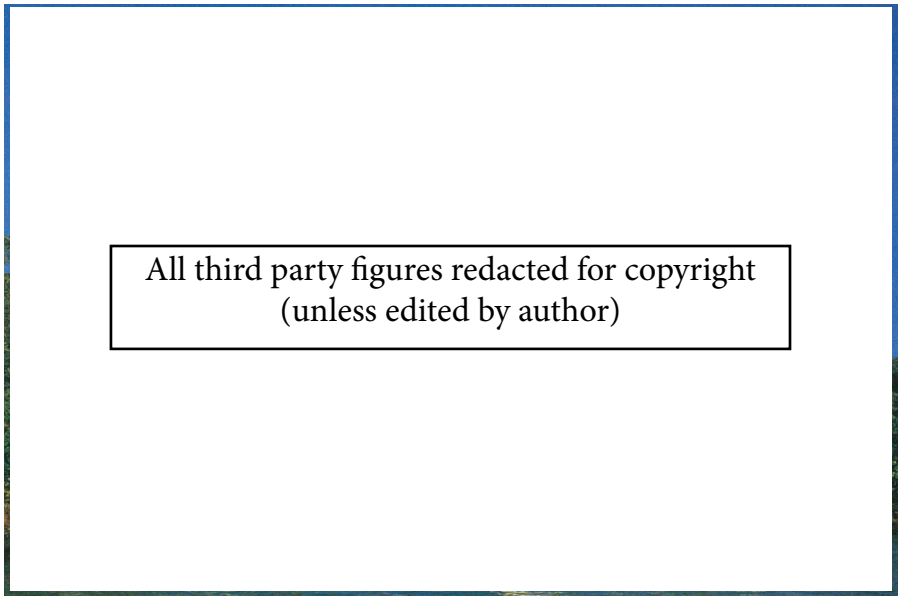


Fig. 1.2 ; original baches on Rangitoto Island's shoreline

Fig. 1.3 ; the holiday home, unsympathetic to its coastal environment on Waiheke Island; large, intrusive form with un-contextual materials

Methodology

Introduction

issue of the overdevelopment of New Zealand's coastline;
how can coastal housing be designed to have less impact on the environment?

research for design; key references:
Original Bach research
1: Superlight by Phyllis Richardson
Site research and background

Project 1: A Grid Over the Land

other design strategies:
use of property boundaries
single program of private baches
use of all of subdivision land

project 1 key design strategies:
small modest scale
dwellings parallel to contours
north facing outdoor space
on timber piles
timber framed

Project 2: Inhabiting the Ridgeline

other design strategies:
integrated program of public and private

This research adopts a design-led research methodology; a combination of research for design, and research through design, which ran concurrently, both informing the pathway of the other. An investigation of contemporary precedents of occasionally occupied dwellings aided in understanding design principles of being low-impact, and why these examples present a new path for a gentle approach to coastal architecture. Studying the sites that these buildings sit on, how they relate to their environment, and what strategies allowed a low-impact effect was key. Research into developments that have been successful in their gentle approach to the coast has also been key in understanding how to impact the island less, at a large scale. This includes some investigation into occupation, how the buildings may be owned with shared land, and the possibility of temporary accommodation for visitors.

Peter Downton's approach to iterative testing is a method used throughout; "constant judgments are made about the degree of success of each proposition of whatever scope or scale and can only utilize the designers existing knowing or knowledge" (Downton 2003). Research through design has been split into three projects. The first project, A Grid Over The Land, the second project, Inhabiting The Ridgeline, and the final project, A View For All To Sea. Each project builds on the knowledge of the last, and research for design was injected via different resources throughout all projects. This design through research was primarily achieved through a constant dialogue between hand drawing, digital modelling, and written reflections.

research for design; key references:
2: Boathouse Bay by Crosson Architects
3: North Island campgrounds
4: Samoan malae
5: marae organisation
6: Stradbroke Island Tourist Park
7: Rural Studio
8: campground's community
9: Perry Lakes Park restrooms
10: Utility Shed by Herbst Architects
11: Miro Road House by Vaughn McQuarrie
12: Hut On Sleds by Crosson Architects
13: Motu Kaikoura by SGA
14-17: siting precedents

project 2 key design strategies:
clustering dwellings within subdivision
public and private accommodation
inhabiting the ridgeline

research for design; key references:
Kawau walking tracks
Further knowledge of Kawau context
18: Sea Ranch and Lawrence Halprin

Project 3: A View for All to Sea

project 3 key design strategies:
clustering dwellings within subdivision
public and private accommodation
inhabiting the ridgeline

Conclusion

build less, build small, build together

share land, share facilities, share views

one

1

bach research

The Kiwi Bach (phase one & two)
The Holiday Home
The Contemporary Bach
design strategies from research

2

low-impact research

1 : Superlight / Phyllis Richardson ;
- floating
- low energy
- escape
- extreme
design strategies from research

3

establishment of site and setting

History of Kawau Island
Subdivision from 1950s

4

project one design

5

reflections on project one design

[project one]

- research + design -

Bach History

research: the bach history of New Zealand

"There are now fewer huts in the wild and the beach house has just about replaced the bach. But the myth of the bach or crib still lives in the architectural imagination"

(David Mitchell, The Elegant Shed TV series)

Fig. 1.4 ; Woolley family bach at Hokimai Bay, Kawau Island (circa 1990)

Fig. 1.5 ; Woolley family bach at Hokimai Bay, Kawau Island (2018)

A Short History of the New Zealand Bach

New Zealand is defined by its coast, which has led to many of us spending much of our lives near the sea. Five of the largest cities in New Zealand are situated on the sea, and this has led to holiday house culture in areas within close proximity to these major centres.

Nevertheless, what defines a bach is arguably more than what is it made from, its style of architecture its historic value; instead a bach is defined according to the holiday ethos that has been created since the development of vernacular baches in the 1900s. (Keen and Hall 181)

The very definition of the bach expresses the simple lifestyle that it entails; deriving from the word bachelor. The unmarried man who lived by himself in simple surroundings was said to be baching or keeping bachelor's hall. Men who were without the civilizing influence of a wife were taken to be undomesticated and lacking in the necessary housekeeping and culinary skills required to live in a "proper" manner, so "to bach" or "baching" referred to a rather basic level of living. (Thompson 7)

This simplicity can be directly translated into the architecture of the bach, which David Mitchell (Mitchell 18) describes; "it is rectangular in plan, with a gabled roof on rafters that can be extended to take lean-to additions". It was the simplest form, as was often designed, built and added-to by the family who occupied it. This bach typology emerged in New Zealand from as early as the 1890s, and although the holiday lifestyle still exists, there are fundamental differences to what it stands for now, and this has therefore had a large influence on bach architecture and developments.

Definitions;

second home/
; an additional residence, typically near the coast or lake regions used for weekend getaways and summer holidays

bach/
; a small, DIY second home typically built between 1890-1965

holiday home/
; a larger, more luxurious style second home typically built between 1965-present day

The Bach : Phase One

[1890s - 1945]

The initial phase of bach development was seen from the 1890s, and saw the simplest forms built on either private or public land. Land titles were casual, and often baches were built on public reserves or informal negotiations were made with farmers to use unoccupied parts of their land. As these baches were often built by its occupants, the building skills were rather limited and resulted in simple form; such as the flat roof, mark the architecture of these earlier styles (Thompson 8). Adding to this, the uncertainty of the land title and that the threat of demolition meant that spending large sums of money on building could not be justified.

Societal influence is also evident in the typology of this bach; it was uncommon to display affluence in the bach, and this was largely kept for the wealthier families who lived on farms (Thompson 9). These particular baches present a tangible and intangible aspect of New Zealand heritage. The tangible aspect being that these structures present an aspect of the New Zealand vernacular, and as they are becoming more uncommon, the value of this heightens. This is largely seen in the example of the Rangitoto Island baches, which were a controversial removal. The intangible heritage value of the bach is seen through artistic fields; where the bach is so highly valued in the New Zealand culture (Keen and Hall 180).

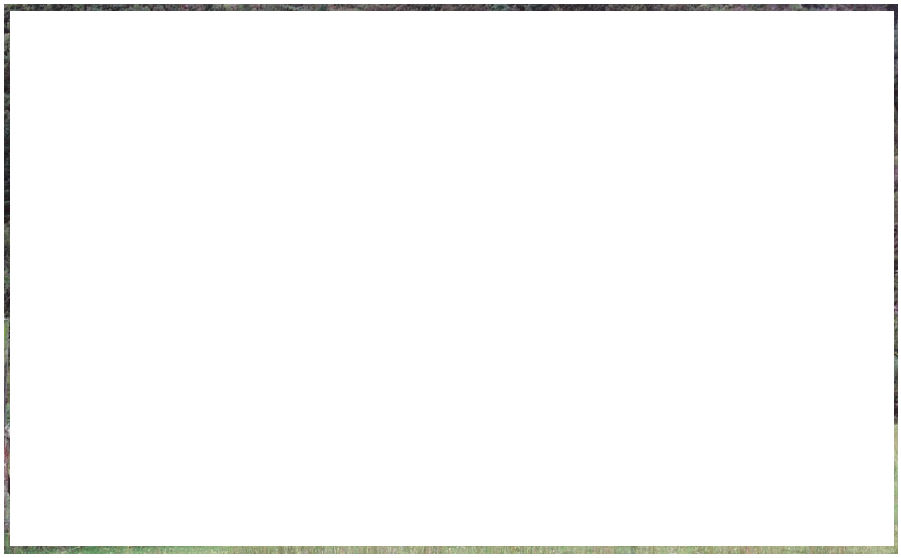


Fig. 1.6 ; an example of the original bach

The Bach : Phase Two

[1945 - mid-1960s]

Baches are arguably one of the few indigenous forms of New Zealand architecture. Those at Red Rocks and Mestanes [location of registered baches] were particularly important to Wellington in the early to mid-20th century as a retreat for Wellingtonians to enjoy leisure time and solitude. (Keen and Hall 180).

The 1940s saw a shift in bach culture, and a rapid rise in the construction of such buildings. With the end of World War II marking this shift in 1945, post-war optimism encouraged a rise in holiday-makers, where the bach sprawl spread further away from urban centres. This was made possible through the rise in vehicle ownership, where car-ownership more than doubled in the 1950s, and subsequently families could access all the beaches that public bus services had not provided previous access to. The Annual Holidays Act 1944 also stated that New Zealanders would be provided with two weeks of paid annual leave (Walters, "Caves to Castles" 7).

Land for second homes were then more commonly built on privately-owned land, however the Housing Improvement Act 1945 was not enforced on these homes, therefore still resulting in a basic building style (Keen and Hall). The display of wealth was seen as socially unacceptable throughout this period, which was subsequently reflected in the architecture of the second home, regardless of New Zealand's increasingly strong economy (Walters, "Caves to Castles" 8). The 'original bach' that we often refer to nowadays typically refers to the architecture of the bach throughout this period, rather than the true original baches that came earlier (Collins and Kearns, "Uninterrupted Views").

Fig. 1.7 ; An example of the common bach

The ~~Bach~~ Holiday Home : Phase Three

[mid-1960s - present]

The post-war optimism seen in the previous phase came to a standstill in the mid-1960s, when New Zealand experienced three periods of economic recession before the 1980s (Walters, "Caves to Castles" 8). This successively led to a deregulation in the finance sector, which then led to an establishment of new financial services, and an availability of 'cheap money' lent from the bank. This then gave opportunity for investment in shares or property, leading to an accumulation of wealth in groups of New Zealanders, whom; "Deliberately cultivated an aura of opulence… [and] rebelled against the country's long-held reluctance to show off wealth" (Moon 539–40). This then resulted in the social acceptance of displaying wealth in holiday housing.

Alongside this economic shift, there was a rise in land prices surrounding coastal areas or popular holiday destinations. This did not lead to an inability for first home buyers to get into the market, but did put an increase on the inability for the middle-class to buy a second home, and thus became an exclusive amenity for the wealthier (Collins and Kearns, "It's a Gestalt Experience"). Building laws were also tightened; a highlight of environmental issues led to local authorities narrowing the poor construction methods used for second homes. The Standard Model Building Bylaw 1935 was imposed, and this led to architecturally designed homes which subsequently reflected urban built environments. Another reason for this rise in 'suburbs on the sand' was that it was then socially acceptable to display wealth, so generally people were not afraid to build luxuriously.

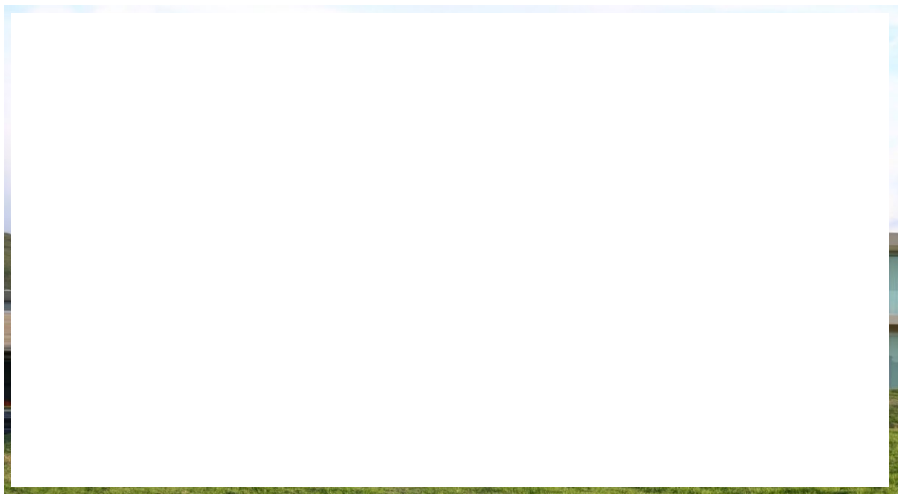


Fig. 1.8 ; An example of the holiday home, Omaha Beach

Contemporary Bach

So there is a clear image of what the bach looks like in history, but when one thinks of a contemporary New Zealand bach; what does this look like, and where is it heading? There must be a clear distinction between the original bach, the holiday home, and the contemporary bach.

There are examples of contemporary baches in New Zealand, which still exhibit some attributes of the old style bach, whilst using a contemporary approach to design and occupation. They have taken an approach that does respect their surrounding environments; being considerate in size, site-impact, form, and materiality.

These examples all look at a simple approach to the bach, ranging in scale from the very simple Utility Shed, to the full scale Shoal Bay Bach. There are many examples of the in between, such as Crosson Architects' Hut On Sleds that present a form of temporary inhabitation.

All three contemporary baches draw on four main design principles, which are taken through into the bach design further in this chapter. The four strategies are indicated below, and can all be extracted from the images on the following page.

north verandah
enjoying the summer sun, time is spent outdoors

small
modest in size for affordability, and uncommon to show affluence

simple form
uncomplicated dwellings, often built by the owners

fluid indoor outdoor threshold
summer dining and living flowing between indoor and outdoor

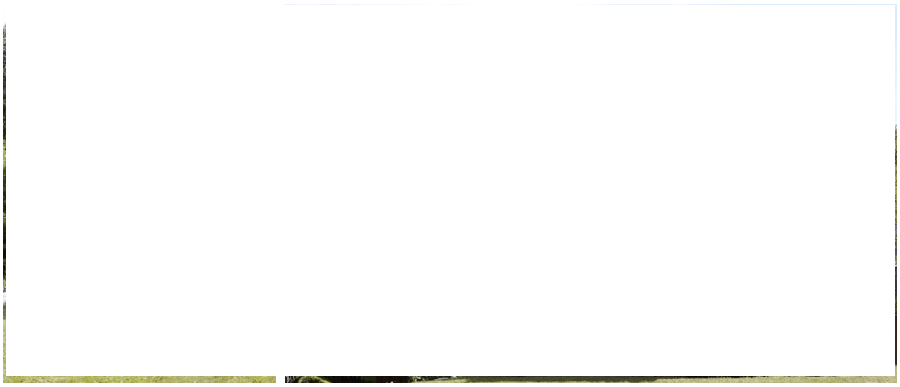


Fig. 1.9 and 1.10 ; *Utility Shed ;* *Herbst Architects ;* Great Barrier Island, NZ
; small, off-grid, concise, compact

Fig. 1.11 and 1.12 ; *Hut On Sleds ;* *Crosson Architects ;* Coromandel, NZ
; small, simple form, off-grid, fluid indoor-outdoor threshold

Fig. 1.13 and 1.14 ; *Shoal Bay Bach ;* *Parsonson Architects ;* Hawkes Bay, NZ
; simple form, fluid indoor-outdoor threshold, compact

Low Impact

research: how to be low impact at small scale

"What is important about building in the country or at the beach, and how might we relate building and landscape?"

Pip Cheshire 14

"The results [of the survey] emphasise the high value that New Zealanders place on undeveloped rural coastal landscapes, and the strong need for their protection"

Raewyn Peart 65

The importance of low impact design through this research is imperative. In order to have a consideration for the protection of the coastal environment, designing with low impact principles at the forefront is perhaps the most important aspect to consider. Low impact design can be defined many ways, and through many stages in the design, from how the construction will plan out, the materials chosen, their transport to site, and eventually the building and its lifespan as sustainable architecture.

When Raewyn Peart discusses the shift from the bach to the holiday home in *Castles In The Sand*, she describes the impact of this; "These changes in the types of houses that are being built on the coast are having an impact on what the coast looks like" (66). As mentioned in the earlier chapter, The Bach, New Zealander's inhabit the beach to enjoy this coastal environment, so why do we continue to destroy it with monstrous structures?

Low impact can be achieved through many different avenues within the design of a bach. It can encompass the whole project, and will be considered through the design of the bach, both individually and as a whole development in Design Phase One.

Superlight

key reference: 1

Superlight: Lightness In Contemporary Houses
by Phyllis Richardson, 2014

This text is key for the research undertaken for low impact approaches to architecture. It looks at contemporary examples of architecture that have taken unique approaches to being low impact, through many different stages of the dwelling's lifetime. The chapters are divided into Floating, Low Energy, Urban Light, Escape and Extreme. The following pages of this chapter outline the four relevant chapters, and how these approaches are relevant to this research.

Low-Impact Approach 1: Floating

over water, on stilts, mobile

The idea arose out of the rise in flood events, particularly developed in the Netherlands where the built environment has always existed alongside flooding issues. There is literal floating, where less conventional houses are seen, or there is less literal floating, where the building volume has been lifted off the ground. When the building is lifted off the ground, this avoids several impacts; poured foundations, site levelling and excavating large amounts of the terrain. Floating can also be aesthetic, such as the Recreation Island House by 2by4 Architects appears to float, whereas it does have slender foundations that are hidden. (Richardson 8)

Fig. 1.15 and 1.16 ; *Pilotis in a Forest ;* *Go Hasegawa ;* Japan

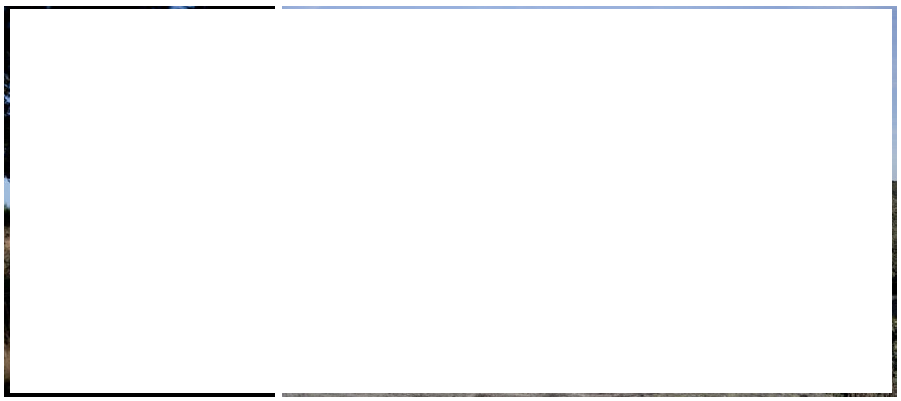


Fig. 1.17 and 1.18 ; *Casa Garoza ;* *Herreros Arquitectos ;* Spain

Approach: Elevate the building on stilts; deals to sea level rise, no poured foundations, site levelling or excavation therefore far less impact on the site. Look at the effect of steel piles against timber piles

Low-Impact Approach 2: Low Energy

solar, sustainable, efficient

Design the house for future low-impact; design for it to use less energy and for passive systems where energy may be required. Prefabricated systems can reduce material waste on site, and materials that have a low embodied-energy will help reduce energy used. Also, materials that take less energy to initially procure/create and get to site will aid in reducing the footprint of construction. All aspects of the house and its construction contribute to its environmental impact; deep, wide foundations require large machinery to excavate, which thus requires more energy to operate. (Richardson 74)

Fig. 1.19 and 1.20 ; *First Light ;* *Victoria University of Wellington ;* New Zealand

Fig. 1.21 and 1.22 ; *Meme Meadows ;* *Kengo Kuma & Associates ;* Japan

Approach: Reduce the energy used throughout construction, through material choice, material location and transport to site. Also methods in passive design to reduce energy used for heating and cooling in the future

Low-Impact Approach 3: Escape

remote, low-impact, efficient

Remote areas create a collection of difficulties to overcome when building, if the architect or builder wants to be sympathetic with low-impact on the environment. Aside from issues involved in waste, electricity, plumbing, access and energy, is how the construction may affect the environment. If heavy machinery is required for construction, this means roads of some kind are required, so will this require the removal of some trees or terrain? Also, sometimes fencing is required to avoid having wild animals intruding on wet foundations or synthetic materials. Some examples show where construction materials have been physically carried to site, and where the intrusions of the site can be removed as quickly as they were put there. (Richardson 156)

Fig. 1.23 and 1.24 ; *Swamp Hut ;* *Moskow Linn Architects ;* USA

Fig. 1.25 and 1.26 ; *Cape Russell Retreat ;* *Sanders Pace Architecture ;* USA

Approach: Ensuring that the transport of materials to site does not have a long-lasting effect on the environment, and that the environment can be kept untouched as much as possible, both throughout and after the construction

Low-Impact Approach 4: Extreme

isolated, low-cost, communal

The extreme covers many senses of the word in relation to their environmental impact, and to society itself. The examples include low-cost architecture for people in impoverished areas, and in areas that have unrealistically high housing prices. Challenging environments, in both remoteness and climatic extremes, are also explored in how the architect has dealt to the problems. Thinking outside the box in terms of material combinations to deal with climate, and recycling opportunities to lower building costs, are ways that architects may deal with harsh conditions. (Richardson 210)

Fig. 1.27 and 1.28 ; *Low-Cost House ;* *Vo Trong Nghia Architects ;* Vietnam

Fig. 1.29 and 1.30 ; *Yakushima Takatsuka Lodge;* *Shigeru Ban ;* Japan

Approach: Use low-cost strategies that combat the difficulties involved with the site, while using natural materials (or material combinations) that will have a positive effect on the environment both inside and outside the building

Low Impact Design Strategies

Through analysis of Superlight, and the precedents it entails, some further design strategies were extracted. The four chapters, Floating, Low Energy, Escape, and Extreme, all gave different aspects of how to be low impact. They also, collectively, had strategies that were applicable to almost each precedent.

The dwellings were largely on piles, in order to disconnect from the ground to have less impact on the landscape. There were many that were timber framed, as timber gives less embodied energy than steel to create. Orientation to north was also important, to ensure less energy use throughout the building's life, through use of natural sunlight and passive heating. The final design strategy is for the building to sit parallel to the contours, again to impact the land less. By orientating the building to the contours, the building sits into the land more, rather than juxtaposing what the land itself is doing.

These four design strategies are to be taken through to the bach design, which follows this chapter.

on piles
touch the land less, and more gently

timber framed
low embodied energy, and easy to transport to site, so less site impact

orientated north
make the most of passive sunlight and heat through orientating toward sun

parallel to contours
no excavation needed if dwellings sit along contours, being sympathetic to land

The Site

research: Kawau Island

The chosen setting to test this research; the part of New Zealand's coastline that I am most personally connected to. It is a highly sensitive natural environment, which creates a good testing ground for the proposition.

"Using arrangements that matched the ecology and the scope and scale of the landscape better than the conventional patterns of incremental, parcelized development would"

Donlyn Lyndon 19

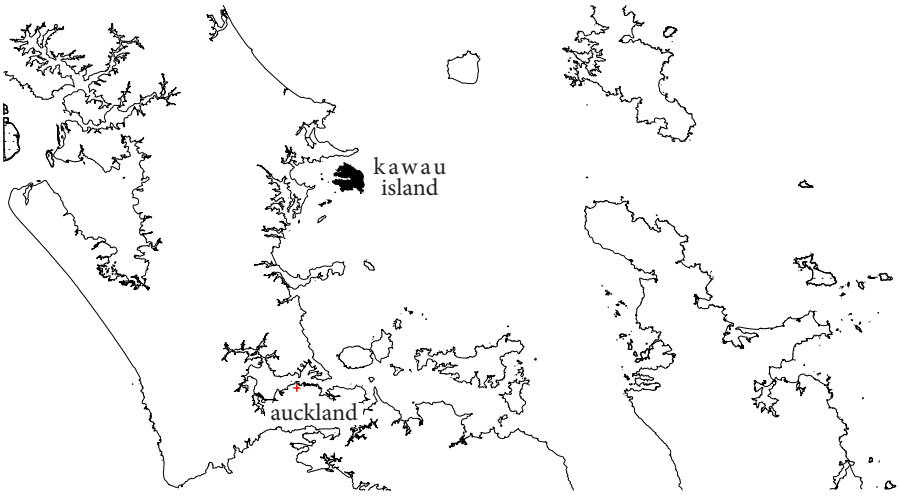


Fig. 1.31 ; Kawau Island in the Hauraki Gulf

A Short History of Kawau Island

Kawau Island is located in the Hauraki Gulf, located around 8km from the North Island mainland, directly east of Warkworth. It has been inhabited since the nineteenth century, yet by very few. In its early days, the island was occupied by Sir George Grey, who built his house in, what became, Mansion House Bay. The house still remains and is now a museum for visitors, and the most popular destination on the island. (Yarwood)

The island has around 430 properties, populating only a few of the coastal fringes around the island. Most of these properties are concentrated to Bon Accord Harbour, and a few other bays scattered around the perimeter of the island. The houses are typically only occupied as second homes, there are few permanent dwellers. The island is only accessible by boat, with only a few vehicles on the island. The island has many walking tracks that attract day visitors throughout the summer. The land is undulating, with bays scattered throughout, rather than flat beaches. This presents a unique coastal land type, one with difficulties to undertake when designing.

My family has had a bach there since the 1980s, and having spent much of my childhood holidays there, I have a strong connection to the island. That is why this island serves as an appropriate testing ground for the impact of further development on the coastline, and how it could be done in a more sympathetic way. It is a highly sensitive coastal environment.

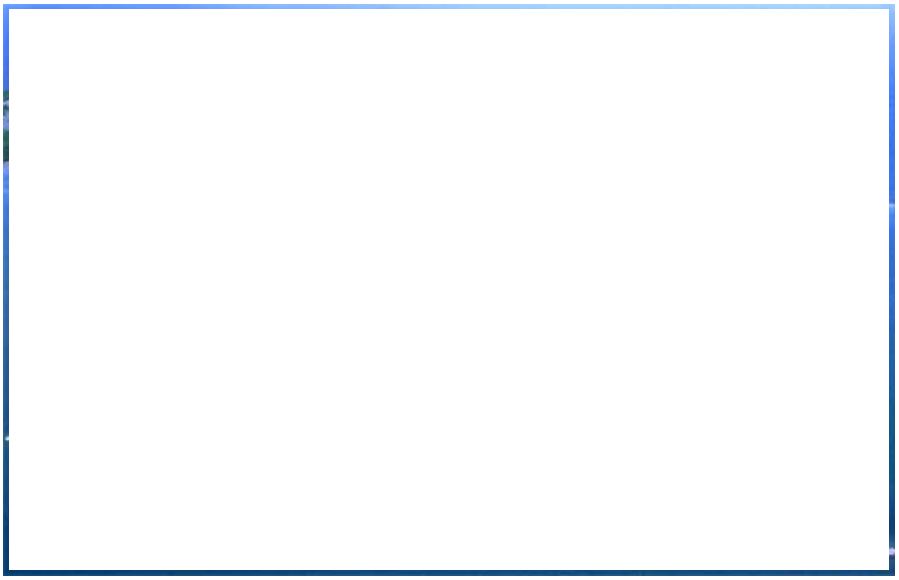


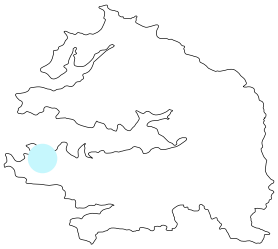
Fig. 1.32 ; western area of kawau island

Fig. 1.33 ; Kawau Island in the Hauraki Gulf at 1:50,000

Subdivision

Within the south-western area of Kawau Island, there is the planning of a subdivision that was initially created in the mid-1900s. There are over 160 properties between Mansion House Bay and Schoolhouse Bay, right at the front of Bon Accord Harbour. The subdivision has never been realised; the land remains owned by the Department of Conservation and is not intended for any future developments.

I was saddened when this subdivision was discovered, as the unique 'escape' of the island would be taken away if it were to be fully developed. The uniqueness of the island is its 'wilderness' and its individual characteristics. It's a special place. I found this the perfect site opportunity to test the ideas behind this research; how can we keep the special 'wilderness' of Kawau, if the population of the island was to increase by almost 40%?



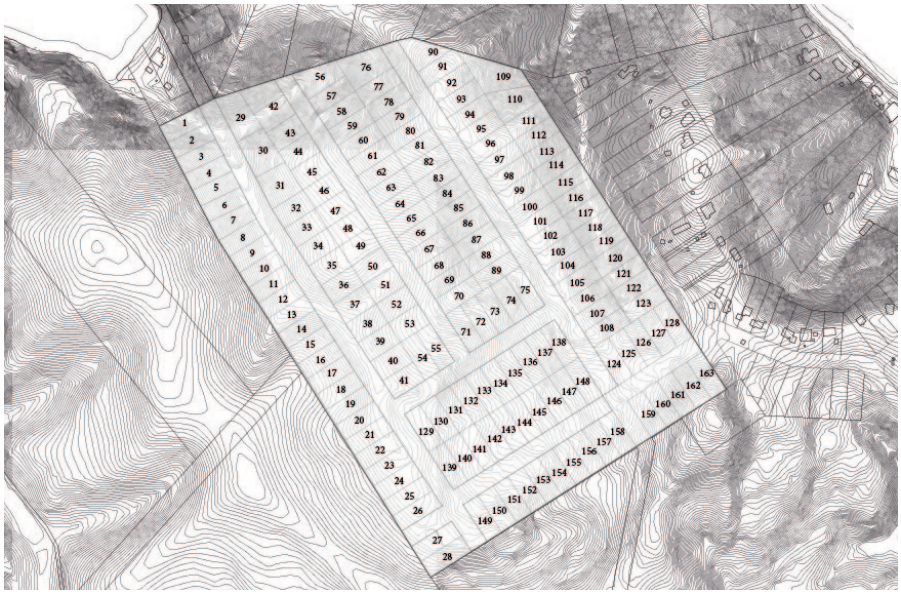
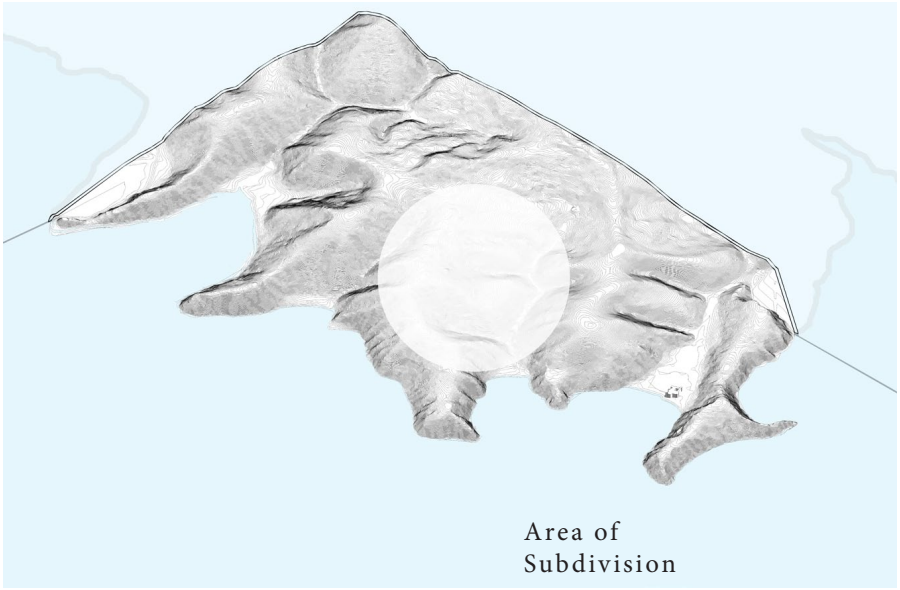


Fig. 1.34 ; subdivision of 23ha of land on Kawau Island

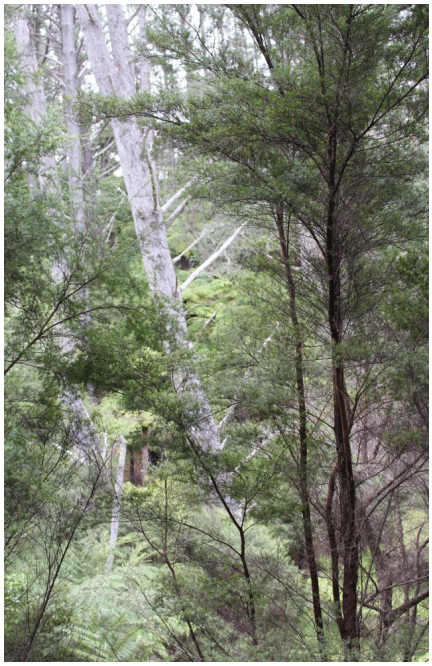


10min walk
from sea

Fig. 1.36 ; bach on Kawau Island

Fig. 1.37, 1.38, 1.39, 1.40 ; various baches on Kawau Island

Fig. 1.41 ; valley within subdivision



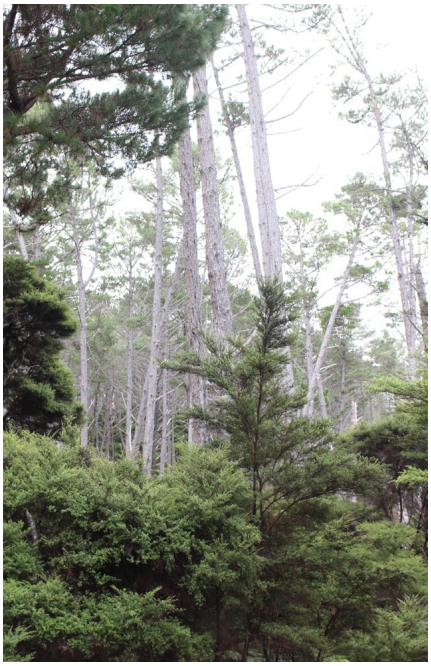



Fig. 1.42, 1.43, 1.44, 1.45 ; land within subdivision

Project One

A Grid Over The Land

This design project combines the research for design, and research through design. It integrates the bach history, with the low impact research, and applies this to a site on Kawau Island.

Design Project One

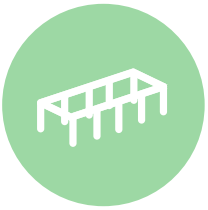
Design Project One was the first stage of the research through design. It intended to create typologies based on the earlier research into baches and low impact design. These typologies were further tested at a subdivision scale on site, using the subdivision plots as the site boundaries.

Design Strategies

Bach
simple form
small
north verandah
indoor outdoor threshold

+

Low-Impact
on piles
orientated north
timber framed
parallel to contours



Typology Differentiation

With such undulating topography on the site, creating typologies needed to respond to the diversity of sites within the subdivision. There would be three typologies that dealt with the relationship between the topography and the northern orientation. For the baches to elongate along the contours, and therefore be less impacting on site excavation, they needed to respond to this northern orientation.

Typology 001 Bach looks at facing north, when the contours are perpendicular to the northern orientation. This means the rectangular form has a verandah along the front side.

Typology 002 Bach looks at facing north, when the contours are parallel with north, meaning that the shortest side of the bach faces north. This looks at having a smaller verandah, still facing north while the bach elongates from north to south.

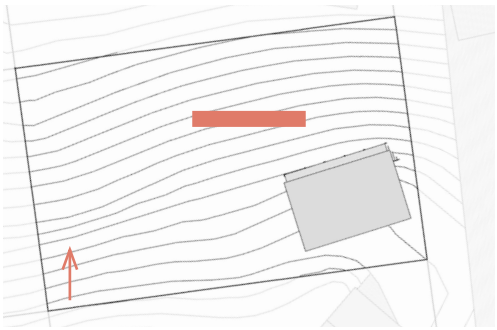
Typology 003 Bach looks at where the contours are facing north-east [south - west] / north-west [south - east]. This meant that through elongating the bach along the contours in these directions, the northern area of the bach is on the corner. Hence, the corner verandah was implemented.

Through this study and design of the bach alongside the topography and orientation to north, three typologies were created. The design of these baches started with the verandah, which then informed the interior of the bach.

001 Bach - perpendicular

Typology 001 Bach is the closest typology to the original bach; simple recantgular form, with a north-facing verandah along the longest axis of the dwelling.

total area: *88m²*
deck area: *22m²*
internal area: *66m²*
sleeps: *8 people*



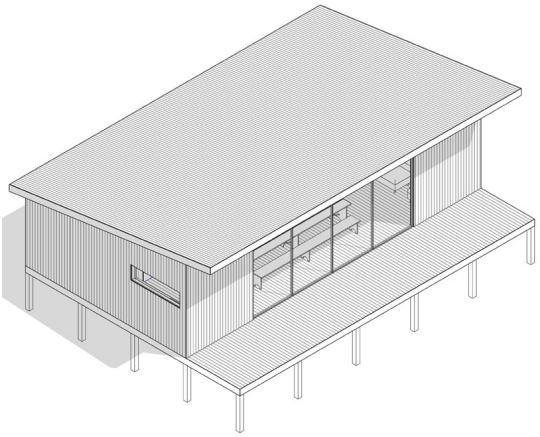


Fig. 1.46, 1.47 ; bach typology 001; key plan and isometric

Fig. 1.48 ; bach typology 001 floor plan at 1:100

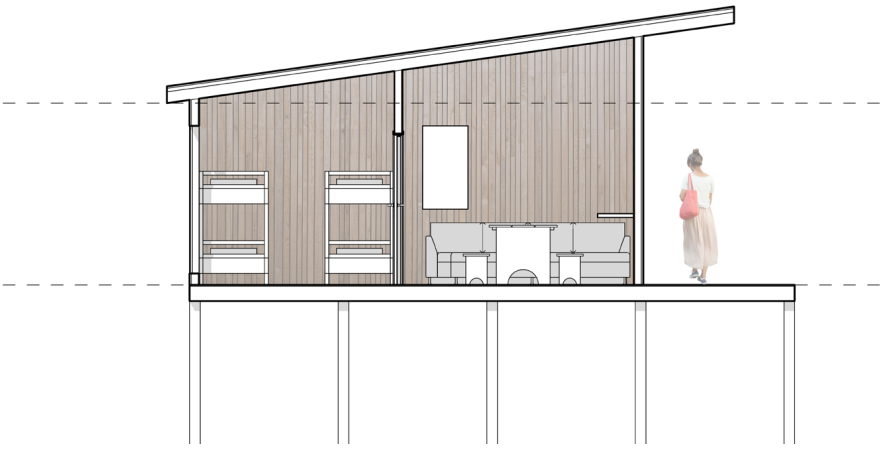


Fig. 1.49 ; bach typology 001 section at 1:100

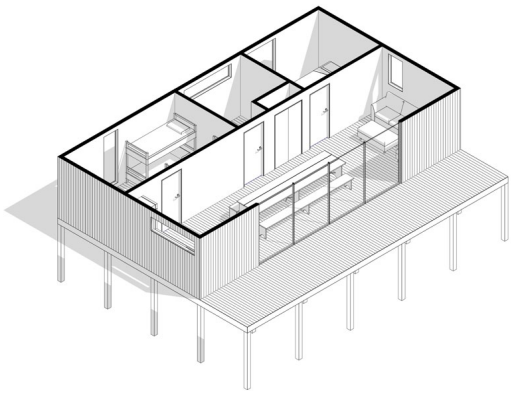
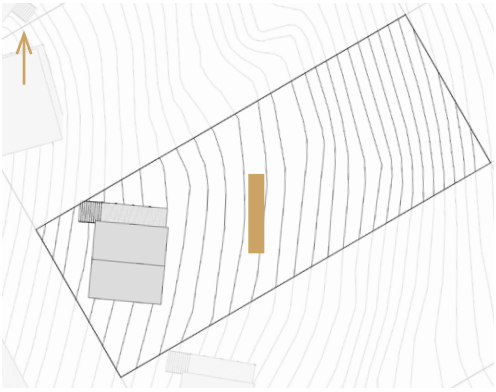


Fig. 1.50 ; bach typology 001 isometric at 1:200

002 Bach - parallel

Typology 002 Bach has a simple form, but elongates the bach along the contours so that the shortest side is facing north, meaning a narrower verandah.

total area: *86m²*
deck area: *20m²*
internal area: *66m²*
sleeps: *8 people*



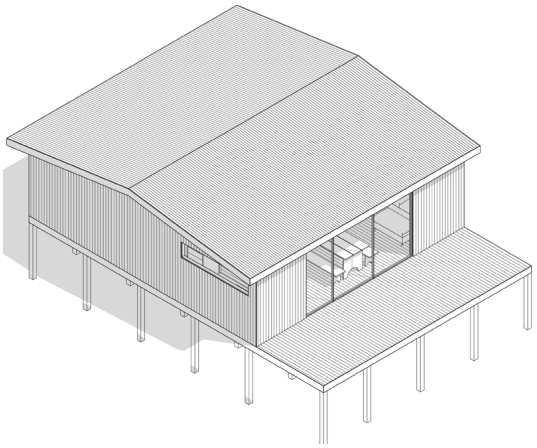


Fig. 1.51, 1.52 ; bach typology 002; key plan and isometric

Fig. 1.53 ; bach typology 002 floor plan at 1:100

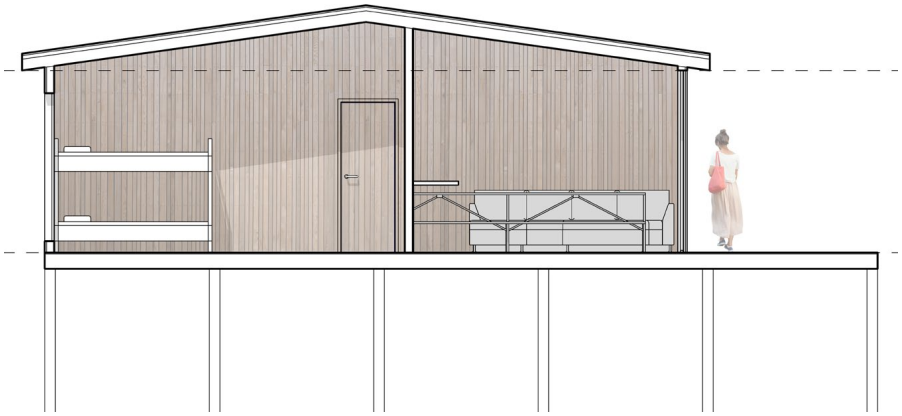


Fig. 1.54 ; bach typology 002 section at 1:100

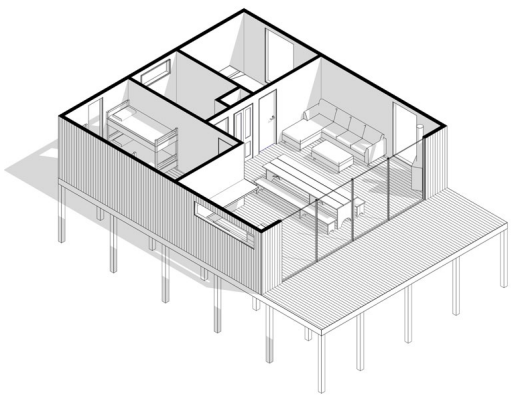
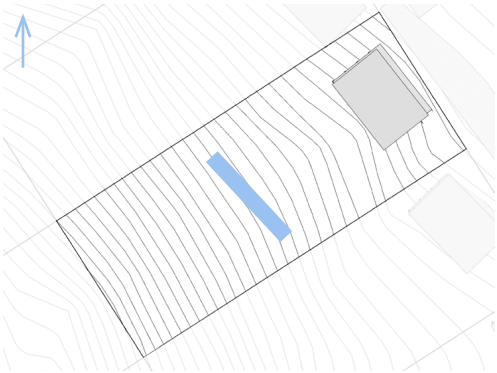


Fig. 1.55 ; bach typology 002 isometric at 1:200

003 Bach - diagonal

Typology 003 Bach looks at having a north-facing verandah, while it elongates along contours that are diagonal to north. This results in a corner verandah, which still enhances the orientation.

total area: *88m²*
deck area: *31m²*
internal area: *57m²*
sleeps: *6 people*



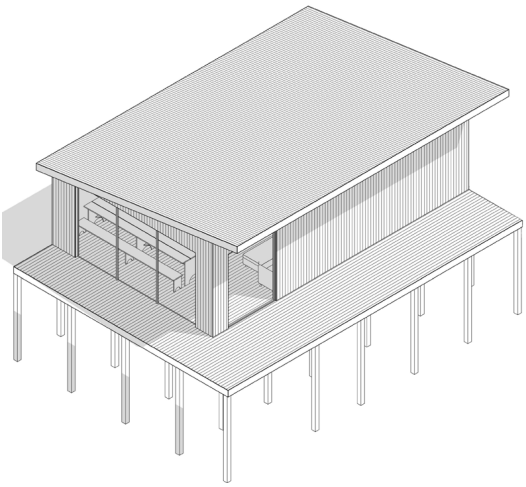


Fig. 1.56, 1.57 ; bach typology 003; key plan and isometric

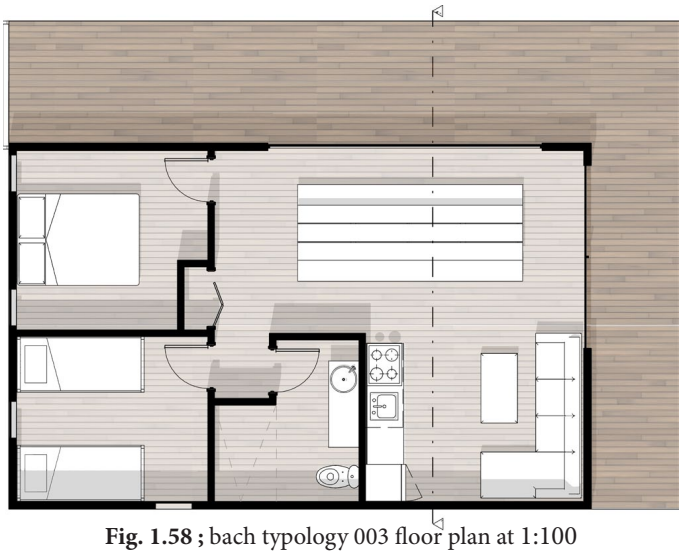


Fig. 1.58 ; bach typology 003 floor plan at 1:100

Fig. 1.59 ; bach typology 003 section at 1:100

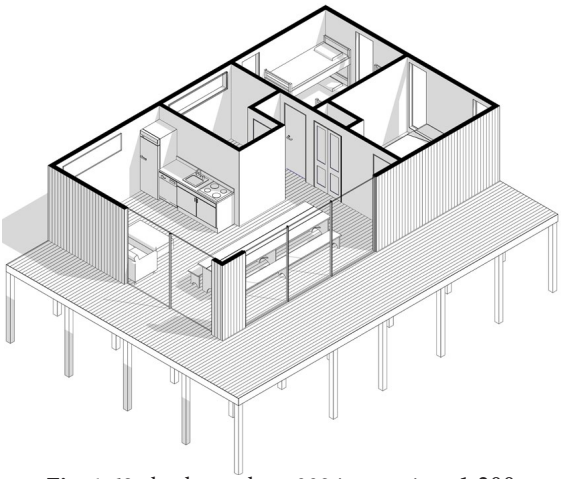


Fig. 1.60 ; bach typology 003 isometric at 1:200

Initial Siting test

This research is looking toward a non-suburbia, in reaction to the impact that has been evident in beaches throughout the North Island; Omaha, Pauanui, and many more. Through the use of strict grids that react to subdivision profit, rather than the existing landscape, suburbia is created and has a detrimental effect on the environment.

In order to tease out the issues with the Kawau subdivision, this first design phase looked at what a typical grid could contribute within the wider site. The grid that was created in the mid-1900s has very little reaction to the land on which it was laid, it does not consider the topography and therefore creates difficulty around access, orientation, and general siting of any dwellings.

This design looks at concentrating the siting of the baches toward the front boundary of their plot, and therefore touching less of the overall site. If the baches are concentrated to the roads that have subsequently been created between the plots, then there is a large area untouched in the 'backyard', that therefore creates less impact.

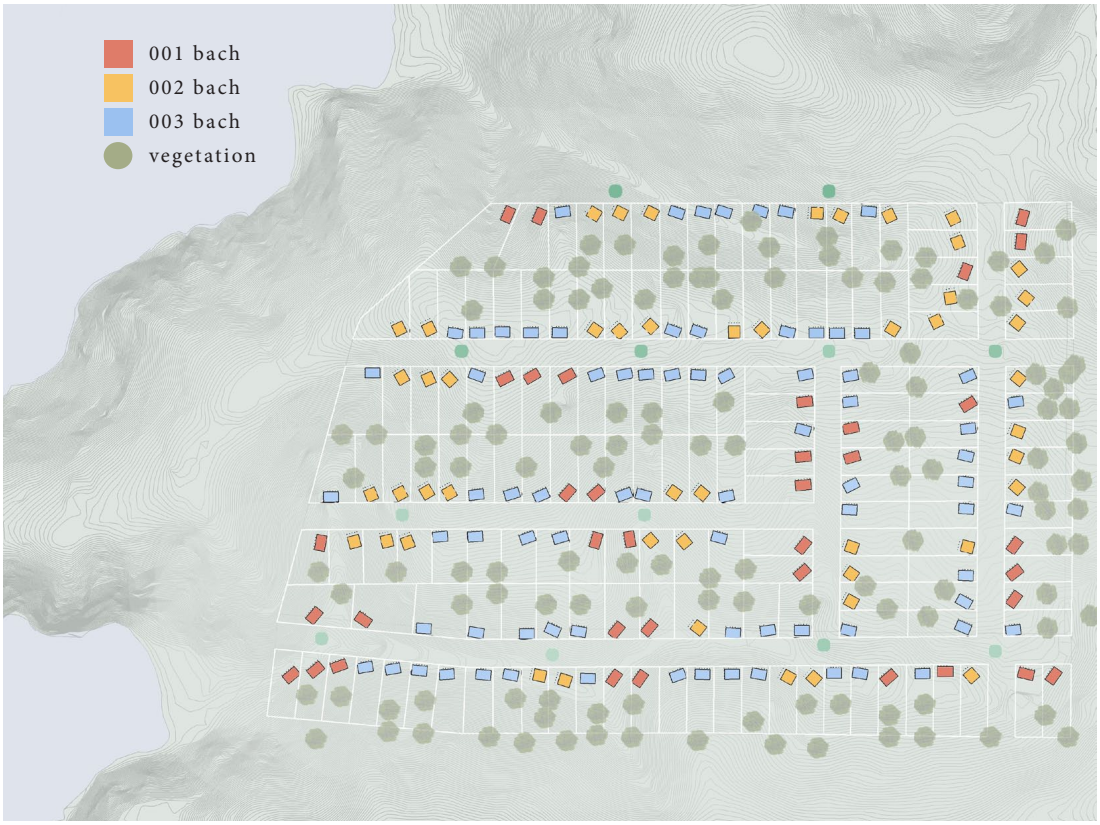


Fig. 1.61 ; site plan of typologies

This siting, where the plot boundaries have been used, has some positive attributes, and some aspects to learn from.

The image below shows baches, with a communal boardwalk in between. This implies some sense of community through using a central, communally-owned element. The baches themselves are low impact, and strongly depict a sense of the low-impact original, early-1900s bach typology. However, the development still strongly resembles a suburban environment, regardless of the context, due to the use of the plot lines and the regularity and linearity of the dwelling layout. Therefore, the overall design is not achieving low impact on the larger scale.

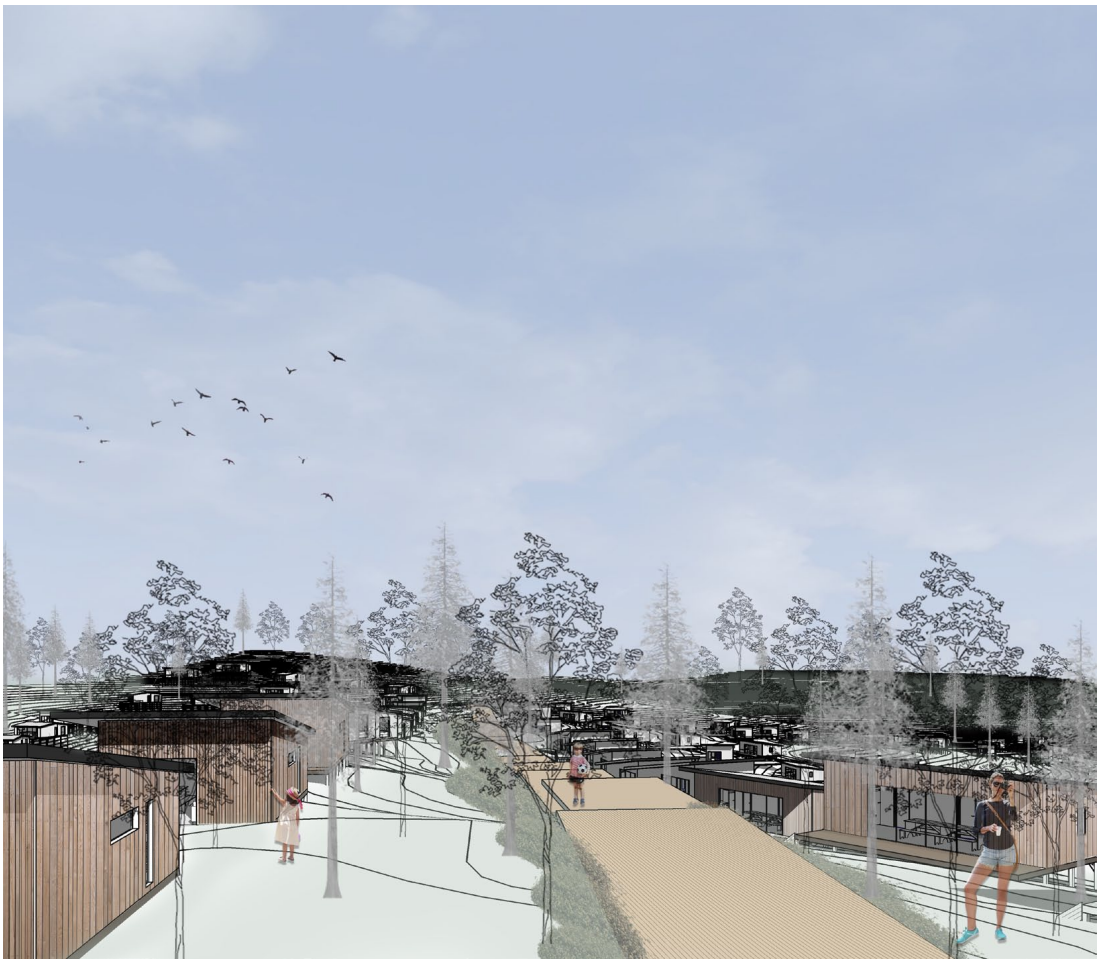


Fig. 1.62 ; 3D View of Project One development

the boardwalk ;

access/
; the boardwalk provides a pathway through the site to each bach

social space/
; it provides a social threshold between the baches to interact with neighbours

viewing platforms/
; it presents points on the sites to admire the view, to provide the same views to all residents

When assessing how the baches could be accessed from the wharves through Two House Bay and Schoolhouse Bay, the first issue was the steep topography. The site has undulating contours that would cause difficult access, and without roads on the island, the pathways would need to be carefully designed to act as roads without impacting the landscape.

The wharf is an important icon on Kawau Island, it acts as the access point of each bay and the 'front door' to some extent. This became a design tool that could be implemented through the site, having less impact on the site through the use of piles and continuing the language of the wharf from the water to each bach.

Fig. 1.63 ; boardwalk precedent

Fig. 1.64 ; boardwalk precedent

the boardwalk ;

access/
; the boardwalk provides a pathway through the site to each bach

social space/
; it provides a social threshold between the baches to interact with neighbours

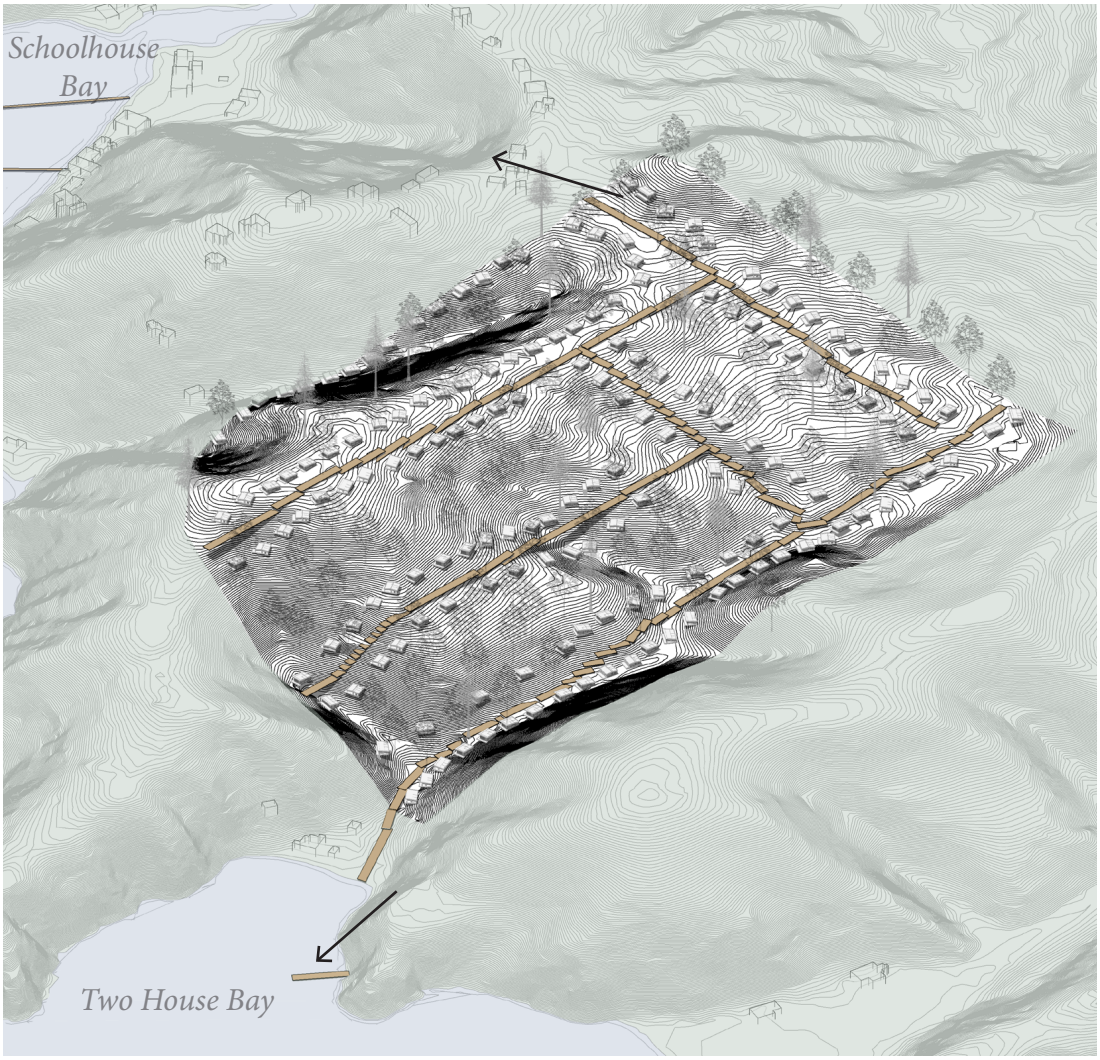


Fig. 1.65 ; isometric of Project One showing boardwalks and general access

Design Project One overview

These images express the nature of the design of Project One. It shows rows of baches sitting in their plots, with boardwalks connecting the rows. There are no fences or physical elements that show where the property boundaries are, to give less of a suburban nature to the development. This openness gives a more communal feel, and does not segregate the land as suburbia does.

Fig. 1.66 ; 3D View of Project One showing shared boardwalk and baches

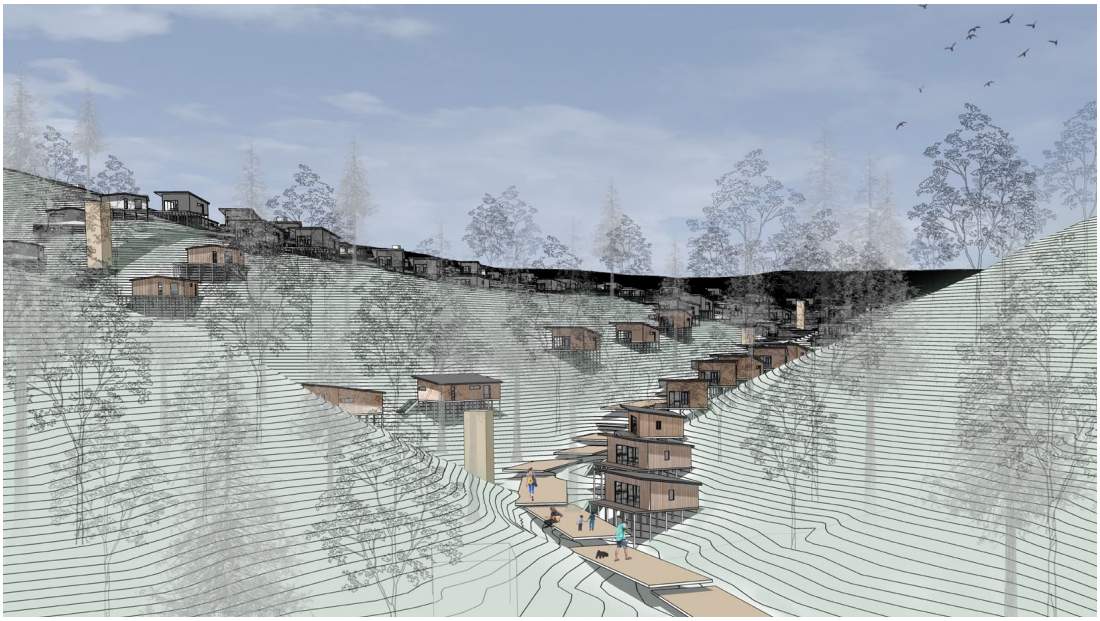


Fig. 1.67 ; 3D View of Project One showing shared boardwalk and baches

Fig. 1.68 ; isometric of Project One overview

Design Project One : Critical Reflections

project one ;

; conforming to the subdivision plots

; rows of baches / more untouched land concept

; verandah facing north / elongated along contours

; access as prescribed through the existing subdivision

During the first stage of design in this research portfolio, I began to understand the site, the bach and how to build with low-impact, which eventuated into a design of 163 baches. This addressed many aspects related to the problem that initiated the research, and began to start a conversation that would inform an answer to the research question; *How can coastal housing be designed to have less impact on the environment?*

The biggest issue that was discovered, is related to the larger scale of the project; how to site all baches within the subdivision. For this design phase, I used the property boundary lines as indicated through the subdivision, however quickly discovered that this was not going to be the best option for the design. The locating of the baches looked toward suburbia too closely. The grid created through the subdivision was very linear, whilst the land was undulating and largely varied through the site. Through using these plots as a basis for siting and distribution of housing over the land. It became evident that using a grid could not sufficiently react to the site, and therefore could not be sufficiently low impact. The concept of having one dwelling per $x m^2$ of private land is becoming outdated.

In order to successfully site a number of baches, the site area being used needs to be reduced. By reducing the site area, it will leave a large amount of the subdivision untouched, which will add to the low impact aspect of this research.

Another aspect that was discovered through this design phase was that a contemporary low-impact bach can stray from the original bach, while still achieving the simplicity and nostalgia of the past. The small scale of this project achieves low impact. This is through the simplicity, the small size of the dwellings and the materiality, which was learnt through history of the Kiwi bach. Although achieving low impact at the scale of the bach, the grid gives a suburban nature due to its scale and rigidity, which does not achieve low impact.

The subdivision is currently not achieving the accessibility aspect of the research, it is only providing private baches that would be privately owned. Through the next phase, the introduction of public bunkrooms will address this issue of financial and social accessibility.

The next issue to undertake comes after these two, how to create sufficient and affective access to each bach. This access way could potentially add some social aspects to the development, whilst still responding to the needs of the site. This will react to how the site is narrowed down to a certain area, and access from the wharves will be considered.

?

the following questions arose from project one and helped frame project two

How can it be subdivided differently?

How is it different from suburbia?

What is the minimum?

How can the grid be adapted to the land?

How do people get there?

How is it accessible?

Can the public go and stay there?

Why do people go to the coast?

How is nostalgia important?

two

1

research for large scale

Kawau Island site visit
Key Ref. 2: Boathouse Bay / Crosson Architects
Key Ref. 3: New Zealand campgrounds
Key Ref. 4-5: Samoan malae and Maori marae
Key Ref. 6: Stradbroke Island Tourist Park / Partners Hill

2

research for mid scale

Key Ref. 7: Samuel Mockbee / Rural Studio
Key Ref. 8: Campground research / Damian Collins & Robin Kearns
Key Ref. 9: Perry Lakes Park Restrooms / Rural Studio
Key Ref. 10: Utility Shed / Herbst Architects

3

research for small scale

Key Ref. 11: Miro Road House / Vaughn McQuarrie
Key Ref. 12: Hut On Sleds / Crosson Architects
Key Ref. 13: Motu Kaikoura / Strachan Group Architects

4

project two design

5

reflections on project two design


[project two]
- research + design -

Siting Research

research: the larger scale

To achieve the low-impact, undeveloped nature of the research intentions, the siting of the dwellings is imperative. This chapter looks more in-depth at the site, and its most appropriate areas to build on. It also investigates some examples of mindful planning, both coastal and inland.

Kawau Island site visit
Boathouse Bay / Crosson Architects
New Zealand campgrounds
Samoan malae
Maori marae
Stradbroke Island Tourist Park / Partners Hill

Fig. 2.1 ; land within subdivision showing dense vegetation

Site Visit / June 2018 ;

In visiting site, it became very clear where the best location for the development is. The majority of the site is covered in dense, tall bush, on undulating, steep slopes. There are tracks that run along the perimeter of parts of the site. It is clear where the boundaries of the subdivision are. There is a track within the subdivision that runs down a ridge within the site, which is largely flat, with sparse bush, and glimpses views to the sea. There is two slopes off this ridgeline, one facing north, and one facing south.

For passive solar gain, the north facing slope is where the baches are to be located.

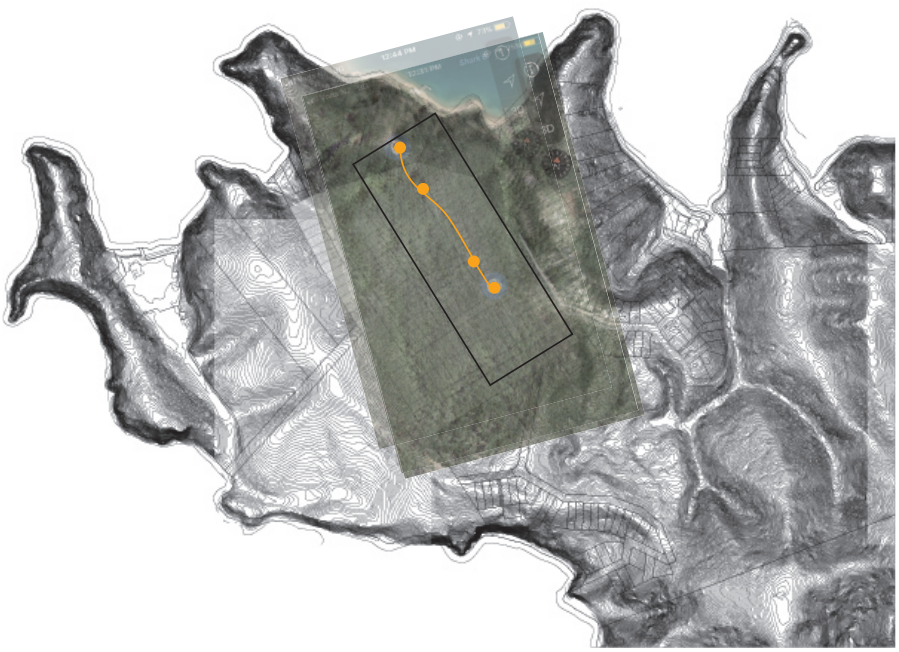


Fig. 2.2 ; map showing desirable area for building

While walking around site, I used my iPhone GPS to locate where I was within the subdivision, and noted where areas desirable to build were. I have overlaid this information on a site map to understand where these areas are in relation to the original subdivision and topographic map. The ideal location of the baches will be along the ridgeline. The vegetation surrounding this ridgeline gives protection to the winds that come toward the land. This vegetation also disguises the dwellings from the sea, so that they are more subtle in their positions, when viewed from the harbour.

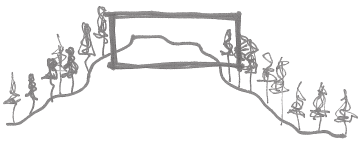
Fig. 2.3 ; dense area - steep terrain, dense vegetation ; unsustainable for building without making major impact

Fig. 2.4 ; *ridgeline* *- flat terrain, sparse vegetation, sea views ;* *best for building*

Fig. 2.5 ; *ridgeline area*

flat ridgeline

easier to build on
easier for access
views to sea



sparse vegetation

less vegetation removal
better sunlight access

Fig. 2.6 ; *steep slope*

steep slopes

difficult to build on
difficult for construction
access

dense vegetation

removal of trees required
native bush should be kept

Boathouse Bay / Crosson Architects

key reference: 2

Boathouse Bay is a development opposite Kawau Island, on the mainland at Snells Beach. It is a development of houses, designed by Crosson Architects, and shows how to mindfully site many dwellings on a coastal site, with public and private outdoor areas. The dwellings are clustered in typologies, in groups of two or four, with main access running down the middle. There are spaces in between that serve for all the occupants, and parking either in the houses, or separated to an area adjacent to the dwellings. The dwellings, stand alone or attached, have landscaping in between rather than fences or walls. The landscaping throughout the development is mindful of creating a community, whilst each dwelling still has their own private outdoor area. (Gallery | Boathouse Bay)

This precedent shows how density can be achieved on a coastal site, by clustering in typologies and by removing any fences or boundaries, gives a communal outdoor space. Also, the use of a consistent, simple formal language and material palette has helped keep a mindful aesthetic.

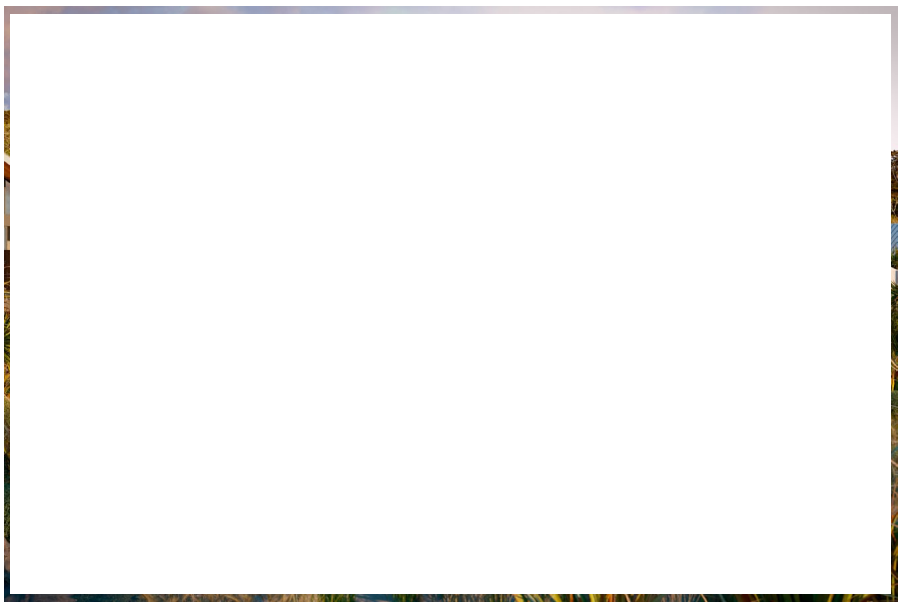


Fig. 2.7 ; Boathouse Bay render

Fig. 2.8 ; Boathouse Bay site plan
This plan shows the dwellings group within typologies, which means the scale and form of the dwellings are also grouped

Fig. 2.9 ; Boathouse Bay figure ground plan
This plan shows the figure ground of the dwellings, where the interstitial space becomes the space between the grouped buildings.

North Island campgrounds

key reference: 3

Campgrounds and holiday parks are the ultimate example of how to occupy a piece of the coast, in an informal and un-subdivided manner with an impermanent effect. They are often an orthogonal piece of land, wrapping the water's edge or a road that surrounds it. They are divided up into small plots, typically based around a central vehicle access way through the centre. The plots are usually facing seaward, and in rows or arcs that stretch around the boundaries of site. The plots, including permanent cabins, are clustered in small groups. The majority of these sites are flat, allowing for trucks and caravans, and typically most campground sites are directly adjacent to the sea/lake.

The access within these campgrounds serves as a good precedent of how to divide coastal land to give access and main subdivision clusters. It shows how coastal land can be used in a gentle way, without privatizing the edge, or using large plots of land for private use.

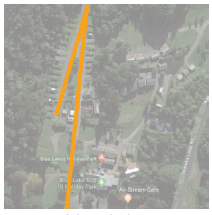
Fig. 2.10 ; Locations of campgrounds chosen around New Zealand


orewa


riverside


pukehina


sandspit


blue lakes


whangateau


great lakes


tauranga


turangi


pakiri


bowentown


hawke's bay


papamoa


bledisloe


murphys


rotorua


motutere


mount maunganui


ohope


waikanae


thornton


matata


island view


anaura

Fig. 2.11 - 2.24 ; various campgrounds throughout the North Island

Samoan malae organisation

key reference: 4

In Samoa, there is an ordering system in how they arrange the buildings within their villages, which works around a central area called a *malae*. This area is an open, circular space, surrounded by the most important buildings in the village; the guest *fales* (visitor accommodation). The buildings then surround these, with the regular accommodation, followed by cook houses, and toilets. There is an order of privacy here, the buildings closest to the open area are the most public, with the outer buildings being the more private. Post-independence in 1961 saw the introduction of vehicular roads in the villages, which changed the way this radial organization could work. An architectural shift in the ordering and private areas meant that visitors would still have the correct experience when approaching the village.
(Oliver 1221)

Adopting this planning would give an ordering system of the difference between public and private areas within the ridgeline development. The main access route into the site for Project Two would exist like the *malae*, the central open space, then the buildings would order off that central area, spanning from public to private. This also gives opportunity for views from each private bach, based on how the land forms sit against the ridgeline.

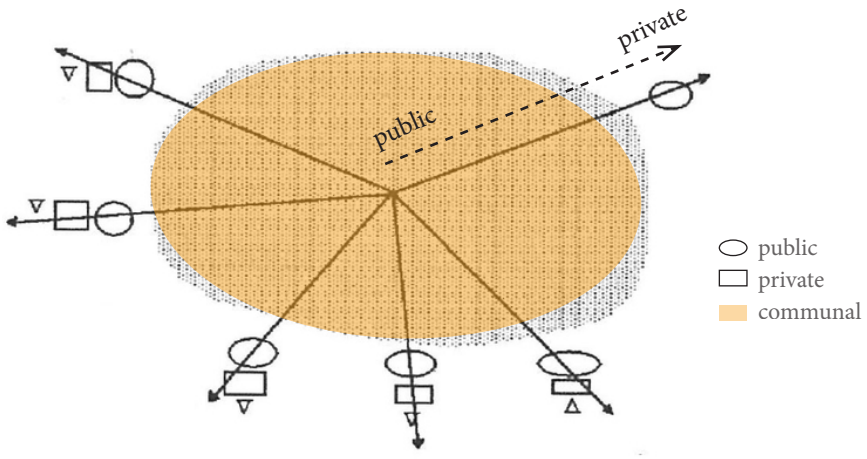


Fig. 2.25 ; diagram of planning organisation of the malae

Marae organisation

key reference: 5

The marae is central to the Maori culture, and can be recognized as referring to both the meeting house, and the open space in front of the meeting house, though the true definition refers to the latter. This space is open, "located in the natural landscape so that it faces outward to open elements (sea, plain) and is backed by closing elements" (p227 dreamland). It is used for gatherings, and there are particular formalities aligned with visitors and the hosts. The meeting house is also key in this landscape, and this building faces its marae; open space. The meeting house has a porch, which is more of a reflection of the marae (exterior open space), rather than an extension of the interior space. (Lloyd-Jenkins 227)

In addition to this, there is history of Maori occupying Kawau Island for centuries. Most of this time, the iwi known as Ngati Tai held the land, but after three centuries of occupation, were defeated by the Te Kawerau iwi. It was unoccupied for decades, before it was eventually sold to European settler W.T. Fairburn in the 1840s.

Marae organisation gives the importance to the landscape and the open nature of the space, with a meeting house that faces open space. This compliments the formalities of the cultural rituals, which include reference to the major landscape elements. This is tested in Project Two, where each cluster of dwellings has an open space, with a central meeting house directly relating to that landscape. This shows how the landscape can relate to a community building, and how this can then relate to smaller dwellings around the site.

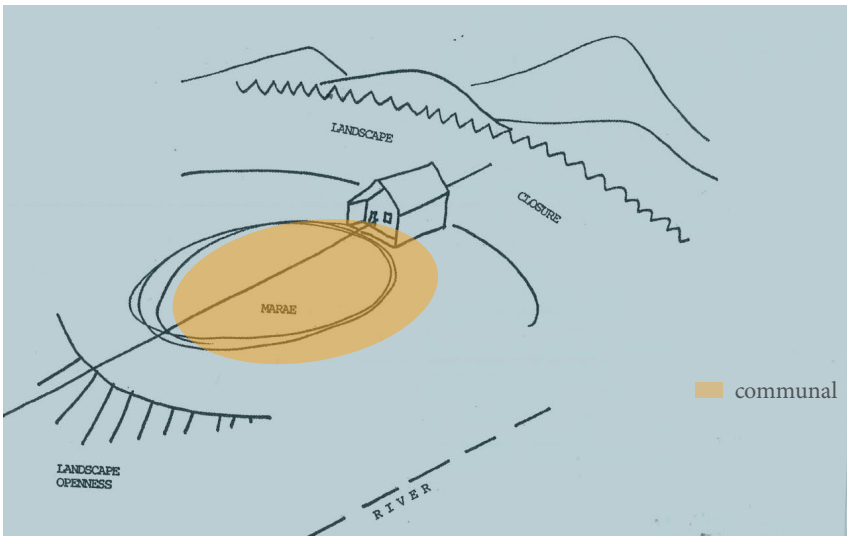


Fig. 2.26 ; diagram of planning organisation of the marae

Stradbroke Island Tourist Park / Partners Hill

key reference: 6

"this strategy placed the landscape itself as the dominant value"

In a project description for a large-scale holiday park project, Tim Hill discusses the approach that was taken to ensure the impact of the development was minimal. The project is located on Stradbroke Island, off the east coast of Australia, and is a pristine environment, a sensitive location for any construction.

The approach was that the typical conventions of holiday housing; views, streetscape, security, dwelling size and neighbour privacy, were put behind the importance of the landscape. The landscape; terrain, planting and prospect, were placed at the top of the hierarchy in the design, and therefore keeping at low-impact on the environment. (Stradbroke Island Tourist Park Project Description)

This serves as a key piece of research, and describes the way in which the coast can still be occupied through temporary accommodation, whilst having minimal impact on the environment. By reordering the hierarchy of conventions for the holiday home, both high density occupation and low-impact can be achieved, via conservation of the surrounding land.

Fig. 2.27 ; Site plan showing clustered buildings within Stradbroke Island Tourist Park

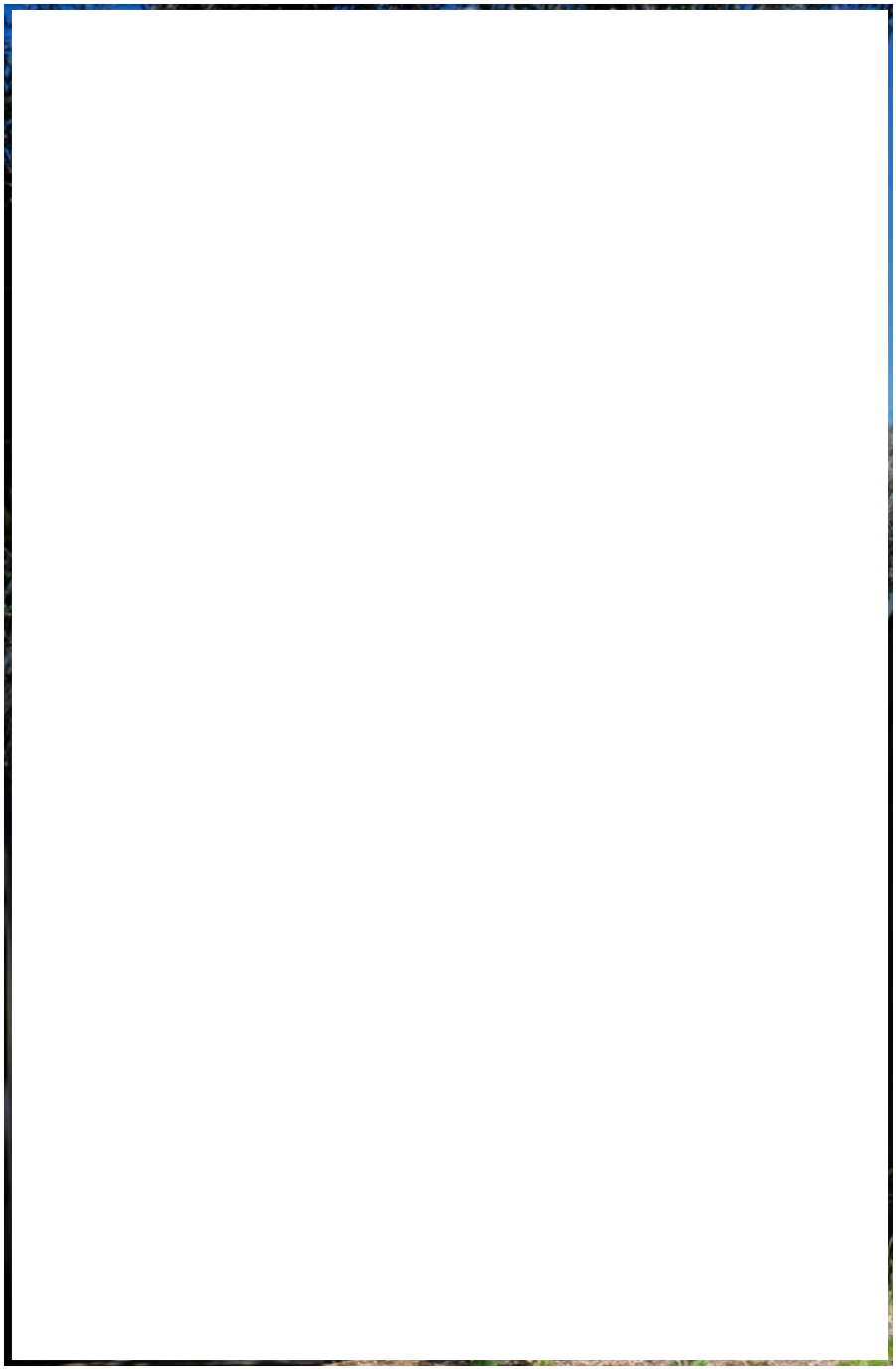


Fig. 2.28 ; This development down plays views, and other typical holiday home conventions, and instead gives hierarchy to the landscape

Community Research

research: the mid scale

Part of this research aims at giving greater access to the coast, and this can be achieved through shared resources and spaces. This is researched through Rural Studio and their generosity to the community, and the impact their communal spaces have had. Campgrounds in New Zealand are also looked at for the wide access that they provide to the public. The potential mix of public and private clients will be investigated in design phase two.

Samuel Mockbee / Rural Studio
Campground research / Damian Collins & Robin Kearns
Perry Lakes Park Restrooms / Rural Studio
Utility Shed / Herbst Architects

Fig. 2.29 ; image of casual transport on Kawau Island

Samuel Mockbee / Rural Studio

key reference: 7

Mockbee is humble; "Don't overdo my unselfishness. I think saints are really self-serving. Not that I'm a saint", (Dean, "Rural Studio" 4). He started the Rural Studio in Hale County Alabama, where he has linked the significant poverty and housing issues of the town, with the expertise and creativity of the architecture students of Auburn University. He believes the architecture profession has ethical responsibility to improve the lives of the poor, and should "challenge the status quo into making responsible environmental and social changes", (Dean, "Rural Studio" 4).

The Rural Studio was founded in the early 1990s and each year houses groups of second-year architecture students, and also those in their fifth year. The studio allows these students to practice architecture in its most practical sense, rather than being "paper architecture". The second-year students are responsible for the design and construction of houses, while the fifth-year students are responsible for the design and construction of a community project.

Mockbee's focus on the improvement of the community through architecture is imperative. Part of the process for the students, was hearing from Teresa Costanzo, who would inform the students on the "county's social needs, about child abuse and why it occurs, welfare and food stamps, so the students could understand the environment they would be working in" (Dean, "Rural Studio" 8).

The aesthetic that has derived from his work, is described;

"*I pay attention to my region; I keep my eyes open. Then I see how I can take that and reinterpret it, using modern technology. We don't try to be southern, we just end up that way because we try to be authentic*" (Dean, "Rural Studio" 9)

After Mockbee's passing in 2001, the Rural Studio was taken over by Andrew Freear, and continues to build and improve the Hale County community to this day. In *Rural Studio at Twenty,* Freear speaks of the importance that the community buildings have on the town, rather than the single dwellings built for individual families. In a section titled 'Building For Many', he states;

"*Of all the changes Rural Studio has made in the last fifteen years, none has been more significant than the shift in emphasis from client houses and small buildings to larger public projects that benefit the education , recreational, and health needs of west Alabama*" (Dean, "Proceed and Be Bold" 90)

These community projects include a fire station, public restrooms, museums, learning centres, and animal shelters. They provide access to facilities for the whole community, instead of giving exclusive access to architecture only to those who can afford it.

Fig. 2.29 ; Fire Station by Rural Studio

Fig. 2.30 ; Fire Station by Rural Studio

This approach serves as a key precedent for the design of the Ridgeline on Kawau Island. By introducing community buildings that are accessible to everybody, there is an accessibility to the coast that would otherwise be an exclusive right for the priviledged few.

New Zealand campgrounds

key reference: 8

In Damian Collins and Robin Kearns' article; *'Pulling up the Tent Pegs?' The Significance and Changing Status of Coastal Campgrounds in New Zealand*, they discuss the importance of the coast to New Zealanders, and why the accessibility of coastal land is crucial to our wellbeing. In particular, and most relevant to this chapter, they discuss the importance of the campgrounds as a ritual that fosters community, and where a respect for the untouched natural environments develops.

Camping allows for '*literal proximity to areas of natural beauty, and a strong sense of being 'in' nature (and, conversely, 'away' from the urban environment),*' (Collins, "Pulling Up The Tent Pegs" 59). It promotes the escape to the wilderness, and evokes the nostalgia of childhood memories of holidays. They highlight that undeveloped coastal landscapes have the ability to stimulate awe, wonder, and a spiritual connection between person and place.

Camping, in its most basic form, can promote community. Particularly because almost 70% of campers prefer to return to the same campground each summer p62. Through this, the same families return each summer, and recap on the year's highlights. They grow up with each other, through the informal ownership of the sites that they revisit. They suggest;

'The camping experience puts tents and other types of temporary and moveable accommodation in (very) close proximity to one another, and provides a transitory sense of community'. (Collins, "Pulling Up The Tent Pegs" 62)

When examining the effects of the closing of Blue Bay campground in Hawke's Bay, one camper says; '*have everyone turn up on your deck and relax and make new friends. That's what this type of camping is all about*' p67. Another camper speaks of the informality of the campground that fosters community, '*no fences, there's no hedges, no one's out mowing their little patch of lawn or whatever*' (Collins, "Pulling Up The Tent Pegs" 67).

Though campgrounds provide the important access to the coast, and are sufficient for many Kiwi's, many in practice still '*prefer higher levels of comfort and facilities*' (Collins, "Pulling Up The Tent Pegs" 73), and this is why it is relevant that both camping, and permanent baches are a realistic opportunity at the Ridgeline on Kawau Island.

Fig. 2.31 ; Ruakaka Domain Motorcamp, Northland, 1966, exhibiting communal spirit

Fig. 2.32 ; Campground's have immediate proximity to the coastline, and are temporary inhabitation

Community Facilities precedent one

key reference: 9

Perry Lakes Park Restrooms / Rural Studio

These restrooms and walkway are part of a larger project of reinventing the Perry Lakes Park in Alabama. There are three individual restrooms, all connected by a main walkway/boardwalk, which is then also connected to a pavilion. The three restrooms are integrated into the landscape that surrounds them; one frames a sky view, one looks out on a single tree, and one is wedged inside a mound (Dean, "Rural Studio" 154).

This precedent looks at the dispersion of the ablution facilities, and how they can exist as small dwellings, rather than big, obtrusive ablution blocks. Also, its connection to the boardwalk and therefore the larger development, whilst still having small impact on the actual landscape, is key. This idea will be tested in the design of some of the shared facilities later in this chapter.

Fig. 2.33 ; boardwalk connecting three restrooms within landscape

Community Facilities precedent two

key reference: 10

Utility Shed / Herbst Architects

This shed presents the absolute minimum ablution requirements in a camping situation. A shower, toilet, and a simple kitchen; gas cooker, a sink, simple shelves and minimal bench space. The timber framing is left exposed, with the shelves mimicking the framing geometry. A corrugated plastic wall comes down to close this kitchen up, which can then be opened up and held up with steel poles to act as a canopy during use.

This precedent is exemplary in exhibiting the minimal facilities needed, excluding sleeping, in a holiday environment. This idea will be tested in the design further in this chapter, through the community facilities design.

Fig. 2.34 ; fold-out wall shows small kitchen facilities

Research to inform Developing Bach Designs

research: the smaller scale

The main purpose of this research is to be low-impact, which can be largely achieved through the baches themselves, and their construction. This chapter explores the single dwellings, what has developed the ideas behind these, and how they would be constructed in such a difficult location.

Miro Road House / Vaughn McQuarrie
Hut On Sleds / Crosson Architects
Motu Kaikoura / Strachan Group Architects
iPad / Andre Hodgskin

Fig. 2.35 ; an iconic Kiwi bach on the coastline at Kawau Island

Miro Road House / Vaughn McQuarrie

key reference: 11

This house is on Waiheke Island, and presents a contemporary example of a hut in the bush. It is only 70m^2 with three bedrooms. The architect describes the simple planning; "*The lower level is more informal, somewhat like a camp, with sleeping cabins, a shower, and cooking area linked by a central deck*" (Feather). The simplicity, materiality and condensed size refers to the original bach, yet the practicality and sleek design add a contemporary twist.

By making it two storey, and by creating direct indoor-outdoor connections, there is a strong parallel to the surrounding bush. Large windows and decks provide spaces to admire the outdoors, and with the height given to the house, there is a feeling of being immersed in nature.

This site presents similar conditions to those of Kawau Island. By elevating the house, it immerses itself in nature and gives privacy to the interior. The use of large windows, and two-storey will influence the bach designs in this project. This example is close to a bach, without the direct relationship to the coast, rather, it is a bush house, sited in a context similar to the ridgeline on Kawau.

Fig. 2.35 ; large openings toward the bush

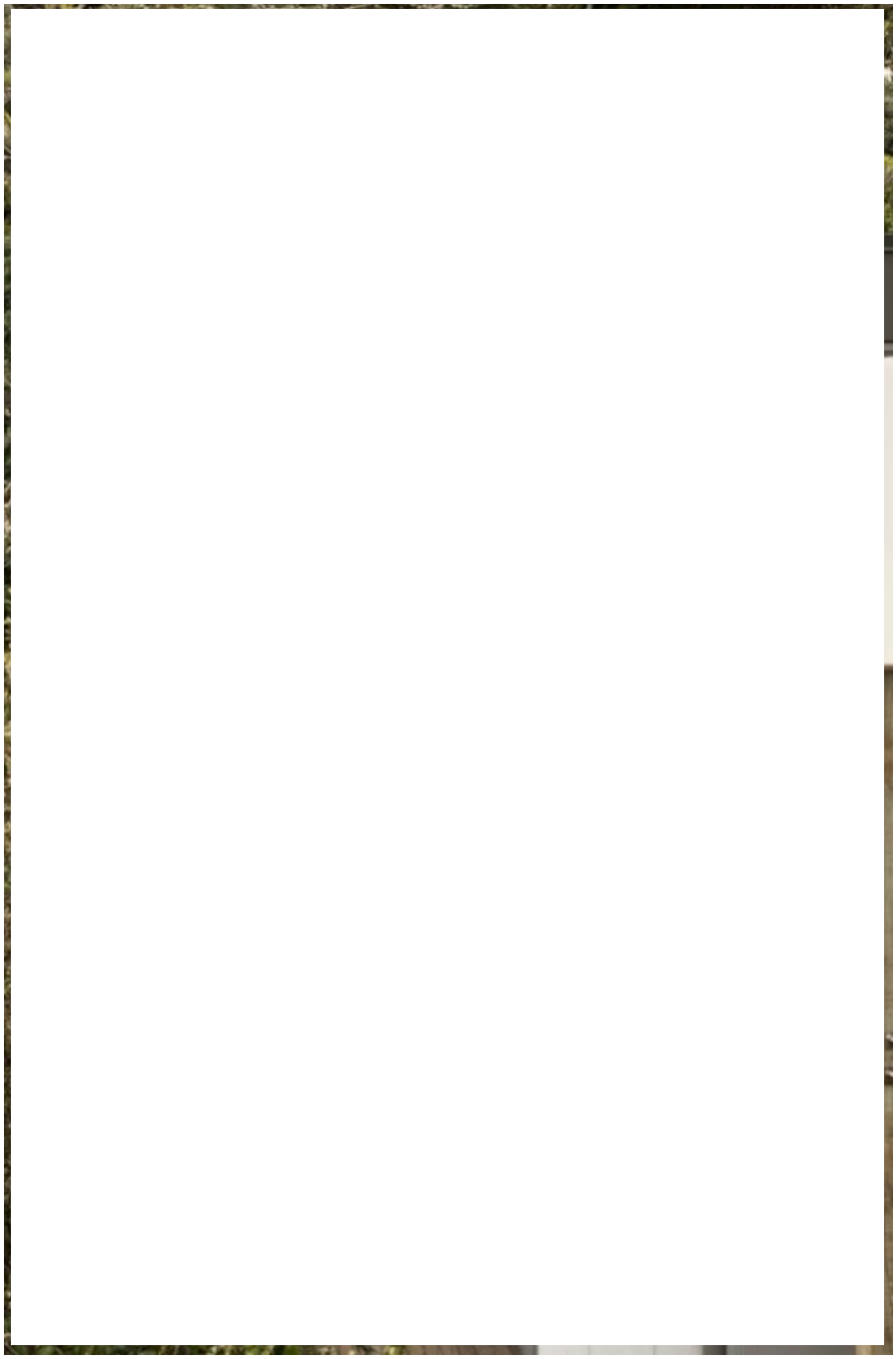


Fig. 2.36 ; two-storey giving elevated views to the bush

Hut On Sleds / Crosson Architects

key reference: 12

This bach, situated in Whangapoua in the Coromandel, is perhaps the most relevant architectural precedent of a contemporary bach in this research. It has a small footprint of 40m^2, while accommodating enough room to sleep a family of five. It is self-containable; with '*rain-catchment tanks, a worm-tank waste system and separate potable and grey-water tanks*' (*Hut On Sleds*). It sits lightly on the sand dunes, and due to its position in the coastal erosion zone, it is designed on two wooden sleds so that it is [re]moveable. (*Hut On Sleds*)

Its natural aesthetic, and ability to close up into a simple box when not in use, is part of what makes up its low-impact aesthetic. The bach is small, and every space is used wisely, such as the three-tiered bunkbeds in the childrens room. The double height space in the living space, with a mezzanine bedroom allows for less site occupation.

These are all aspects that will be reflected in the design of baches in this phase. Particularly, living spaces that face a deck, with bedrooms and service spaces concentrated toward the back of the volume.

Fig. 2.37 ; a simple form and natural materials lending to its low-impact aesthetic

Fig. 2.38 ; the tractor showing its ability to move off the sand, if need be

Motu Kaikoura / SGA and Architecture + Women

key reference: 13

A key precedent project is the Motu Kaikoura community centre, design by Strachan Group Architects, and constructed as an educational project by sixteen female architects. The building replaces a community centre that was destroyed by arson. It is located on a protected scenic reserve, part of Kaikoura Island just off the coast of Great Barrier Island. It houses flexible spaces that can serve living, dining and cooking, with an outdoor deck.

The difficulty of the transportation of the prefabricated parts to site was a design driver, as well as the ease of building of the parts by the team of women. The prefabricated parts were constructed in the SGA Workshop in Auckland, then transported to site via barge and helicopter. It was then assembled on site in a just a few days.
(*Motu Kaikoura*)

This is a relevant precedent to the construction of the project on Kawau Island, as the sites present similar conditions in terms of transport. The prefabricated parts, the materiality, and the simplicity of the design, are aspects that are explored through Project Two design.

Fig. 2.39 ; prefabricated parts being helicoptered into place

Fig. 2.40 ; prefabricated parts being lowered into place

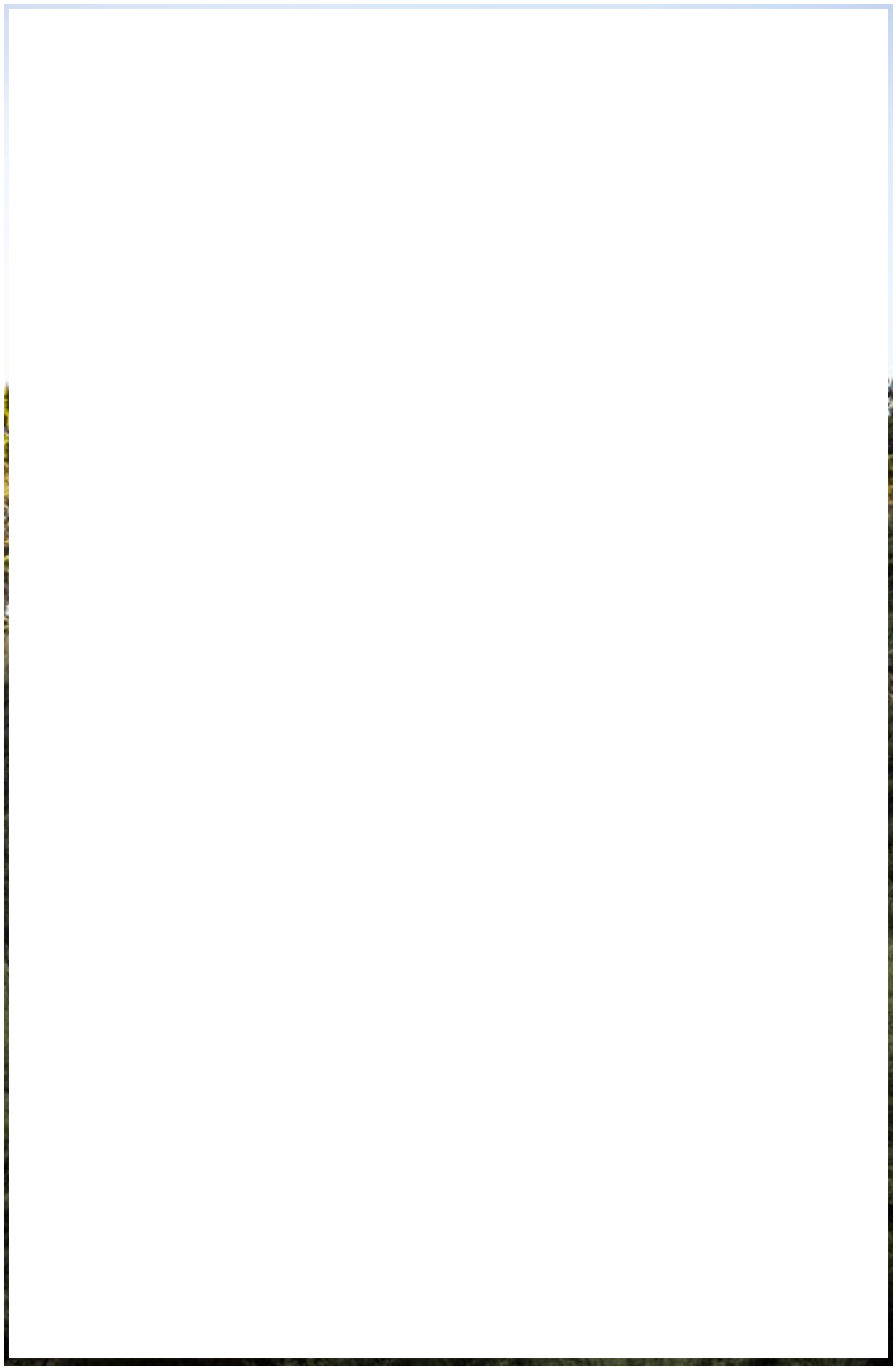


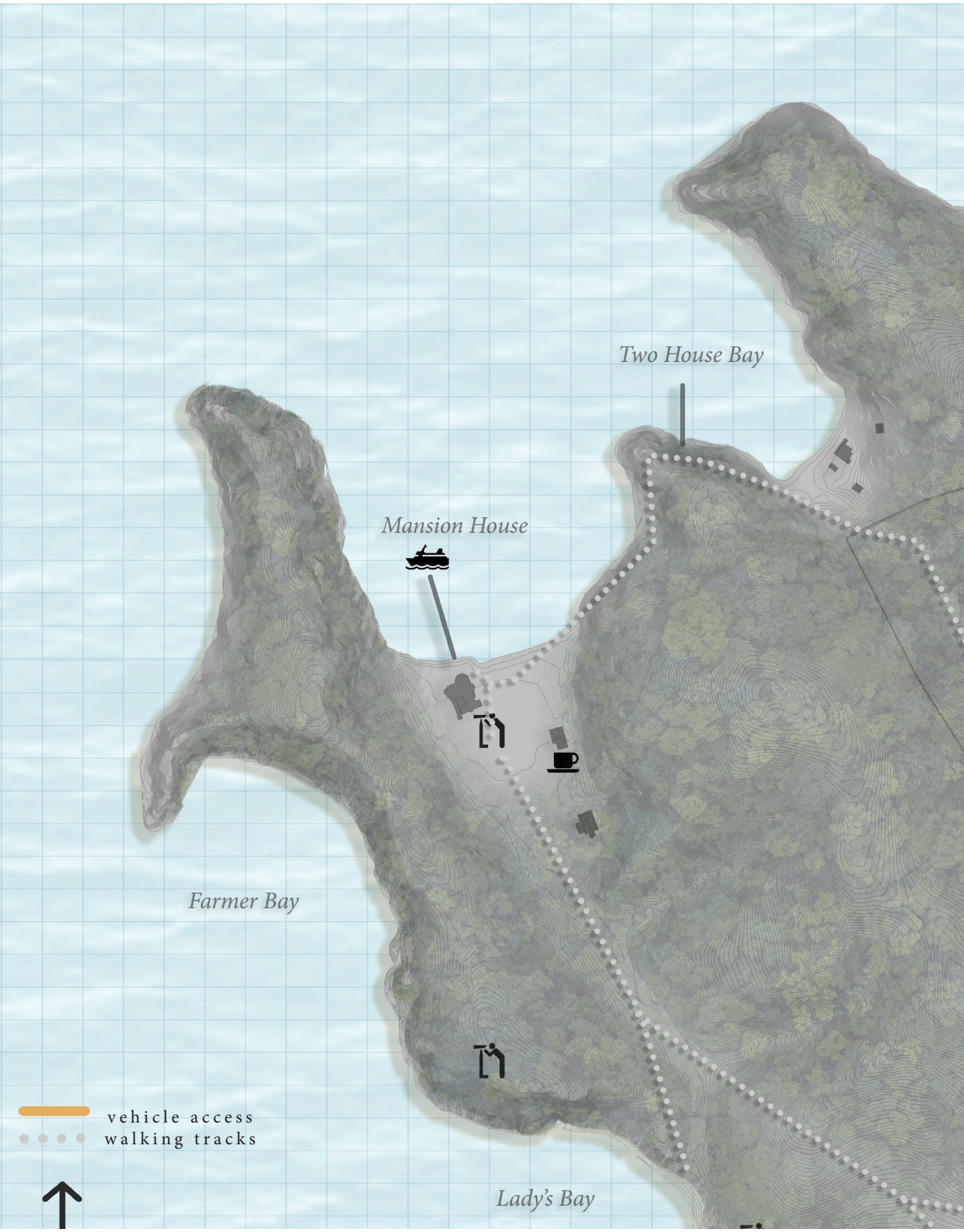
Fig. 2.41 ; large openings giving views outward towards the sea

Project Two

Inhabiting The Ridgeline

This is the part of the design phase where the three scales of investigation combine to create an integrated development. The research for design in the previous section informed the design through all three scales. There are bunkrooms, ablutions and baches combined to create a mindful development on the ridgeline.

Fig. 2.42 ; 3D View from Project Two, showing boardwalk and facility buildings


Two House Bay
Mansion House
Farmer Bay
vehicle access
walking tracks
Lady's Bay

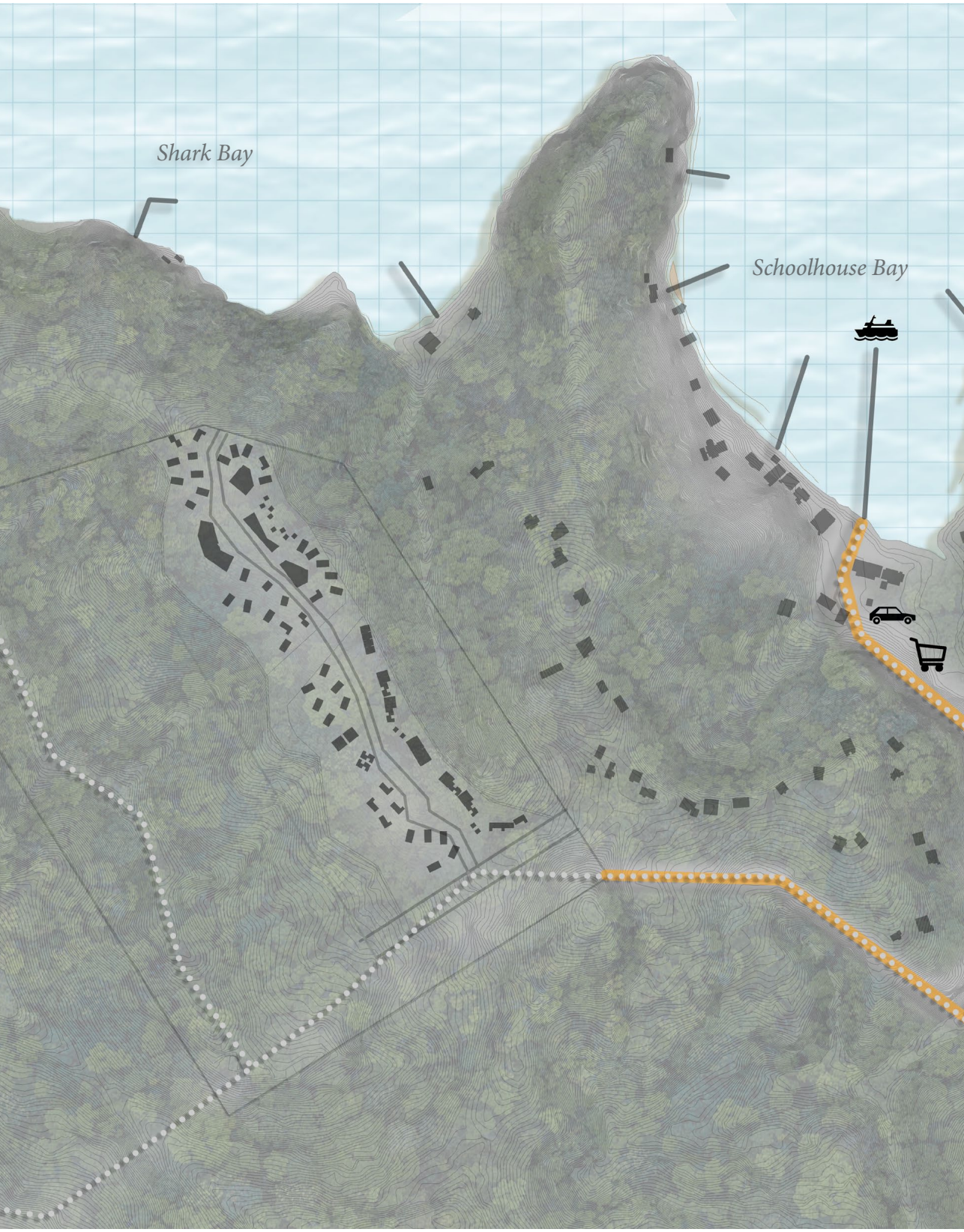


Fig. 2.43 ; Site Plan of Project Two at 1:5000, showing context of design to existing baches, roads, walking tracks, sea, and amenities

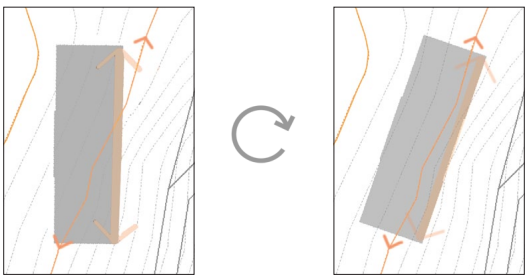
The Ridgeline

Boathouse Bay and the North Island campgrounds serve as examples of how to mindfully divide the land of a coastal site, in order to accommodate for many individual plots, or dwellings. They both follow an internal road or access, and are in rows, with small clusters within that. The houses typically face seaward, or toward the views, and have their backs to the internal road.

However, these precedents are on flat sites, with direct relationship to the sea or lake adjacent. Kawau Island is rather steep, and the subdivision is inland from the sea (10min walk). Though there are differences in the site conditions, the principles from these precedents can be implemented in the planning of the site, in order to create a mindful development.

This figure ground shows an initial masterplan, using the previous research to inform the internal road/access, the general rows of dwellings, and the small clusters that sit within the rows. This is testing a similar strategy to that at Boathouse Bay by Crosson Architects, NZ campgrounds, and common space focus seen in Samoan malae and Maori marae planning. The central path is along the top of the ridgeline, with four areas coming off this central access way.

There are baches, but also dwellings for public use; bunkrooms, ablutions and tent shelters (which were later removed). The individual dwellings were all aligned to the topography beneath them, as illustrated below. This allows for simpler buildings, and a better connection to ground, as the outdoor space is evenly connected to ground in terms of height.



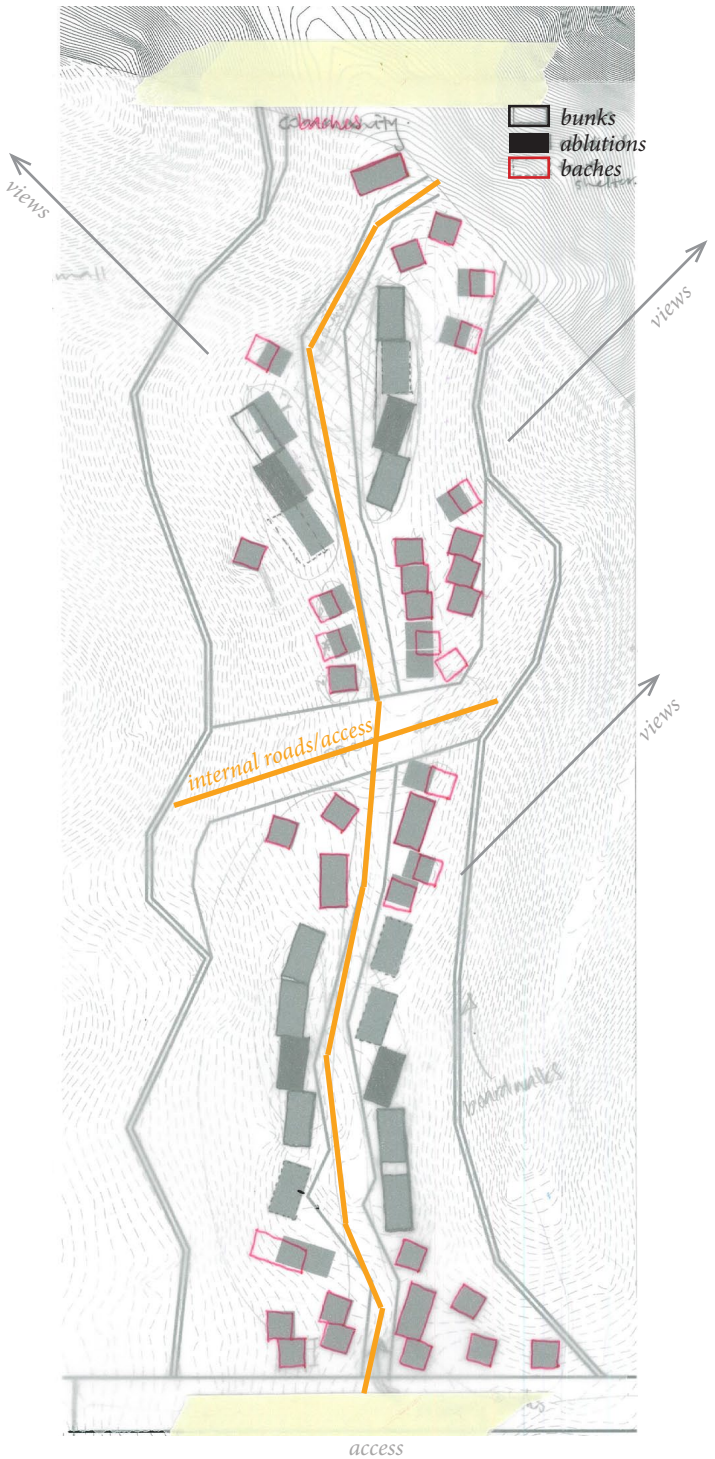


Fig. 2.44 ; development of site plan

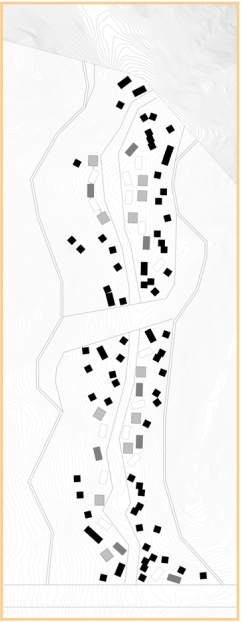
main massing

dwelling variance

clustering

density

populating



scheme one

Fig. 2.45 - 2.50 ; several site variations were tested

Scheme One ;

This figure ground was the chosen scheme that was developed further through design detail. It has varied building types, with some areas more dense than others, and buildings generally clustered toward the main access path.

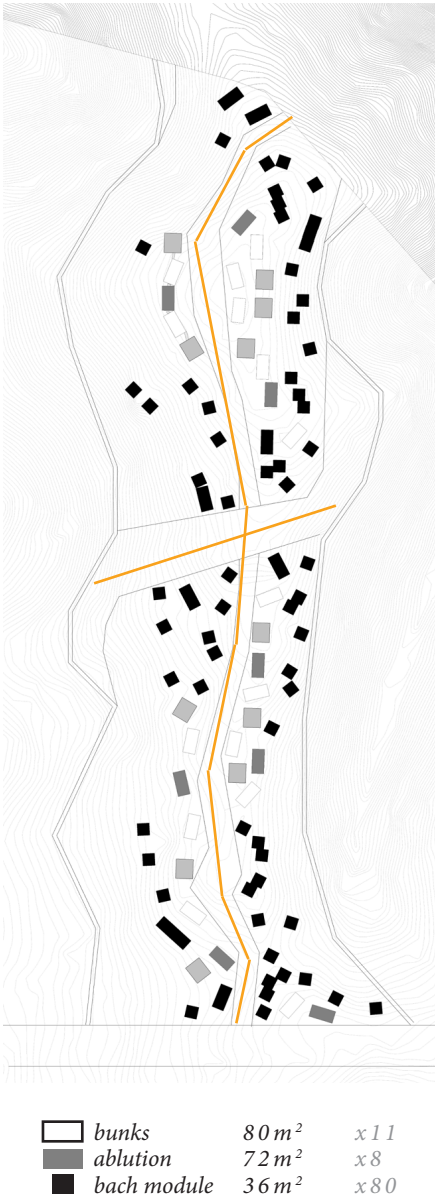


Fig. 2.51 ; scheme one figure ground plan

The In-Between

Connecting the baches, bunkrooms and ablutions creates a physical connection between dwellings with different occupiers, creating potential for contact, and a community to emerge. The siting design investigations resolved a figure ground plan, and connected the dwellings via timber decking. This process allowed investigation into the degree of connectedness that the dwellings could have, and the different qualities this would create.

I found that connecting too many structures together, there is a lack of intimacy and community between dwellings. The boardwalk becomes too long in that it links everybody, rather than creating smaller communities within. Similarly, enclosing the buildings with a path creates an enclosed feeling for the centre dwelling, which is undesirable because it comprimises privacy. By creating paths that connect the buildings whilst not enclosing any, there is a sense of connection whilst still allowing individual outdoor space and some privacy.

Increased research into different approaches to clustered siting was then undertaken as a means to inform the siting design qualities.

Fig. 2.52, 2.53, 2.54 ; several pathway variations were tested

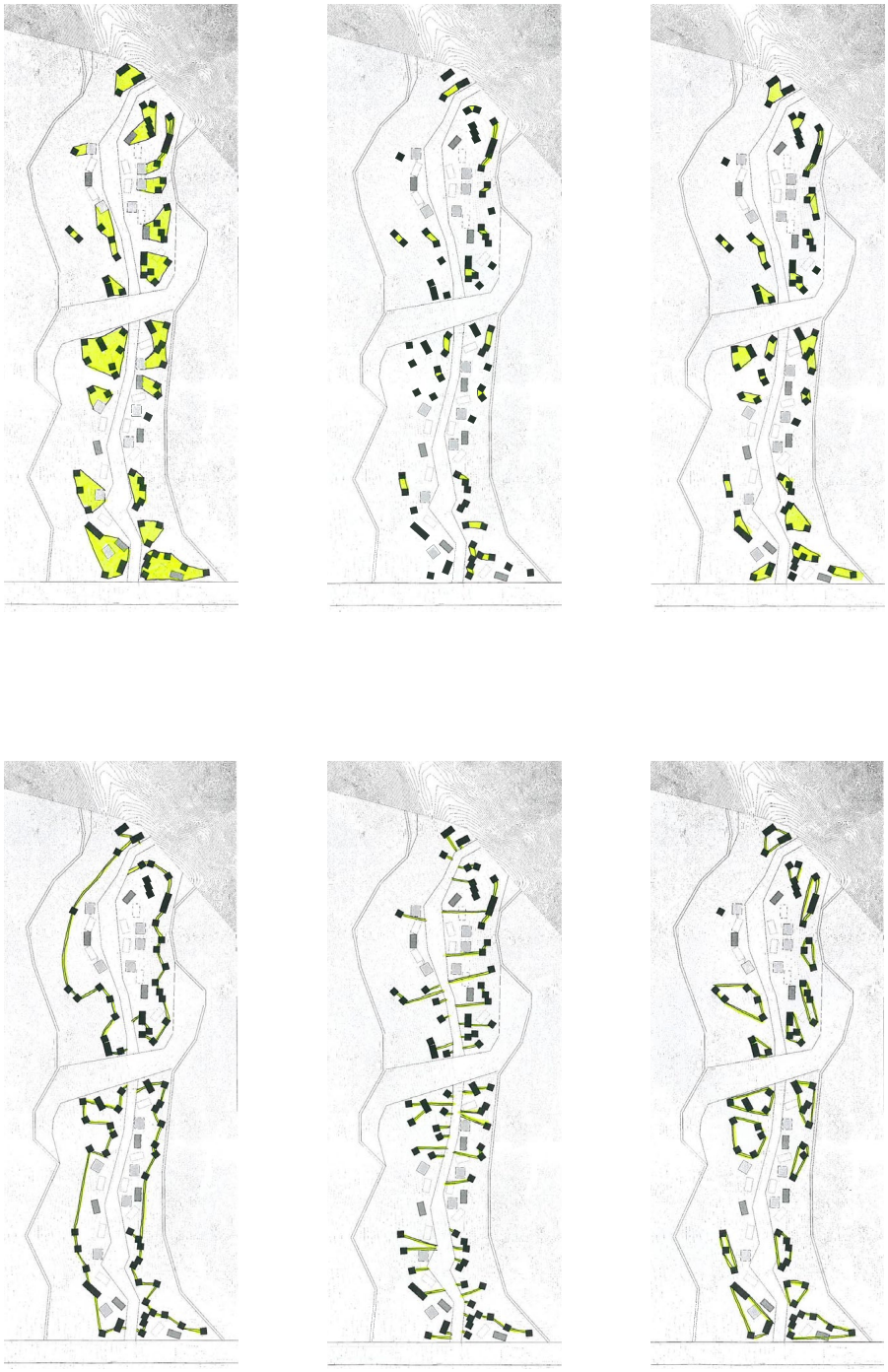


Fig. 2.55 - 2.60 ; several pathway variations were tested

Site Planning Precedents

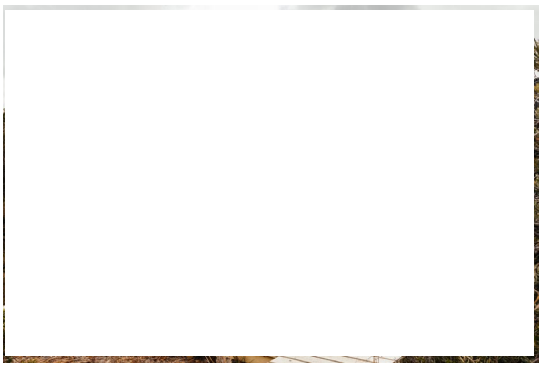
key references: 14-17

Centralised

Fig. 2.61 and 2.62 ; Awasi Patagonia Hotel / Felipe Assadi + Francisca Pulido

This hotel has a central building, where the reception, restaurant and shared facilities are based. Then, the hotel rooms are dispersed around this central building, touching lightly on the landscape.

Clustered



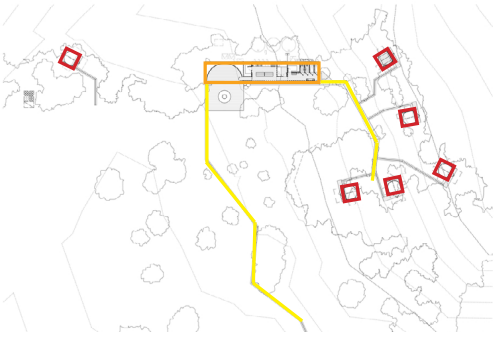


Fig. 2.63 and 2.64 ; Krakani Lumi / Taylor and Hinds Architects

This camping hut has a central building, with cooking, dining and bathroom facilities, with small sleeping pods that are clustered off the central building. The boardwalk links all the buildings together.

Dispersed

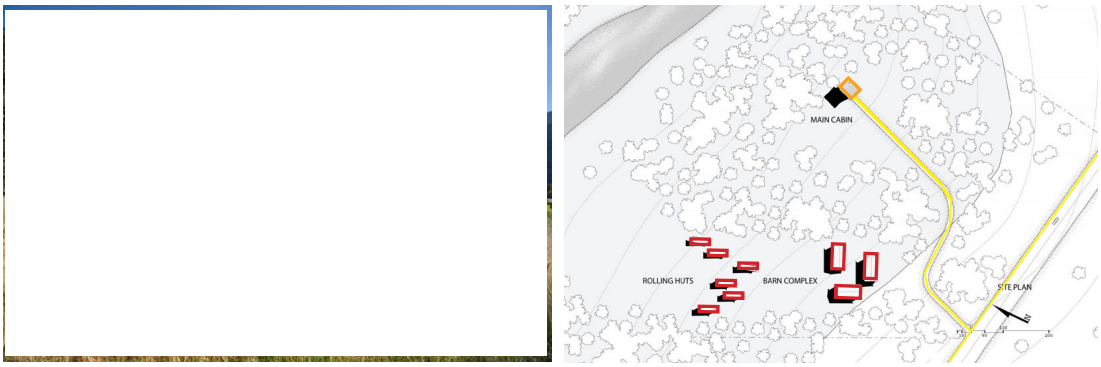


Fig. 2.65 and 2.66 ; Rolling Huts / Olson Kundig Architects

This precedent has a main cabin, with some huts, and barns dispersed off in terms of scale. The buildings are grouped in order of scale and program.

Densified

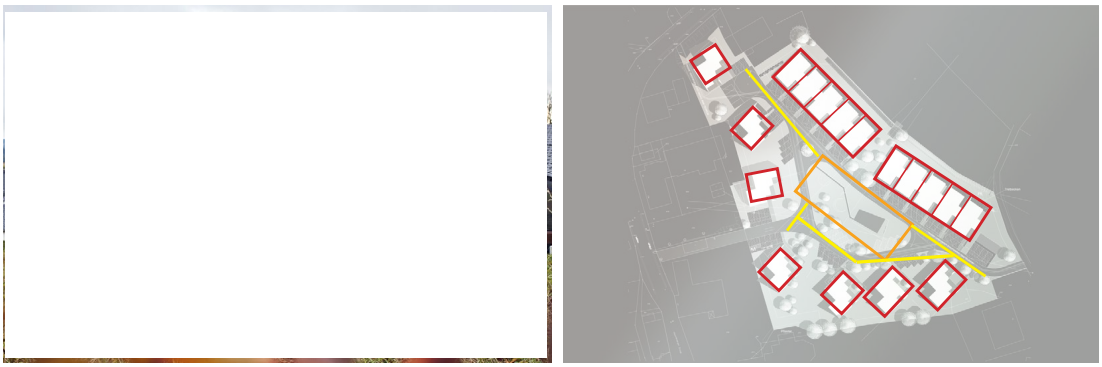


Fig. 2.67 and 2.68 ; Villas Winterberg / Third Skin

This complex consists of a communal, central space in the centre, which the houses then disperse off. The dwellings are dense, in terraces, therefore reducing overall footprint and exterior skin.

Centralised

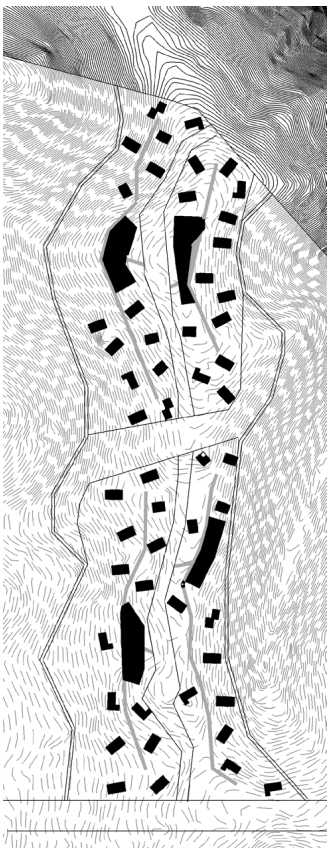


Fig. 2.69 ; figure ground of centralised planning

Works well on wider sites

Works well on steep areas

Clustered

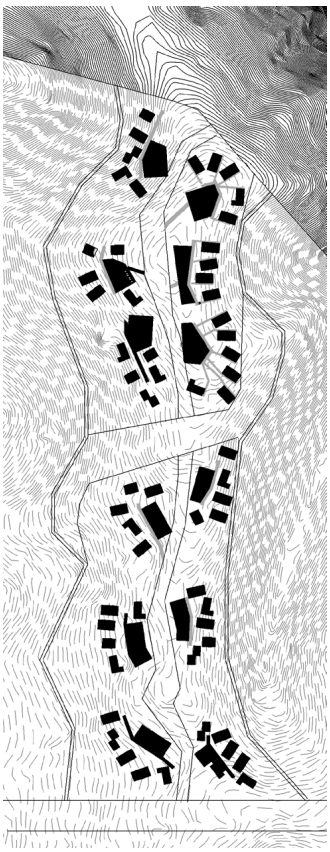


Fig. 2.70 ; figure ground of clustered planning

Good for flat areas: public and private areas closeby

Doesn't work on elongated areas; the clusters get too condensed

Dispersed

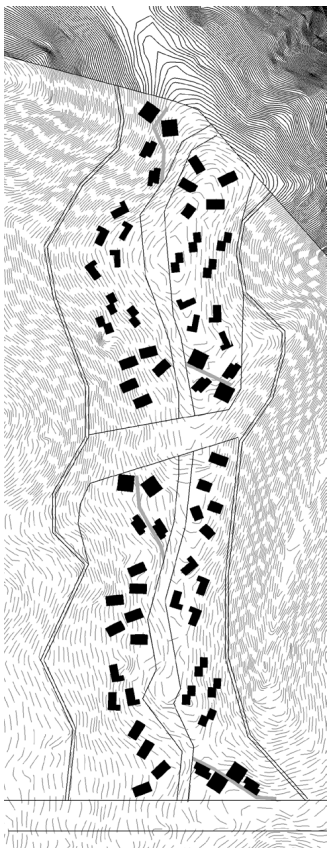


Fig. 2.71 ; figure ground of dispersed planning

Doesn't work on long sites: too far to walk from bach to communal

Communal buildings should be centralised for increased use

Densified

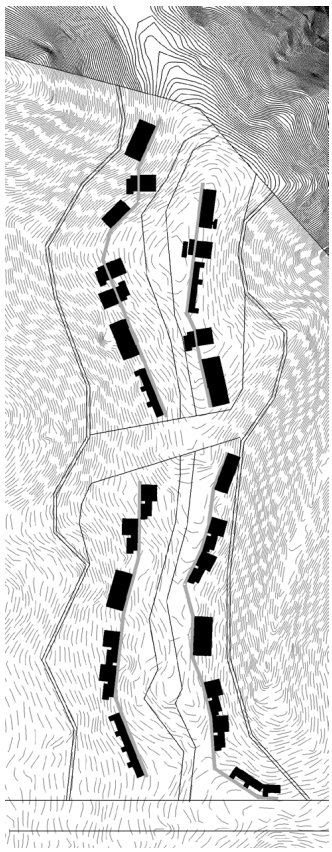


Fig. 2.72 ; figure ground of densified planning

Good for long, narrow sites, with dense terrace rows

Works well on long flat areas

Area 1 - Centralised

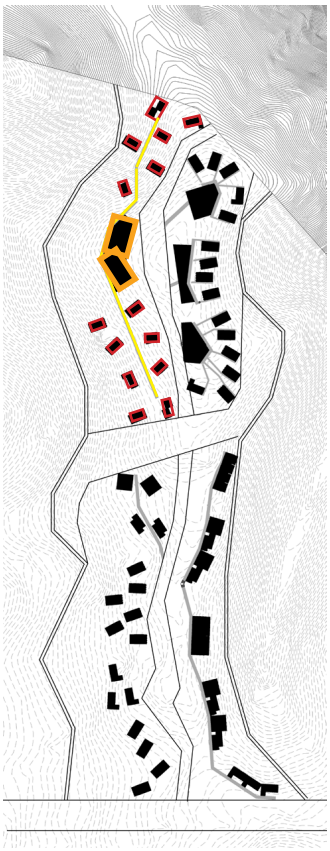


Fig. 2.73 ; figure ground highlighting centralised planning

This planning type worked best on ***wide, steep areas***. This is because the central boardwalk is able to step down, meaning it can be central around the communal area, then step down to suit the individual baches. The communal area is not in close proximity to the baches, so there does not need to be close vertical relationship.

Area 2 - Clustered

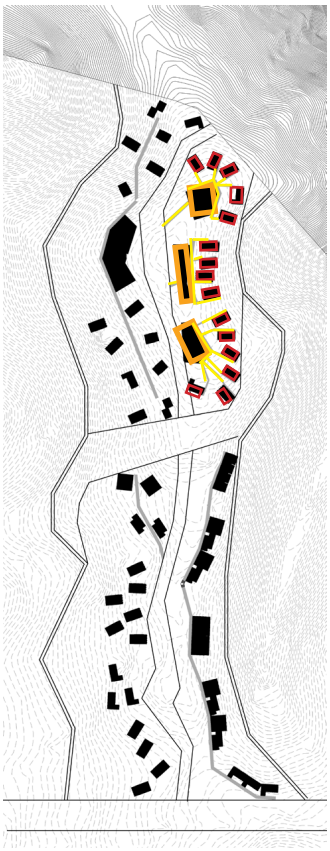


Fig. 2.74 ; figure ground highlighting clustered planning

This planning type worked best on ***wide, flat areas***. This is because the communal areas are in close proximity to the individual baches, and so to have them on a similar vertical platform is important. By keeping this on a reasonably flat site, there is a strong connection between the public and private spaces, which enhances community.

Area 3 - Dispersed

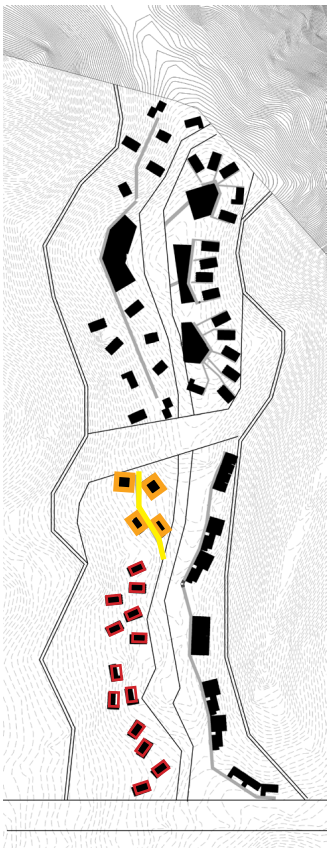


Fig. 2.75 ; figure ground highlighting dispersed planning

This planning type worked best on ***short areas, with communal buildings centred***. This is due to the dispersion of the baches, there needs to be a short walking distance to the communal buildings. If the communal buildings are too far too walk, it is impractical.

Area 4 - Densified

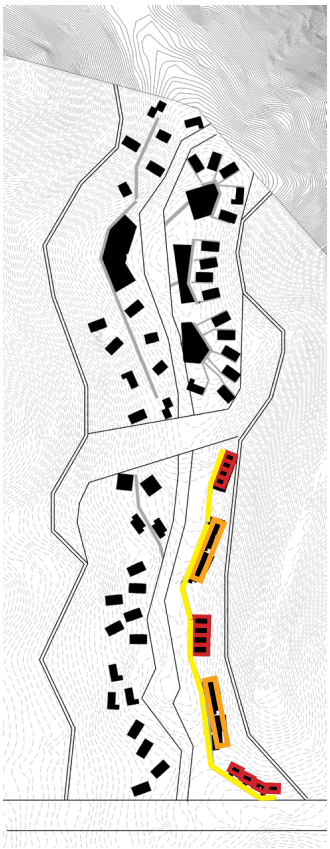
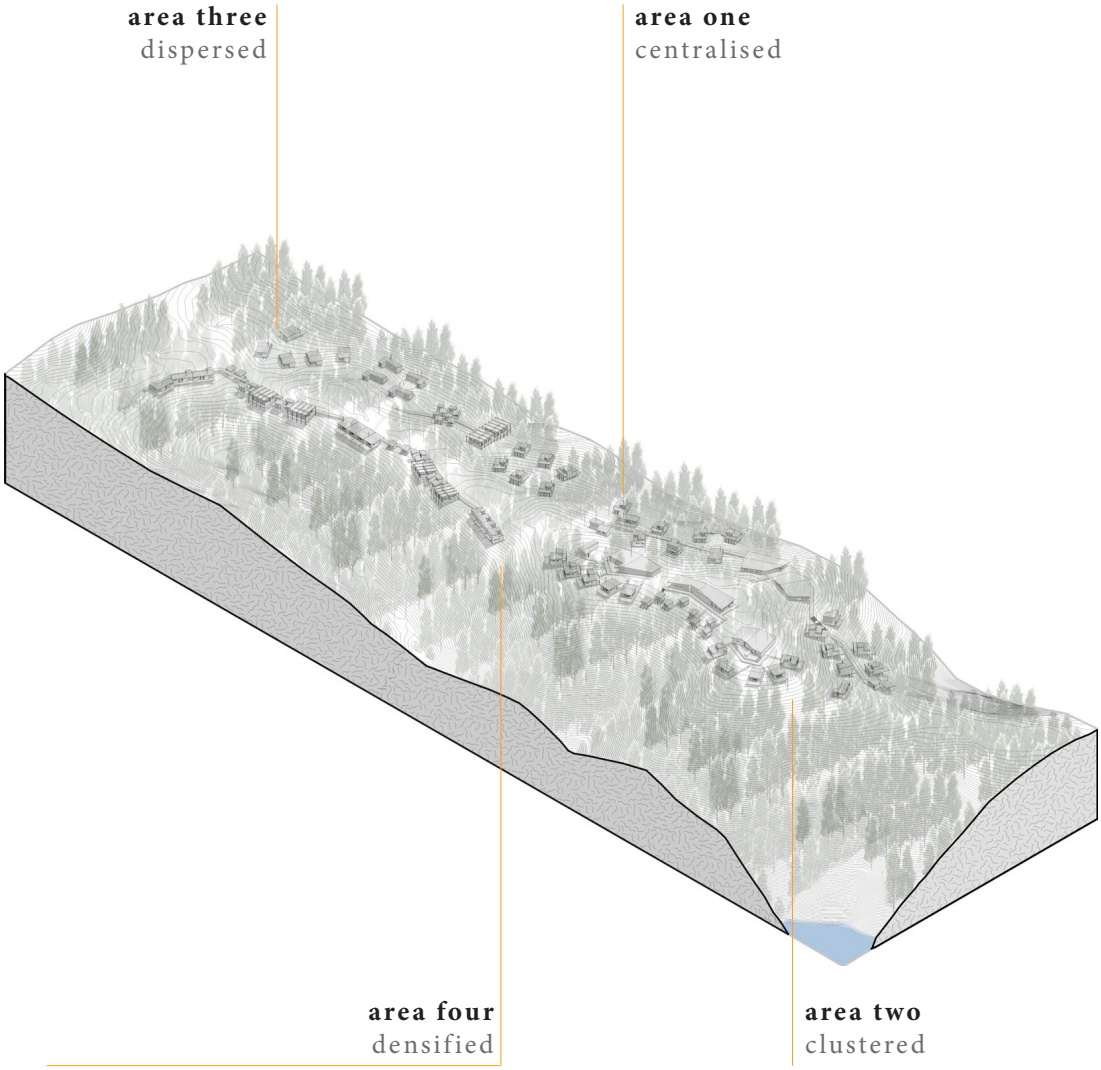


Fig. 2.76 ; figure ground highlighting densified planning

This planning type worked best on ***long, narrow, steep areas***. This is because the baches, and communal buildings, are able to be clustered along a boardwalk, which can vary in height between clusters. By densifying the buildings in scale, there is a concentration of buildings that relates to the slope itself.

Fig. 2.77 ; resolved Figure Ground site plan of Project Two

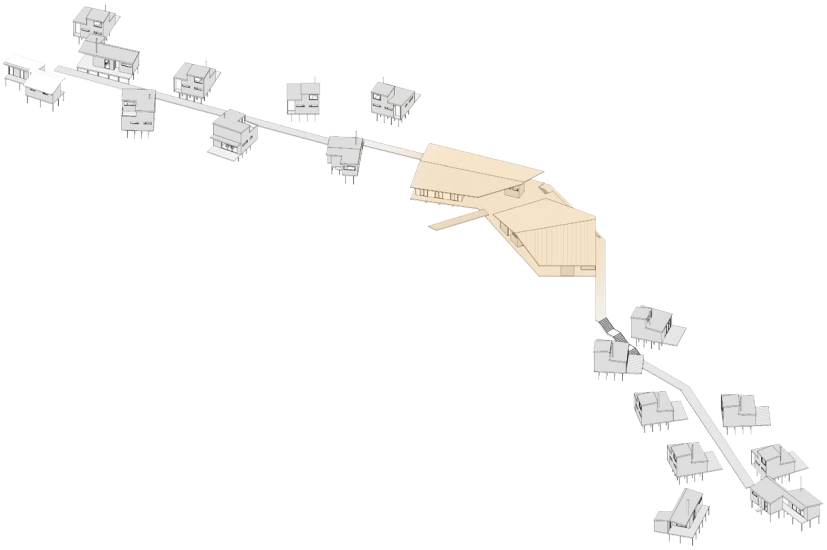


These drawings illustrate the Ridgeline as a whole, where the four areas are separate and each represents a different planning strategy. This gives some structure to the way that the four clusters are sited. They respond to their part of the land differently, and react to exterior factors such as access, privacy, sunlight, and views. Areas One and Two are closer together, with the central buildings looking outward from the ridgeline. However, due to the stretched nature of areas three and four, these communities wrap around buildings less, so they are more individually private.

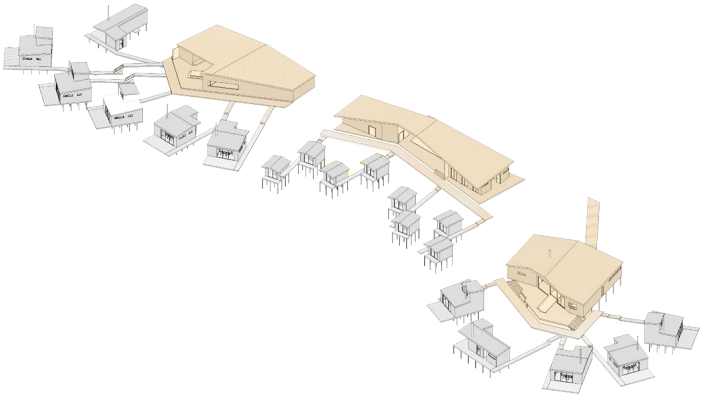
Fig. 2.78 ; isometric showing four areas

Isometrics of planning strategies

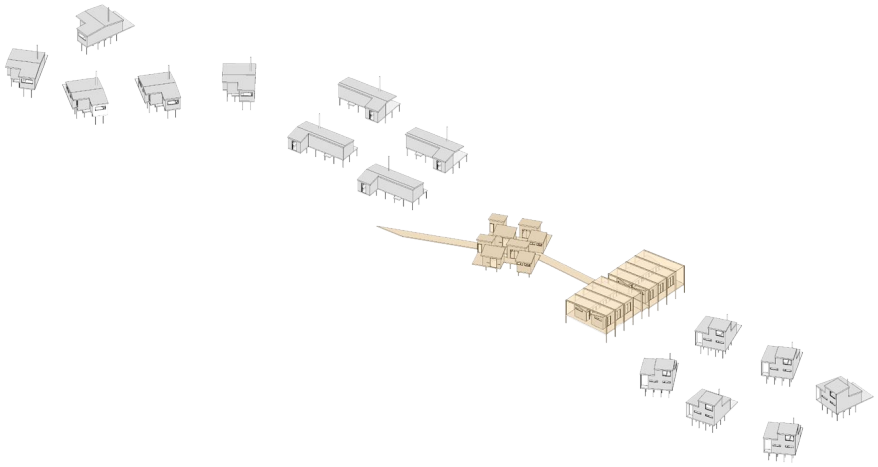
communal building



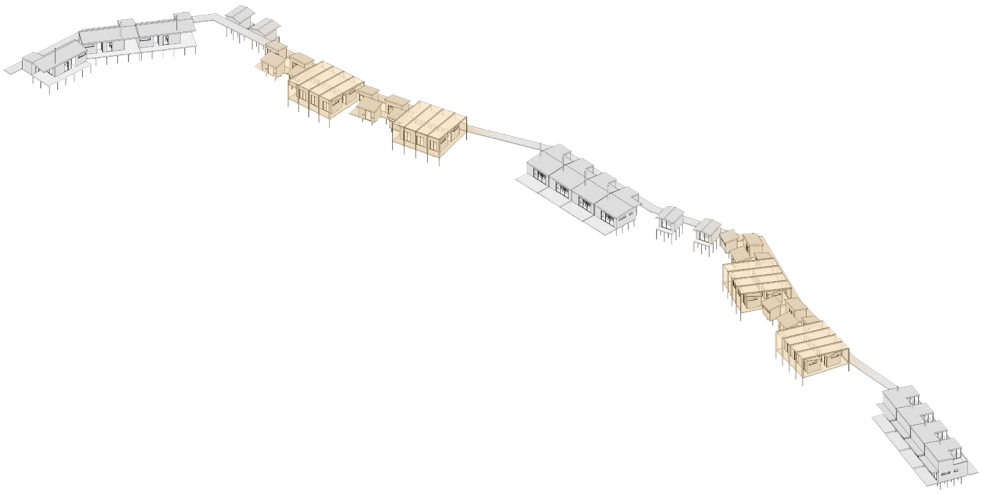
area one
centralised



area two
clustered



area three
dispersed



area four
densified

The development of some elements of the design were influenced by the construction and transportation required. These particular parts of the design look at how services could be condensed and limited to service walls, that would be transported to site more easily than if they were separate parts. The use of prefabricated parts means that less time will be spent on construction on site, therefore less impact on the site itself. The use of a service wall also restricts the amount of plumbing services that would interfere with the landscape.

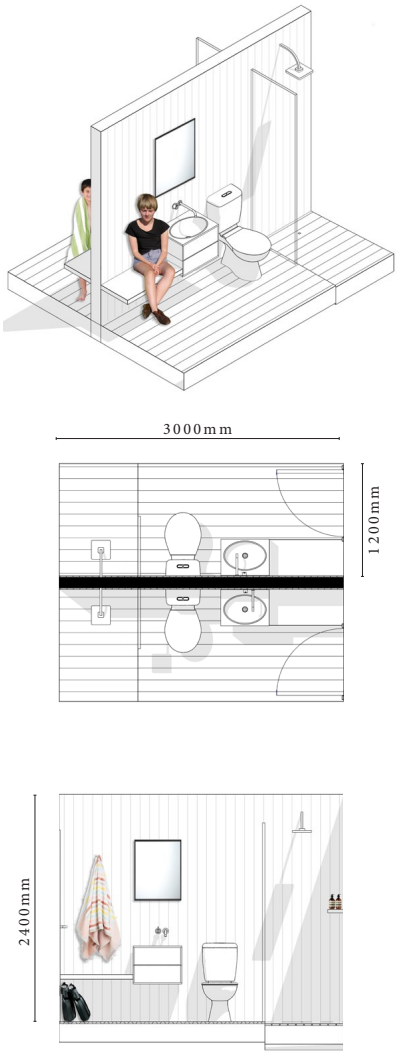


Fig. 2.79 - 2.81 ; this acts as a bathroom wall that could be prefabricated and taken to site, used in the communal campground buildings to service two bathrooms on either wall side

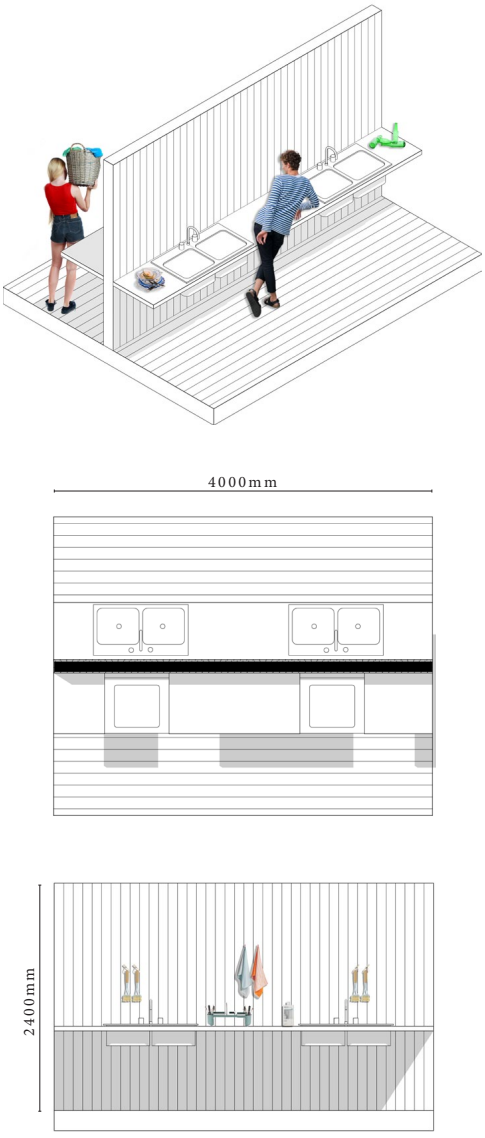
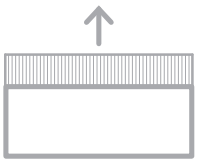


Fig. 2.82 - 2.84 ; this wall is implemented in the communal buildings, which houses laundry services on one side, and kitchen sinks and bench top on the other side

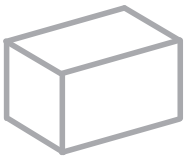
Bach Design Strategies

The design of the four bach typologies was influenced by earlier bach designs in Project One, and also by further research done in Phase Two. The eight design principles below were all central to the design of each, these are taken from Project One and all found to still be relevant in this scheme.

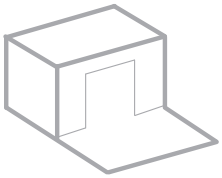


north verandah
enjoying the summer sun, time is spent outdoors

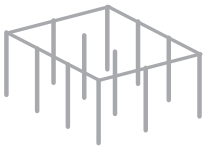
small
modest in size for affordability, and uncommon to show affluence



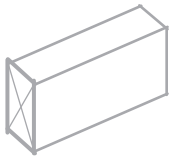
simple form
uncomplicated dwellings, often built by the owners



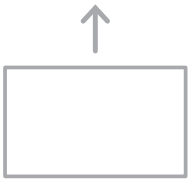
fluid indoor outdoor threshold
summer dining and living flowing between indoor and outdoor



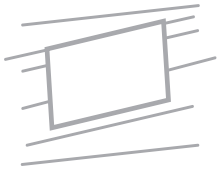
on piles
touch the land less, and more gently



timber framed
low embodied energy, and easy to transport to site, so less site impact



orientated north
make the most of passive sunlight and heat through orientating toward sun



parallel to contours
no excavation needed if dwellings sit along contours, being sympathetic to land

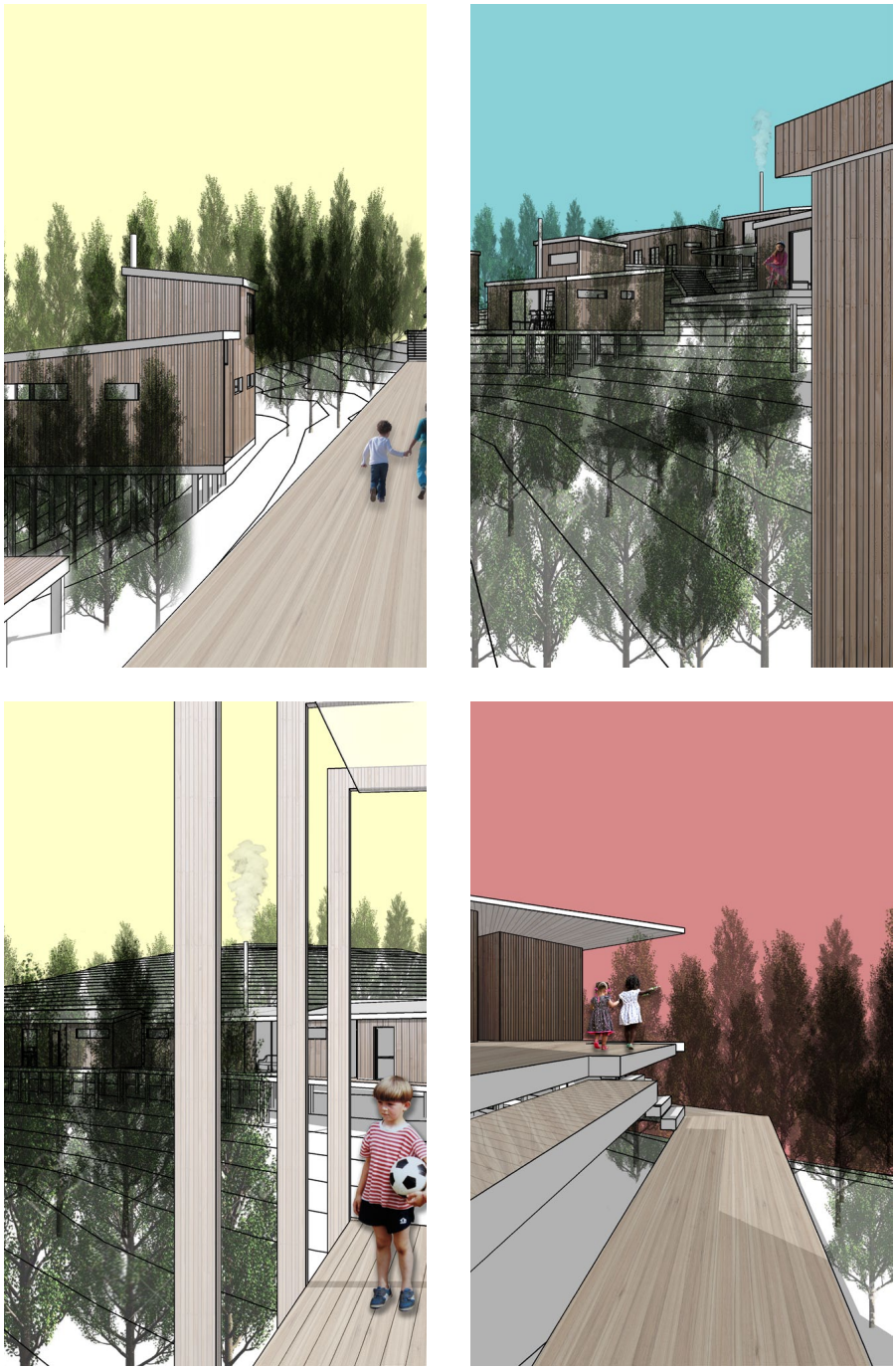


Fig. 2.85 - 2.88 ; 3D views of boardwalks, baches, and communal facility buildings

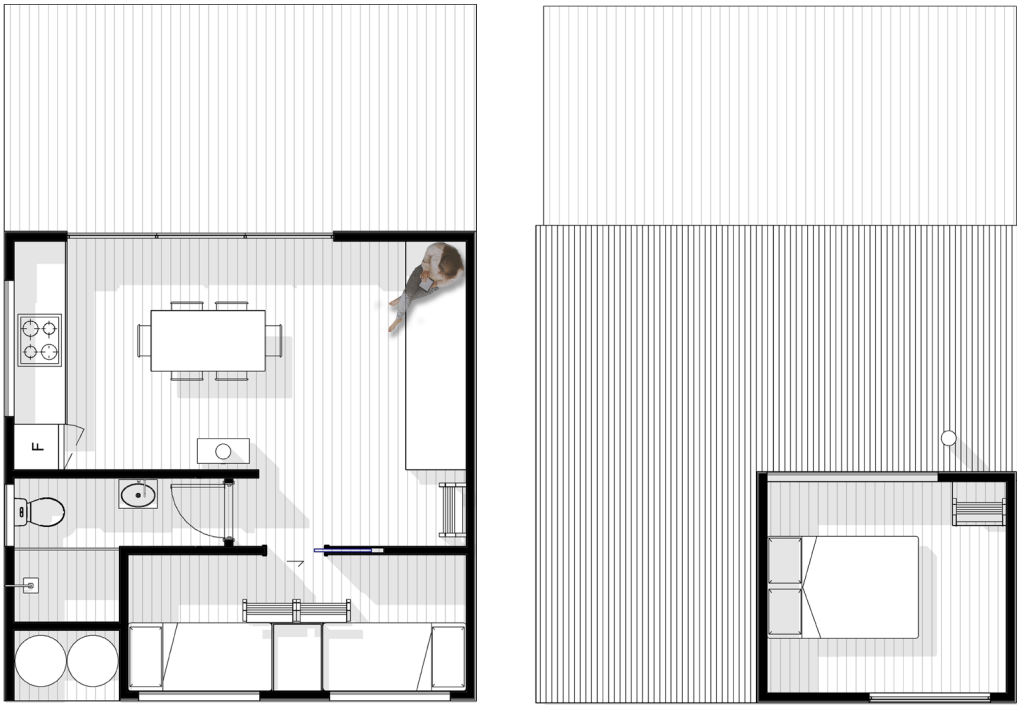


Fig. 2.89 and 2.90 ; floor plans at 1:100; lower floor and upper floor

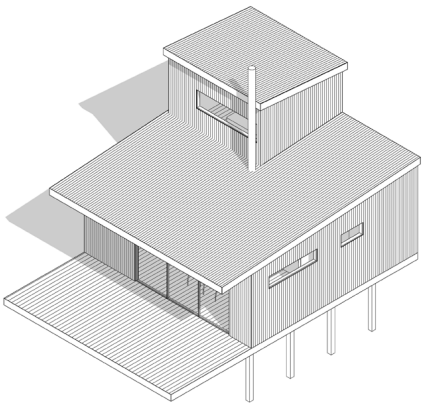


Fig. 2.91 ; isometric at 1:200

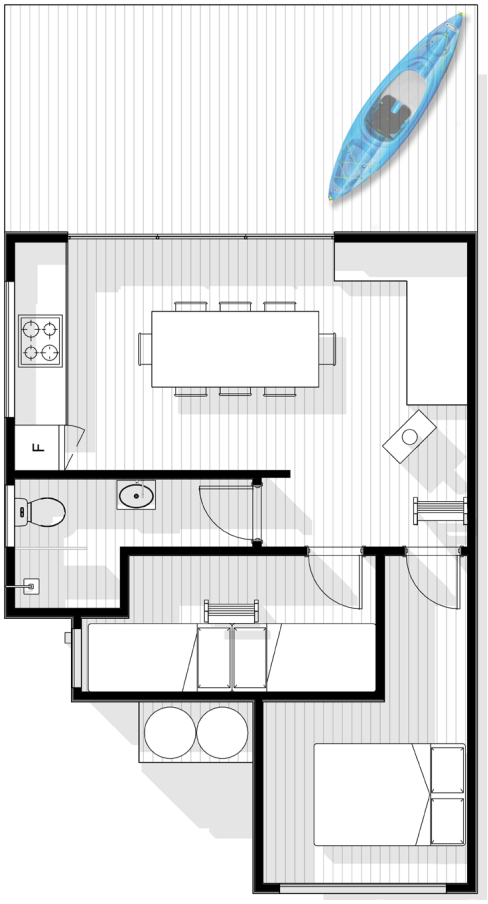


Fig. 2.92 and 2.93 ; floor plan at 1:100

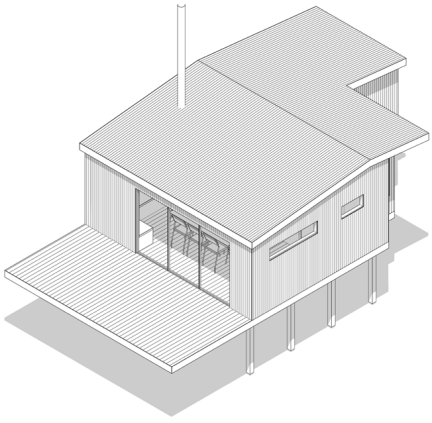


Fig. 2.94 ; isometric at 1:200

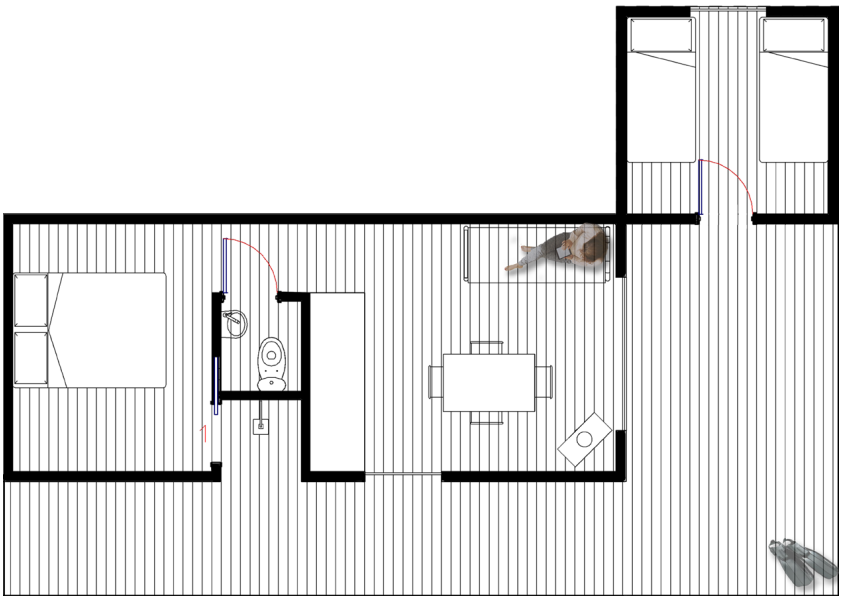


Fig. 2.95 ; floor plan at 1:100

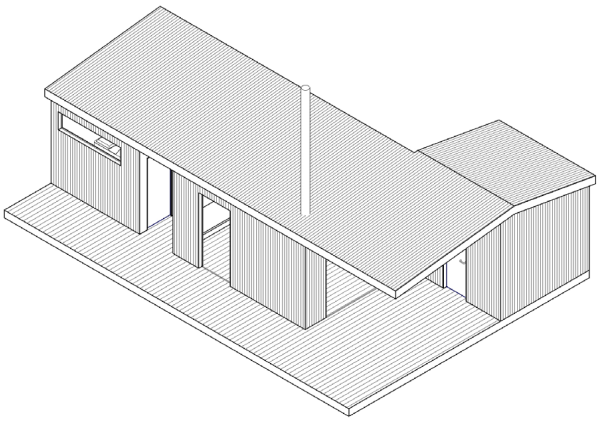


Fig. 2.96 ; isometric at 1:200

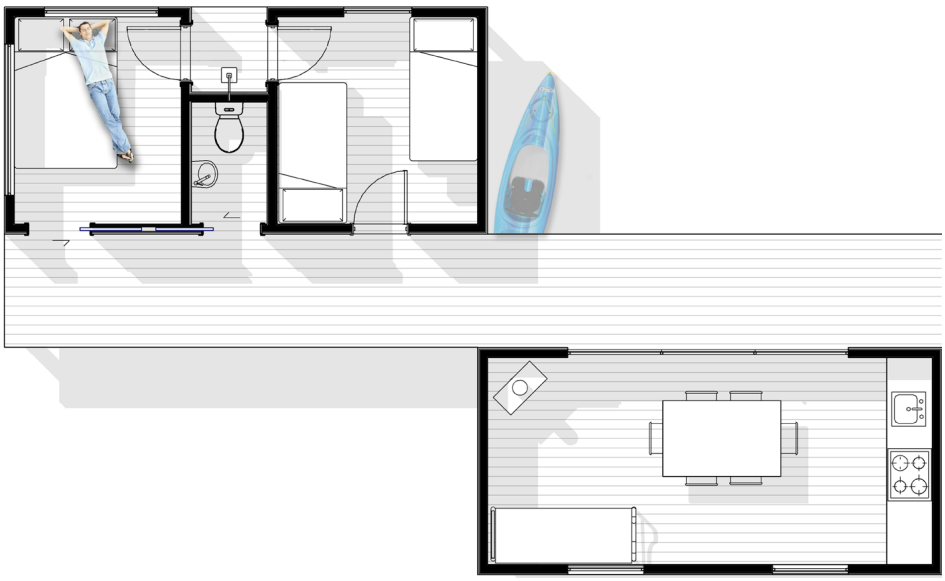


Fig. 2.97 ; floor plan at 1:100

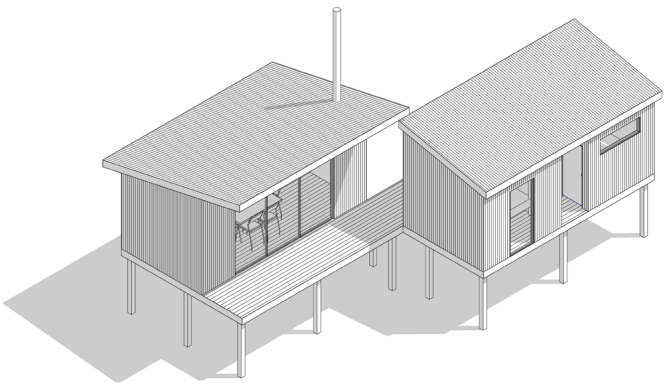


Fig. 2.98 ; isometric at 1:200

Fig. 2.99 ; floor plan of area two within development

Fig. 2.100 ; isometric of area two within development

The plan on the left shows one area within the clustered planning Area Two, where there is a central building with private baches surrounding a communal deck and boardwalk. There are bathroom facilities, a communal laundry (for the use of bach owners too), a kitchen, large dining room, and bunkrooms, which all open out onto a large deck. This communal building and scape would encourage social interaction, in a similar manner to the Samoan malae, the Maori marae, and New Zealand campgrounds.

These sections show parts of Area Two within Inhabit the Ridgeline, where the communal space directly relates to the baches, and the social space in between.

Section A cuts through the communal building; bathing facilities, a communal laundry, open kitchen, and the deck and boardwalk, which then connects to the baches on the edge of the cluster. This shows how the public pathway down the ridgeline (on the left of the section) connects directly to the building, which would act like a meeting house, housing a public program, then flows into private program of the baches. This reflects learning from study of the Samoan malae in particular, where the spaces are ordered in levels of privacy.

Section B shows another cluster within Area Two, where there are sleeping units, and the communal building behind, with boardwalks connecting the buildings. The sleeping units would operate under the camping title, and would be rented out individually, rather than privately owned. These have direct connection to the communal building in the background, which also houses communal facilities, as would an ablution block at a campground.

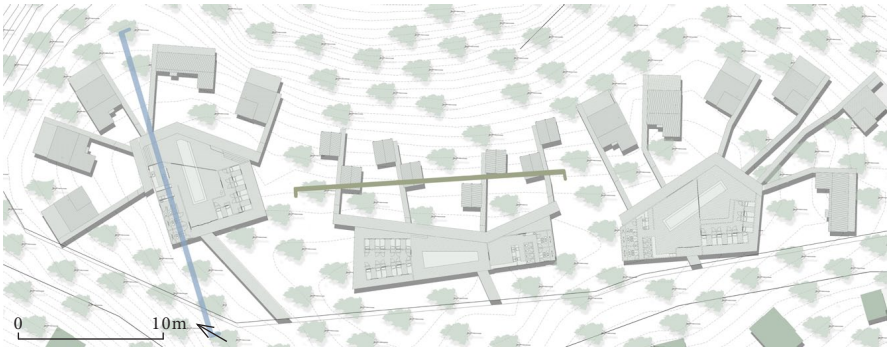


Fig. 2.101 ; key plan showing section lines

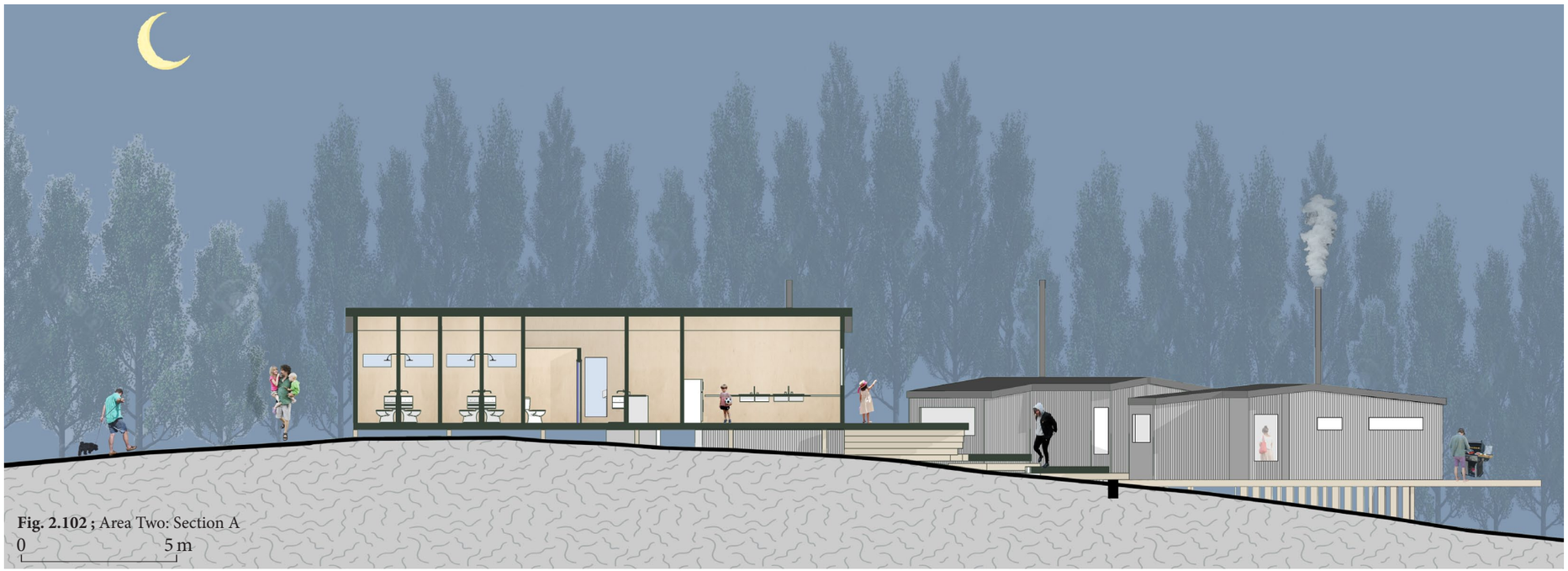


Fig. 2.102 ; Area Two: Section A
0 5 m

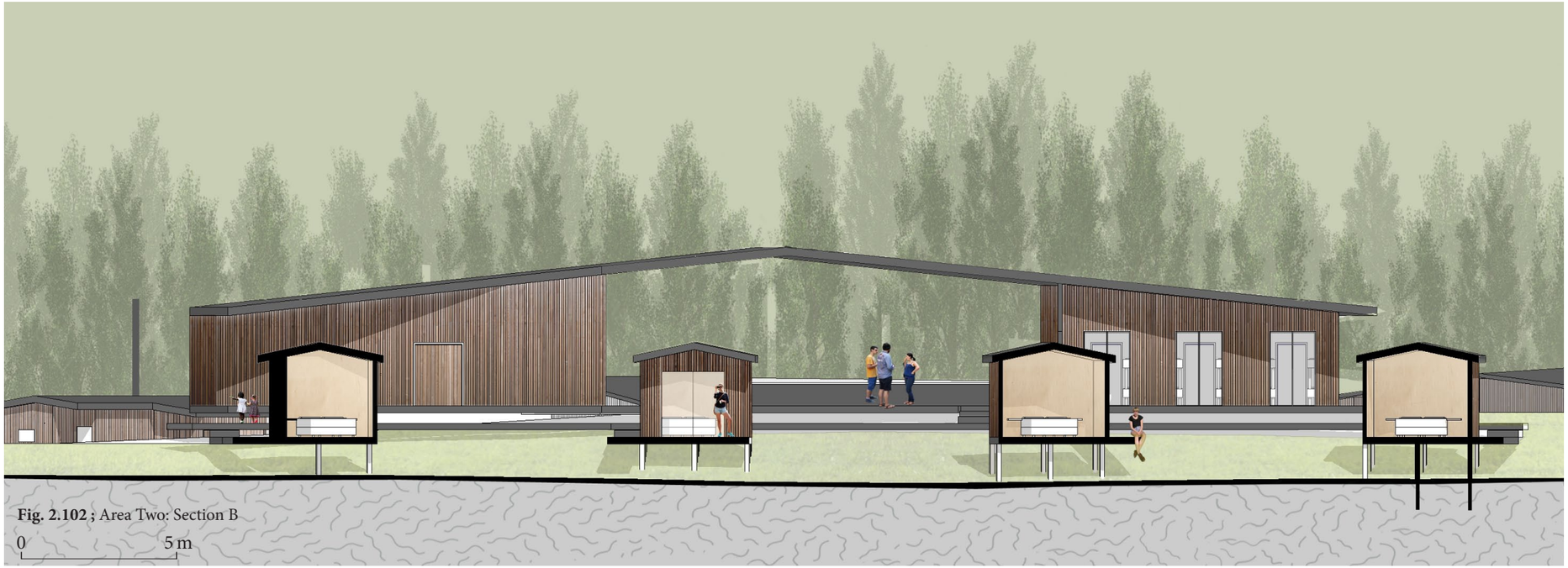


Fig. 2.102 ; Area Two: Section B
0 5 m

Fig. 2.103 ; Area Two: 3D View 1

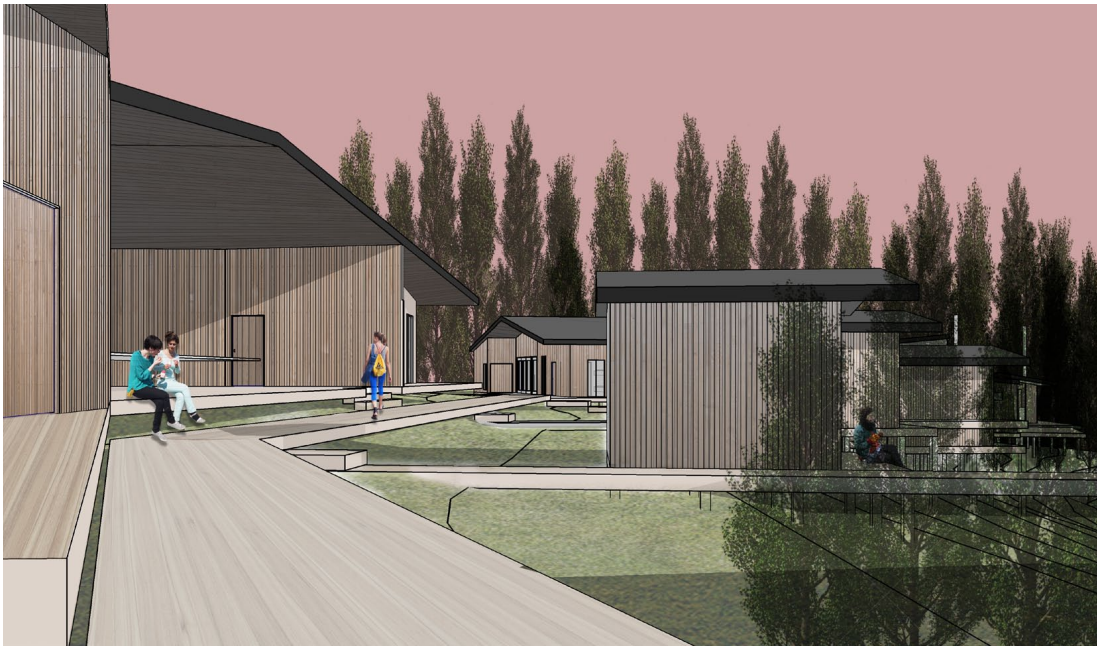
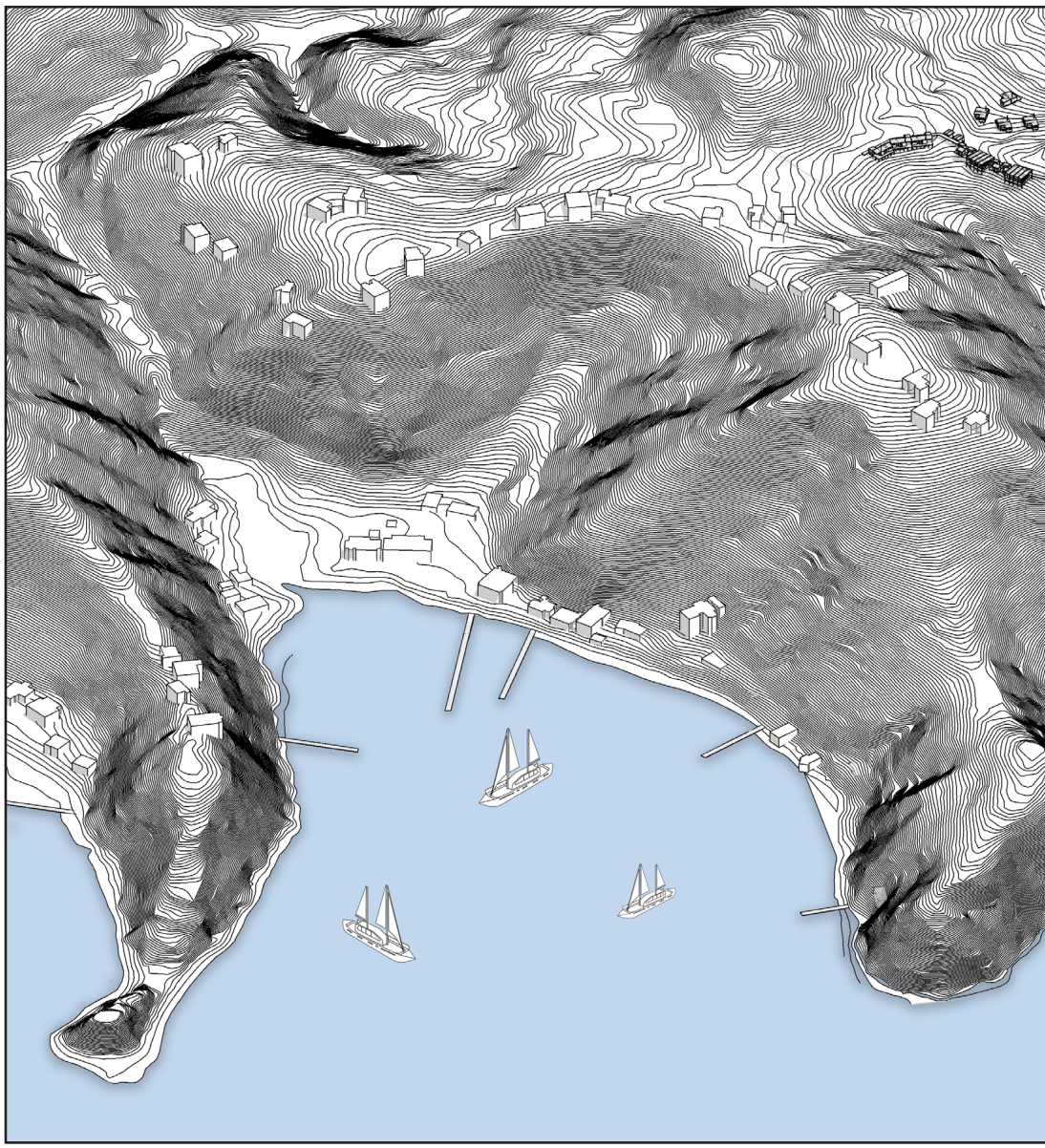


Fig. 2.104 ; Area Two: 3D View 2

Fig. 2.105 ; Area Two: 3D View 3

These 3D views give an idea of the area and how it would be occupied, both in the approach to the communal building (3D View 1), and the occupation of the communal deck and boardwalk (3D View 2 and 3). The communal buildings are concentrated to flatter areas of the topography, so that activities (such as football) could be enjoyed around this social space. The communal buildings, baches, and sleeping units all look outward toward the views of the forest and beyond to the sea. Through the clustered planning, this also means that the two programs (public communal building and private sleeping units/baches) are not looking in on one another, they open up to the same direction.

- **shared services and facilities to lessen volume and impact of plumbing and electricity on site**



- **cluster the development within subdivision; less overall impact on land and more untouched environment for communal use**

- **different planning types for different site characteristics, to be sympathetic to existing site conditions and design around them**

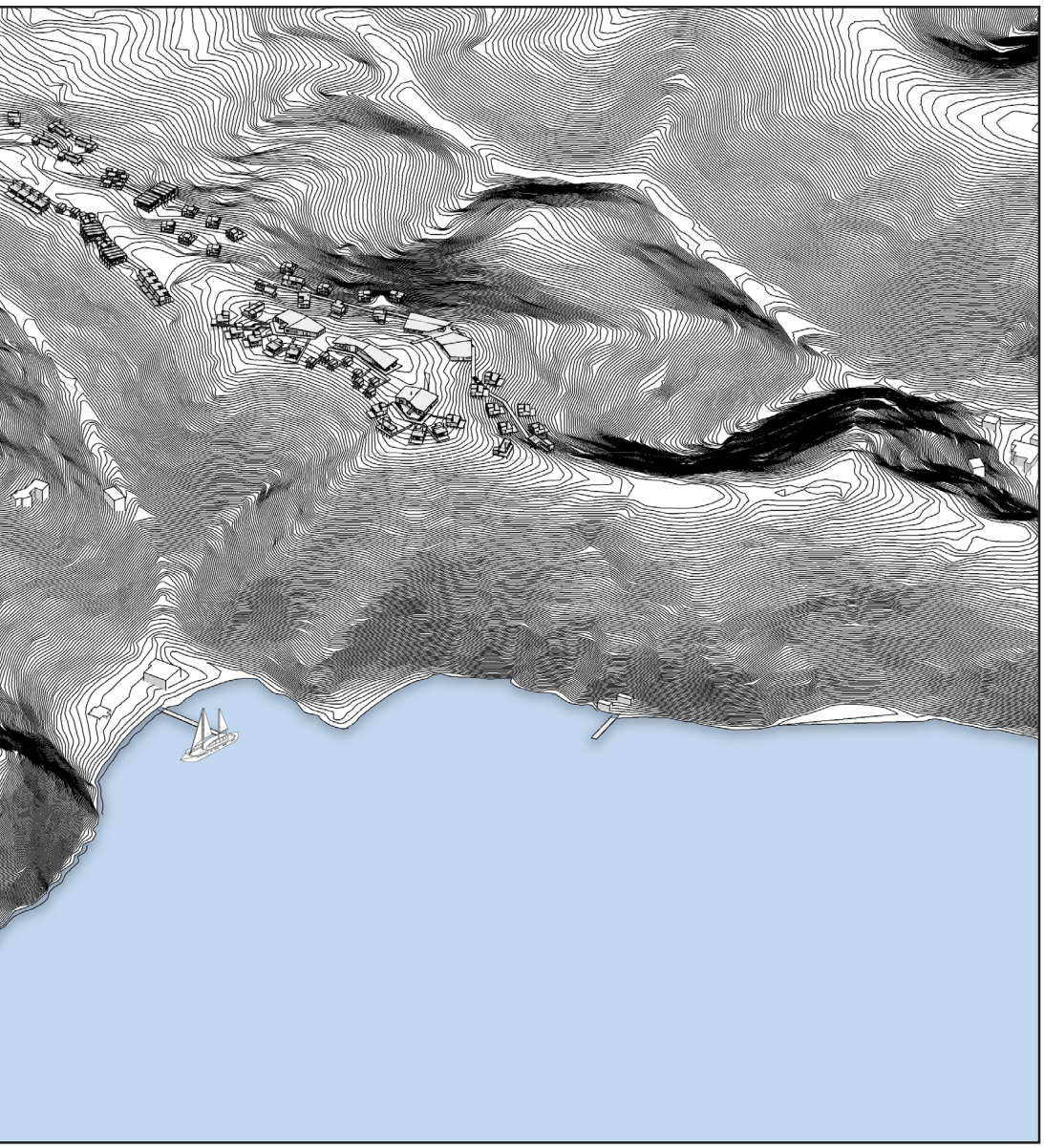


Fig. 2.106 ; isometric of overview of development and surrounding context

- **incorporate public program of campground, allows for further access to site while not privatizing the occupation or creating financial inaccessibility**

phase 2 ;

; mix of public and private accommodation types

; pulled back from the coast

; four different planning strategies for site specifics

; cluster any dwellings to leave more land untouched

Project Two looked further into how this particular area of Kawau Island can be gently occupied, whilst avoiding a suburban development.

The site area was narrowed down to a ridgeline that is on the eastern side of the subdivision, about a seven minute walk from Schoolhouse Bay's wharf. This meant that the majority of the larger site area is untouched, by clustering the buildings together. This also results in less site works throughout the site, therefore less impact on the environment. By using less of the site, and clustering the buildings, the land can be shared between all through leasehold. This means that the land remains under single ownership, therefore less division and uncertainty on the future of the land.

Four different site planning types were explored, and gave insight into how the buildings could be arranged differently. By doing this, it became apparent that certain arrangements worked best on some areas, whilst they didn't work well for other areas. For example, *clustered planning* was successful in wide, flat areas of site, while it didn't work well on wide, steep sites, for the way that the communal buildings and private buildings interacted with one another.

The mix of public and private dwellings provides access to Kawau for people who could not afford a private bach, similar to how a DoC hut currently does in many areas of NZ. By having baches too, there is opportunity for more permanent visitors, with an ongoing commitment to place.

There are communal buildings that would operate like the communal kitchen and bathrooms in a campground. This means there is less impact by using shared facilities, however, the scale of these buildings must be refined. They may be unused for much of the year, so need to be smaller and have the ability to expand and contract in order to be more sustainable.

Significant considered occurred on the programmatic differences between bach owners and temporary visitors, and the need to distinguish between them. The scheme currently sites the two client groups closely, but these could be spaced out further to give a closer community to the more permanent bach dwellers, and a separate community to the temporary campers. The campground areas have the need to be based around flat areas, and the baches have the option to occupy sloped land.

There is also a relative lack of connection to the coast. Pulling the scheme back within the subdivision leaves the coast unspoiled and untouched. Through doing this, the question, *how can coastal housing be designed with less impact on the environment*, is answered by pulling development back from the coastal edge. There remains a need for greater connection with the coast, as many of the visitors to site would spend majority of their leisure time near the water.

?

the following questions arose from project two and
helped frame project three

If you buy a bach, what exactly do you own?

How are the communal buildings run?

Are there people to facilitate/clean buildings?

Are we inhabiting the coast - what is the relationship to the sea?

Who goes there and why?

How is this more accessible?

Are there too many baches?

What's the proximity to coast?

Where would people spend their day?

three

1

research for large scale site

Key Ref. 14-17: Further masterplanning of large scale
Developed design walkways based around landforms
Existing walking tracks. How can these be extended within the subdivision and to the sea?

2

research for mid scale

Key Ref. 18: Sea Ranch, California
Masterplanning to refine public vs. private areas

3

research for small scale

Design strategies from Project 1 and 2
Sea Ranch houses categories of how houses can fit into place

4

project three design

5

reflections on project three design

[project three]

- research + design -

The Island

research: the larger site scale

This chapter looks at how to connect the development of the ridgeline into the wider context of the island. By connecting with the larger context, it shows how this development would not be privatizing this area of the coast, and how it would fit into the existing bach developments.

Walking tracks / Kawau Island
Further masterplanning

Fig. 3.1 ; view from existing road toward subdivision

Walking Tracks on Kawau Island

In order to create a stronger connection from the development with the larger context of the island, existing walking tracks have been extended. This will create a greater connection with the public, as the existing walking tracks are a popular destination on the island.

The tracks both lead inland, and also down toward the water's edge, where much of the day would be spent. Kawau Island is largely known for its boating activities; yachting, fishing, diving, and other water sports controlled by a boat. This means that much of the community would spend their day near the water, so these tracks would form a greater connection from the day's activities to the evening activities near the dwellings.

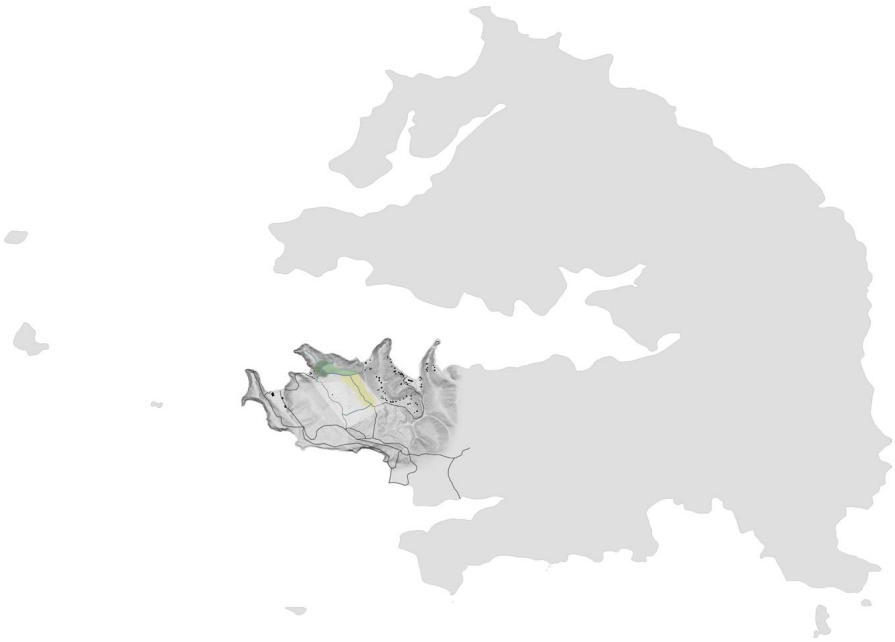


Fig. 3.2 ; context of Mansion House / Schoolhouse Bay area within whole island

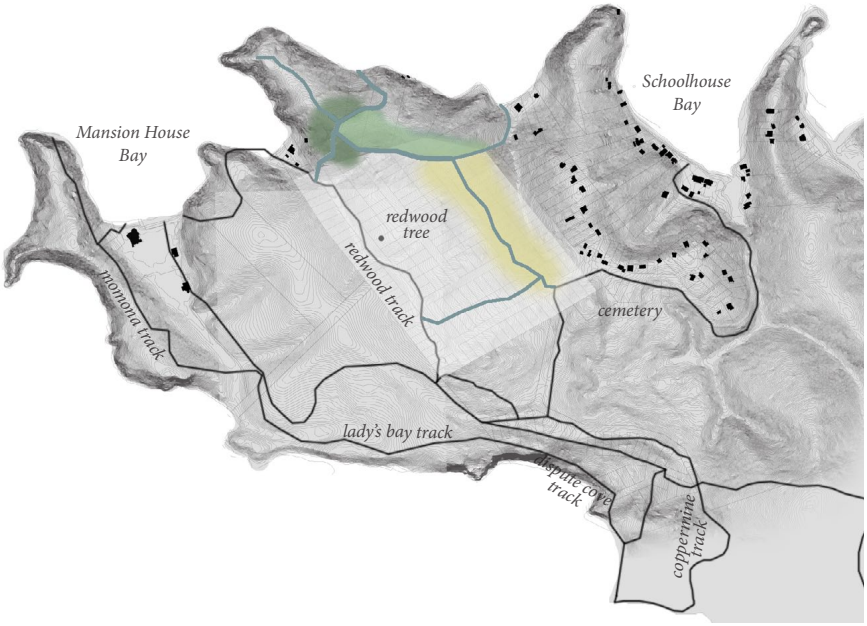


Fig. 3.3 ; existing walking tracks in the Mansion House / Schoolhouse Bay area

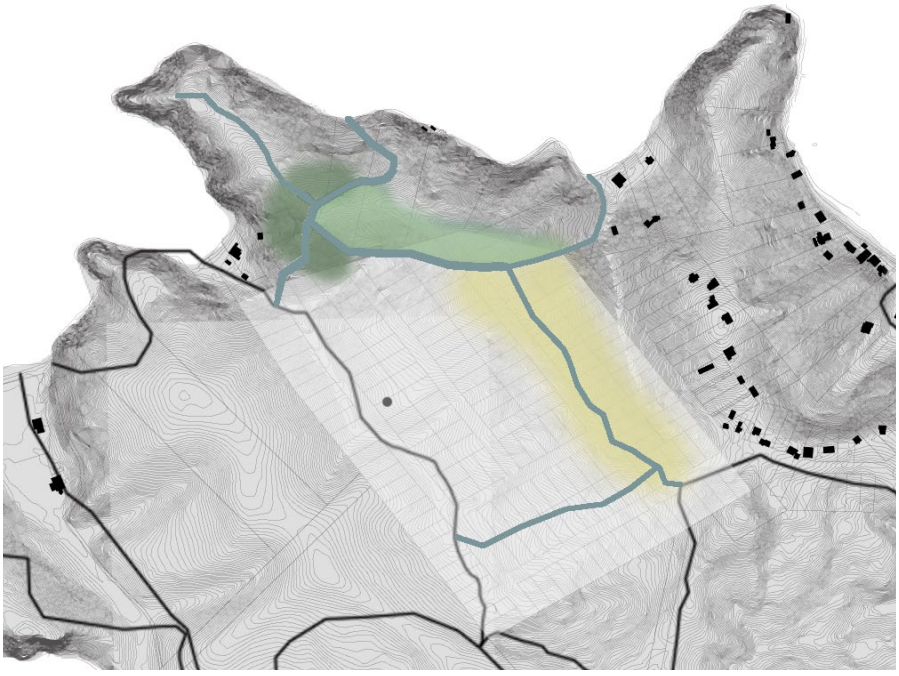


Fig. 3.4 ; additional walking tracks added to existing scheme

larger scale connections and new infrastructure;

In the diagram, walking tracks, access, general settlement areas, and coastal connection points were established. This is to provide a closer connection to the coast, to distinguish a more clarified relationship between public and private users, and to facilitate the arrival, and daily activities, of all users. By connecting with the larger context of the island, and allowing public access through the site in the form of walking tracks, this does not privatize the land any further, and exhibits that it should be a place used by all.

The existing access tracks are kept for anyone wanting to drive up the driveway to the development, and for construction (trucks). The main access for visitors (either to baches or campground) is now directly accessed from a wharf from Shark Bay. This provides a place of arrival to the island where occupants could use throughout the day, and also does not cause as much impact to the existing wharf at Schoolhouse Bay. This is the location of a wharf that existed previously, but was burnt down around the 1990s.

The walking tracks are designed largely based on topography, and also the social implications. The walking tracks have been extended from the ones that already exist, providing a greater connection for the whole public. This allows for occupation of the whole coastline, while not building and impacting it largely. The main walking track extends along the ridgeline, out to the point, and back down the valley to connect with the walking track in Two House Bay. It also extends down to the beach at Shark Bay, providing a track for users to enjoy the beach during the day.

To create a further connection to the coast from the Ridgeline for occupants to use throughout the day, there are three points of connection, all accessible by private and public users. The first is the beach in Shark Bay, where users would walk down from the ridgeline to the water. The second is a wharf, which would not only be used for initial access, but have the ability to be used throughout the day for water sports and fishing boats. The third is a viewing point, which would provide views to the harbour, for enjoyment without privatizing and impacting this pristine part of the coast.

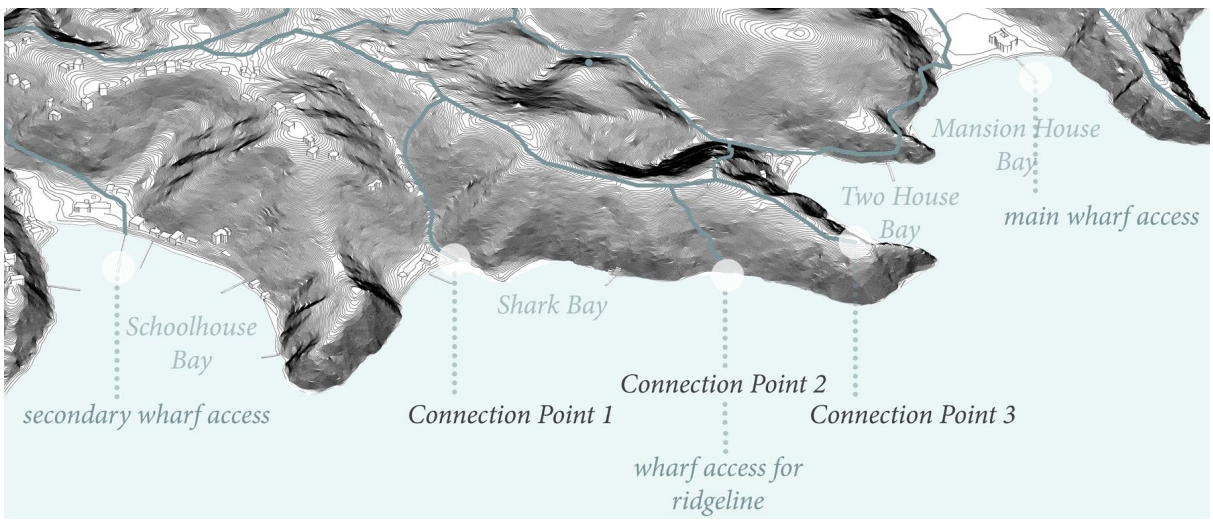


Fig. 3.5 ; connections to coast from ridgeline and extended walking tracks

density;

The density of the development has been reduced throughout the three projects, and is compared below. This refinement of density comes from reducing the area of site used, and only designing appropriately around existing context. The existing baches of Schoolhouse Bay only occupy part of the hill, and to overpopulate this area would take away from the environment. This density was also influenced by my familiarity with the site, and being sensitive to the inherent character of the place.

Here, density is measured by *occupants per hectare (of land impacted)*. This is used to have a constant value between the three projects, as the campground areas introduced a difficulty with the typical measure; dwellings per hectare. Occupants is measured through 1 occupant per single bed, and 2 occupants per queen bed.

project 1

dwellings: 163
occupants per dwelling: 6
total occupants: 978
land for shared use: 23ha
land impacted: 23ha

42.5 occupants / ha

project 2

dwellings: 56
occupants per dwelling: 6
camping beds: 82
total occupants: 418
land for shared use: 23ha
land impacted: 3.7ha

113 occupants / ha

project 3

dwellings: 35
occupants per dwelling: 6
camping beds: 136
total occupants: 346
land for shared use: 23ha
land impacted: 0.94ha

368 occupants / ha

As measured above, the density has largely increased throughout the three design projects. In the second and third projects, it is rapidly higher than the first project, due to the refinement of the land impacted, even though the number of occupants has decreased. The final occupant per hectare measure shows that many occupants can still enjoy the environment, whilst impacting only a small amount of the land, and sharing the 23 hectares evenly. The refinement of the density is also impacted by the context, and how many baches are closeby in Schoolhouse Bay.

The Community

research: the mid scale

This chapter of research is important in developing the clustering of houses within the land, and how to achieve even lower impact through this. Sea Ranch in California serves as precedent, exhibiting both good and bad siting types that inform the design development.

Sea Ranch / California
Campgrounds facilities

Fig. 3.6 ; small view of sea through bush from ridgeline

Case Study: Sea Ranch, California

key reference: 18

The Sea Ranch is a unique development of coastal buildings, for both permanent residence, and visitors, on the northern Californian Coast. From the outset, it was conceived to be planned around its environment, with the protection, and even improvement, of the coast as the founding principle. It was originally founded in 1965, and by 2004, there were 500 permanent residents, with 1500 other Sea Ranch Association members, all sharing 2,300 acres of land. Many of the Sea Ranch members are visitors, some of whom share houses with others through rental programs. By the end of 2002, there were around 1600 houses, a lodge, several commonly owned recreation and communal buildings, and three commercial buildings within 4000 acres overall.

Initial planning was started by Oceanic Properties', the developers engaging landscape architect Lawrence Halprin. Halprin's vision to preserve the land and oppose the conventional subdividing has led to a protected environment where houses relate directly to the land they are placed on. His planning is described as "using arrangements that matched the ecology and the scope and scale of the landscape better than the conventional patterns of incremental, parcelized development would" (Lyndon 19). Individual houses would be clustered along hedgerows that were perpendicular to the coastline, therefore retaining any main views in-between clusters, while giving diagonal views to each house.

Halprin's vision was also about accessibility of the coast; "the experience of the coastline was to be shared, not sequestered in separate private ownerships, and there would be large areas of commonly held land that would ensure the perpetuation of the coastal ecology" (Lyndon 19). His planning was much about the whole, rather than the parts, by using nature and buildings to create a whole that could be linked better than "just a group of pretty houses" (Lyndon 19). The Sea Ranch masterplan that eventuated, raised eyebrows for its inclusion of shared land, rather than separated plots. Each house was given its own acre of land, but the possibility of not sitting in the middle of it. The houses were clustered in groupings, sometimes in dense condominiums, with great amounts of shared land dispersed around these groupings.

When it came to designing the buildings, many architects were involved, but initially and largely including Joseph Esherick, and MLTW - Moore Lyndon Turnbull Whitaker. All architects agreed on some main design principles for any dwellings at Sea Ranch; "a close relationship to nature and use of natural materials, windows placed to maximize light and views rather than create an artful exterior composition, relaxed forms, and a general emphasis on buildings as human habitation rather than objects" (Lyndon 25). The use of demonstration buildings, particularly aimed to inform any individual designers, lead to some difficulties. It produced many 'imitation' buildings, where architects simply took too much sameness from the demonstration buildings.

In 1969, the original plan started to fall apart, which led to a series of issues within the entire Sea Ranch development. Houses were starting to be constructed in the meadows between

clusters, rather than being constricted to the hedgerows, as originally planned. This meant that views were being disrupted, and houses were beginning to line up along the shoreline, rather than being nestled in the trees to reserve the coastline. This planning continued north, which eventually led to a revolt from the real estate agents, Castle & Cooke. As the original houses had become less desirable than the new, poorly planned houses, they became difficult to sell. This eventually led to a change in leadership through Sea Ranch; Halprin was dismissed, as were Castle & Cooke, and the new Sea Ranch team was appointed. The original developed Boeke ended his Sea Ranch journey too; "His departure marked the beginning of the end of the heralded Sea Ranch plan" (Lyndon 29).

More issues arose through the 1960s, when Congress passed legislation to states to protect their coastlines, to which California was quick to respond. More than ninety-percent of California's coastline was privately owned, and the state realised there was a need for more publicly accessible coastal locations. Building permits were becoming harder to get, and they began being commonly rejected after 1973. With this, Oceanic was losing money quickly, as their projected sales of 5,200 lots was reduced to 2,300, with only 1,400 lots having actually sold. So, when the development and construction resumed in the 1980s, Oceanic was quick to develop what was left. Halprin's original plan was left behind, and a civil engineering firm was hired to subdivide the northern area of Sea Ranch. As one design committee member said at the time; "Planning at the north end has been financial planning, not land planning" (Lyndon 30), which has created essentially two very different areas of Sea Ranch; the original south, versus the poorly-planned north.

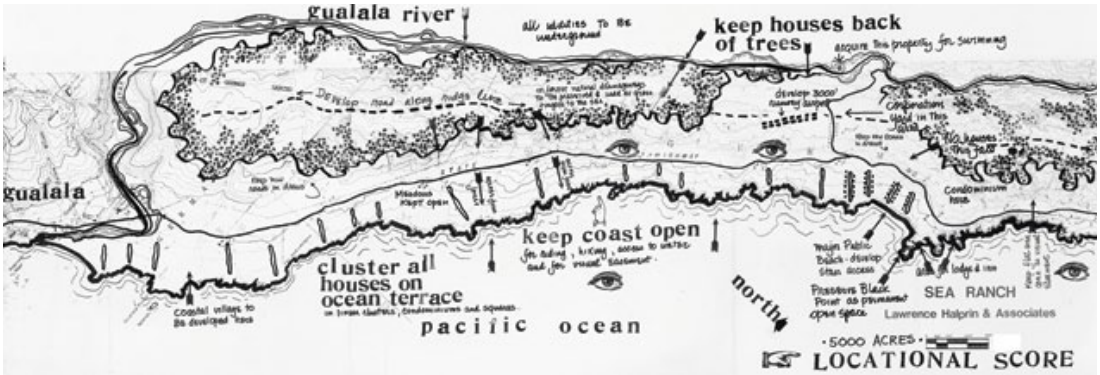


Fig. 3.7 ; Lawrence Halprin's original planning map of Sea Ranch

Lawrence Halprin's Sea Ranch Basic Principles ; (Halprin 50-51)

YES	NO
- Nature predominates as matrix for community	- Nature is backyard sized
- Rural quality community	- Suburban quality individual houses
- Aesthetics major concern for art, architecture, graphics, the environment	not related - Aesthetics unimportant
- Design control	- No design control
- Diversity: people, income, professions, interests	- Uniformity
- Non-elitist	- Elitist
- Modest house size	- Enormous houses
- Plantings limited to natives in common areas	- Garden type plantings - all types
- Maintain unique North Coast character	- No particular character
- Preserve access to coastline and views	- Block views by Malibu-type walls of houses
- Common facilities trails, recreation, association governs common lands	- Individual ownerships and attitudes
- Simplicity	- Flamboyance

These main principles align closely with the intentions of this research, both in the 'yes' column, and the 'no' column

Fig. 3.8 ; Condominium One; a founding building at Sea Ranch by Charles Moore

"The relation of the building to the land is not one of visual emulation; it is rooted in the basic organization of the plan and the diversity of its adjustments to the particular conditions of the site" Lyndon 39

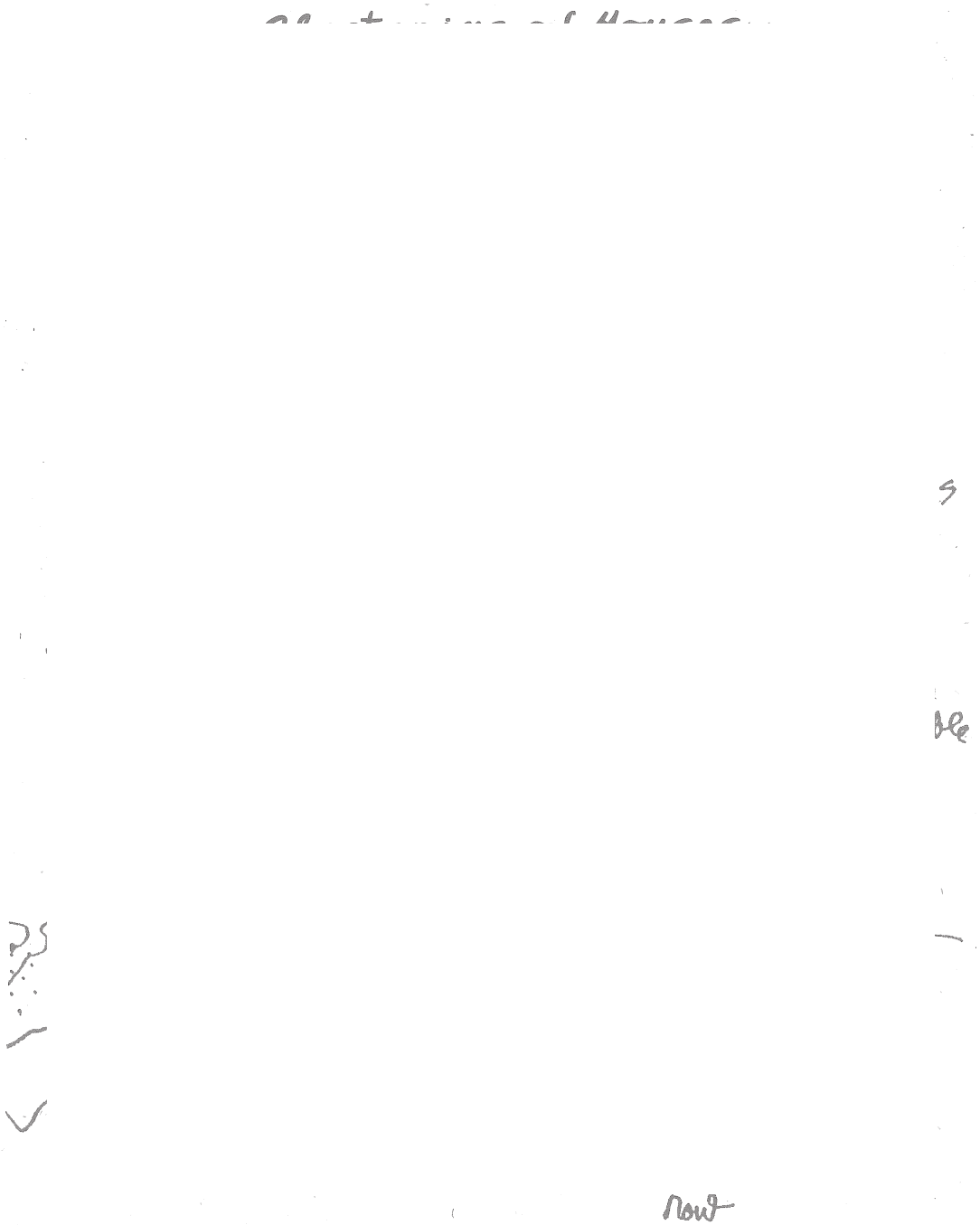


Fig. 3.9 ; original commentary and drawings by landscape architect, Lawrence Halprin

Sea Ranch provides a valuable precedent for what this research aims to achieve, but also what to avoid. Its initial planning, and founding principles were key in the protection of the coast, and the continuing inhabitation of the Northern Californian coastline. Unfortunately, these founding principles did not see through in its lifetime of planning, and this is evident in the northern area of Sea Ranch.

The southern areas have wide open fields that provide communal access and views to the coast, but also mean that buildings are clustered, to impact the land less. By having the house clusters perpendicular to the coast, all houses get diagonal views and use the slopes to stagger the houses for views, and it opens up the coast. This achieves environmental mindfulness.

The northern areas are drastically different, and show how the whole development slowly, and sadly, changed. Roads are parallel to the coast, blocking off any communal views or access, and the houses are visibly larger. By spreading the houses out, there is no communal open space, and it privatizes the houses. It resembles privatized suburbia.
(Lyndon) (Halprin)

The learnings from these planning precedents are important in this research, and a similar approach to the southern areas of Sea Ranch will inform development of the design in project three. This approach uses;
clustered houses, perpendicular to coastline
diagonal views from all houses
wide, open land for communal use

Fig. 3.10 ; the 10-mile stretch of Californian Coast that Sea Ranch occupies, showing location of analysed northern and southern areas

Fig. 3.11 ; southern area of Sea Ranch; roads and houses perpendicular to coast, large open space for communal use

Fig. 3.12 ; northern area of Sea Ranch; houses of larger scale, all houses given coastal views, no communal land use

The Baches

research: the small scale

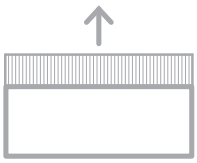
This chapter explains the design strategies used in the design of each individual bach, many of which have continued through from earlier projects. Strategies were also informed by Sea Ranch, and bach typologies found on Kawau Island.

Project 1 and 2 design strategies
Bach typologies / Kawau Island
Sea Ranch / California

Fig. 3.13 ; a bach on the shoreline of Two House Bay, Kawau Island

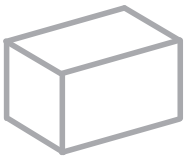
Bach Design Strategies

The design of the four bach typologies was influenced by earlier bach designs in Project One and Two. The eight design principles below were all central to the design of each. These carry through from Project One and were all found to still be relevant in this scheme.

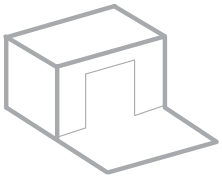


north verandah
enjoying the summer sun, time is spent outdoors

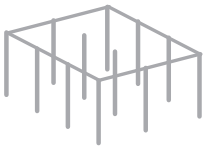
small
modest in size for affordability, and uncommon to show affluence



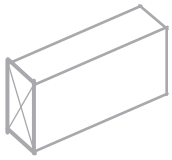
simple form
uncomplicated dwellings, often built by the owners



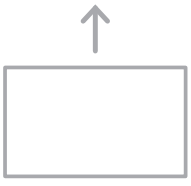
fluid indoor outdoor threshold
summer dining and living flowing between indoor and outdoor



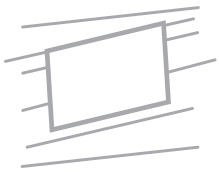
on piles
touch the land less, and more gently



timber framed
low embodied energy, and easy to transport to site, so less site impact



orientated north
make the most of passive sunlight and heat through orientating toward sun



parallel to contours
no excavation needed if dwellings sit along contours, being sympathetic to land

Kawau Island baches are specific to the island, siting and topography, and are largely of humble, kitsch aesthetic. The majority of sites, where most houses are situated, are on the coastline, on slopes facing the view. Being on steep sites, they are often two-storey, and face outward, with bush behind the house. They are low-lying, often disguised into the bush, using roofs that slope downward with the slope of the topography. There is a mixture of materiality; mostly weatherboard, or fibrolite claddings, in all different colours. Timber cladding is the main structure and construction technique used, due to the difficulty of materials to site, timber provides a lightweight and easy construction. Baches are often bitsy, being constructed in different stages over time. These aspects are all taken into consideration through the design of the baches, particularly the timber framing, timber piles, sloping roofs, and low-lying aesthetic.

Fig. 3.14 - 3.17 ; numerous baches highlighting typological tendencies on Kawau Island

Sea Ranch / California

key reference: 18

Donlyn Lyndon writes about the grounding principles at Sea Ranch that enabled the *houses to fit into their place*. It is split into four sections, for there are varying degrees of how the houses either become their environment, or stand out.

1) Houses that *connect* to their environment
2) Houses that *settle* in their place
3) Houses that *enfold* a place of their own
4) Houses that *inhabit* and enliven their site
(Lyndon 141)

The first and last of these sections are the most relevant to this research, and these are explained on the opposite page. The other two sections are explained below.

"Houses that settle in their place"

- Use traditional forms, or large presence that acts like a landmark

- Claim a spot in the landscape without colonising the whole

This section shows buildings that become one with the landscape, where the building and the land intertwine

Fig. 3.18 ; Rush House

"Houses that enfold a place of their own"

- Bring the landscape in, work around creating outdoor rooms

- Houses are inward-turning, a grouping of rooms

The buildings in this section are where the landscape has been measured and integrated into the design, such as buildings that wrap around existing trees

Fig. 3.19 ; Sea Ranch house

"Houses that connect to their environment"

- Houses designed with the intention to form a cluster, through similarity of form, materiality, and size
- Draw form from forces of site, neighbours, landforms and vegetation
- More than just visual allusions

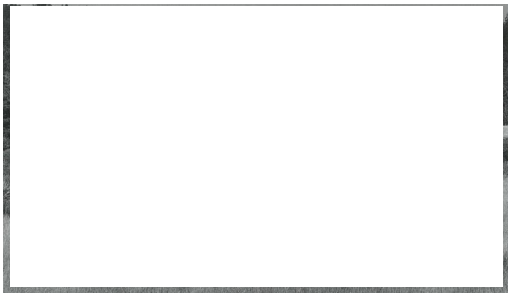


Fig. 3.20 ; Kirkwood Houses

This section directly relates to the design, through the aim of trying to connect with, and blend in to, the environment. The chapter talks about drawing from the context of site to influence the forms, and to visually blend in to the environment. These strategies were implemented into the design, made possible through the fieldwork and strong personal connection to the site. Through designing the buildings as a cluster from the outset, all dwellings can work together through the visual similarities of simple forms, natural materiality, and similar dwelling size. When the dwellings work together as a group, they fit into the environment more subtly, rather than an array of different forms and styles that stand out.

"Houses that inhabit and enliven their site"

- Develop a way to interact with the site in many ways to make the most of diverse site experiences
- 'Enhance and make vivid the pleasures of being in place'
- Takes advantage of many aspects of site, rather than only focusing on one

Fig. 3.21 ; Caygill House interior

This section directly relates to the design, where the Kawau Island site offers immersive experience with the vegetation, and also presents views out to sea. By focusing and enhancing both these aspects through the bach design, it is inhabiting the environment to the fullest extent. The houses in this chapter give windows to both the sea views, but also high windows that allow for direct views looking up into the trees, as seen in the Caygill House above. These houses are directly designed around privacy, views, and the way that a house can be orientated accordingly, which gives precedence to how to design the baches in this design project.

Project Three

A View For All to Sea

This chapter shows the final design project; A View For All to Sea. It is a combination of interventions at the water's edge and along the ridgeline, thirty-five baches, and three campground areas.

This is an integration of research for design, completed throughout the whole of this research, and research through design, in the previous Project One and Project Two.

Fig. 3.22 ; 3D View of campground area

Large Scale

- **Extend walking tracks** to *create a greater connection* of the development to the island and to invite public use of the land
- **Add wharf to Shark Bay** to give separate access for users *to create community within the development*
- **Create connection points** from Ridgeline to the coast, to enhance the *connection to the coast* and *facilitate daily activities* and un-privatize the land used
- **Re-plan settlement areas** of public and private accommodation around the new walking tracks, *to suit the landforms and give hierarchy to the settlement*

Mid Scale

- **Use the slopes** to *maximise views* for all users, also to *tie into Kawau bach typology,* to be more sympathetic to the land and context to blend in
- **Cluster buildings in rows** perpendicular to the coast, *gives open space* between rows for shared land use, and *avoid privatizing the views* from the walking track
- **Use open flat areas** between rows for communal outdoor space, *gives access to all* and does not subdivide and *split up the land*

Small Scale

- Design with **similar scale, elements materiality and form** between individual houses to *give visual similarity and overall form* of clusters, blend in with each other
- **Give direct immersion and inhabitation with the site** in multiple aspects of the dwelling, *to give diverse site experience, enhancing appreciation for site*
- **Reflect architectural context through use of timber, humble aesthetic** of existing Kawau Island baches, *fit in to existing context to blend in*

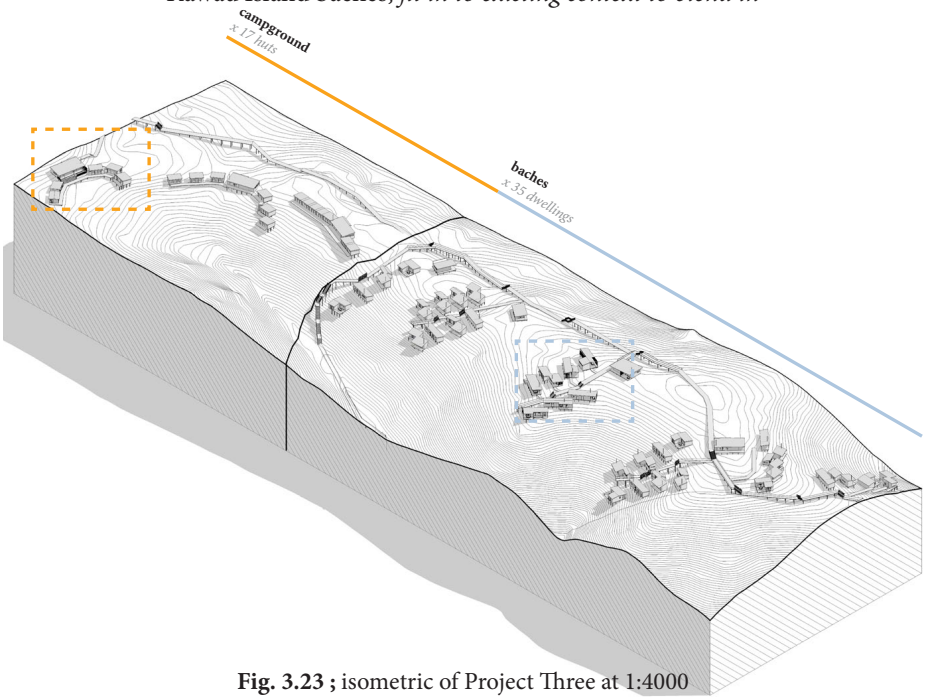


Fig. 3.23 ; isometric of Project Three at 1:4000

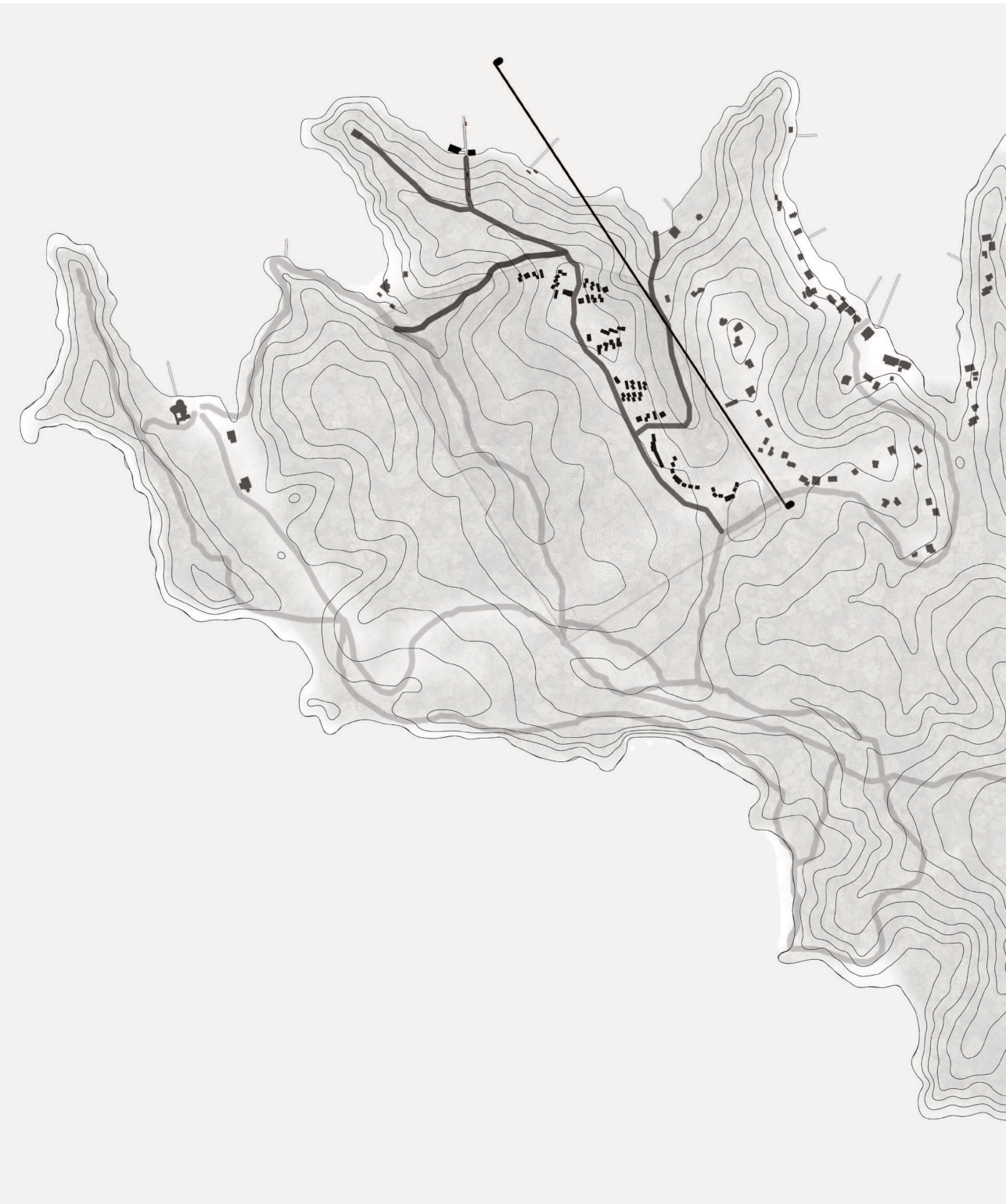


Fig. 3.24 ; Project Three Figure Ground Site Plan 1:10000

Overall Site Section

This site section is cut through the valley and ocean, perpendicular to the ridgeline. In the refined masterplanning of this chapter, this section plane is considered to be the best views from within the subdivision. Therefore, this section shows how the planning of the clusters gives views to the public walking track along the ridgeline, but also the staggering of the baches down the slope gives views to each bach.

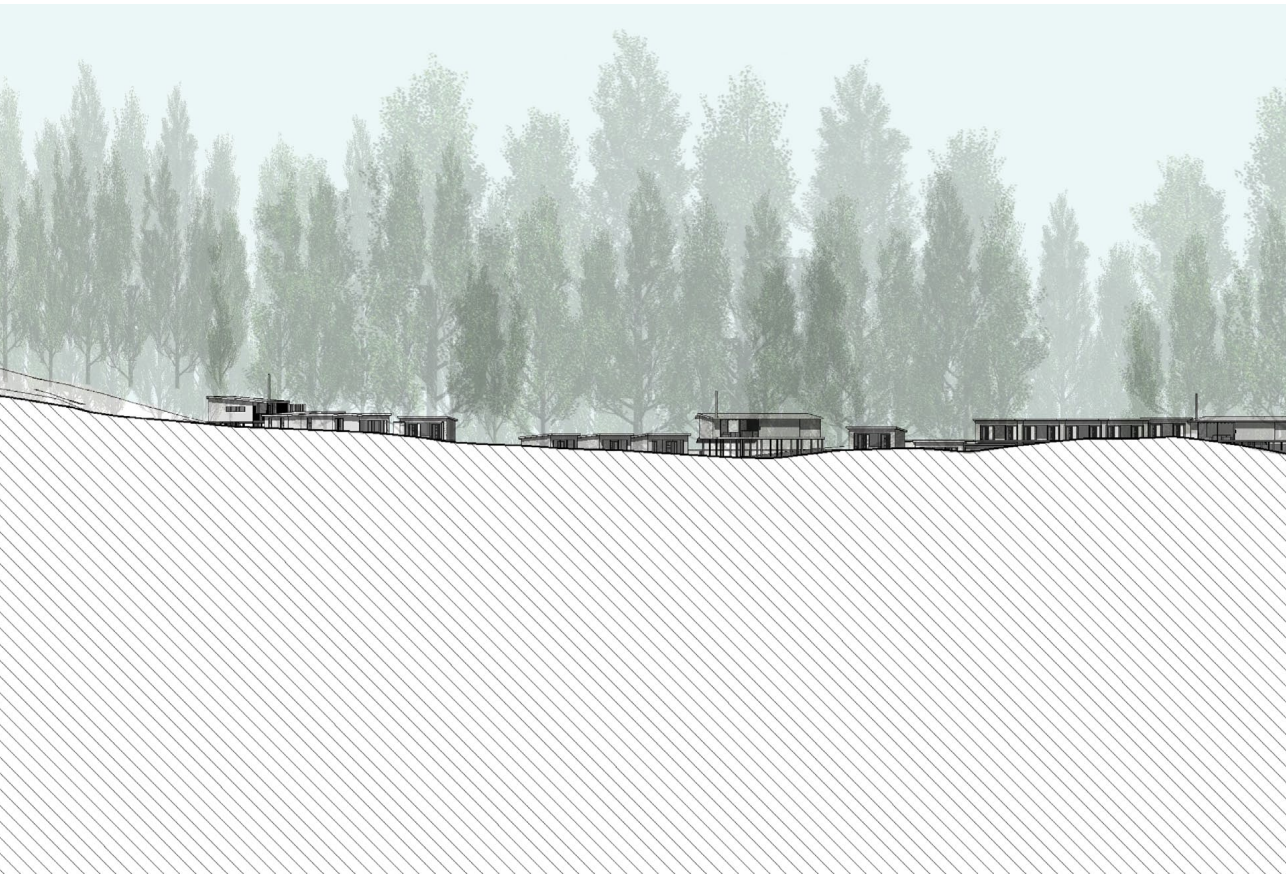
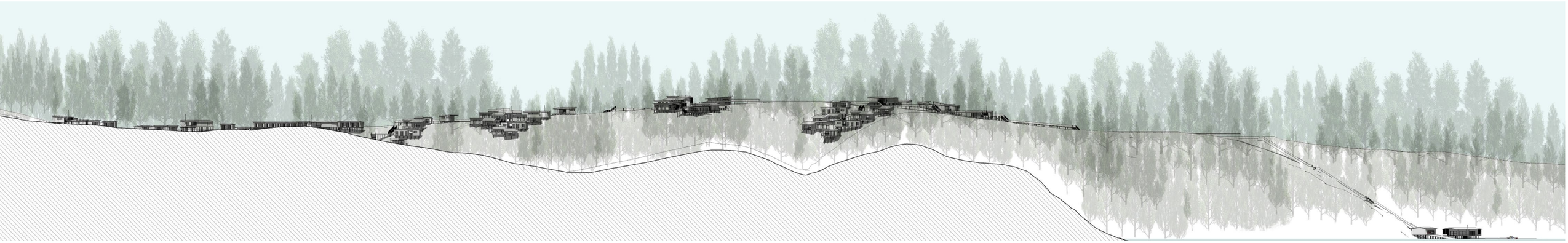


Fig. 3.25 ; site section of Project Three at 1:1000 and 1:2000 (above)



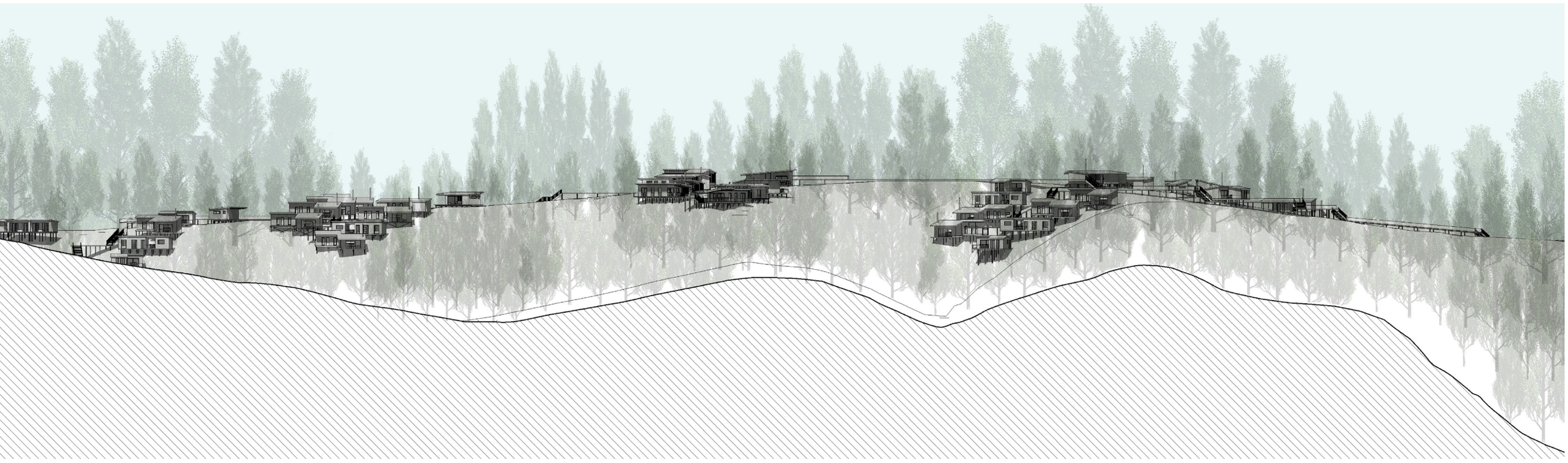
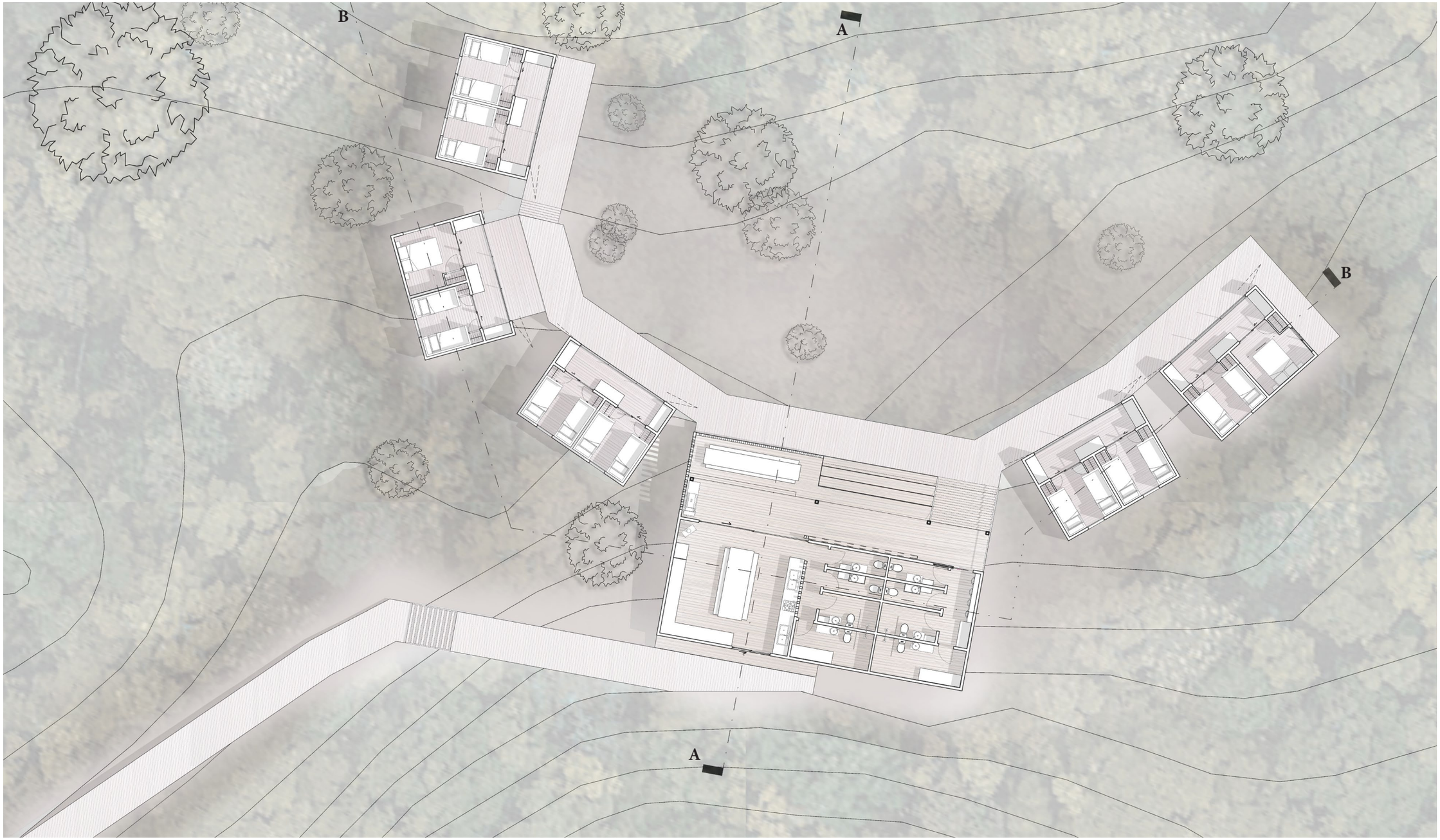


Fig. 3.26 ; 3D View of approach from Schoolhouse Bay

"Our most difficult task was to find a way for people to inhabit this magnificent and natural system in numbers without destroying the very reason for people to come here"

Lawrence Halprin 27

Fig. 3.27 ; Campground Area Floor Plan, 1:200



Campground Area

This is one of the campground areas, shown in further detail. It has a communal building, housing four bathrooms, four toilets, kitchen facilities, a large dining table, seating, and a fireplace. This is accompanied by outdoor dining, and a BBQ area, with five sleeping units coming off a communal boardwalk.

Fig. 3.28 ; 3D View from boardwalk

Fig. 3.29 ; 3D View from interior

Fig. 3.30 ; Section A at 1:200

Fig. 3.31 ; Section B at 1:200

"The demolished wall highlights the recasting of priorities in the house"

Pip Cheshire 66

Fig. 3.32 ; Resolved Baches Area Floor Plan, 1:200

Resolved Baches Area

This is one cluster of seven baches, with a communal building closest to the walking track, housing laundry facilities, communal dining, and a house for the groundskeeper. Each bach has a main bedroom, a bunkroom, bathroom, and open plan living, dining and kitchen. This is surrounded by a deck, which houses outdoor dining too. The communal building becomes a secondary dining space for overflow from the private baches.

Fig. 3.33 ; 3D View from groundskeepers house

Fig. 3.34 ; 3D View of baches boardwalk

Fig. 3.35 ; Section A at 1:200

Fig. 3.36 ; Section B at 1:200

Overview

These 3D views show some of the interstitial spaces within the baches, the reception/ arrival space, and the campground area. These spaces are designed to facilitate social interaction to enhance community, still with some degree of privacy. The level changes, timber slat screens, and distances are all elements that give some privacy between the public space and the more private areas.

Particularly in the bach area, the main boardwalk is in the foreground, with the timber screen giving some privacy to the outdoor dining area. The deck that connects the bach to the main boardwalk allows for social interaction to happen, that perhaps the neighbour was walking past, and could stop here and chat to the owners sitting in their outdoor space.

Fig. 3.37 ; 3D View of baches from boardwalk

Fig. 3.38 ; 3D View of wharf, boatshed and reception building

Fig. 3.39 ; 3D View of outdoor dining area in campground

Design Project Three : Reflections

project three ;

; development of connections to coastline context to facilitate activity

; refined masterplan to democratise the views and access

; extend walking tracks to give greater access within the wider site

Project Three is the final design project within this research portfolio, in which all research, both for design, and through design, has been integrated.

The context of the ridgeline was further designed, with walking tracks that were extended, and implementations that would facilitate activities. The DoC walking tracks that exist were drawn out, with access to the beach, a lookout, and a wharf and reception added. This creates further access to the coast and allow for the best parts of the coastline to be enjoyed, without privatizing the land for single owners, and restricting public access.

The site masterplanning was also refigured, to align with the walking tracks, and to democratise the views. This was influenced by the siting principles taken from Sea Ranch, where clusters of houses are sited in rows perpendicular to the coastline. This gives large areas of land between the clusters, for shared use, and using the slopes towards the views allows for views to all dwellings.

The ownership of the land and dwellings would operate under leasehold, so that the land can be owned by the Department of Conservation. The baches could be owned by individual owners, with the campground being collectively owned and operated by these bach owners. This option means that the land will remain as one parcel, so that it wouldn't be subdivided in a suburban manner, and could be shared collectively by all visitors.

The simple baches themselves serve for families or owners that want their own private dwelling on the coast. These are small, between 50-65m^2 each, and reflect some of the bach typology research done earlier in this research.

On reflection after this third project, it became clear that the research was combining three scales in order to create a mindful subdivision on the land. This project looked more in-depth at the middle scale; clustering the dwellings perpendicular to the views, using the slope to give views, whilst retaining open land between the groups for public access and shared land. These strategies all come together to create a subdivision that is light on the land in terms of its impact, but also does not privatize the coast and the public walking tracks.

This project also refined the larger scale; connecting the development with the context of the island, particularly the water's edge, and by refining the ownership details. By using leasehold and selling the dwellings separately, the land is keep together and not subdivided into small parcels. This also means that one body is in charge of the land, so there is a clear principle of how to keep the land in its best form.

further research;

The nature of this research has generated more questions and the possibility for further exploration. The following aspects could be further developed if more time was permitted, or if the research were to be tested against the research question under a different setting.

a higher density;

The density of the development has the possibility of being increased, whilst still retaining the low-impact principles of the project. There is a second ridgeline within the subdivision, where a similar development could be designed with similar design strategies. It is a north facing slope, with views northeast facing, similar to the ridgeline where Project 2 and 3 are located. This is indicated in blue, and shows how a similar pattern could be repeated. This would increase the density of the development to 30.1 occupants per hectare.

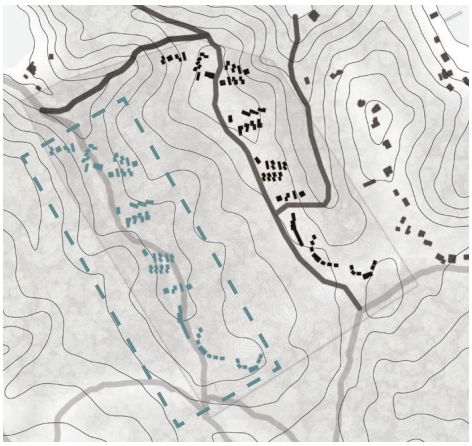


Fig. 3.40 ; site plan of a higher density

an alternative site;

The design strategies learned throughout this research have the possibility of being applied elsewhere on the New Zealand coastline. This would test the success of the research, and how site specific these particular principles have been. Most design strategies used, particularly those of the small scale, can be applied elsewhere; timber framing, small scale, simple form, on timber piles, clustering dwellings, shared facilities, siting dwellings perpendicular to the coast, and giving access to all.

Fig. 3.41 ; alternative site option

Final Conclusions

Through this research, and the continuous dialogue between research *for* design, and research *through* design, the research question has been answered. By splitting the overall research into three projects, there has been an opportunity to develop design strategies through each of them, and test these in different instances. The final project, A View For All to Sea, is a culmination of the learnings from all three projects, and is the most appropriate design outcome to answer the question.

The first project, A Grid Over the Land, began to achieve a low-impact at a smaller scale; timber materiality, simple forms, small dwellings, and north facing spaces. This project was also influenced by placing the dwellings in the grid of the subdivision, and within this, siting the dwellings along the contours. However, the grid format, despite its sensitive adaptation, became suburban, and did not take into account the topography, access, views, wider site or shared spaces. These issues were the challenge to achieve in Project Two.

In Project Two, Inhabiting The Ridgeline, the amount of land used was rapidly decreased, leading to less impact on the environment. The development was also pulled back from the coastal edge, protecting this important piece of coastline. The focus of this project was to cluster the dwellings within the ridgeline, and to introduce campgrounds as a way to make the development more financially accessible. By introducing the public program of the campground, the privatization issues are dissolved. Shared facilities and open spaces were introduced here, which would both encourage social interaction, but also reduce the amount of facilities needed overall, reducing impact.

Project Three, A View For All to Sea, encapsulates all three projects, and shows the result of nine months of research. One of the main focuses of this project was creating a close relationship with the context, and creating greater access to the land for all. Here, the development was refined through many scales, and creates a greater connection to the coast, while at the same time, minimising the impact of inhabitation near the coast. An appropriate density was found, through reducing land used, and respecting the surrounding context and density of baches. The final design, and many design strategies throughout, are closely related to Kawau Island and its specificities. By being site specific, there is a greater respect to the surrounding environment, which in turn, has less impact on the land.

Large Scale ;

Ownership and land subdivision are important, and by using leasehold so that the land can be owned as one, is the solution in this research. The omission of fences or formalised property boundaries also enhances the shared nature of the development, which is also key at the mid scale. Pulling back from the immediate coastal edge also leaves this untouched, with interventions near the water that still allow for daily use.

Mid Scale ;

Clustering the dwellings in groups to create community between small groups is important, but it also reduces the overall impact on the land. By concentrating areas of building, there is less land used, and less impact throughout construction. Shared facilities and greater access to the public is also key, avoiding the exclusive nature of the contemporary holiday house.

Small Scale ;

Building with low impact is important at the dwelling scale; using timber framing and construction, through prefabrication, reduces impacts on site and lessens the embodied energy. Using strategies such as being north-facing and being parallel to the contours also aid in using less energy and excavation.

The combination of these three scales, explored within three projects, have collectively lead to the key learnings within this research.

How can coastal housing be designed to have less impact on the environment?

key learnings from each project ;

project one;

- siting dwellings parallel to contours to work with the land, and less excavation
- north facing outdoor space to make the most of passive heat and sunlight
- dwellings on timber piles to impact site less
- timber framed for less embodied energy and easier to transport to site
- simple form and small to be modest in the environment

project two;

- cluster development within subdivision to impact less land overall
- pull back from the coastal edge to leave the immediate coast untouched
- cluster dwellings in groups to have concentrated impact on land
- private and public accommodation to give access to more than just the exclusive few
- shared facilities so that there are less facilities overall
- prefabricated construction to spend less time on site therefore less impact

project three;

- grouping dwellings perpendicular to views to retain views for all land
- connect development with larger context of environment
- use slope of the land to give views to all dwellings
- keep ownership and land parcels together, use leasehold to sell dwellings individually
- design with site specificity to respect the environment and context

concluding statement

This research proposes design strategies that still allow the occupation and enjoyment of the New Zealand coastline, while being sensitive to the environment. Through the protection of the coastline, the beautiful landscape can be shared by all, without comprimising the very reason we go there.

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Appendix 1

Site Model at 1:2000

Fig. 4.1 ; aerial view of CNC-routed site model

Fig. 4.2 ; view from Schoolhouse Bay Road

Fig. 4.3 ; view from Bon Accord Harbour of boatshed and reception, and houses on ridgeline

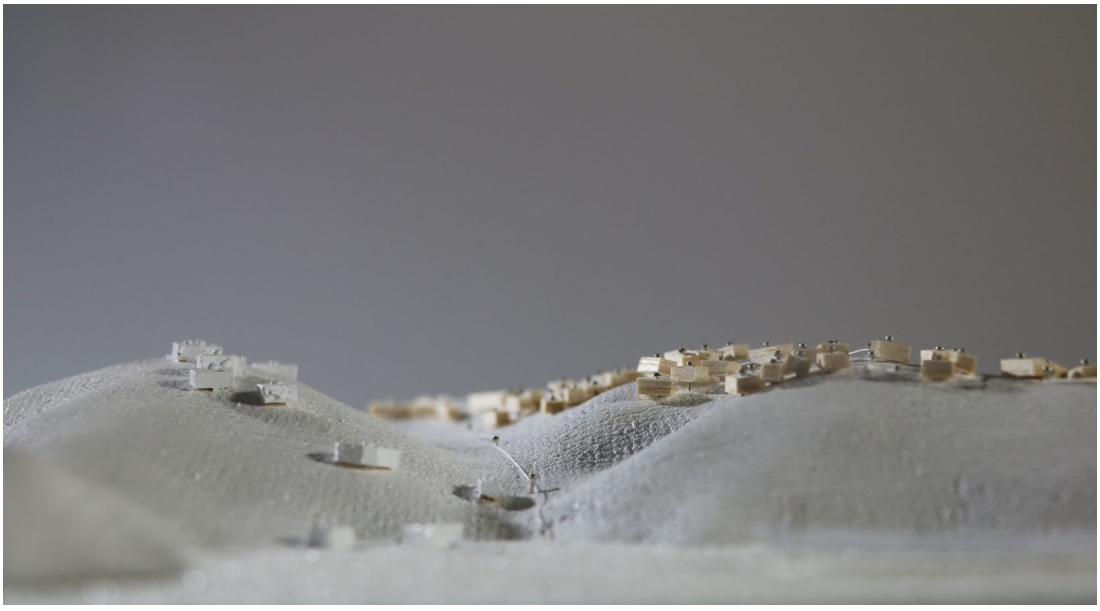

Fig. 4.4 ; view up valley with houses on the right

Appendix 2

Site Model at 1:5000

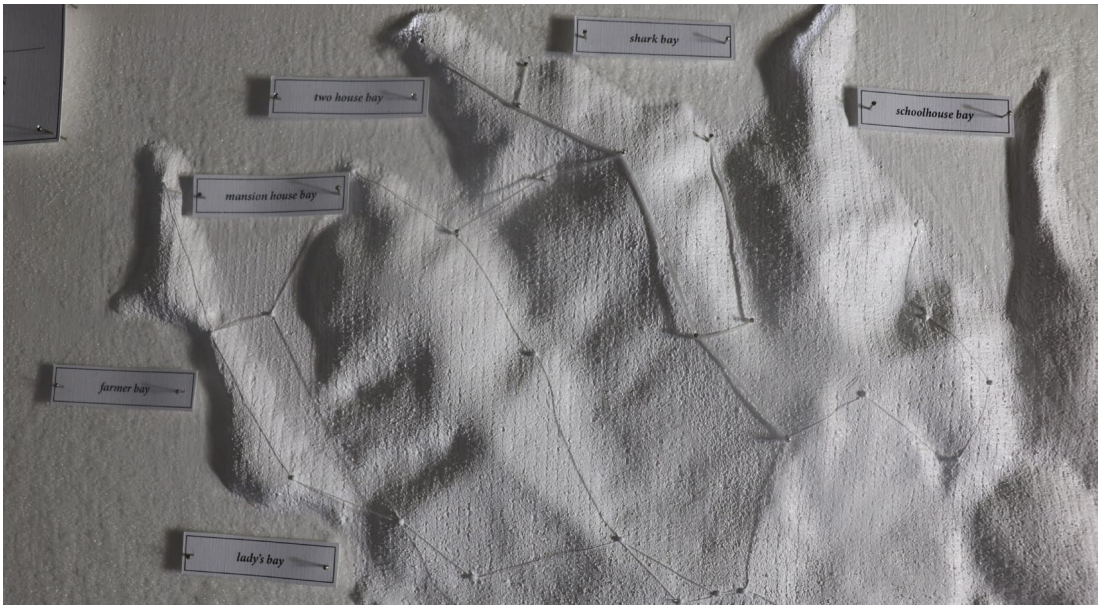

Fig. 4.5 ; aerial view of CNC-routed site model

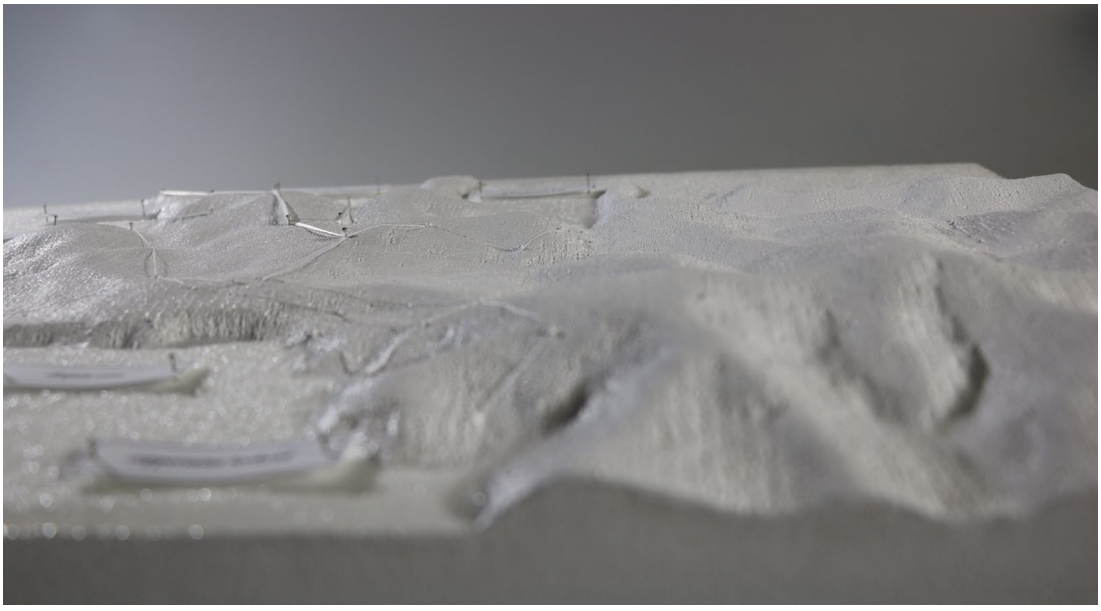

Fig. 4.6 ; view from South Cove

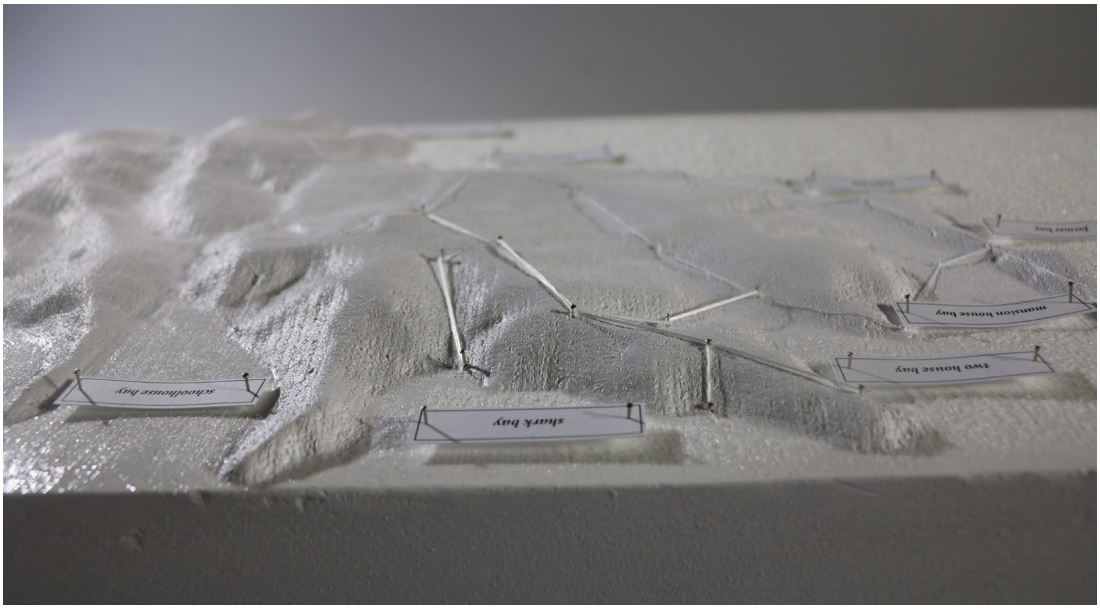

Fig. 4.7 ; view from Bon Accord Harbour of ridgeline and further context

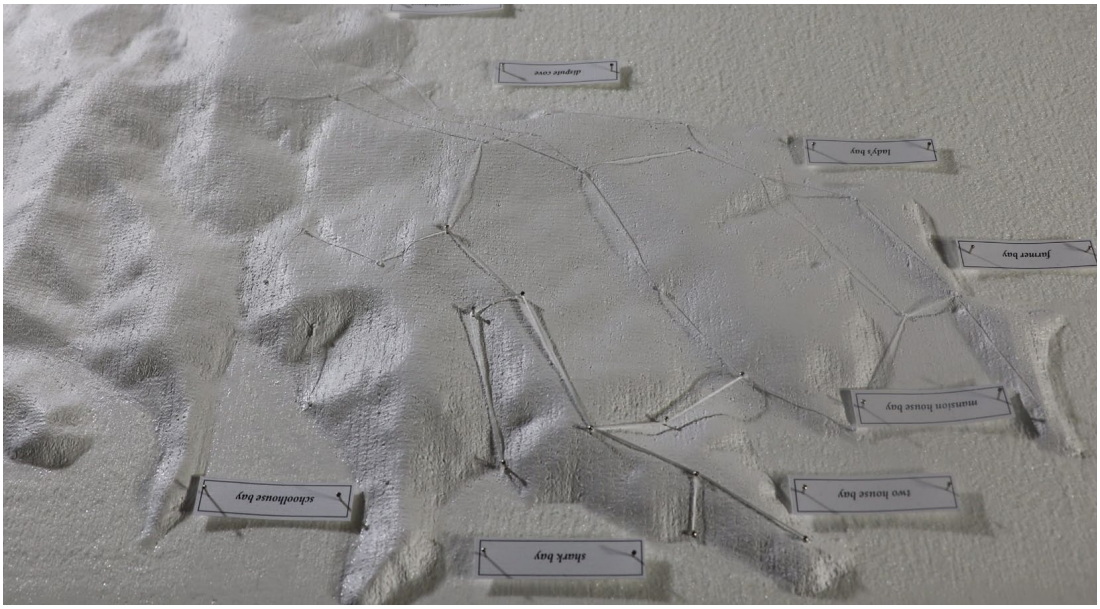

Fig. 4.8 ; view of surrounding land of subdivision