

***AESTHETICS* OF HOME**

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*Continuity and variation in New Zealand Medium
Density Housing*

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To Mum, Dad and Emma, thank you for all the love and support not only over the past five years in architecture school but in every decision I have made and will continue to make.

Finally, to my Grandad, thank you for instilling your love for art and architecture in me, I will forever cherish the connection we share over this. Thank you for all of your support and advice over the years.

ABSTRACT

In New Zealand, most people do not find Medium Density housing (MDH) visually appealing. In October 2017, BRANZ carried out a survey on the different attitudes New Zealanders have towards MDH. This study concluded that the visual aesthetics is one of the top issues in shifting the acceptance of MDH within New Zealand. (BRANZ, 2017. p.2) Additionally in an attempt to house many people quickly, there have been growing concerns around the quality of the aesthetic output. (Howden-Chapman, 2015. p.80) This negative attitude towards MDH has fuelled the ever growing housing crisis.

This thesis proposes that improved aesthetic qualities can be achieved within a high density multiple housing project. It argues that identifying and analysing the current aesthetic issues connected with existing MDH in New Zealand, will create a starting point for further design-led research. From this critique, this thesis aims to design a viable alternative to the current New Zealand approach to MDH. This design will aim to model varied aesthetic qualities and to identify key strategies for potential application in other projects.

Research will occur through an extended series of different design-led research projects. Initially a quick fire design exercise in parallel with initial background research around the field of MDH and aesthetics will form the basis to begin from. Self and peer reflection will follow to inform the iterative research, extracting the key issues emerging from the research. Both research for design (theories and precedents), and researching through a series of iterative design projects occur. These two integrated research methods will be repeated in cycles throughout the year to keep the research current throughout the process and develop its depth.

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INTRODUCTION

Introduction	
0	Motivations
0.1	Aim and Scope
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0 MOTIVATIONS

Growing up in East Auckland and then rural Christchurch I have witnessed two very different ways of living – the fast paced, often overcrowded lifestyle of Auckland and the slower, more relaxed and spacious lifestyle on the edge of Christchurch. There was little Medium Density Housing (MDH) I came into contact with and where I did it was repetitive and bland.

Since moving to Wellington I have had the opportunity to reside in a small Medium Density complex in Mount Victoria. This has given me insight to the true social and communal benefits that MDH can offer, however MDH in New Zealand is still too often bland and repetitive in nature.

This is a view that a majority of Kiwis share. Late last year BRANZ conducted a survey on the different attitudes towards MDH in New Zealand. Concluding that aesthetics was one of the top issues in shifting the acceptance of MDH in New Zealand. (BRANZ, 2017) This negative perception of MDH has additionally been fuelled by the ever growing housing crisis. In an attempt to house a lot of people quickly, there are a lot of concerns around the quality of output. (Howden-Chapman, 2015. p.80)

There is clearly opportunity to improve the quality of aesthetics and architectural design within MDH. We can and should do better.

There are few successful precedent for MDH in New Zealand posing the question, how can the continuity and variation in New Zealand Medium Density Housing be improved?

THE PROBLEM

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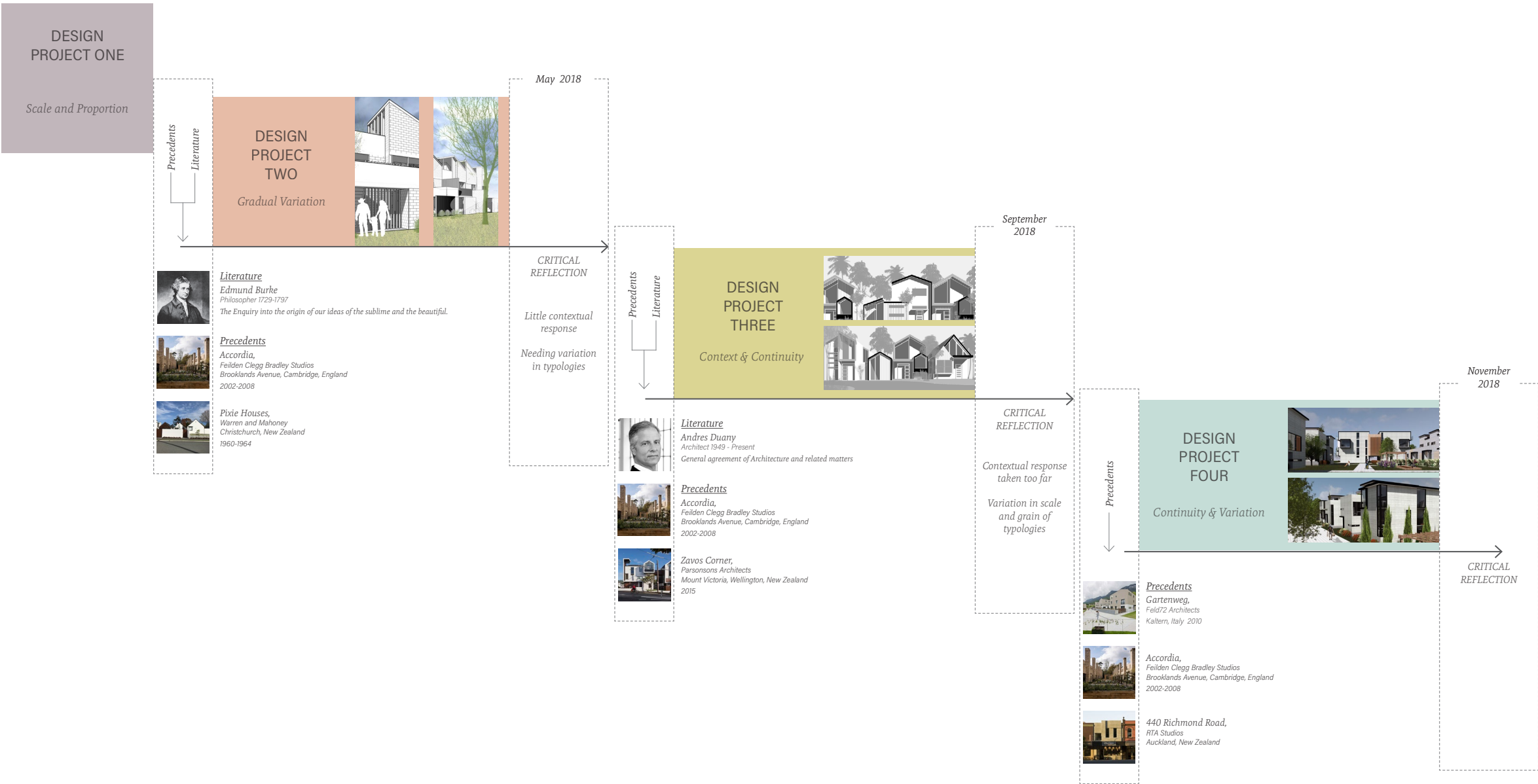
0.1

AIM AND SCOPE

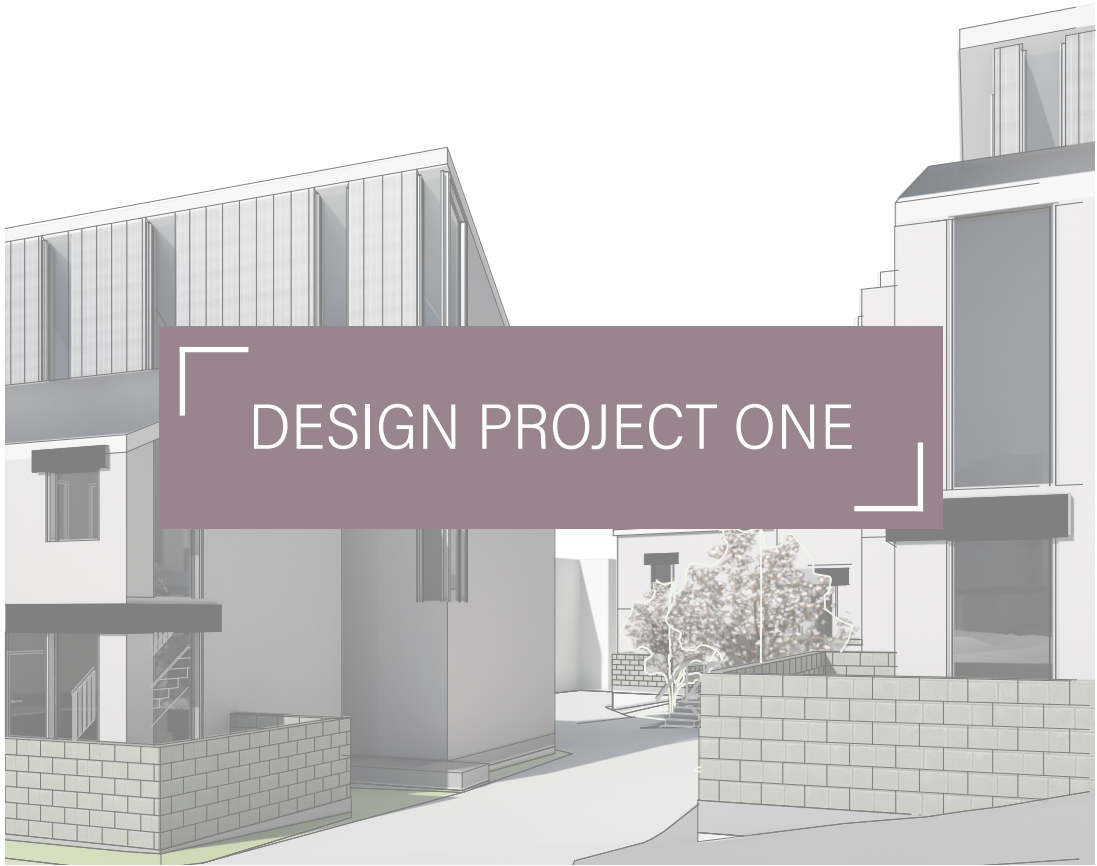
This thesis proposes that improved aesthetic qualities are necessary and can be achieved by focusing on aesthetic qualities within the design of high density multiple housing projects. It argues that identifying and analysing current major aesthetic issues connected with existing MDH in New Zealand, will create a starting point for design-led research that will then explore and test ways that these issues can be addressed. From this ongoing critique, this thesis aims to design a viable alternatives to the current New Zealand approach to MDH. Aiming to identify and model aesthetic qualities of value to MDH and to identify key strategies for potential application in other projects.

0.2
METHOD

Research will occur through a series of different research techniques. Initially background research around the aesthetics and the field of MDH alongside a quick-fire design exercise will form the basis to begin from. Critical iterative reflection will follow to guide the research for design (theories and precedents), and researching through a series of iterative design projects. These two research methods will be repeated in cycles throughout the year to keep the research current throughout the process.



< fig 0.7 Methodology Diagram



< fig 1.0 Street view courtyard area of Design Project One

1

Understanding the problem

1.0 Initial Design Tests

comparative critique (series one & two)
project one design
reflections on project one design

1.1 Research Overview

establishing the scope of research

1.2 Aesthetic Research

key ref 1: A philosophical enquiry into the sublime and the beautiful // Edmund Burke;

- gradual variation
- beauty and aesthetics

1.3 Precedent Research

key ref 2: Pixie Houses // Warren and Mahoney

key ref 3: Accordia // Feilden Clegg Bradley Studios

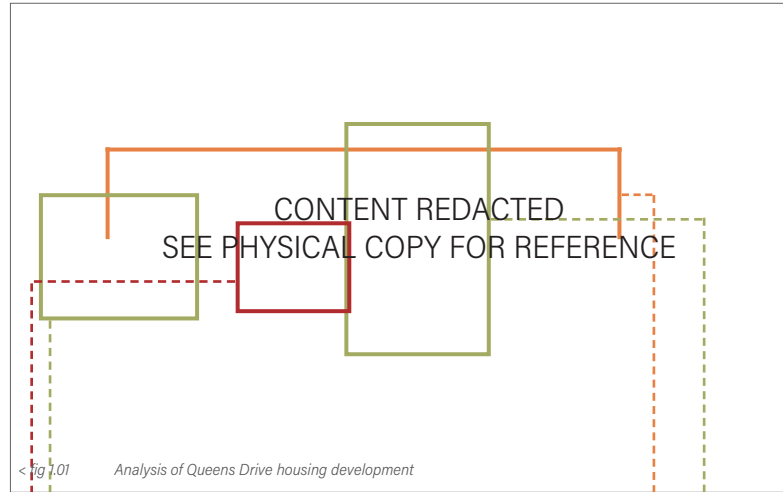
1.0 INITIAL DESIGN TESTS

To form a starting point, a quick-fire design test was conducted based on the findings from a critique on current MDH based in Wellington, New Zealand. The findings of this critique identified that the main aesthetic issues identified were repetition, minimal street and entrance privacy and the mass standardisation of fittings. The design outcome from this quick-fire design test helped shape the design brief and scope for the projects to come.

1.01 COMPARATIVE CRITIQUE SERIES 1

Through this critique it is clear that the main aesthetic issues of repetition and blandness come through prominently. Identifying these issues across a range of different examples in wellington has also shown the problem at a larger scale. Through this initial critique an understanding of potential methods to achieve the thesis question, such as playing with scales and proportions, became apparent. This critique then formed the basis for the brief of Design Project One along with guidelines of what to avoid when initially designing.

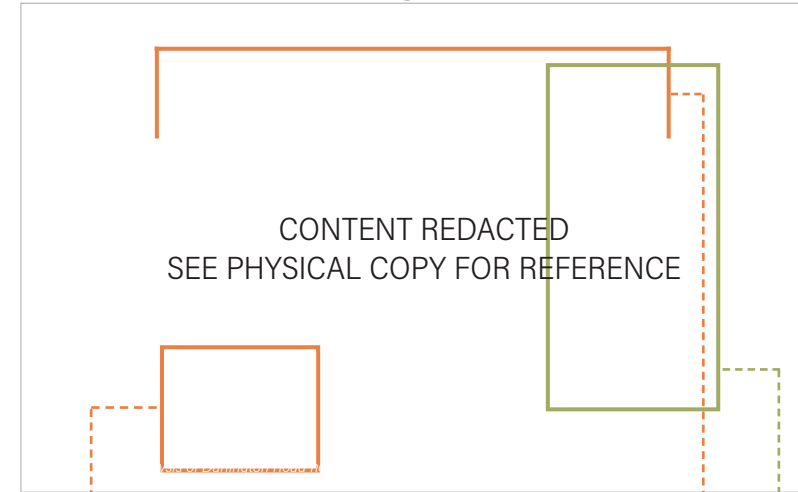
Queens Drive



< fig 1.01 Analysis of Queens Drive housing development

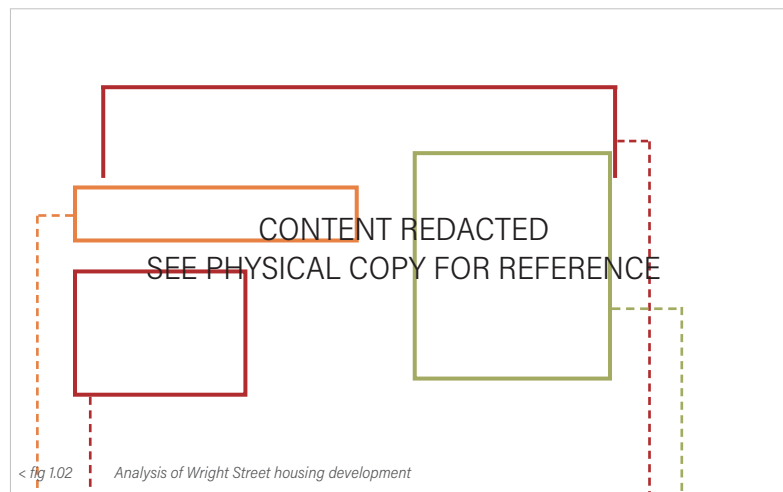
- Slight differentiation in building profiles, giving a more diverse feel
- Size/height difference, breaks up aesthetics
- Vertically planned of privacy/programmes
- Outdoor living exposed to street. Garage and front door side by side

Darlington Road



- Same typology, just mirrored. creating slight diversity with colours/textures
- Slight set back in entrances, still quite noticeable from street front
- Minimum exposure to street front. Giving a lot of privacy

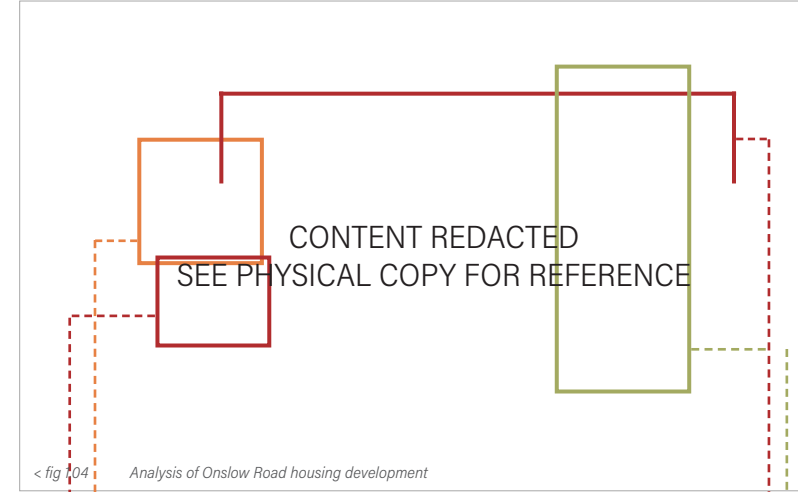
Wright Street



< fig 1.02 Analysis of Wright Street housing development

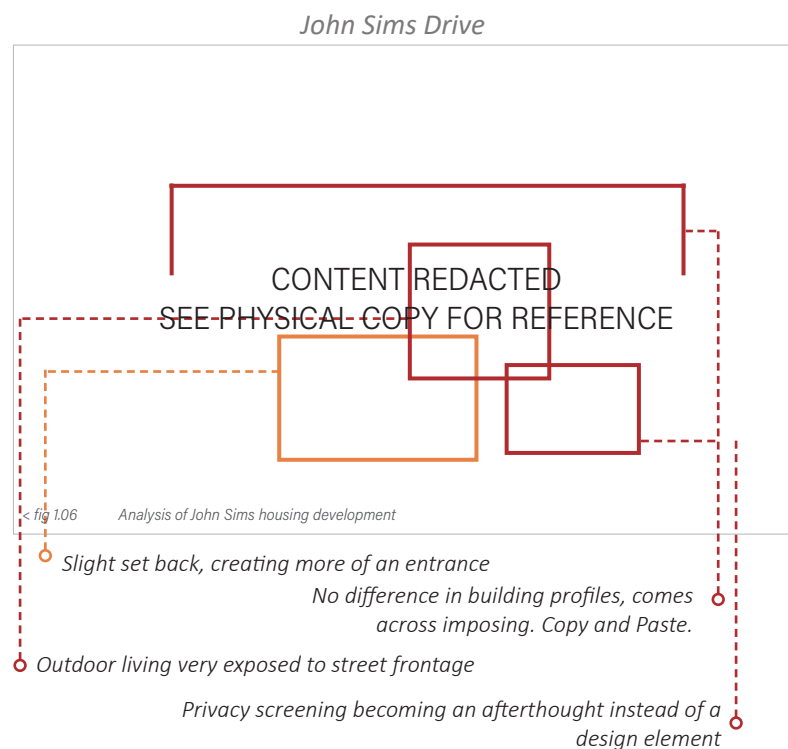
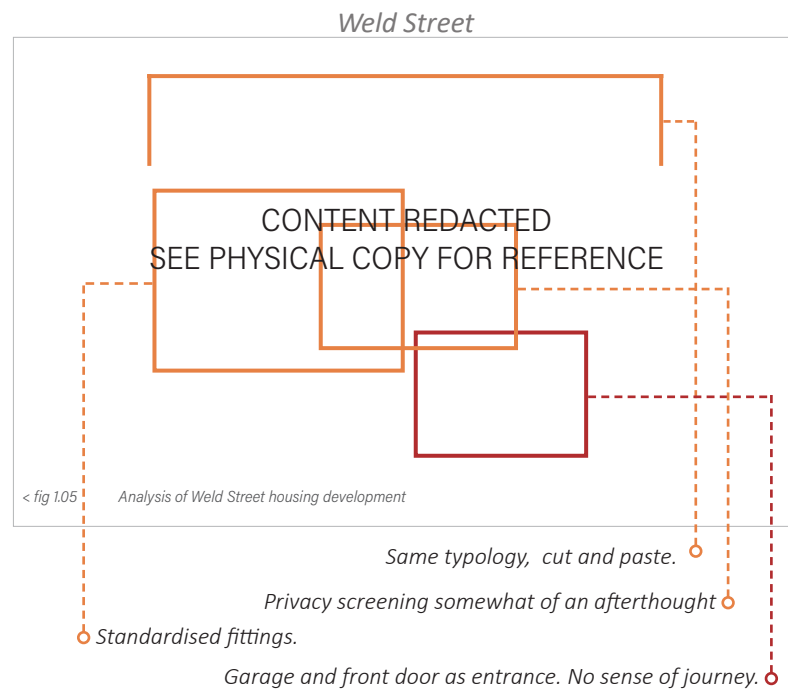
- Garage and front door as entrance. No sense of journey.
- Standardised fittings.
- Same typology, cut and paste.
- Set backs and covered walkways offering more of an entrance/journey

Onslow Road



< fig 1.04 Analysis of Onslow Road housing development

- Privacy screening from street
- No difference in building profiles, comes across imposing
- Street frontage car park & front doors
- Vertically planned of privacy/programmes

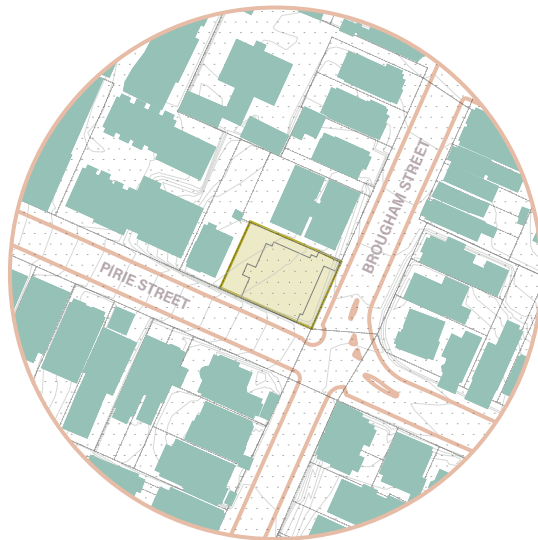


1.01

COMPARATIVE CRITIQUE SERIES 2

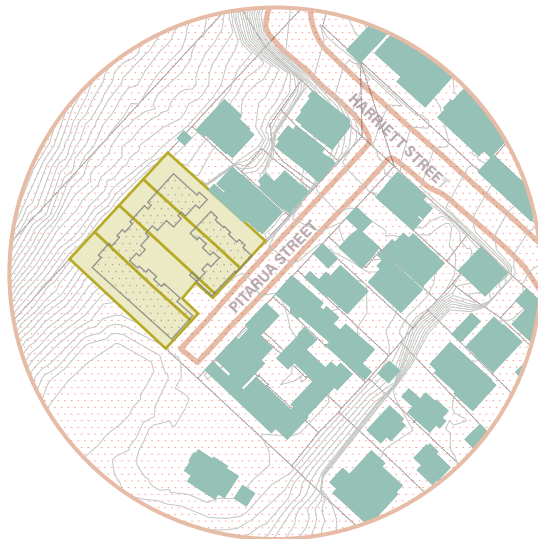
The precedents Zavos Corner and Thorndon Mews were chosen and analysed as part of the second comparative critique series. These two projects were chosen due to their density, site location and similar site size. The Zavos corner case study houses only 8 dwellings but has a very high density of 142 dwellings per hectare and has a site size of 564 m². The Thorndon Mews case study is similar in density with a total of 123 dwellings per hectare and houses 15 dwellings on a site size of 1216 m². This information advised that in a similar project an appropriate site size for the location of inner city suburbs would be somewhere around 1000 m² and aim to hit a density of around 130 dph. This informed the choice of site for Design Project One.

ZAVOS CORNER



< fig 1.07 Extents map of Zavos Corner

THORNDON MEWS



< fig 1.08 Extents map of Thorndon mews

Comparative Site Selection Study

PROPOSED SITE



< fig 1.09 Extents map of proposed site

1161M/2 Site
12 Dwellings
DPH 103

This is the selected site for the 'three week thesis' design test. It is 1160m² in size and currently is only planned for 5 dwellings. Meaning the density would sit at 43 dwellings per hectare. The design outcome however has proposed a development housing 12 dwellings, bringing the density up to 103 dwellings per hectare which is quite comparative to the previous two examples.

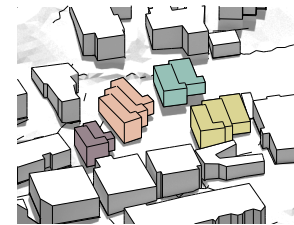
1.02

PROJECT ONE DESIGN

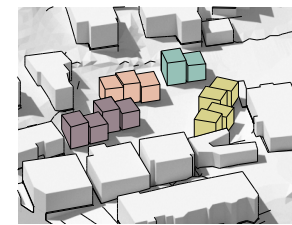
This test was done on a site in Kelburn, Wellington, not too far from the main university campus. The selected site was originally set out for 5 plots of land. Through playing with scale and proportion as identified through the initial critique I was able to comfortably design 12 dwellings, doubling the density of site.

A formal iterative design process was undertaken, which was influenced by typological options contrasting to the ones identified as unsuccessful in the first comparative critique series. From there, a second iterative series of placement on site was done. This outlined different variations for potential placement on site with the duplex typologies, responding to the topography of site, site boundaries and environmental factors such as shading and wind tunnelling.

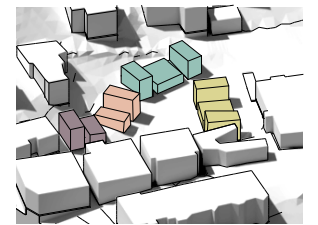
Formal Iterative Studies



Concept 1
4 Terraced Typologies
10 Dwellings

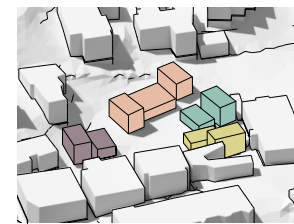


Concept 2
4 Duplex Typologies
13 Dwellings

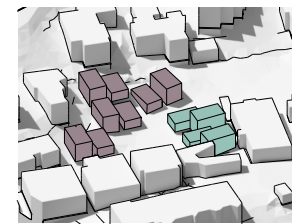


Concept 3
4 Duplex Typologies
12 Dwellings

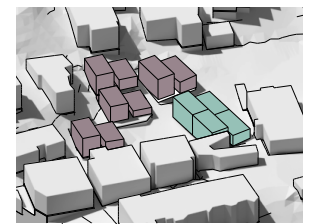
Placement Iterative Studies



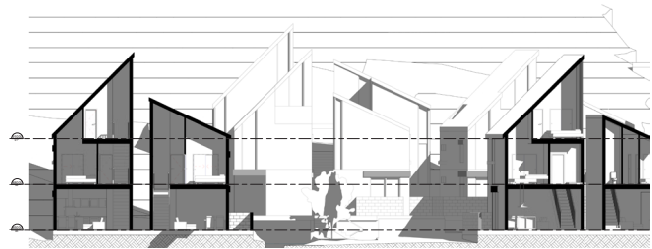
Iteration 1



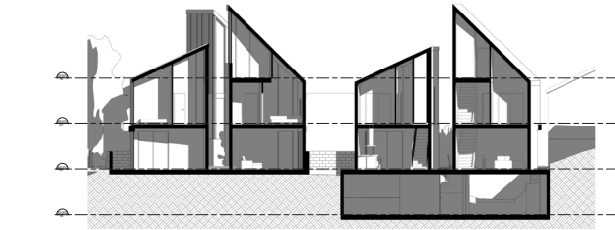
Iteration 2



Iteration 3



< fig 1.11 Site Section A-A



< fig 1.14 Site Section B-B



< fig 1.12 Site Plan



< fig 1.15 Level 1 Floor Plan



< fig 1.13 Level 0 Floor Plan



< fig 1.16 Level 2 Floor Plan



< fig 1.17 Design Outcome 3D Overview



< fig 1.18 Design Outcome Interior Courtyard

1.03 REFLECTIONS

Upon reflection of Design Project One the initial design aesthetic design drivers that are immediately apparent are verticality, repetition and private walled gardens. This was influenced largely through the typography of the site, having the steep slope helped introduced an element of verticality that was elegant and slender and did not come across too imposing in proportion or scale. The site additionally also aided the successful use of repetition by having the duplexes slipping vertically creating a distinct visual difference in the elevation and profiles of the buildings. Additionally the sense of scale also aided in the visual understanding of this project. The surrounding dwellings are of unusually large sizes meaning the scale and height of these duplexes did not look or feel out of place. Some issues that were encountered with this design project was the walking and driving accessibility was very limited due to the one lane street and also provided little communal aspect to the development.

1.1
RESEARCH OVERVIEW

To contextualise the research, relevant architectural theory was explored to identify potential aesthetic design drivers to be tested, to draw possible alternative outcomes to improve the aesthetic qualities of medium to high density housing in New Zealand. This literature review discovers potential theoretical approaches to resolve the problem.

The main theoretical ideas and approaches that were investigated and analysed in this first design project were the theories relating to one of the main aims and objectives – Variation. The selected theories and precedents for this design phase specifically deal with variation in different ways and each contribute knowledge that will be tested through a design experiment.

1.11
A NOTE ON DENSITY

This thesis defines density as Dwellings Per Hectare as noted in **the city of London supplementary planning guidance on housing density**. The aim being to hit a medium-high density of 50-75 dwellings per hectare without sacrificing the necessity for common space and open areas.

3.2 Number of Dwellings per Hectare/Acre (for use in lower density)

This is the most widely used method of measurement, but should only be used for lower density developments as dwellings can vary widely in size and accommodation.

$$\text{Number of Dwellings per Hectare} = \frac{\text{Number of Dwellings}}{\text{Site Area (Hectares)}}$$

3.6 The table below sets out examples of comparative density measurements expressed in habitable rooms, dwellings per hectare and plot ratios for a range of different densities.

Comparative Housing Densities	
High	173 - 247 + habitable rooms per hectare 49 - 74 dwellings per hectare > 0.5 : 1 + plot ratio
Medium	100 - 173 habitable rooms per hectare 25 - 50 dwellings per hectare 0.2 - 0.5 : 1 plot ratio
Low	< 100 habitable rooms per hectare < 25 dwellings per hectare < 0.2 : 1 plot ratio

< fig 1.19 Comparative Housing Densities Table

1.2 AESTHETIC RESEARCH

“On the whole, the qualities of beauty, as they are merely sensible qualities, are the following. First, to be comparatively small. Secondly, to be smooth. Thirdly, to have a variety in the direction of parts; but fourthly, to have those parts not angular, but melted as it were into each other. Fifthly, to be of a delicate frame, without any remarkable appearance of strength. Sixthly, to have its colours clear and bright; but not very strong and glaring. Seventhly, or if it should have any glaring colour, to have it diversified with others.” (Burke, 1990. p. 107)



Edmund Burke
Philosopher 1729-1797

1.21 KEY REFERENCE 1

The first key text is written by Edmund Burke (1729-1797) who was a philosopher, statesman and political theorist of the age of enlightenment. Burke wrote “A philosophical enquiry into the origin of our ideas of the Sublime and Beautiful” which reduces the idea of beautiful objects to a list of attributes that can then be translated to potential design approaches.

After analysing the attributes Burke speaks about and breaking them down as a set of seven ‘rules’ as such, it became clear that to be able to rigorously test this theory and its success this would have to be done in smaller experiments and reflect and extract throughout this process. For the following design project this thesis sets out to combine the first three rules as one overarching rule specifically addressing variation in aesthetics; Beautiful objects must be comparatively small and have a smooth, gradual variation in the direction of parts. This is not to limit the design, but to investigate each experiment with rigor.

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< fig 1.20 B A Broderick Townhouses

1.3 KEY REFERENCE 2

PIXIE HOUSES

Warren and Mahoney
Christchurch, New Zealand
1960-1964

Warren and Mahoney's distinct architectural aesthetic language was scattered across Christchurch in the 1960's, more commonly known as their series of 'Pixie Houses'. These dwellings lent themselves to a similar architectural language with slight variance and differences of architectural elements.



< fig 1.21 100 Office Road



< fig 1.22 8 Pentlow Place



< fig 1.23 9 Queens Avenue

This simple aesthetic language in conjunction with the slight variance between each dwelling provides an excellent basis for larger housing developments to implement a sense of individualism.

The analysis below examines the difference between a repetitive mass housing technique and a slightly more varied option. The latter experiment appears much more varied however is made up of the exact same content. This shows clearly how implementing a small rhythm or pattern can impact the overall aesthetic output greatly.



< fig 1.24 Repetition Analysis



< fig 1.25 Variation Analysis

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< fig 1.26 Shared avenues in Accordia

1.3 KEY REFERENCE 3

ACCORDIA

Feilden Clegg Bradley Studios
Brooklands Avenue, Cambridge, England
2002-2008

This award winning project set out to deliver a desirable place to live which has often proved challenging to do within the context of a high density housing complex. The intelligent balance of useable private space and high quality public outdoor space implements a sense of community.

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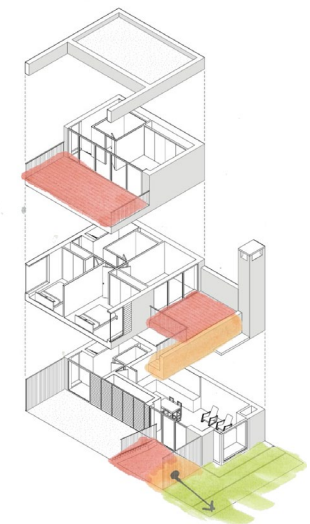
< fig 1.27 Accordia garage streetscape



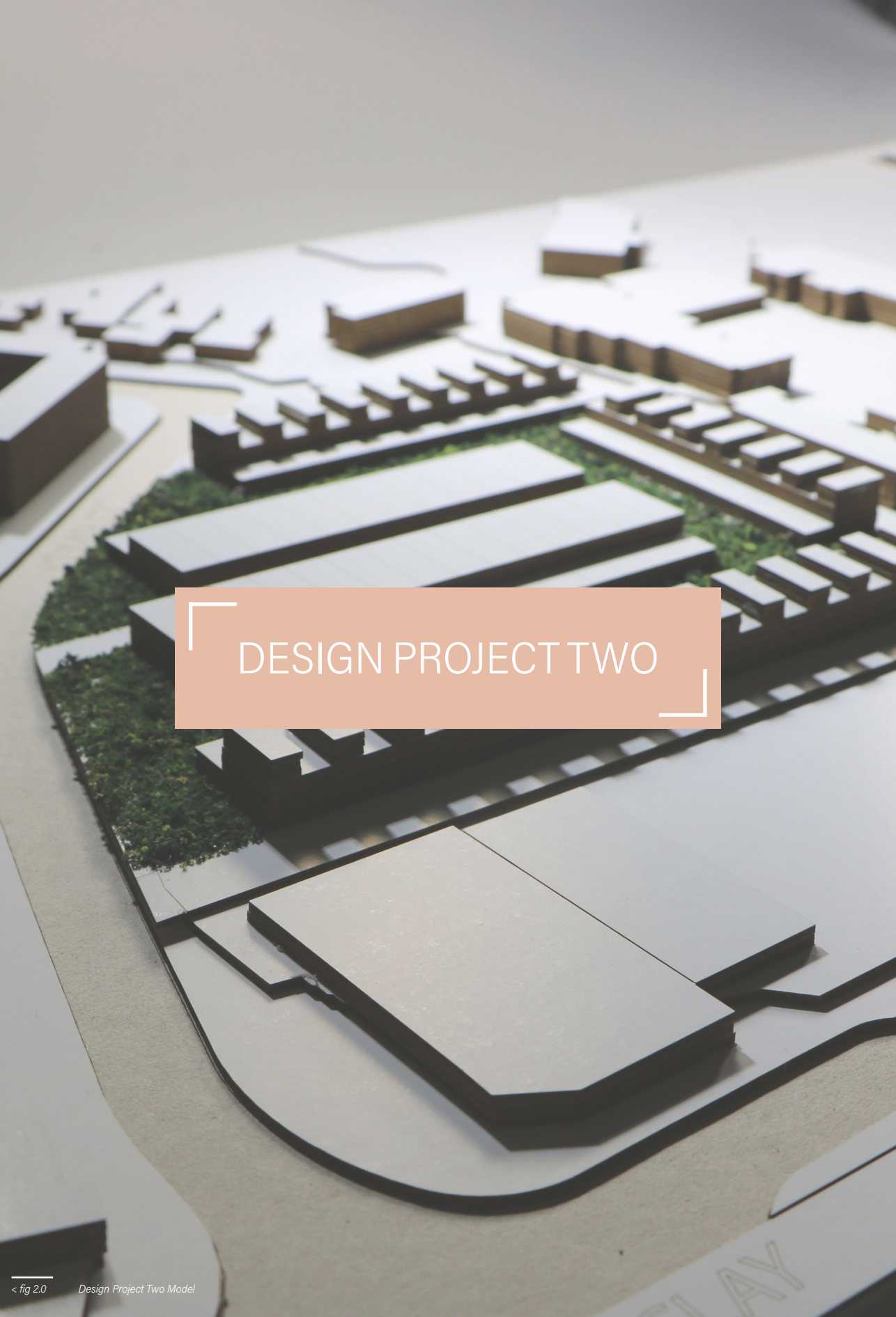
< fig 1.28 Threshold Analysis

There is a mix of unit typologies at Accordia, these are separated as different typology blocks, allowing for a structured site plan creating magnificent avenues between. Some design tactics that have been implemented to emphasize the connection with these shared outdoor spaces are the introduction of interim courtyard spaces that act as a threshold between the public and the private. Further emphasizing that the quality of this space is through it's multipurpose use and intelligent design.

Additionally prioritising the vehicle at ground level gives less consideration to the quality of the streetscape that spills out to this area, as repetition becomes more evident. However the high quality public outdoor space that services the other streetscape makes up for this.



< fig 1.29 Threshold Analysis



DESIGN PROJECT TWO

2

Testing Through Research

2.0 Establishing Site

site selection
surrounding analysis
typology analysis

2.1 Design Project Two

concept drivers
implementing theory
design project two
key reflections

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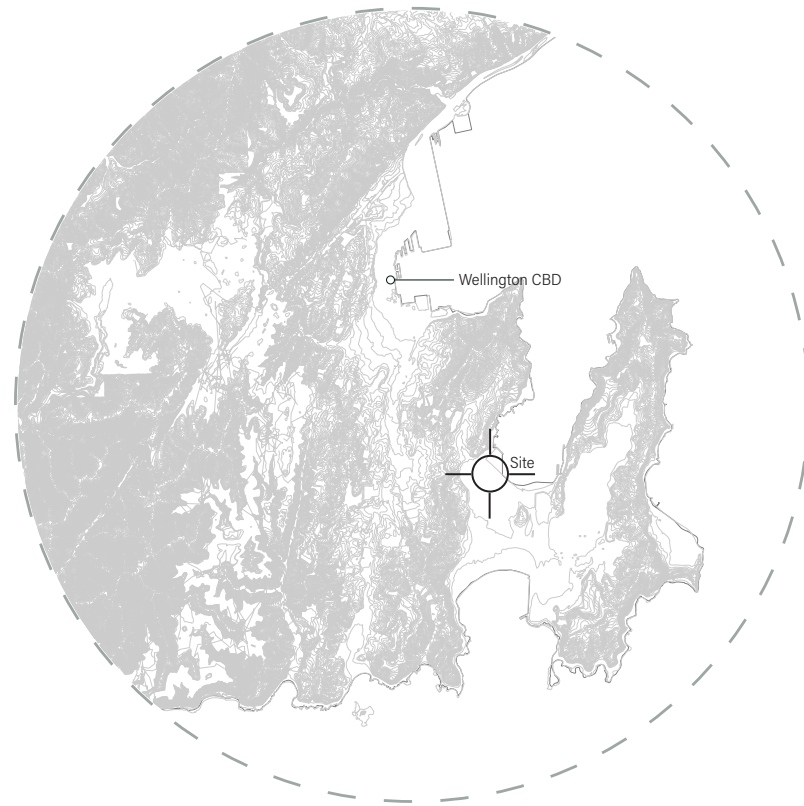
< fig. 2.01 Looking south over Kilbirnie, 1921

2.0 SITE SELECTION

The initial criteria and consideration for site selection was a plausible redevelopment site (brownfields), and good proximity to the city that was well connected with public transport. After some initial site exploration and investigation, these criteria became secondary to the idea of being connected through community and amenities. This is an essential consideration for this thesis as it proposes to link the wider community to the Medium Density Housing development.

The site is situated in Kilbirnie, Wellington. The main reasons this site was chosen for this thesis was because it has a significant sense of community and a diverse range in age, ethnic groups and social class. Additionally the site is surrounded with excellent amenities and already identified as a Medium Density redevelopment site in the WCC unitary plan.





< fig 2.02 Kilbirnie Context - District Plan



Community



Plausible
Re-development



Good Proximity to
CBD



Connection to
Public Transport

2.01

SURROUNDING ANALYSIS

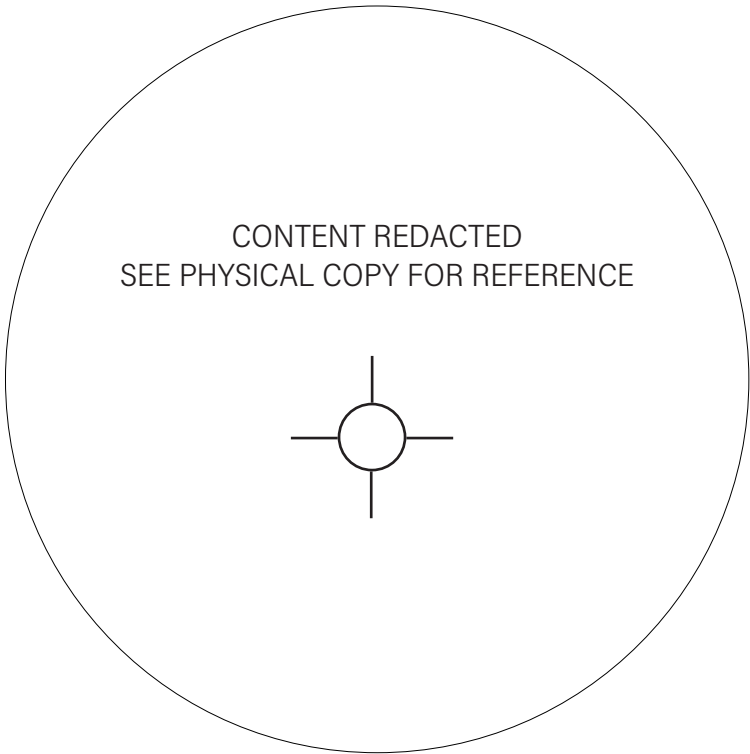
This case study is an in depth analysis on Kilbirnie, Wellington done in collaboration by McIndoe Urban Studio, Athfield Architects and Williams Architects. The analysis begins to draw out the characteristics of Kilbirnie through looking at patterns and strategies that arise in the figure ground study. One of the main things to be extracted from this case study for further exploration is the diverse use of mixed grain typologies. There are a number of larger footprint buildings scattered throughout Kilbirnie, amongst these are a mixture of older residential pockets that are sited on smaller plots and closer together, and newer residential pockets that have bigger footprints and larger plots. This all adds to the visual diversity of Kilbirnie with multiple strategies and treatments of the street edge.

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< fig 2.03 Characteristics of Kilbirnie analysis

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< fig 2.04 Kilbirnie overview figure ground



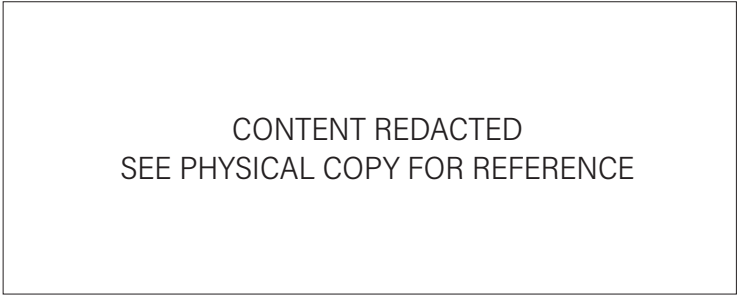
< fig 2.05 Kilbirnie Context - District Plan

- | | |
|-------------------------|------------------------------|
| Central Area | Outer Residential |
| Business 1 | Medium Density Redevelopment |
| Business 2 | Rural |
| Curtis St Business Area | Open Space A |
| Centre | Open Space B |
| Urban Development Area | Open Space C |
| Airport | Conservation |
| Institutional Precinct | Sea |
| Inner Residential | Over Water |

2.02

TYPOLOGY ANALYSIS

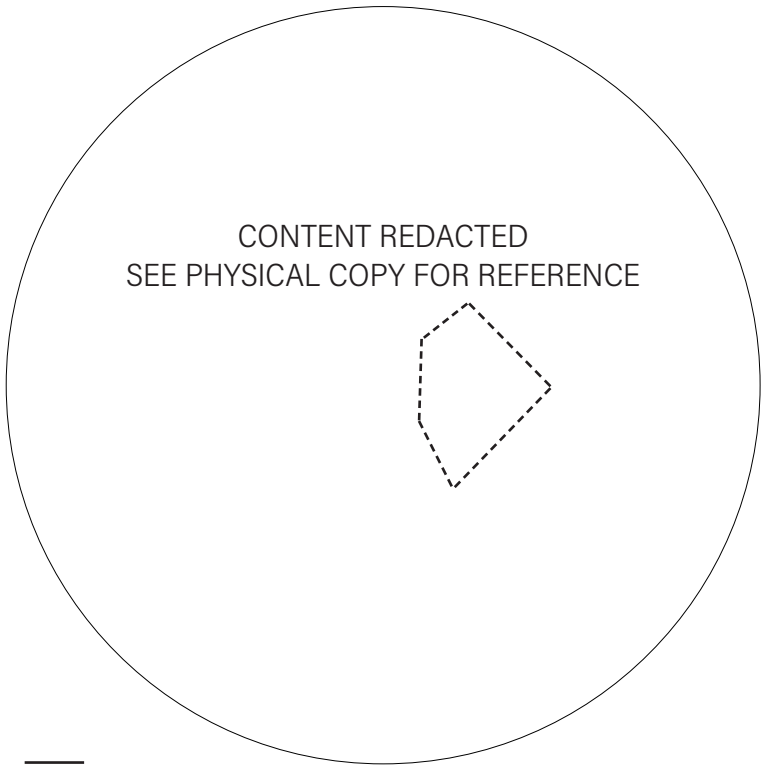
This typological analysis of Kilbirnie begins to draw out the main typologies within the area surrounding site through categorising them by height, use and form. It shows a snapshot of site and the immediate surrounds, examining the current use of site being the Brentwood Hotel and some of the amenities close by. One of the main factors to be extracted from this case study for further exploration is the range of typologies directly adjacent to the site boundaries. To the North of site there is Evans Bay Intermediate which is roughly 2 storeys in height and has a large block form. To the North/East of site there is a PlaceMakers, public car parking and a small MDH development, which again are roughly 2 storeys in height and range from ‘shed’ form to clustered row housing. South/East of site there are public tennis courts and a Resene store that has a ‘shed’ typology. South/ West and North/West of site house a string of low rise/single storey dwellings which is broken up by a larger Medium Density Housing block the ‘Kotuku’ Apartments. These typologies again add to the rich visual diversity that Kilbirnie offers, through this examination it is clear that the design solution needs to embody a similar range of variation within the typologies it offers.















< fig 2.06 Kilbirnie typology analysis

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< fig 2.07 Kilbirnie typology analysis



< fig 2.08 Kilbirnie Context - District Plan

- | | | |
|--|--|--|
|  Public Park |  Tennis Court |  Flood Zone |
|  Bus Stop |  Public Swimming Pool |  V.H Wind Zone Boundary |
|  Public Library |  Recreation Centre |  Tsunami Zone Orange |
|  Church | |  Site Boundary |
|  School | | |



< fig 2.09 Kilbirnie typology photograph series



< fig 2.10 Kilbirnie typology photograph series



< fig 2.11 Kilbirnie typology photograph series

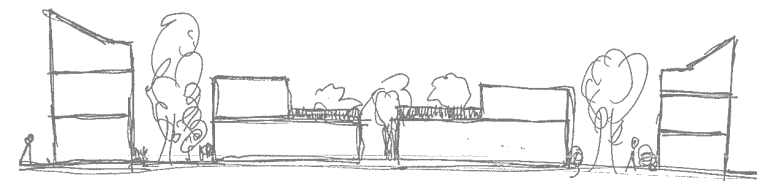


< fig 2.12 Kilbirnie typology photograph series

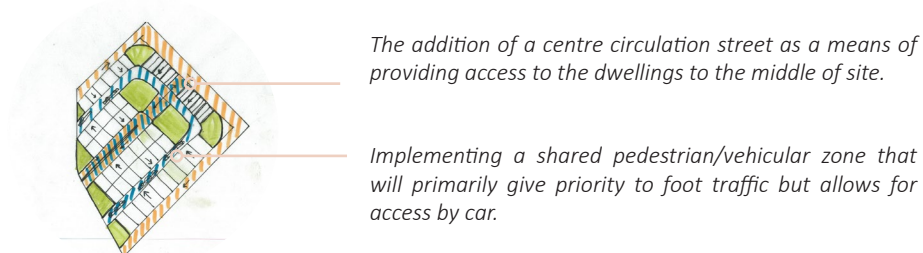
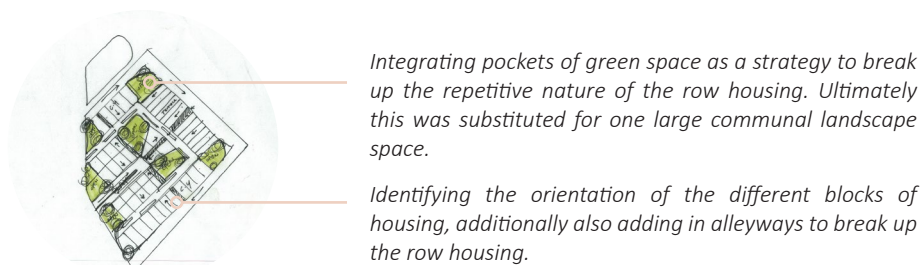
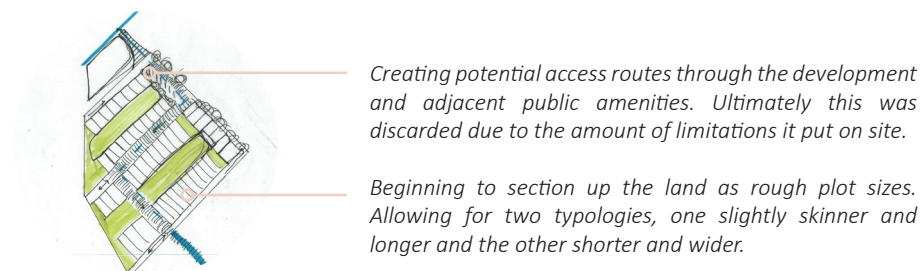
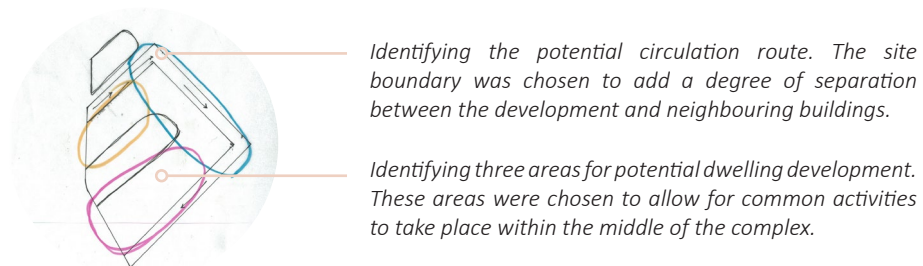
DESIGN PROJECT TWO

2.1 CONCEPT DRIVERS

The site has the potential to be developed in a variety of different ways. The first exploration develops from the idea of two different housing typologies in a 'U' formation all backing onto a shared green space. This is then developed further exploring site separation between dwelling size and shape and potential circulation paths of the site. The idea of shared green spaces was then further explored with the potential of having 'pockets of green space' separating dwellings and providing enough amenity space for the occupiers and surrounding community.



< fig 2.13 Initial concept section sketch to show different heights and typologies



< fig 2.14 Iterative master plan series

2.11

PROPOSED SITE PLAN

This design outcome has tested similar aesthetic qualities to that of Accordia. A central external landscape space has captured the focus for this project and determined the layout and planning of the overall site composition. The proposed site plan for this design phase introduces two different housing typologies with a shared green space between them. This green space becomes the yard space for both typologies and car access is circulated around the site and through the middle, in a similar manner to Accordia. This proposed site plan is clearly structured in composition. Edmund Burke's idea of gradual variation is tested through the dwellings in elevation. It is a space efficient design solution, housing 57 dwellings on a 1.2h/a site, reaching a density of 47.5dph.



< fig 2.15 Design Project Two Master plan



Elevation A - B
Typology A - Exterior Street View

2.12 IMPLEMENTING THEORY

Gradual variation of form and aesthetic language was tested in the elevations of the dwellings. This clearly shows the slight variation in architectural elements throughout the block of housing. This testing shows the opportunities to design within an architectural language whilst still having some individual identity for each house. This test is successful in the implementation of gradual variation, however it was noted that this is potentially a more customised way to design and build as linked individual houses due to the extent of variation and the number of fittings and changes in the exterior façade. This leads to an underlying question of how much variation is needed and to what extent does change and variation become too inefficient.



Elevation A - A
Typology A - Shared Courtyard View

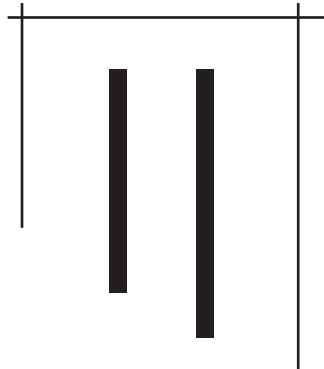
2.13

PROPOSED FLOOR PLANS

The floor plans of Design Project Two offer variation through programme, which in turn has created a sense of individuality whilst still having continuity throughout material palette. They explore the use of set-backs to create visual diversity within the façade, as well as using different sizes and types of openings within the same material palette to offer a sense of continuity.

An important thing to reflect on here is the tension this solution offers between variation and standardisation. Through variation it is inevitable that the cost of construction will be higher than a build that is of ‘copy and paste’ nature that is often seen in MDH. This is due to the variety of architectural elements such as windows, doors and set-backs. Although this is a valid concern, it is important to not let this sway the aesthetic judgement of this thesis.





2.14

CRITICAL REFLECTION

Critically reflecting on each stage of experimentation was vital in teasing out findings and gaps in my knowledge and its application. This helped shape further reading and design led research investigations. The focus of this design phase was to test Edmund Burke’s idea of gradual variation within the exterior thresholds of dwellings, as a method of improving the aesthetic qualities of MDH. This has specifically been tested on a row house typology to emphasize the gradual variation of the architectural elements in an otherwise standard typology.

The exterior threshold of dwellings, between private and public outdoor space, is a place that allows for design experimentation of variation and continuity to begin. This experiment has proven successful in creating a method to diversify the exterior envelope of medium density housing, moving away from the repetition that motivated this research. The surrounding aesthetic context of Kilbirnie has not yet been studied or considered in detail in the aesthetic response to this design experiment. The composition of buildings on site and the choice of aesthetic language applied is based on the earlier theoretical and precedent research. It resulted in a very ordered and composed design outcome, contrasted with the immediate surroundings of Kilbirnie.

This indicates scope for further inquiry into the aesthetic qualities of MDH and how to compare to its surrounding context. It is an issue that is at both an individual site and building composition scale, and is also part of a larger suburban whole. This reflection was critical for the development of this thesis as it positioned a contextual framework for the following design project. It helped develop a method for design that critically analyses the surrounding aesthetic context of a site, then extracts and implements site specific formal and aesthetic architectural elements as a basis for a design outcome.



<fig 2.16 Simulation 1 Site Overview



DESIGN PROJECT THREE

3

Understanding my tendencies

3.0 Knowing my mind

key ref 4: 100 Office Road // Warren and Mahoney

key ref 5: 9 Queens Ave // Warren and Mahoney

key ref 6: 8 Pentlow Place // Warren and Mahoney

key ref 7: Accordia // Feilden Clegg Bradley Studios

my redesign of precedent studies

3.1 Towards a Kilbirnie Context

kilbirnie character study series

housing design tests

3.2 Iterative Design Research

masterplan precedent analysis

masterplan design experiments

3.3 Visual Integration Experiments

key ref 12: General enquiry of rchitecture and related matters // Andres Duany;

- visual coherency

key ref 13: Zavos Corner // Parsonson Architects

connection & integration study

3.4 Larger Scale Site Implications

deisgn project 3

critical reflections

3.0

KEY REFERENCE 4

100 Office Road, Merivale, Christchurch
Warren and Mahoney (1966)



< fig 3.02 100 Office Road

A Small block of flats designed by Warren and Mahoney in Christchurch, New Zealand. Simple form with minimal extrusions or interruptions to exterior. Small pops of red around window trim with contrasting black window frame. Clean aesthetic elements, not overcomplicated with detail. Made of concrete block construction, a popular material choice in Christchurch throughout this time. This clean, simple aesthetic language is carried through their 'pixie houses' series and is a successful departure from a more traditional housing aesthetic for New Zealand.

KEY REFERENCE 5

9 Queens Avenue, Fendalton, Christchurch
Warren and Mahoney (1960-61)



< fig 3.03 9 Queens Avenue

"Designed for Warren's parents, this house is the best known of the 'pixie houses'. Picking up on both historical cottage patterns and then contemporary Danish models, these houses were composed of crisp boxes of concrete block, with punched openings and no eaves or verges on their gabled roofs. At the M.B. Warren house, each main room is surmounted by a steeply-pitched wooden roof – this breaking down of the house into small volumes, each with its own roof, was later extended by Ian Athfield and Roger Walker of Wellington." (Barrie, 2008)

This project sets a good precedent for testing the ideas of smaller volumes breaking up the site. This technique, applied here to a single family dwelling, can be potentially translated to Medium Density Housing as a means to break up the repetition. With the clean and simple crisp concrete block form, this allows for additional architectural elements to be added with clear proportional relationships without overcomplicating the outward aesthetic look and feel.

KEY REFERENCE 6

*8 Pentlow Place, Merivale, Christchurch
Warren and Mahoney (1966)*



< fig 3.04 8 Pentlow Place

An updated post-earthquake version of the original, this project is a fine example of how a successfully implemented architectural language very rarely dates. With a simple switch to more modern and earthquake resilient materials this project takes on the original aesthetic language of its predecessor the 'pixie house'. This clean aesthetic has once again provided for room to test the addition of architectural elements to the exterior, without overcomplicating the overall aesthetic.

KEY REFERENCE 7

*Accordia, Cambridge, London
Feilden Clegg Bradley Studios (2006)*

CONTENT REDACTED
SEE PHYSICAL COPY FOR REFERENCE

< fig 3.05 Accordia Cambridge

"Delivering light and fresh air at high density... Accordia, like all the best architecture, creates its own context and is already a place that appears to have always been there. The values of Accordia are those British cities need more of: a subtly controlling masterplan, a collaborative approach and an eye for both the detail and the big picture in the landscape and architecture." (Keys and Laslett, 2009)

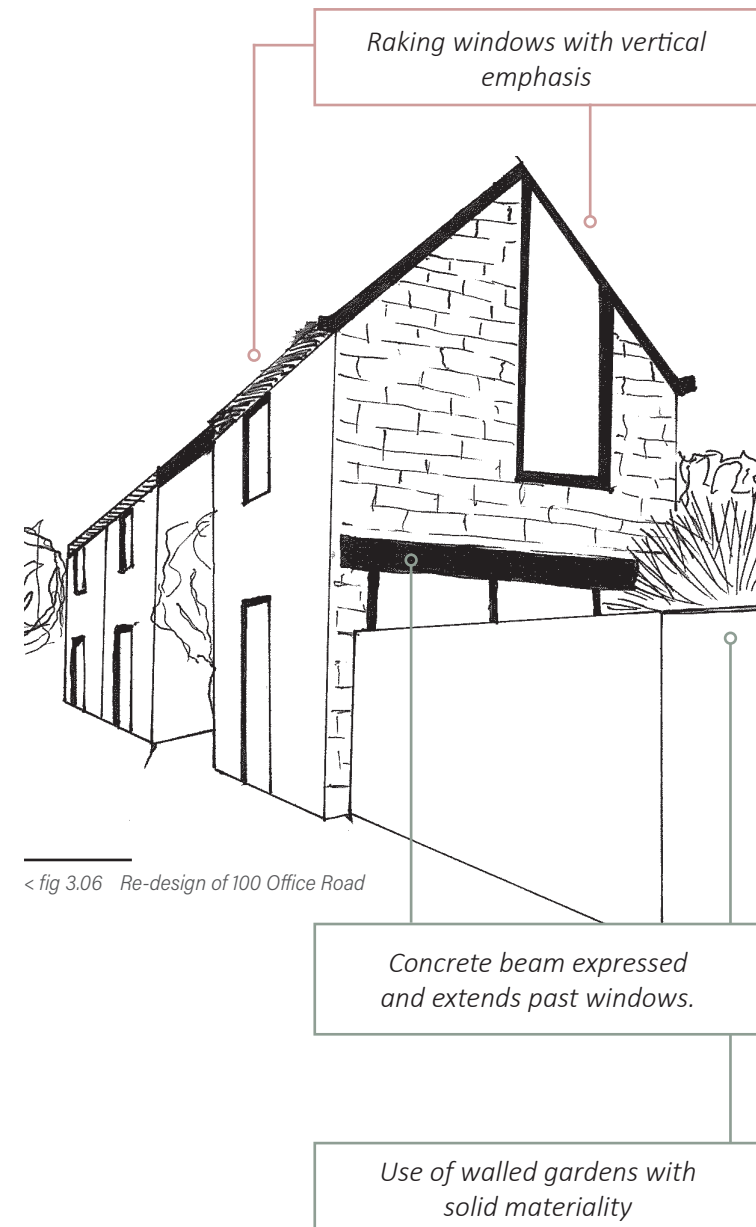
This exemplary project examines the problems of density with a fine tooth comb, approaching it with an eye for the minor details in relation to a larger context. The simple modernist aesthetic applied here blends into its context well with the use of brick as the main material. This has allowed for simple yet playful experimentation on the exterior façade including movement of openings and the addition of new materials to the treatment of the façade.

3.01 KNOWING MY MIND

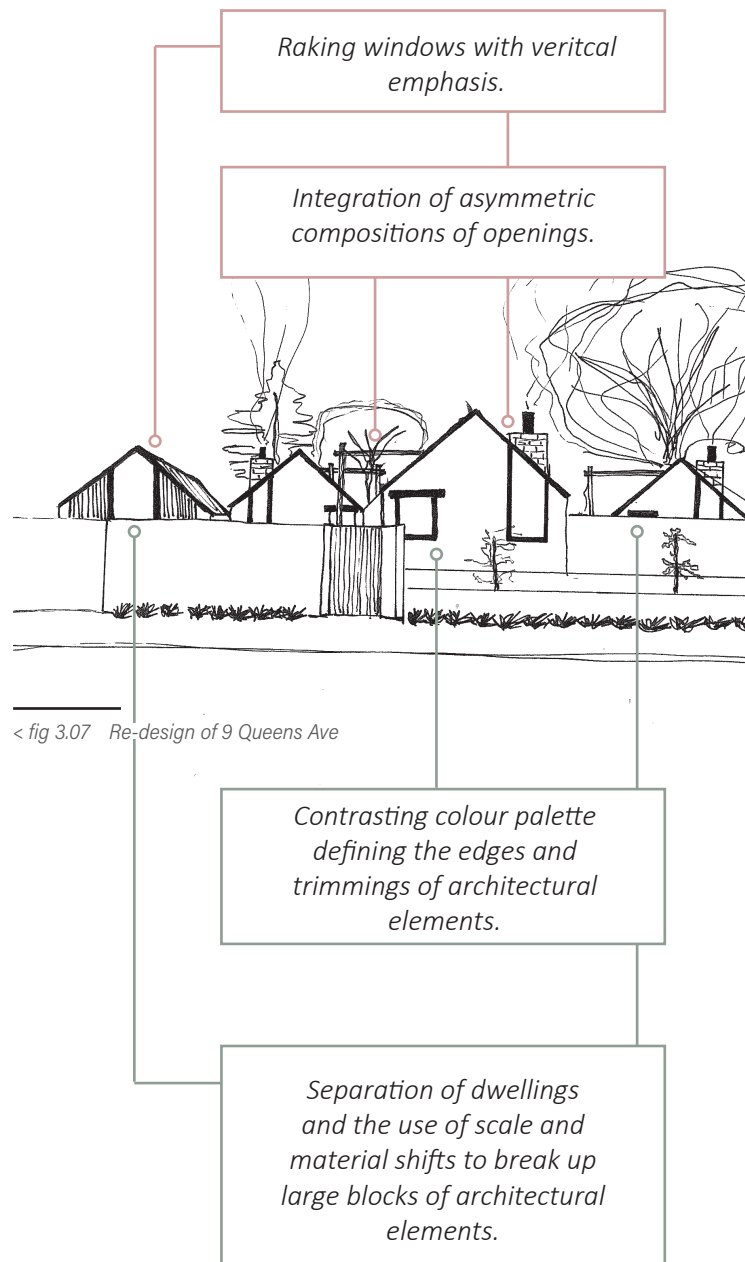
The knowing my mind series of drawings is a critical analysis derived from my original aesthetic precedents for this thesis. The objective of this exercise was to extract and identify the key aesthetic and compositional elements operating in each precedent. This series of analysis is also an attempt to understand what established practices can teach us for potential reformulation as a desirable aesthetic outcome. Redesign tests are introduced as a means to test and expand my aesthetic vocabulary beyond the precedents analysed.

This process will frame my aesthetic bias and articulate the nature of my particular aesthetic influences. These can then be critically analysed and integrated as part of the site and theoretical contexts explored through further design experimentation and exploration throughout Design Project Three.

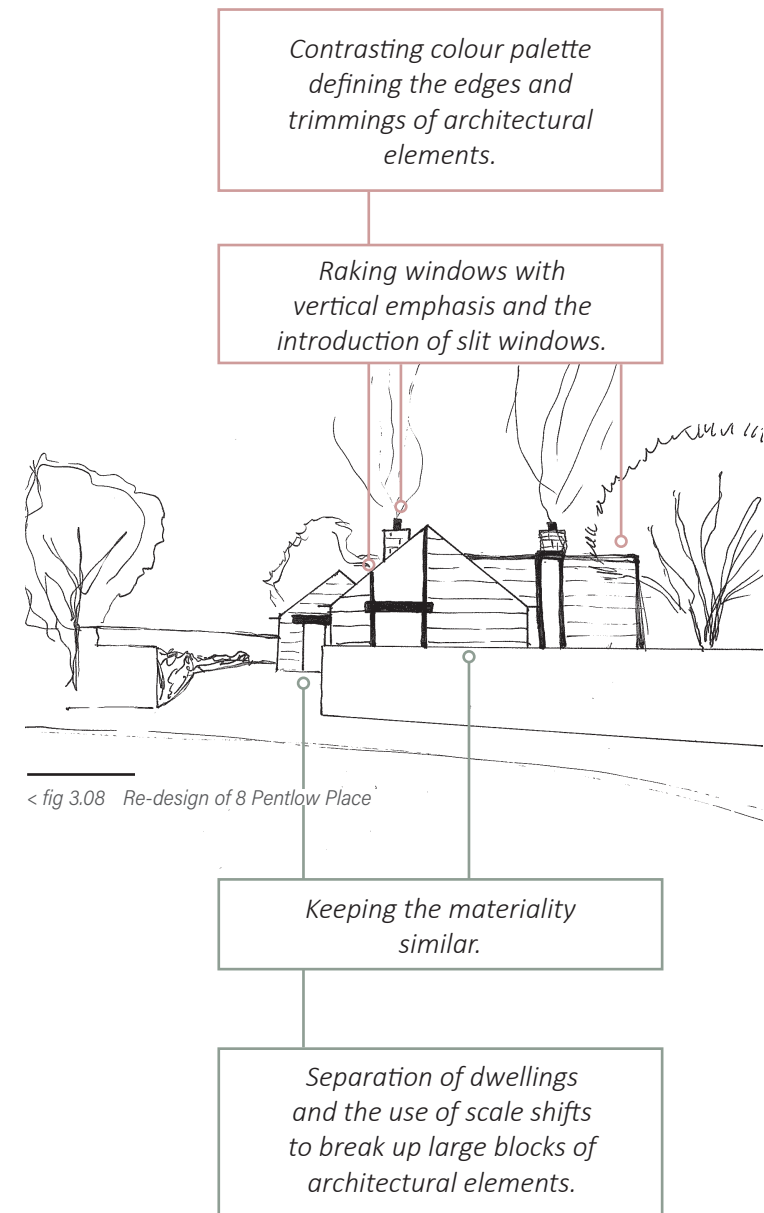
My redesign of 100 Office Road



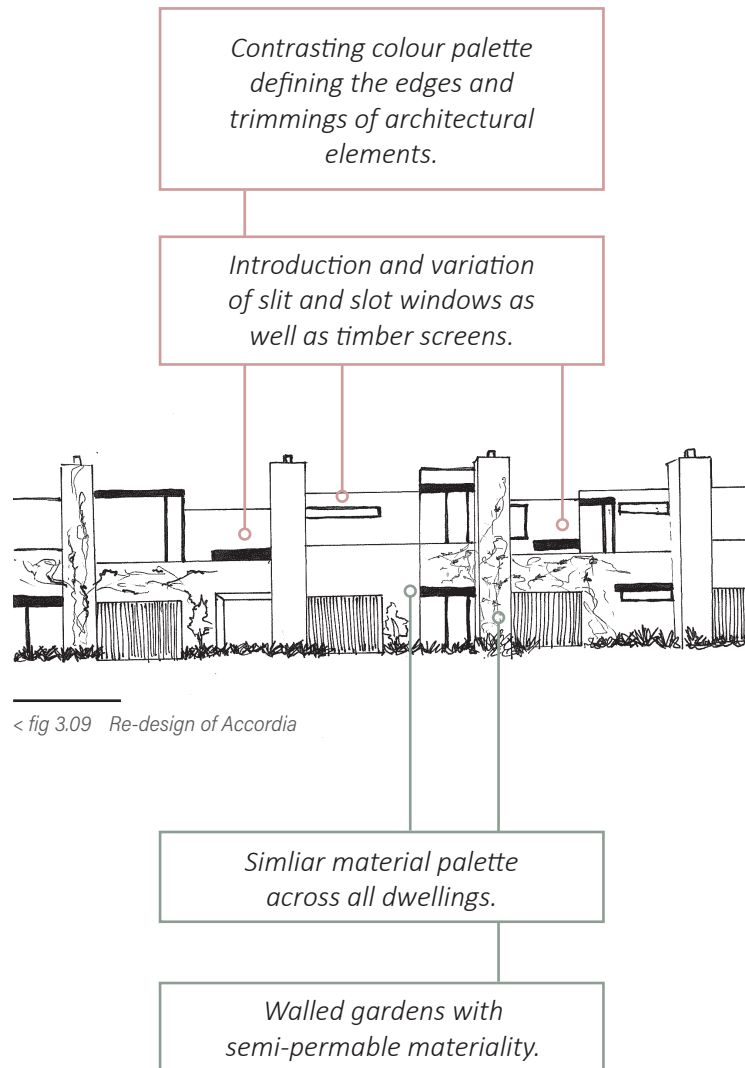
My redesign of 9 Queens Ave



My redesign of 8 Pentlow Place



My redesign of Accordia



3.02 AESTHETIC PREFERENCE SUMMARY

Some of the more prominent common threads identified through my preference research analysis have been; the use of a contrasting colour palette on the exterior facades, shifting of scales between architectural elements and forms, having strong asymmetry within main architectural elements and the variation of placement of these architectural elements.

These common threads are all aesthetic devices and techniques that can be applied to create more desirable aesthetic outcomes when designing medium density housing. These techniques also allow for both variation and some continuity within an aesthetic language, resulting in a layered and collective aesthetic approach.

CONTENT REDACTED
SEE PHYSICAL COPY FOR REFERENCE

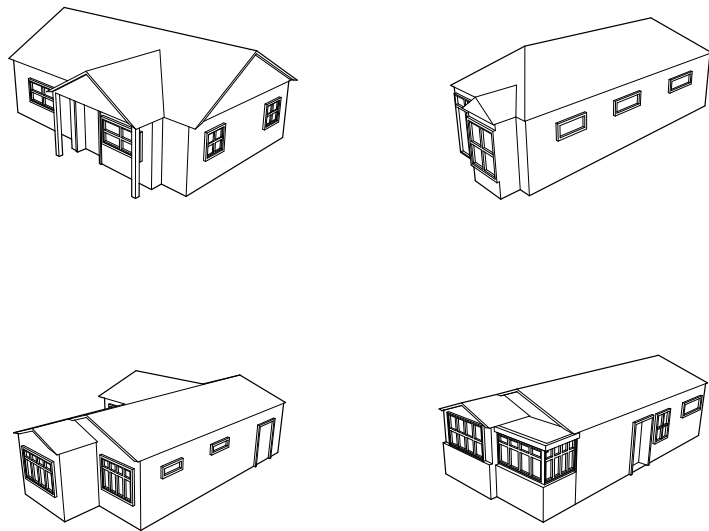
< fig 3.10 Collage of Kilbirnie aesthetic

3.1 KILBIRNIE CONTEXT

This section explores the diverse range of specific and individual aesthetics occurring within Kilbirnie, Wellington over a range of housing and surrounding context scales in the vicinity of the selected site. The resulting sampling and analysis is subsequently the basis for a formal and visual vocabulary; a 'new Kilbirnie' aesthetic derived from the surrounding context. This gives the following design experiments specific placed based contextual influences and formulates a design strategy that is potentially adaptable to many different contexts.

KILBIRNIE CHARACTER STUDY 1

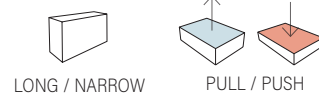
Long and Narrow Site Houses



< fig 3.11 Kilbirnie character study 1 houses

Four examples of typical Kilbirnie long and narrow one family household typologies. Long and narrow plots, with main windows and openings orientated to the front and back of houses. Made from timber construction with domestic fixtures and fittings and traditional villa type bay windows or porches.

FORMAL



LONG / NARROW

PULL / PUSH

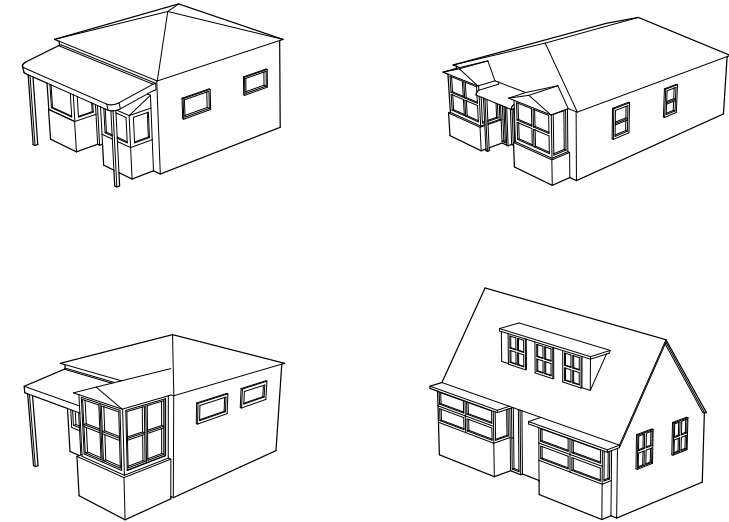
VISUAL



WOODEN MATERIALITY

KILBIRNIE CHARACTER STUDY 2

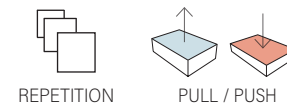
Square Plot Houses



< fig 3.12 Kilbirnie character study 2 houses

Typical Kilbirnie one family household typologies - Group B. Larger square plots, with main windows and openings orientated to the front of houses. Made from timber construction with domestic fixtures and fittings and traditional villa type bay windows or porches on front elevation.

FORMAL



REPETITION

PULL / PUSH



ROUNDED EDGES

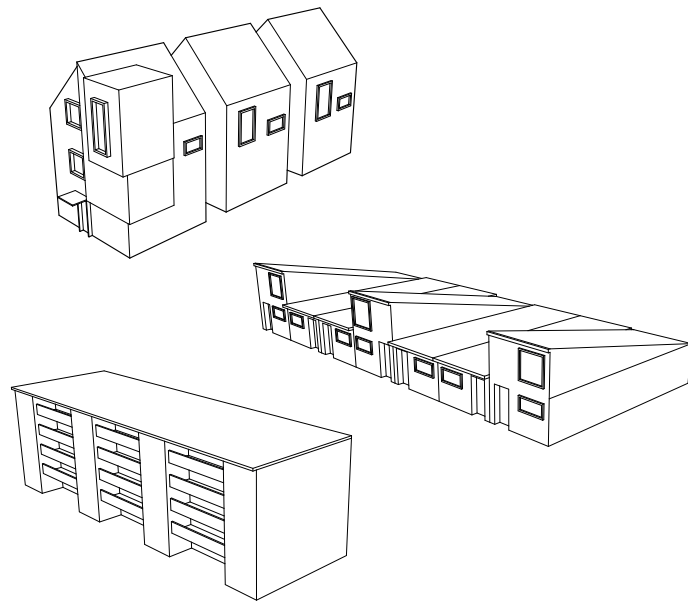
VISUAL



WOODEN MATERIALITY

KILBIRNIE CHARACTER STUDY 3

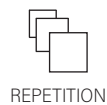
Medium Density in Kilbirnie



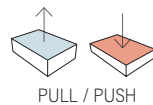
< fig 3.13 Kilbirnie character study 3 MDH

Variety of Medium Density Housing typologies in Kilbirnie. Monotony and repetition used in formal and visual elements. Made from Steel or Timber construction with more commercial materials and fittings. Non-vernacular to Kilbirnie, could be placed anywhere in New Zealand.

FORMAL



REPETITION



PULL / PUSH



LONG / NARROW

VISUAL



POP OF COLOUR



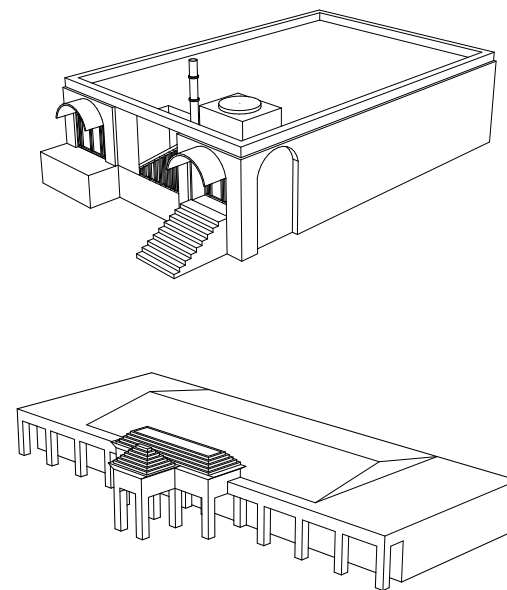
CONCRETE MATERIALITY



ZINCALUME MATERIALITY

KILBIRNIE CHARACTER STUDY 4

Cultural Diversity



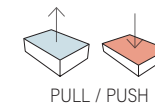
< fig 3.14 Kilbirnie character study 4 Cultural Buildings

Variety of cultural buildings situated in Kilbirnie. Depicting the diversity of Kilbirnie and the potential for playful architecture. Made from concrete construction with commercial materiality and fittings. Sense of belonging to Kilbirnie's character.

FORMAL



REPETITION



PULL / PUSH



ROUNDED EDGES

VISUAL



POP OF COLOUR



CONCRETE MATERIALITY

3.11

THE KILBIRNIE VOCABULARY

This section extracts key observations from the fieldwork and analysis of the current Kilbirnie aesthetic character and begins to develop a place specific formal and visual vocabulary from this. This will be applied in further development stages of design to create contextual aesthetic resemblance and fit to context.

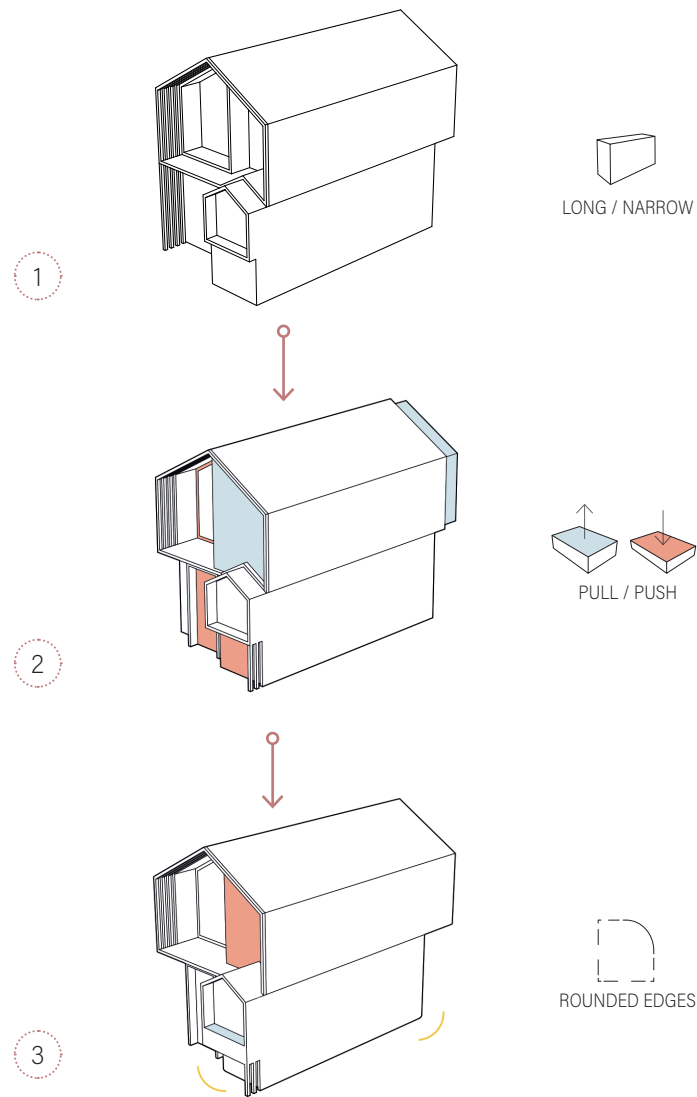
The main formal findings were; long and narrow sites resulting in extruded typologies that were pushed and pulled to create different layers. Repetition of a limited palette of architectural elements was an apparent technique used through almost all of the different typologies. Rounded edges and surfaces punctuated dwellings or buildings in a manner significant enough to extract out as a quirky device within the Kilbirnie context.

The main visual elements are summarised as; pops of bright colours including blues, oranges and yellows. Potentially derived from the sea and the nearby boat sheds in Evans Bay. Wooden weatherboards were a constant material used in the smaller scale dwellings, offering a horizontal and finer grain scale. The use of zincalume and concrete materials were more apparent in larger scale buildings, offering a flatter formal character.

This contextual aesthetic vocabulary will be developed further building on and developing influence from Edmund Burke's theory on the '7 attributes of beauty' and common aesthetic threads identified in the 'knowing my mind analysis'.

HOUSING DESIGN TESTS

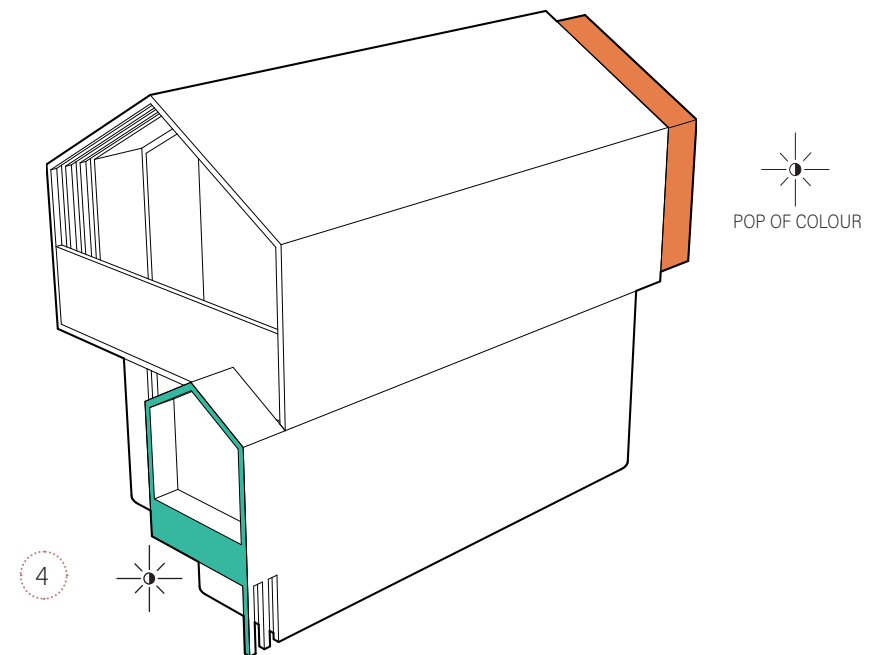
New Kilbirnie House 1



< fig 3.15 New Kilbirnie house 1 iterative process



85m² - 1 Bed + Study

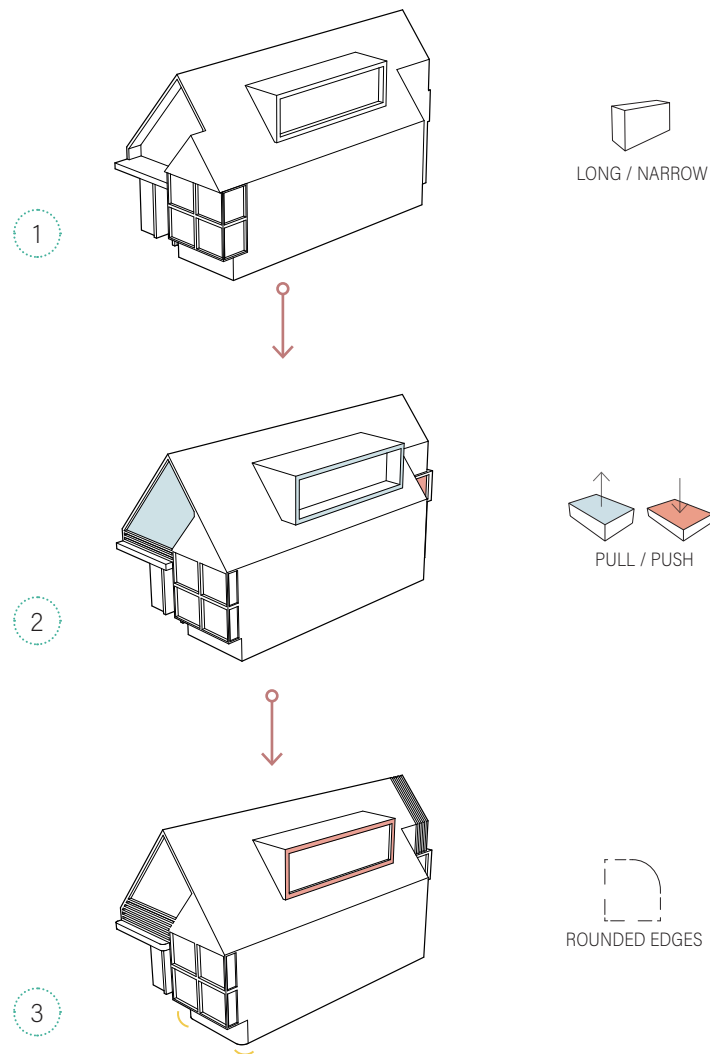


< fig 3.16 New Kilbirnie house 1

The iterative process has helped the design shift quickly by testing out these design tactics through a different iteration. Applying a new design tactic each iteration keeps the progression of the design clear and has shown how each tactic has informed a certain area of the design.

HOUSING DESIGN TESTS

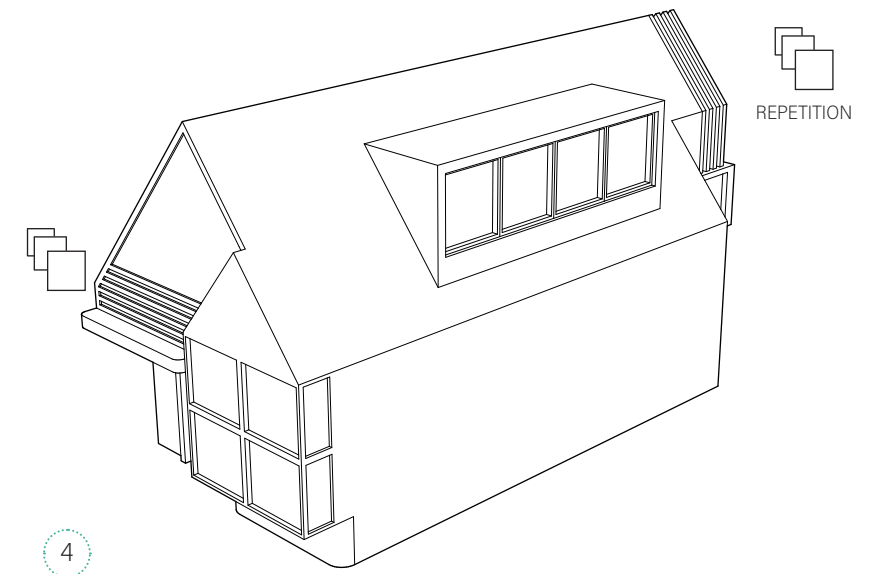
New Kilbirnie House 2



< fig 3.17 New Kilbirnie house 2 iterative process



85m² - 1 Bed + Study

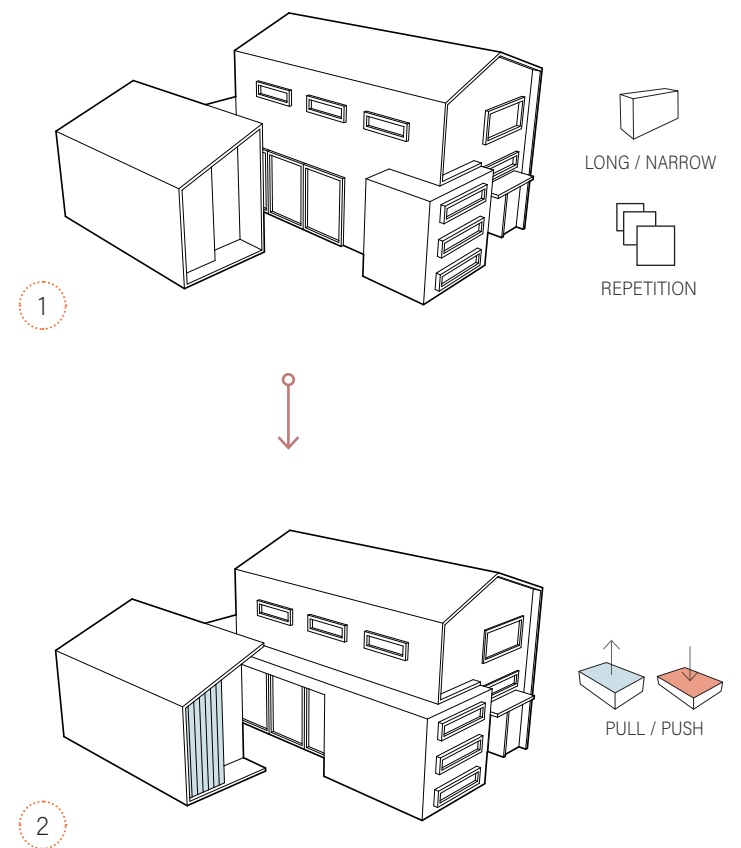


< fig 3.18 New Kilbirnie house 2

The iterative process has helped the design shift quickly by testing out each design tactic through a different iteration. Applying a new design tactic each iteration keeps the progression of the design clear and has shown how each tactic has informed a certain area of the design.

HOUSING DESIGN TESTS

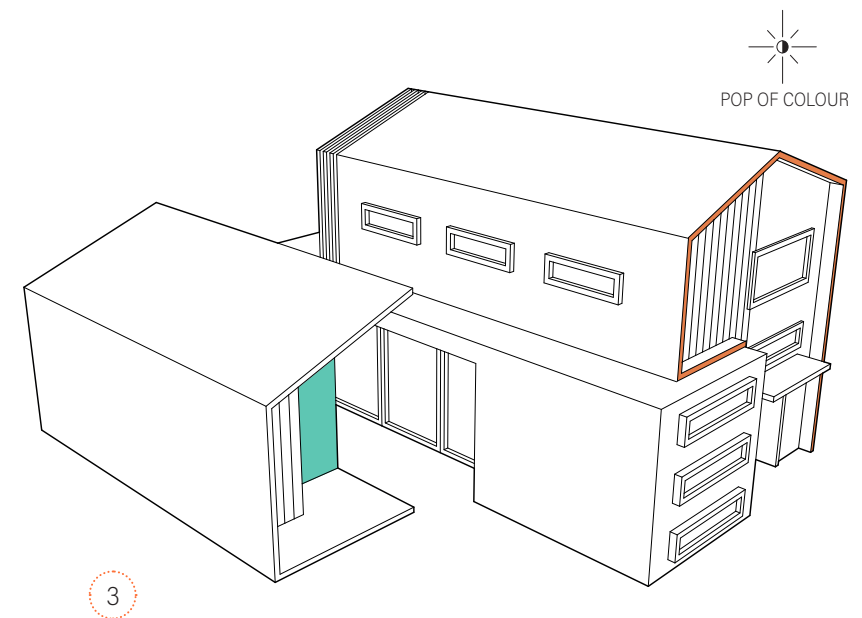
New Kilbirnie House 3



< fig 3.19 New Kilbirnie house 3 iterative process



130m² - 3 Bed + Study

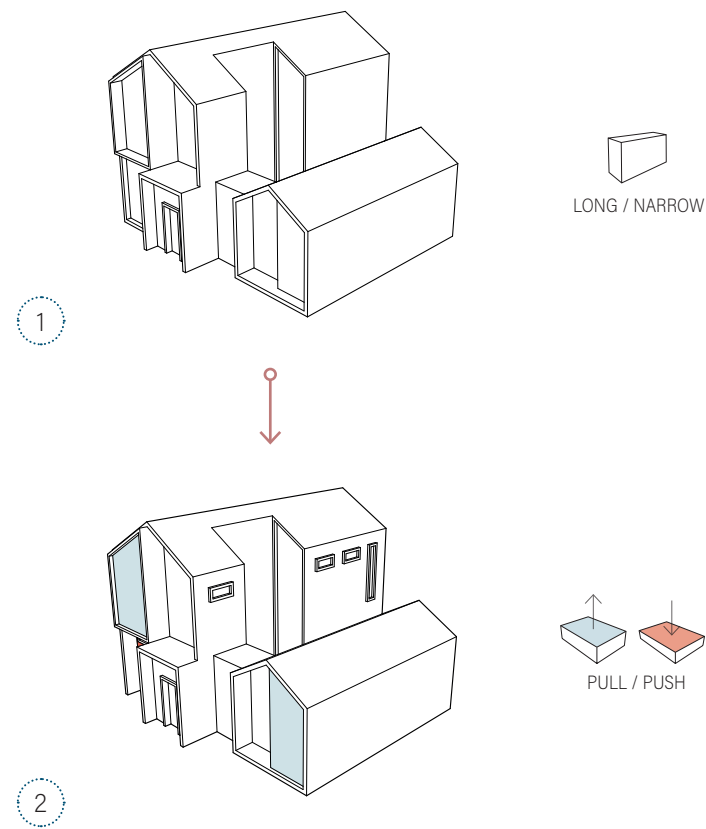


< fig 3.20 New Kilbirnie house 3

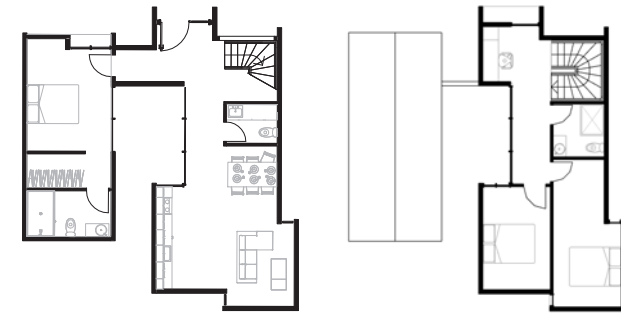
The iterative process has helped the design shift quickly by testing out each design tactic through a different iteration. Applying a new design tactic each iteration keeps the progression of the design clear and has shown how each tactic has informed a certain area of the design.

HOUSING DESIGN TESTS

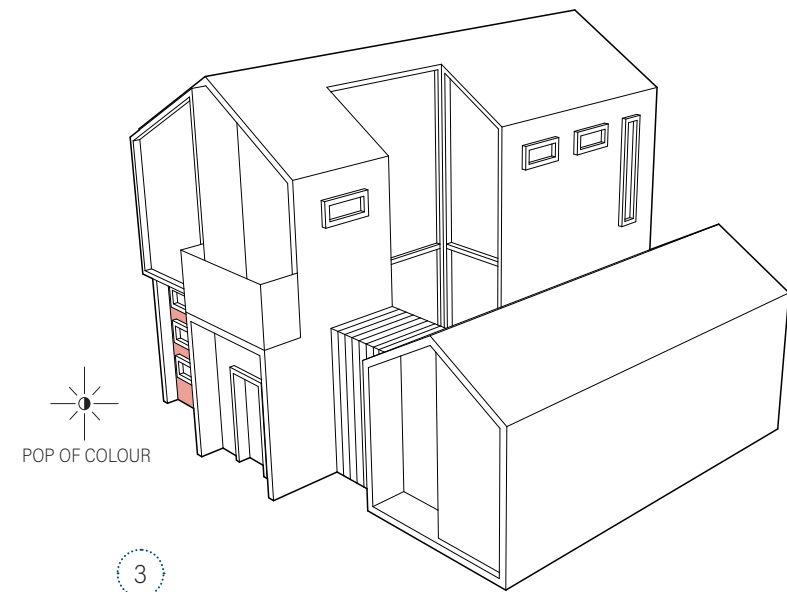
New Kilbirnie House 4



< fig 3.21 New Kilbirnie house 4 iterative process

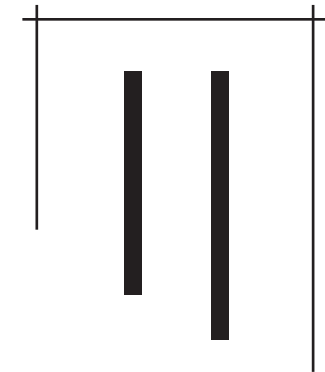


150m² - 3 Bed + Study



< fig 3.22 New Kilbirnie house 4

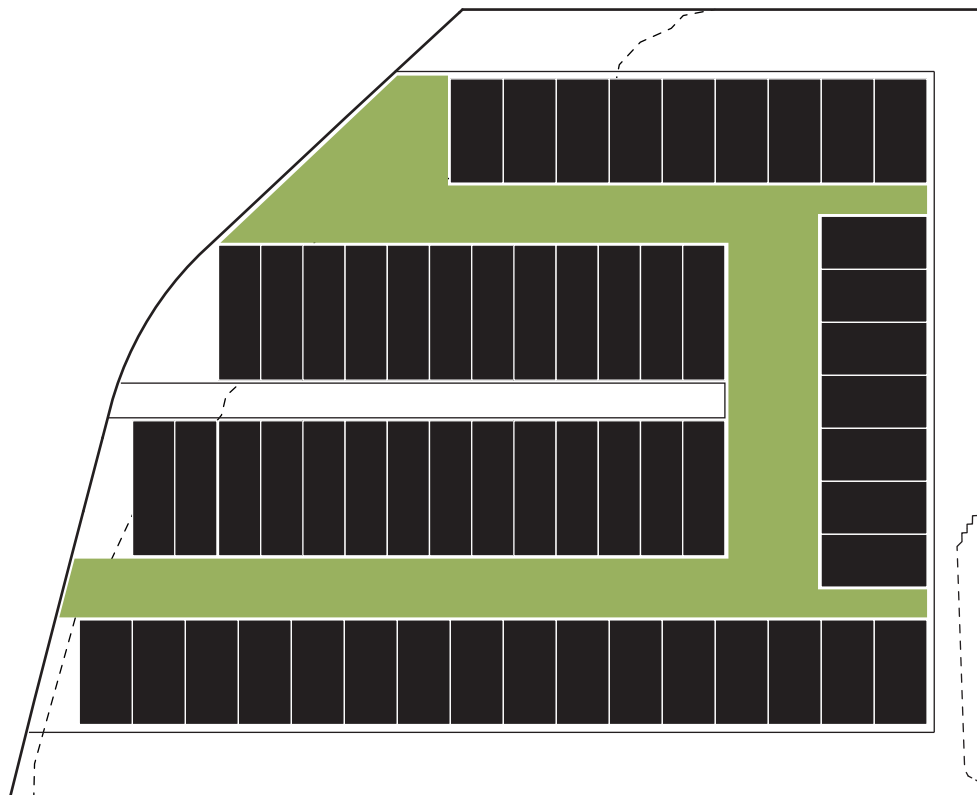
The iterative process has helped the design shift quickly by testing out each design tactic through a different iteration. Applying a new design tactic each iteration keeps the progression of the design clear and has shown how each tactic has informed a certain area of the design.



3.2 ITERATIVE DESIGN RESEARCH

Following on from the design experiments and analysis in the formative stages of this design phase, this next design test looks back and re-works the earlier design tests with the new knowledge and techniques found. Strengths and weaknesses from the first design experiment are identified and applied through the new design iterations.

This section critically analyses the masterplan from design project two, its strengths and weaknesses, then critically analyses and compares to a series of new precedents. A new research through design strand.



< fig 3.23 Design Project Two Master plan

Master plan, Design Project Two
 1.2 ha // 47.5 dph
 1:1000

3.21

REFLECTIVE ANALYSIS

As an overall masterplan scheme this was derived quite closely from the main precedent, Accordia. The scheme offers only two housing types giving little room for variation or diversity in the organisation of the masterplan. The scheme also gives priority to vehicles and access ways, using primary space on site. The layout and orientation of the outer typology creates dead-end problem areas that sacrifice the view points from some of the dwellings. Although this masterplan does need to be re-worked, some strengths were the dwelling orientation, all dwellings spill out into the shared garden/walkway area. This idea is derived from Accordia and is a key design element to consider incorporating into the next design phase.

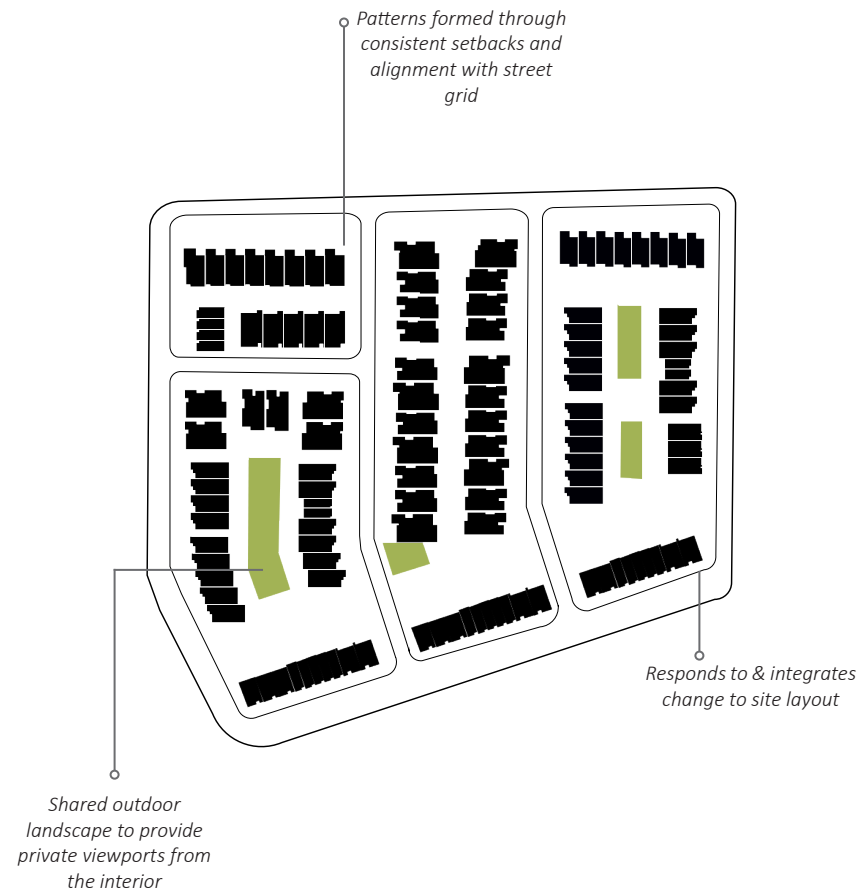
3.22

MASTER PLAN PRECEDENT ANALYSIS

Key Reference 8

Sunderland, Hobsonville Point, Auckland
Willis Bond & Co + Studio Pacific Architecture (2018)

4.7 ha // 27.65 dph



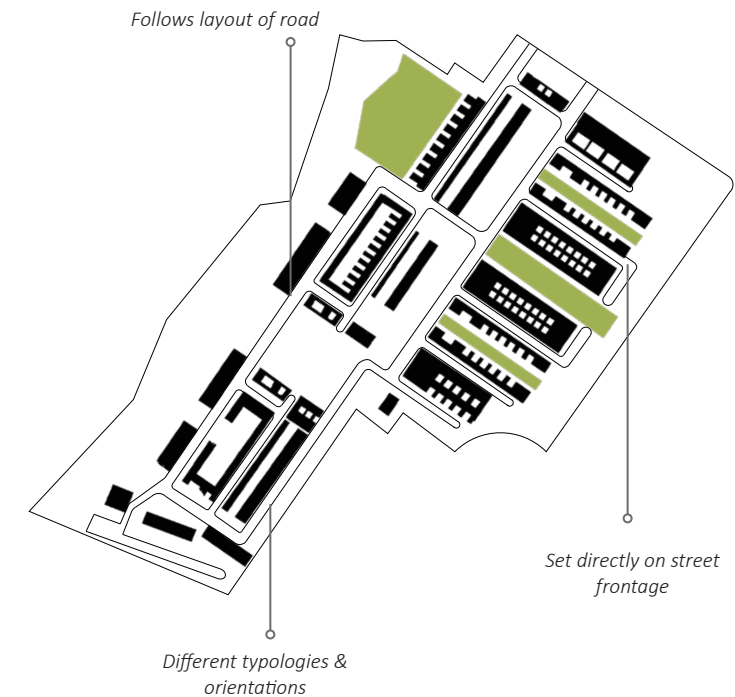
< fig 3.24 Master plan Sunderland analysis

MASTER PLAN PRECEDENT ANALYSIS

Key Reference 9

Accordia, Cambridge, London
Feilden Clegg Bradley Studios (2009)

9.5 ha // 40 dph



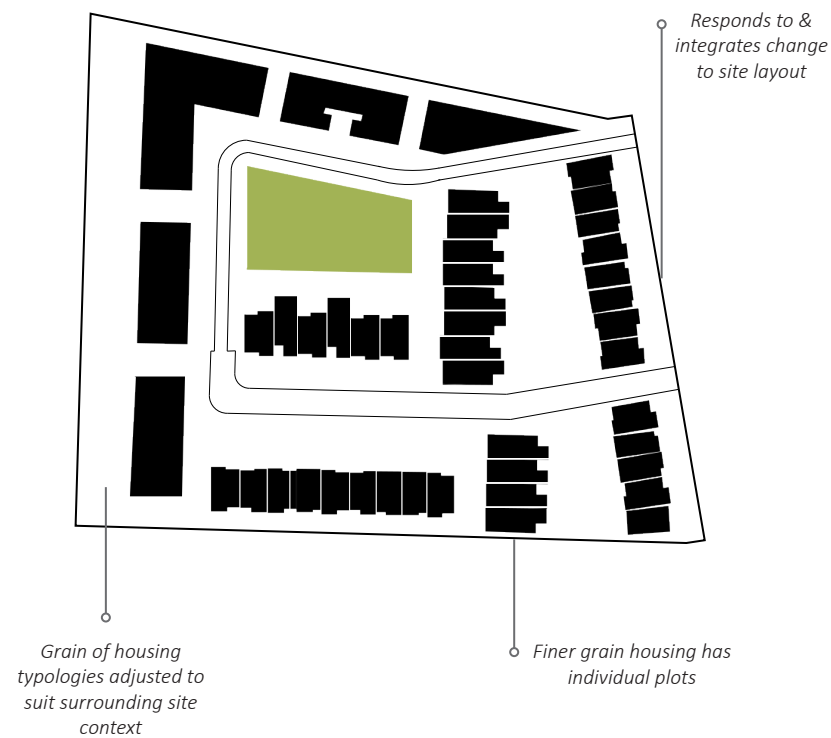
< fig 3.25 Master plan Accordia analysis

MASTER PLAN PRECEDENT ANALYSIS

Key Reference 10

Wilshir Village, Henderson, Auckland
Crosson Architects (2017/8)

1.6 ha // 42.5 dph



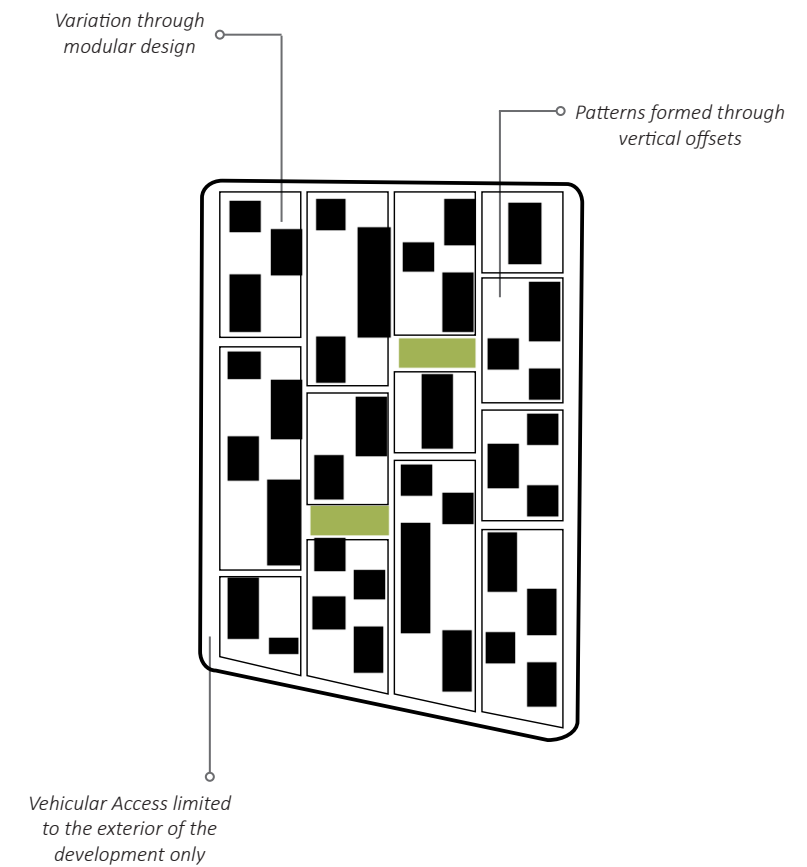
< fig 3.26 Master plan Wilshir Village analysis

MASTER PLAN PRECEDENT ANALYSIS

Key Reference 11

Ypenburg, The Hague, The Netherlands
MVRDV (1998-2005)

6 ha // 150 dph



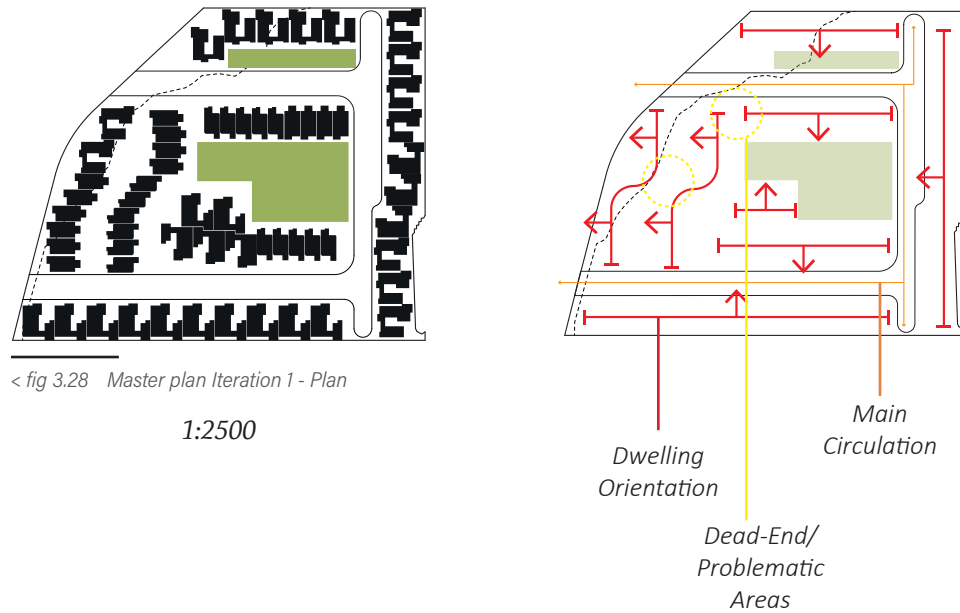
< fig 3.27 Master plan Ypenburg analysis

3.23

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 1

62 dwellings // 51.7 dph

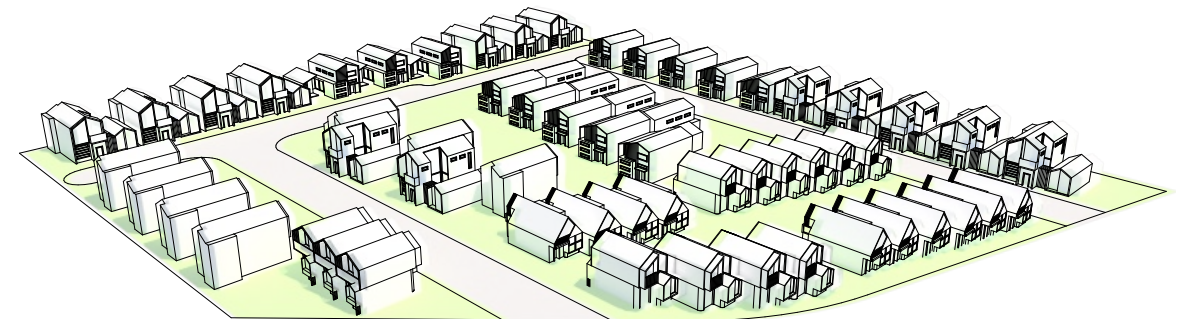
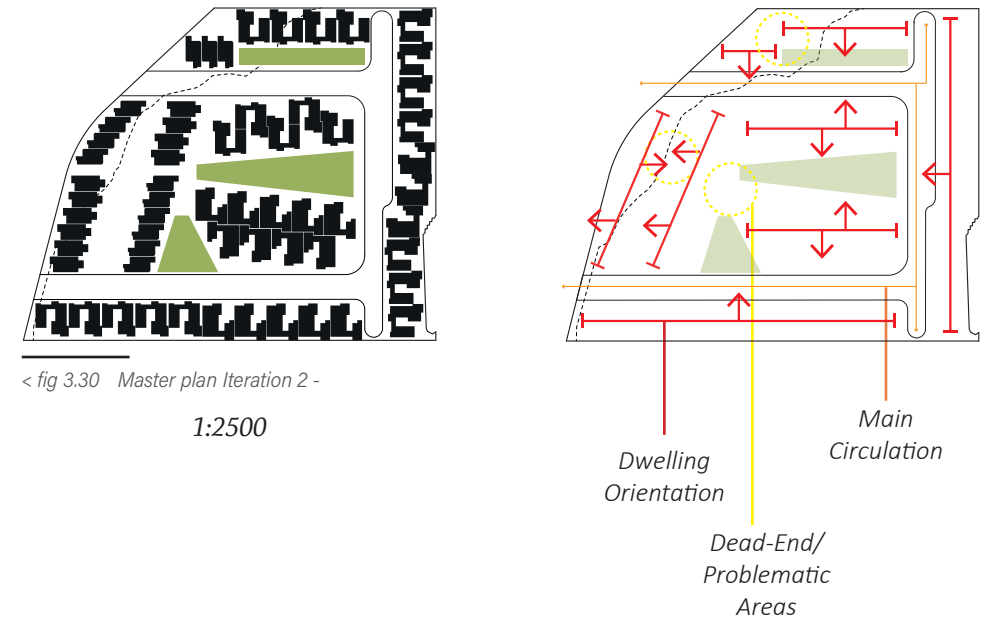


< fig 3.29 Master plan Iteration 1 - 3D Overview

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 2

61 dwellings // 50 dph

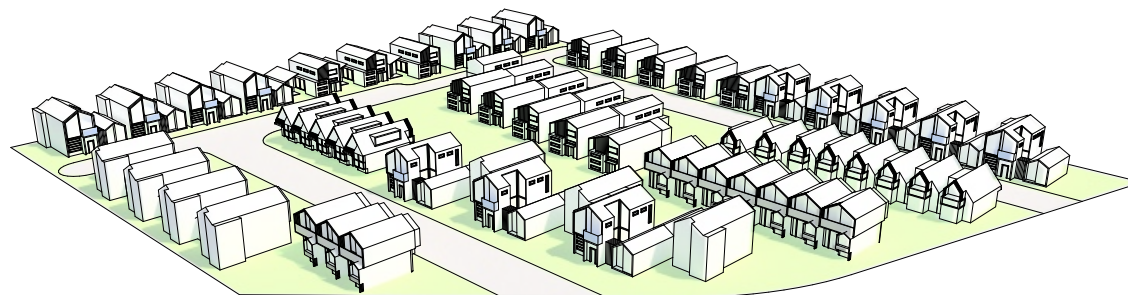
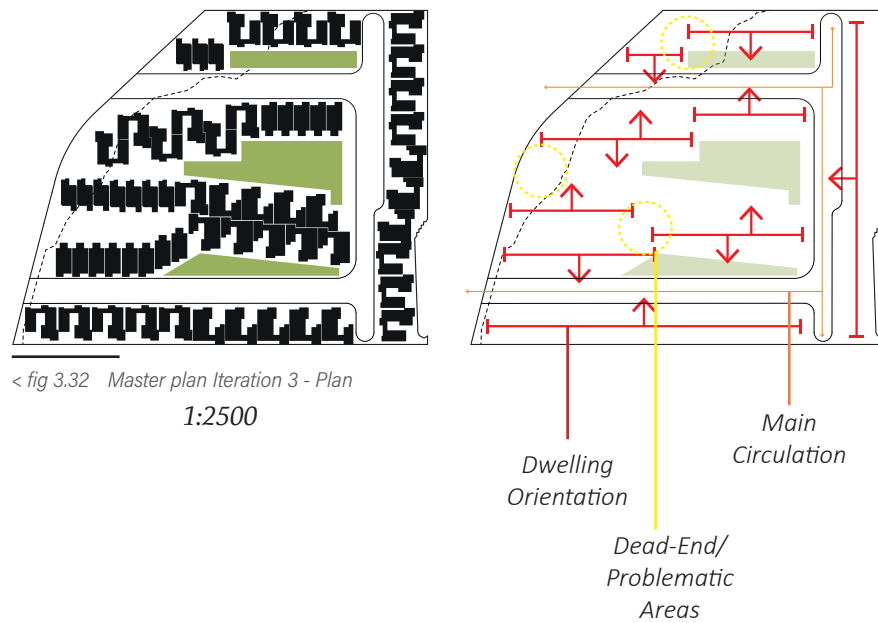


< fig 3.31 Master plan Iteration 2 - 3D Overview

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 3

63 dwellings // 52.5 dph

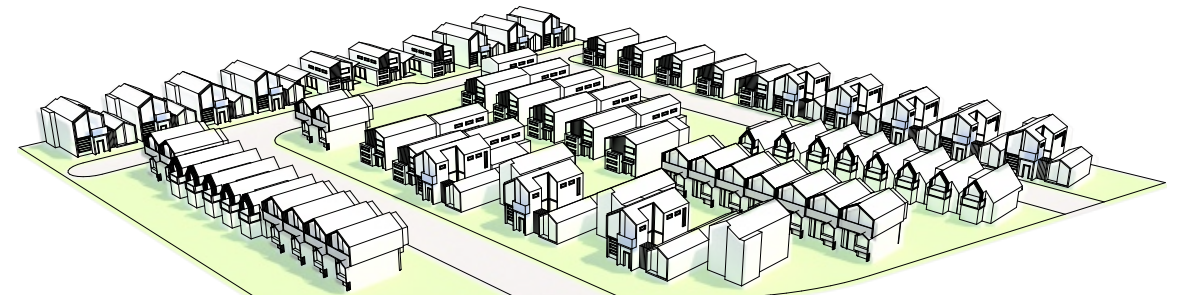
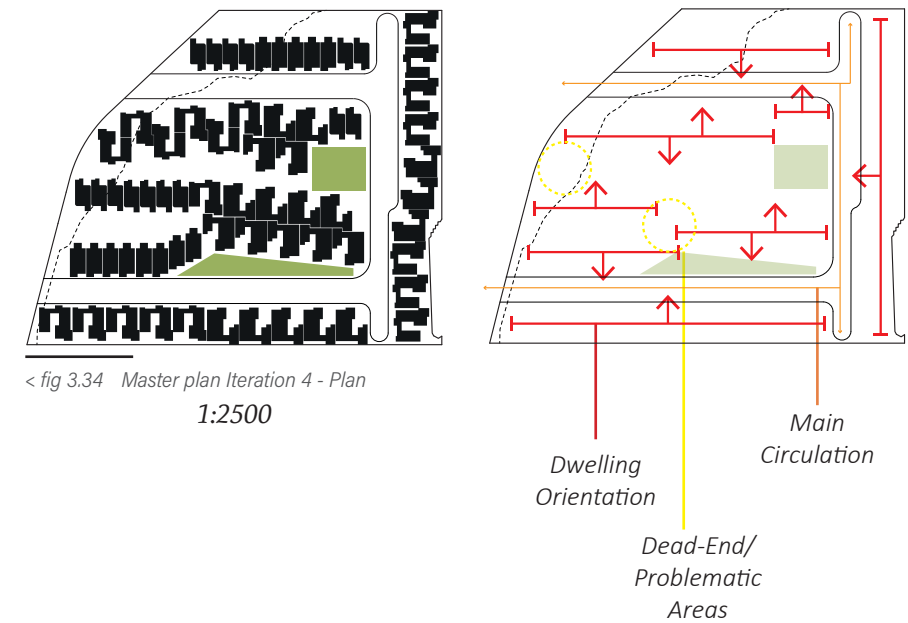


< fig 3.33 Master plan Iteration 3 - 3D Overview

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 4

69 dwellings // 57.5 dph

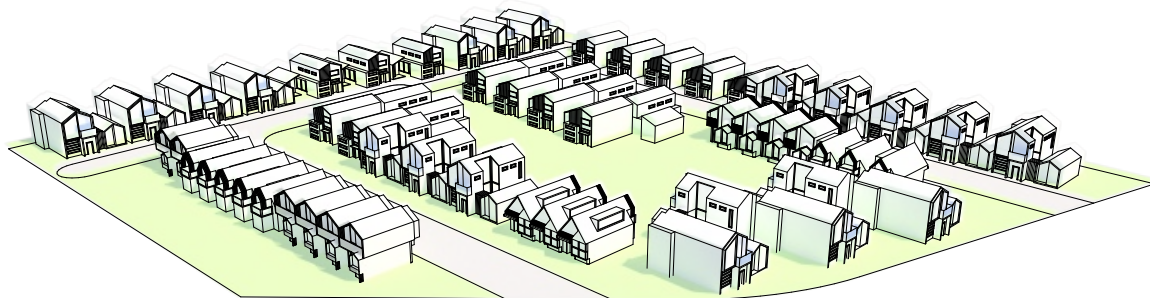
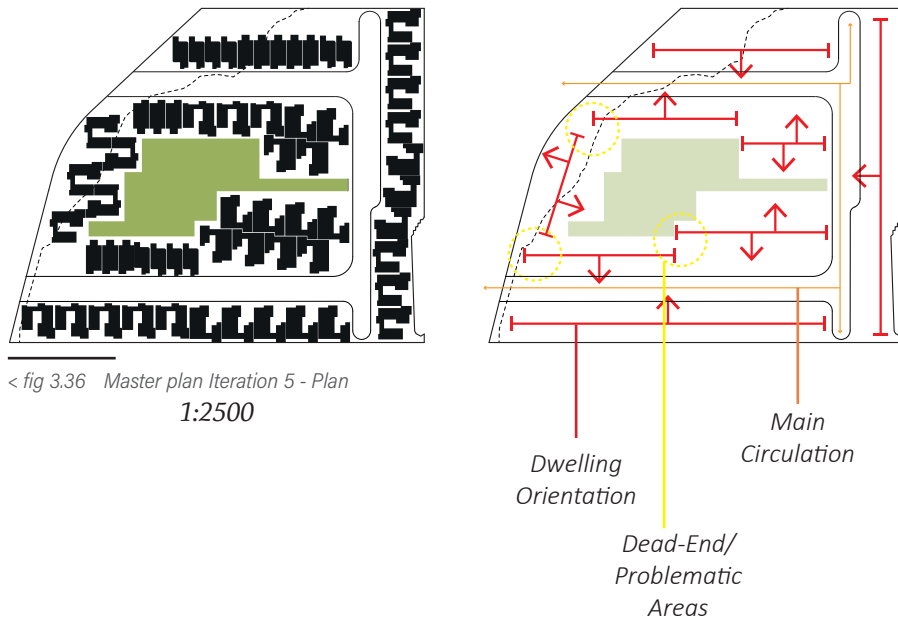


< fig 3.35 Master plan Iteration 4 - 3D Overview

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 5

62 dwellings // 51.7 dph

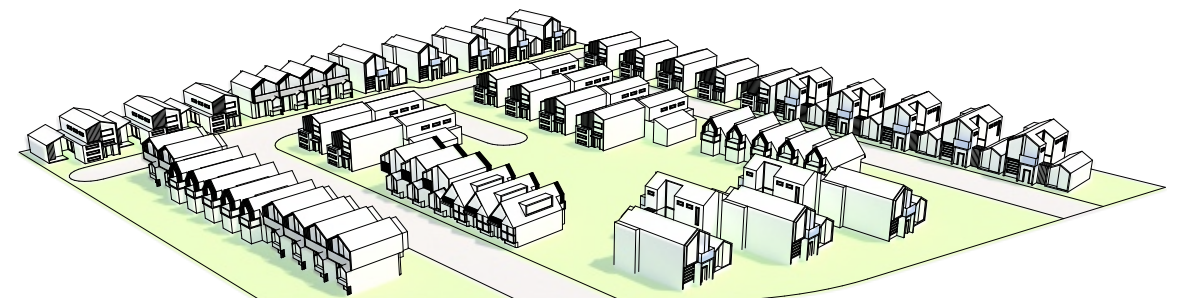
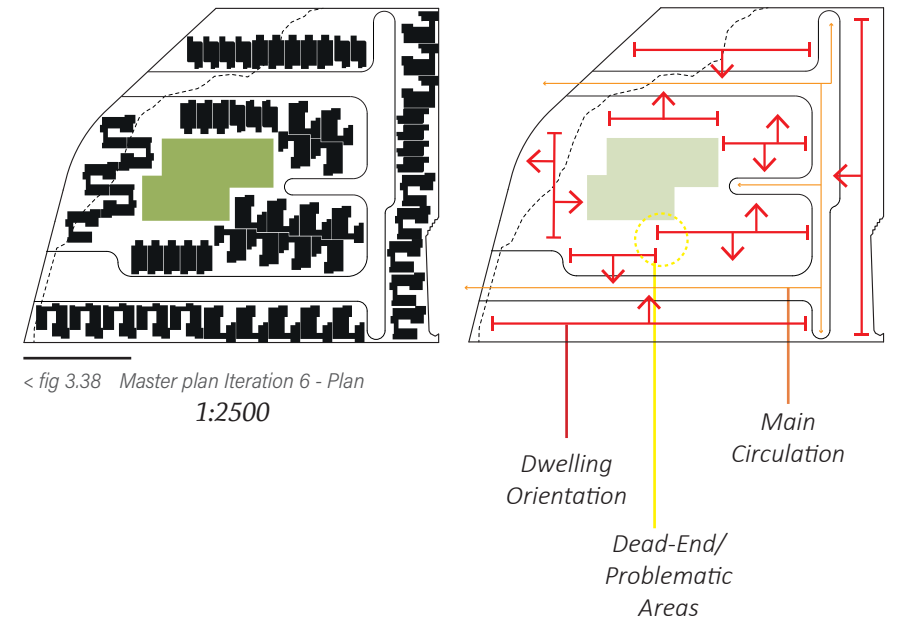


< fig 3.37 Master plan Iteration 5 - 3D Overview

NEW MASTER PLAN DESIGN EXPERIMENTS

Iteration 6

61 dwellings // 50 dph



< fig 3.39 Master plan Iteration 6 - 3D Overview

3.24

MASTERPLAN ITERATIONS CRITICAL REFLECTION

The examination of precedent and initial experimentation of the wider masterplan design began to develop site specific clustering opportunities. As a 2D graphic these figure ground plans work well in exploring different layout options to achieve a certain density and spatial porosity. However by further analysing these explorations in a 3D view, the results remain monotonous and repetitive. To achieve a more aesthetically desirable medium density housing development there will be a need to also work back at a smaller scale to identify how the new Kilbirnie designs can work in relation to each other, integrate together and determine more successful cluster opportunities. This smaller scale research will then inform the planning and layout of the overall masterplan in a reciprocal approach through different scales.

Another key observation made through this experimentation was the lack of a mixed site grain which would further diversify the masterplan and add hierarchy between dwellings. This research thread will also be explored later in this design project.

3.3

VISUAL INTEGRATION EXPERIMENTS

This chapter returns back to a finer grained more detailed scale of design experimentation. Identifying what does and doesn't work and the tools and techniques that can be utilized to improve the integration with context, and the aesthetics of a large medium density housing development.

An injection of key references and precedent was vital at the beginning of this research thread to inform the design tactics used in the experimentation. Collage experiments will follow informing pairings of new Kilbirnie housing typologies and later a scale shift to fine tune the masterplan.

Andrés Duany
Architect, 1949 - Present

3.31

KEY REFERENCE 12

The second key theorist is Andrés Duany (1949–present) who is an Architect, Urban Planner and a founder of the Congress for the New Urbanism. Duany wrote “General Agreement on Architecture and Related Matters” which essentially is a series of design guidelines for both architects and urban planners to work from in unity. These can be translated into potential design approaches for the development as a whole with respect to Duany’s architectural and urban background.

“It is essential to recognize that each building should be coherently composed. A building cannot be the simulacra of an absent urbanism. Authentic variety can only result from a multiplicity of buildings.”

This specific guideline can be directly related to continuity and how this can be approached within MDH. The theory, when applied directly to MDH, recognises that each dwelling should be of a coherent language to form a successful larger composition. This will be considered in Design Phase One as a secondary theory to put more emphasis on Burkes theory, but will be reconsidered in further depth later in the research.

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SEE PHYSICAL COPY FOR REFERENCE

< fig 3.40 Zavos Corner - Wellington MDH Development

3.32 KEY REFERENCE 13

ZAVOS CORNER

Parsonson Architects
Wellington, New Zealand
2015

Parsonson's exemplar award winning high density project 'Zavos Corner' has captured the eyes of many for its quirky and individual take on density. The project demonstrates a high level of variation and continuity within its aesthetic language. The simple aesthetic frames work as a subtle nod to context and also help break up what otherwise would be a monotonous outwards aesthetic.

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< fig 3.41 Interior Courtyard

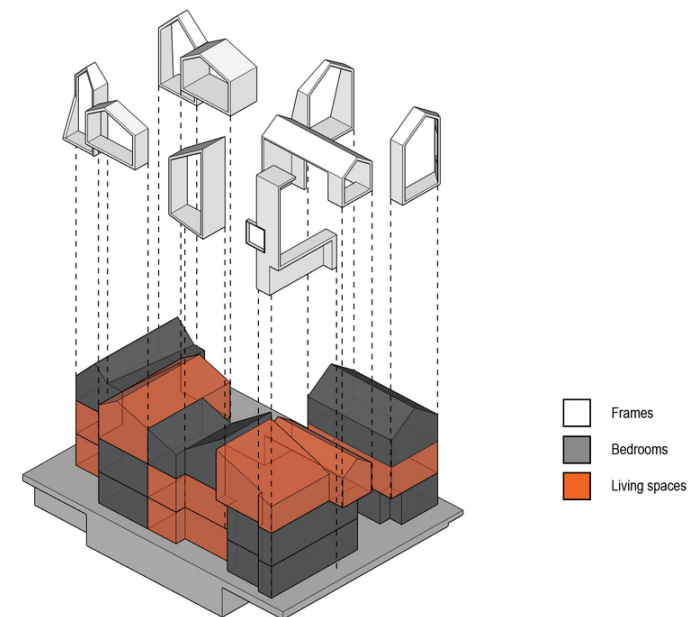
< fig 3.42 Interior Courtyard showing framing

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< fig 3.43 Zavos Corner showing framing

This technique provides an excellent basis for the experimentation testing that follows as it can work to bring coherency through the four new Kilbirnie designs. Additionally, as seen in the diagram by Parsonson's below, they work to frame different dwellings together to add coherency throughout the development.

This simple technique adds an extra layer of diversity and variation within a greater contextual aesthetic language. This will be extracted and tested against the new Kilbirnie designs, informing the most successful pairings, which will later inform the final masterplan.



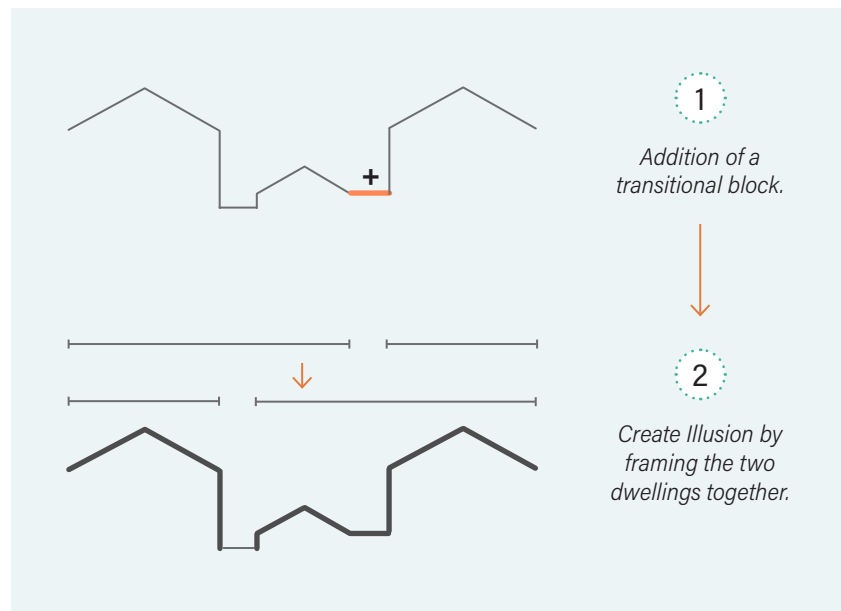
< fig 3.44 Zavos Corner framing diagram

3.33

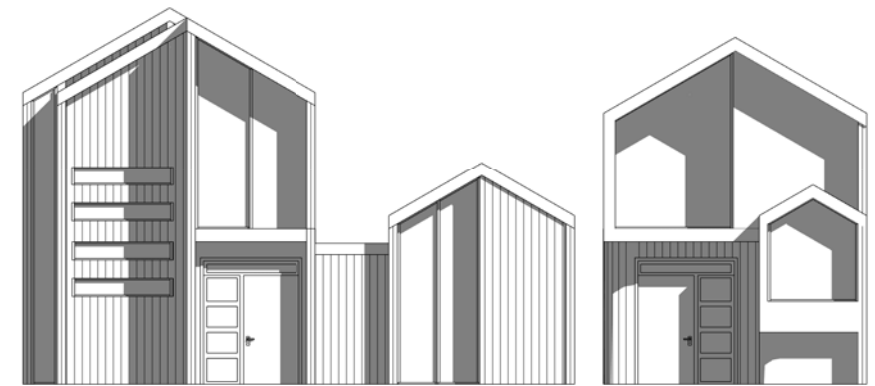
CONNECTION AND INTEGRATION STUDY

Variation 1a

This first collage study integrates a larger family three bedroom household with a smaller one bedroom dwelling. The visual integration works successfully with two main design shifts; the addition of a negative transitional block between main forms and creating a visual illusion by framing the two separate dwellings together asymmetrically. The transitional block is a small design move that provides more coherency and flow for the integration of the two dwellings. The framing tool is an aesthetic device that works to visually blur the extents of each dwelling, creating a larger sense of coherency in the aesthetics.



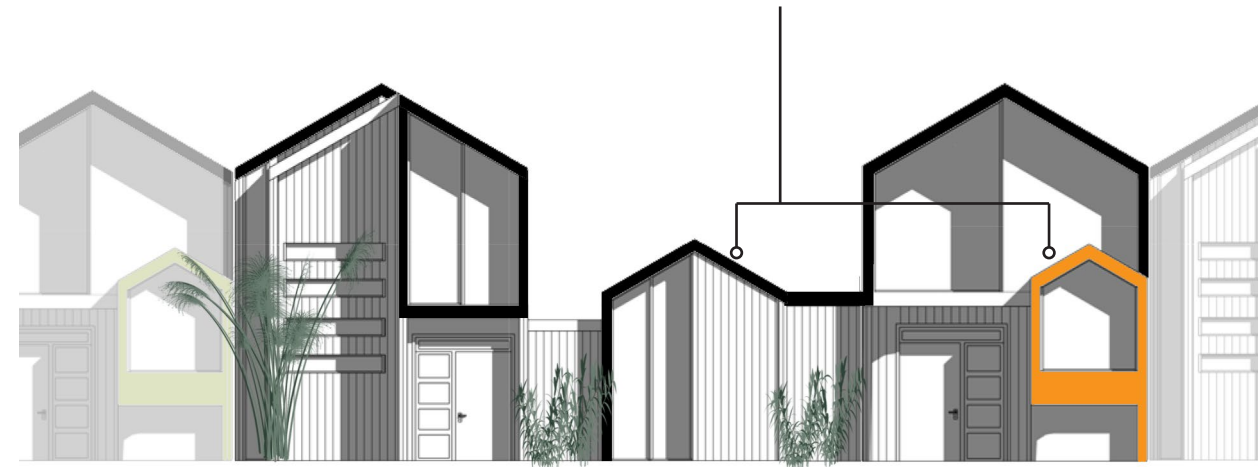
< fig 3.45 Variation 1a technique diagrams



< fig 3.46 Variation 1a chosen houses elevation



Smaller scale repetition of larger formal qualities such as roof angle.

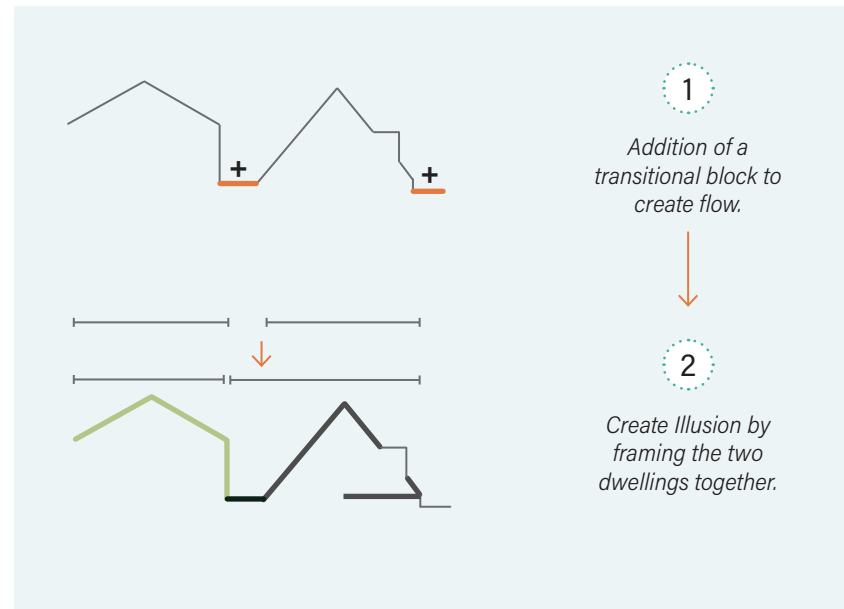


< fig 3.47 Variation 1a - implemented elevation

CONNECTION AND INTEGRATION STUDY

Variation 1b

This collage study integrates two smaller one bedroom households together. The finer grain of the dwellings proved more problematic when attempting to integrate and then duplicate, as there was little variation in roof height and dwelling width additionally the roof pitches differ. This experiment has attempted to address the clash through two main design shifts again; the addition of two transitional blocks to tackle the grain and roof pitch issue and the aesthetic framing device. The experiment works well at a smaller intervention scale.



< fig 3.48 Variation 1b technique diagrams



< fig 3.49 Variation 1b chosen houses elevation

The dwellings read as separate forms, therefore the negative blocks mediate space.

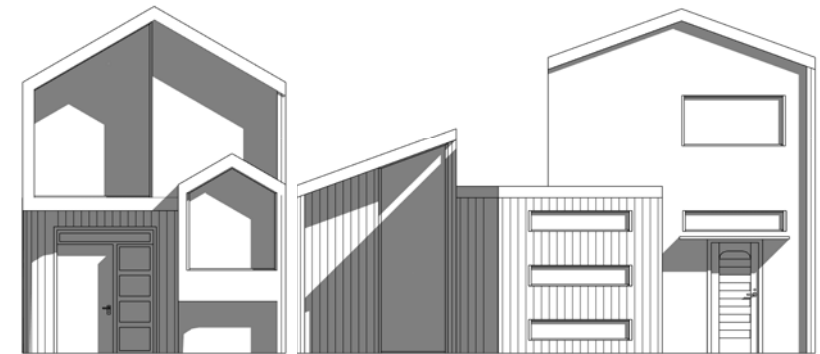


< fig 3.50 Variation 1b - implemented elevation

CONNECTION AND INTEGRATION STUDY

Variation 1c

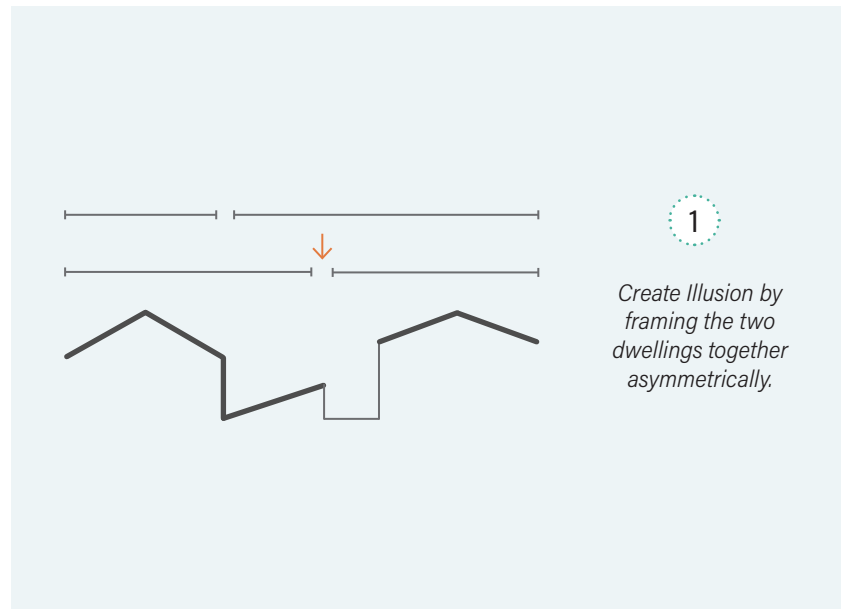
This collage study integrates a smaller one bedroom household and a larger three bedroom family household together. The experiment focuses on one design shift here and that is the use of the framing tool. This is less successful with these two typologies due to the different roof angles and shapes. The overall visual integration becomes awkward and does not provide enough visual flow between the dwellings. This will only become magnified at a larger scale intervention.



< fig 3.52 Variation 1c chosen houses elevation



The dwellings conflict each other due to different roof angles.



1
Create Illusion by framing the two dwellings together asymmetrically.

< fig 3.51 Variation 1c technique diagrams

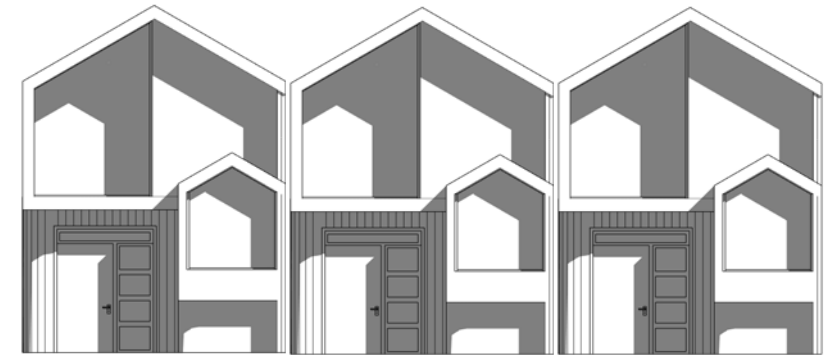


< fig 3.53 Variation 1c - implemented elevation

CONNECTION AND INTEGRATION STUDY

Variation 1d

This collage study attempts to integrate the same repeated one bedroom dwelling to identify if variation can be applied within row house typologies. This experiment lacks variation within the aesthetic language, the aesthetic framing device has created an awkward pattern of framing which does not contribute to a cohesive and integrated visual outcome.

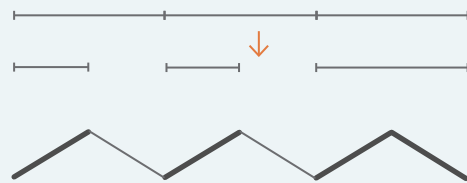


< fig 3.55 Variation 1d chosen houses elevation

The extent of repetition becomes the main issue to deal with.



< fig 3.56 Variation 1d - implemented elevation



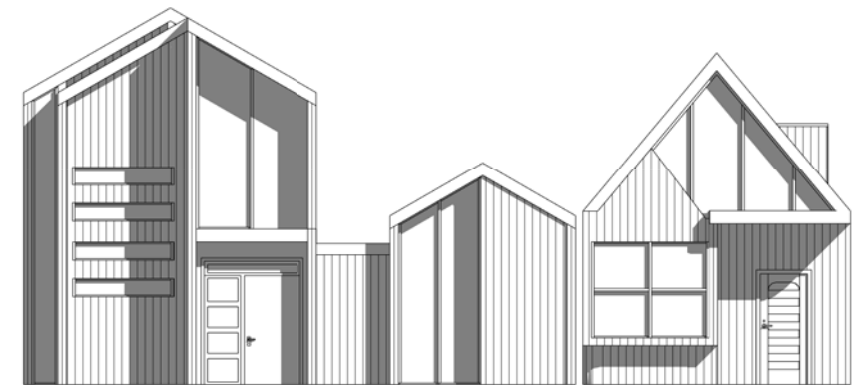
1
Create Illusion by
framing parts of
the two dwellings,
adding layering.

< fig 3.54 Variation 1d technique diagrams

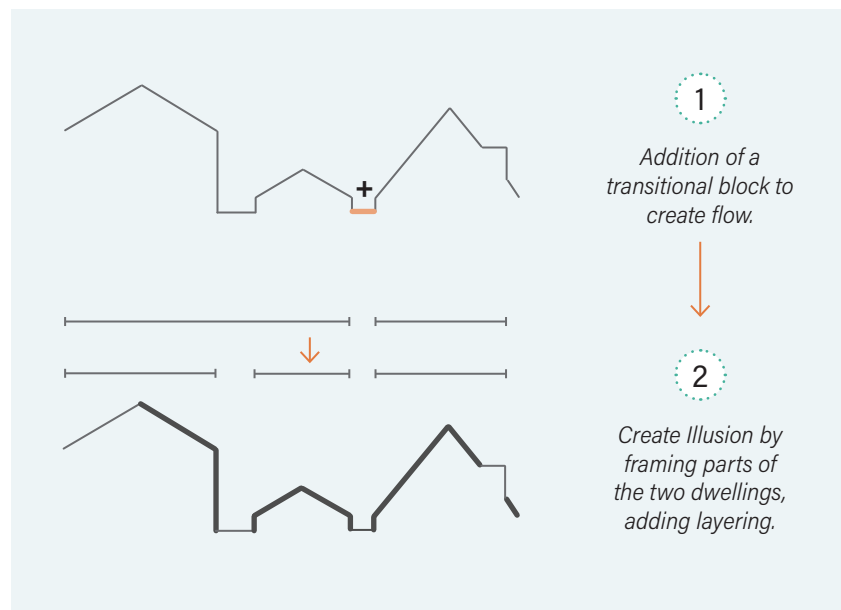
CONNECTION AND INTEGRATION STUDY

Variation 2a

This collage study attempts to integrate a smaller one bedroom household and a larger 3 bedroom family household together. This experiment starts to play with the different scales that these two typologies offer. The two main design shifts are again; the addition of a transitional block and the aesthetic framing device. These two design moves work cohesively together to aid the visual integration process. The differing scales and setbacks provide a more diverse and layered outcome which has proven successful as a visual integration study and will contribute to a larger scale intervention well.

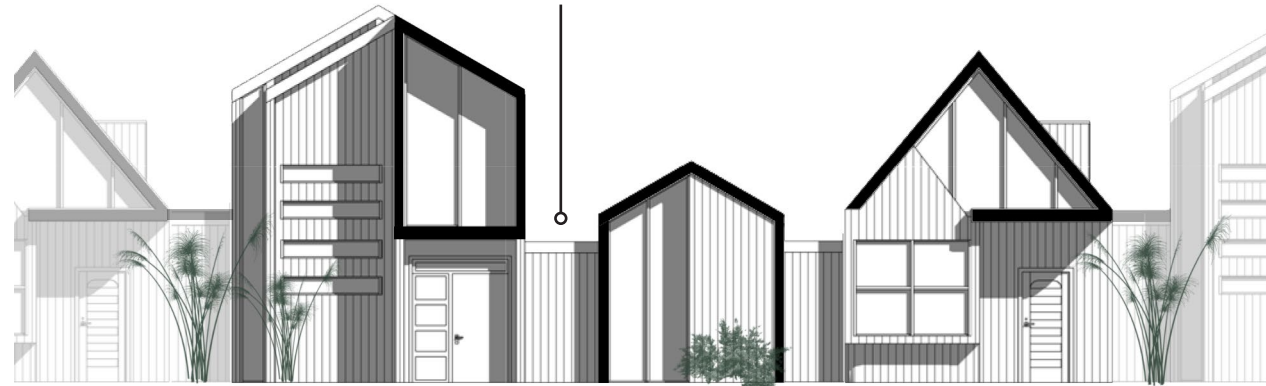


< fig 3.58 Variation 2a chosen houses elevation



< fig 3.57 Variation 2a technique diagrams

Changes in rythm and scale aid in visual integration.

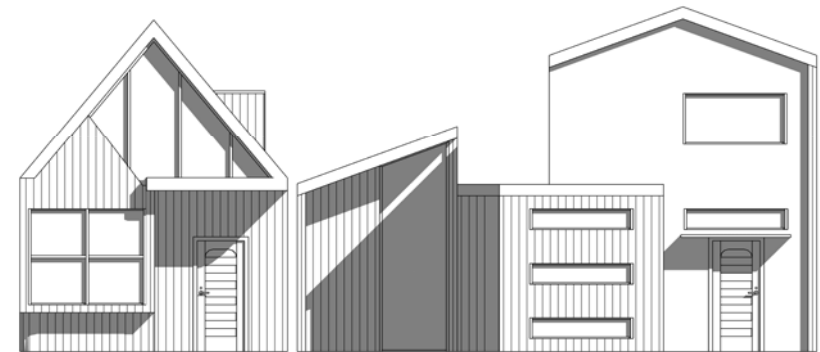


< fig 3.59 Variation 2a - implemented elevation

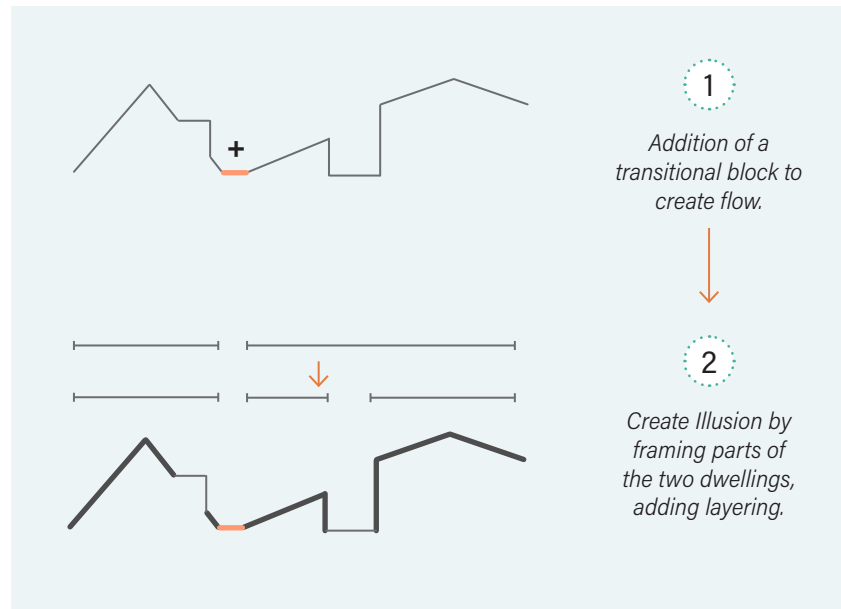
CONNECTION AND INTEGRATION STUDY

Variation 2b

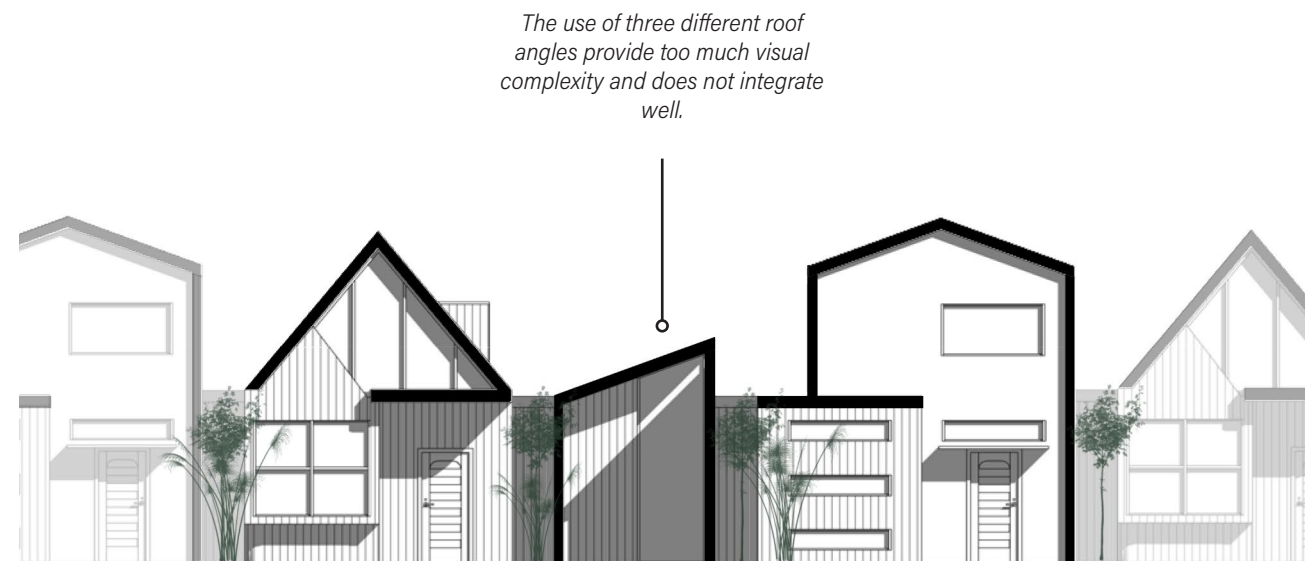
This collage study attempts to integrate a smaller one bedroom household and a larger 3 bedroom family household together. This is similar to the previous study however the different typology of the larger dwelling has resulted in a slightly less effective strategy. The same design shifts were applied here however the formal relationships of the two dwellings to not integrate as successfully. This is due to the difference in roof pitches, it presents an awkward junction which does not flow between the dwellings.



< fig 3.61 Variation 2b chosen houses elevation



< fig 3.60 Variation 2b technique diagrams



< fig 3.62 Variation 2b - implemented elevation

CONNECTION AND INTEGRATION STUDY

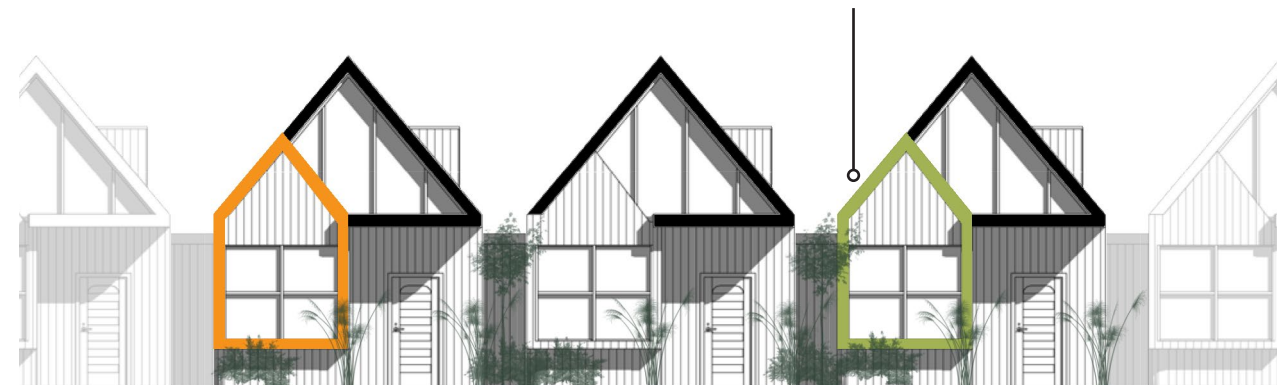
Variation 2c

This collage study attempts to integrate the same one bedroom typology together to form a proposition for row housing within the medium density intervention. To try and integrate these as cohesively as possible this experiment has taken the critique from an earlier similar collage study (1d). This has influenced the decision to not use the aesthetic framing device as a key design shift in this experiment. Instead this experiment has used the addition of set-back transitional blocks to help break up the monotony of the roofline and incorporate visual layering.



< fig 3.64 Variation 2c chosen houses elevation

The use of colour provides a sense of individuality whilst adhering to an overarching colour and material palette.



< fig 3.65 Variation 2c - implemented elevation



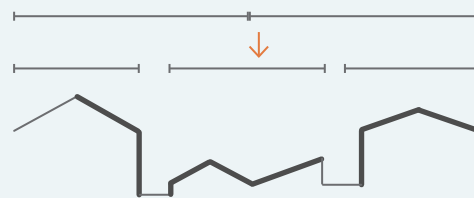
1
Addition of a
transitional block to
create flow.

< fig 3.63 Variation 2c technique diagrams

CONNECTION AND INTEGRATION STUDY

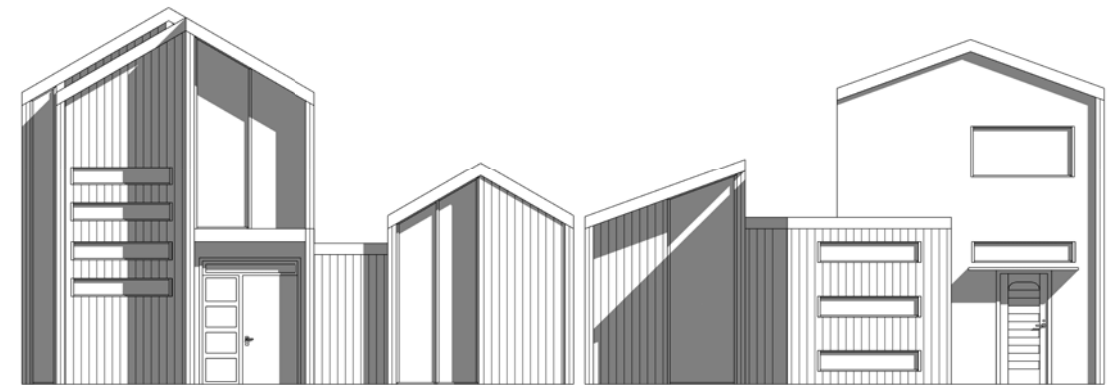
Variation 3a

This study attempts to integrate the two larger three bedroom housing typologies together. The two typologies are similar in formal composition however they offer variety within the aesthetic language. This experiment was difficult to push the integration methods and offers only one design shift; the aesthetic framing device. This integration technique has proven successful with the larger dwellings in previous collage studies, however that does not seem to be the case here. This experiment lacks depth and layering which some of the others achieve through the same technique. This highlights the lack of visual integration between the two dwellings and will only become magnified at a larger scale implementation.



1
Create Illusion by
framing parts of
the two dwellings,
adding layering.

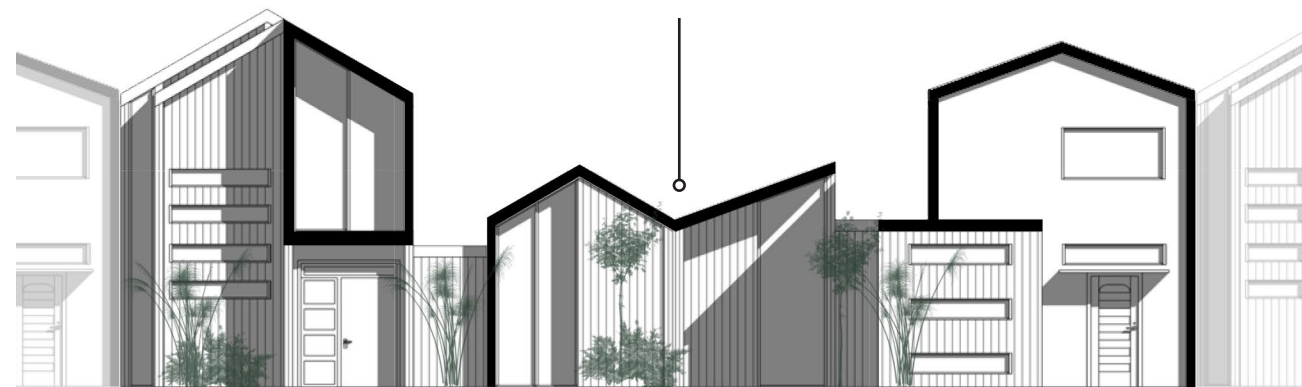
< fig 3.66 Variation 3a technique diagrams



< fig 3.67 Variation 3a chosen houses elevation



Conflicting rooflines do not add a
sense of coherency.

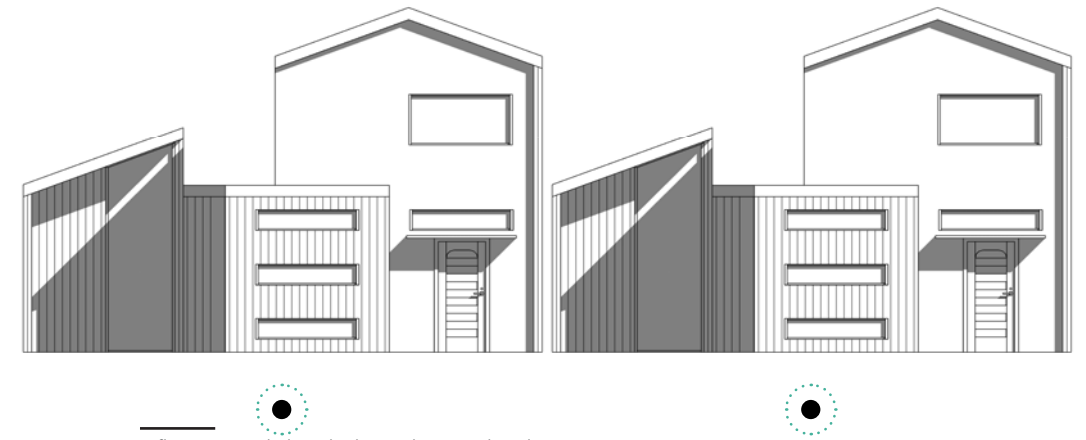


< fig 3.68 Variation 3a - implemented elevation

CONNECTION AND INTEGRATION STUDY

Variation 3b

This study attempts to integrate two of the same larger three bedroom typology dwellings together. The main design shift here was again the use of the aesthetic framing device, attempting to visually connect the two dwellings together aesthetically. This experiment has created repetition that does not read as too monotonous. Although this experiment reads well at a smaller scale, caution will be taken when implementing this variation as too many repetitions could begin to deteriorate the overall aesthetic qualities.

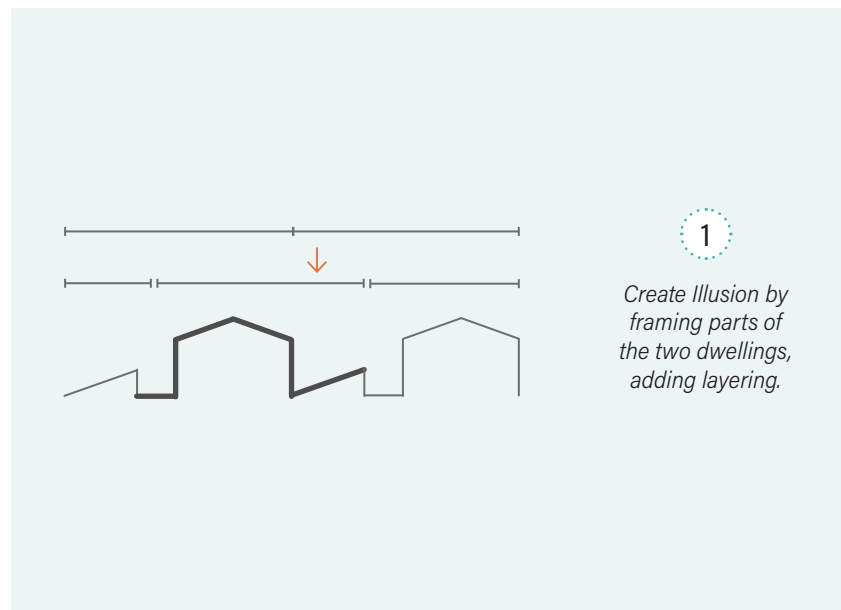


< fig 3.70 Variation 3b chosen houses elevation

Conflicting rooflines do not add a sense of coherency.



< fig 3.71 Variation 3b - implemented elevation

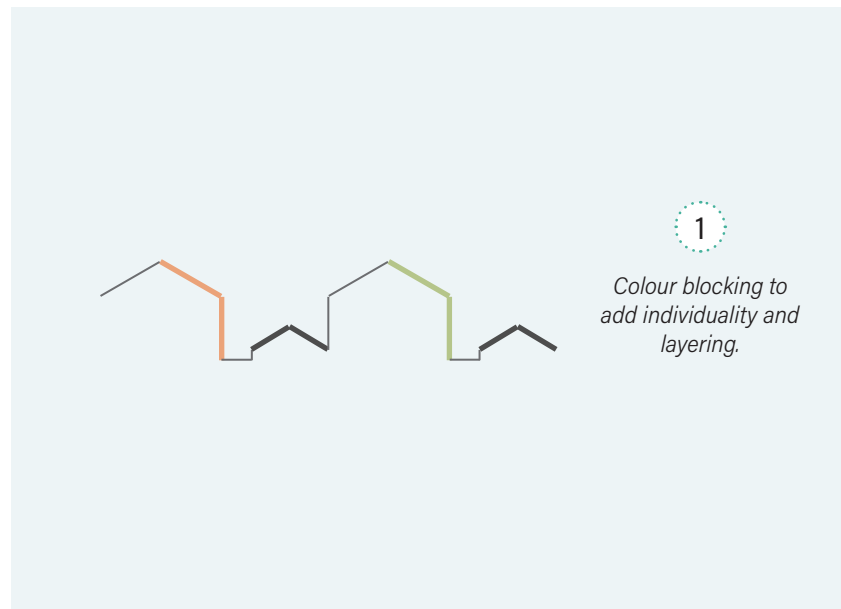


< fig 3.69 Variation 3b technique diagrams

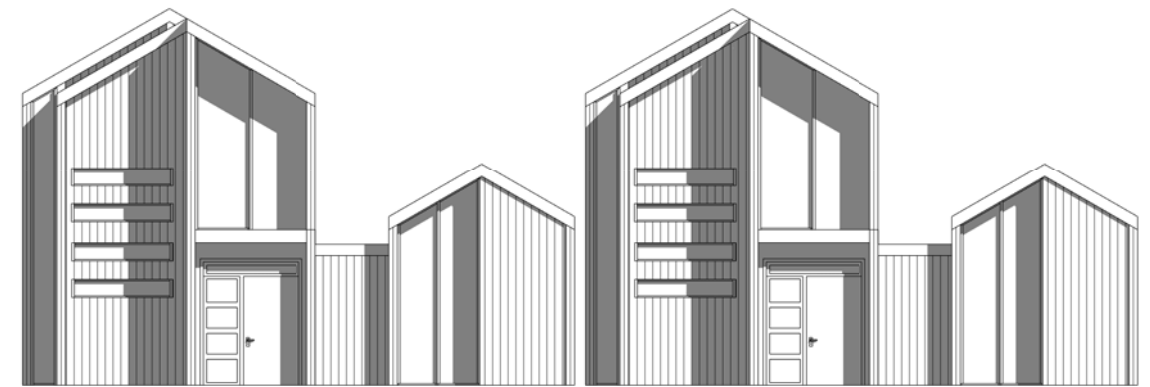
CONNECTION AND INTEGRATION STUDY

Variation 4a

Finally, this last study ingrates the final remaining variation of the other two larger three bedroom typology dwellings together. This collage study plays with the design shift of colour blocking. This can allow for variation and individuality between dwellings whilst still having an overall cohesive architectural aesthetic. This is a very simple design technique but presents very successful in terms of overall integration. Again, caution will be necessary when implementing this into a larger scale intervention.

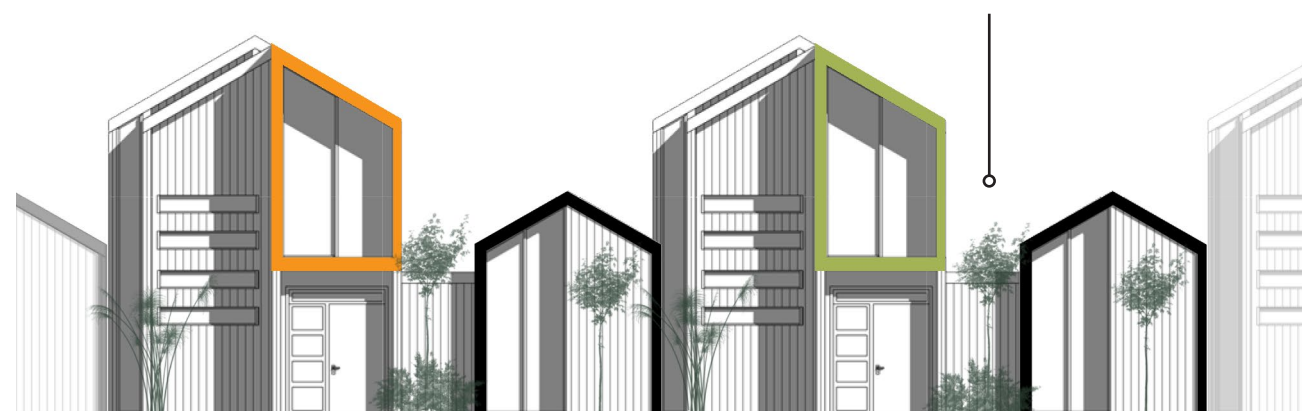


< fig 3.72 Variation 4a technique diagrams



< fig 3.73 Variation 4a chosen houses elevation

Same roofline angle paired with variation of scale, presents a coherent aesthetic language.



< fig 3.74 Variation 4a - implemented elevation

3.4 LARGER SCALE SITE IMPLICATIONS

The preceding design investigations and tests, examining the issues related with visual integration both in masterplan and in elevation or street perspective. These were then combined to create project three design outcome. At 41 dph the design is far less dense than the proposed target of 50-70dph. To achieve greater density the standard of desirability would start to decline. Based on the aesthetic threshold findings throughout design project 2 and 3, it is clear that there needs to be a greater understanding of balance and coherency throughout this project.



< fig 3.75 Design Project Three Master plan



< fig 3.76 Design Project Three 3D Visualisations



< fig 3.77 Design Project Three 3D Visualisations



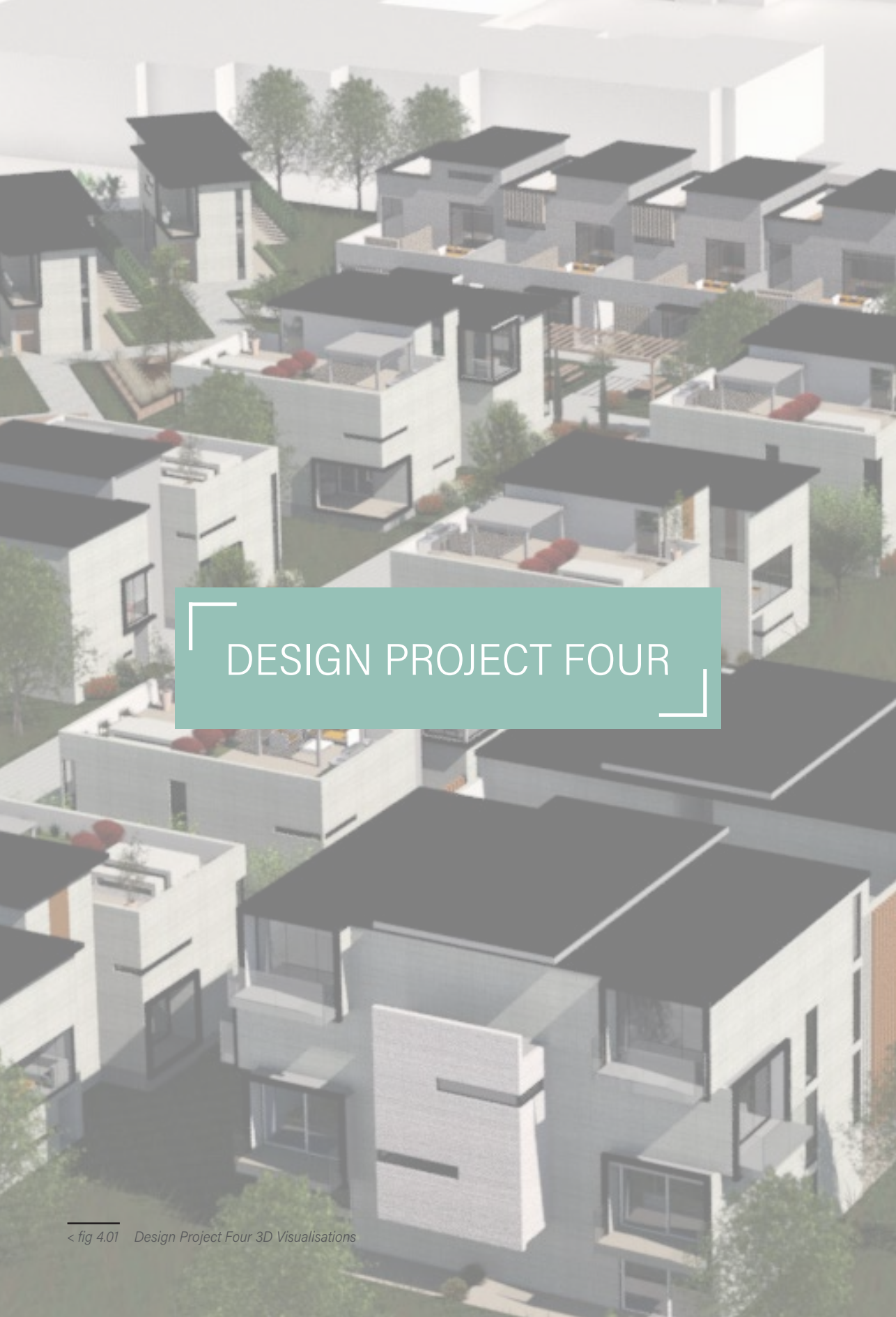
3.43
CRITICAL REFLECTION

Design Project Three was a rigorous investigation into contextual aesthetic treatments and techniques of Kilbirnie, and combining these at house and cluster master plan scales. Although this was helpful in understanding the aesthetic qualities of Kilbirnie as a place and possible design techniques to achieve contextual reference, the design itself got overwhelmed by the context. This design project pairs back the contextual influence and finds a more appropriate balance between context and informed architectural design.

Critical interpretation of Kilbirnie context suggests density, repetition and scale shifts as the main design drivers. The next design project will look to current architectural practice precedents that successfully reference context without losing the rich architectural aesthetic or expression.

Another critically important investigative series that took place in design project three was the reciprocal scale shift to negotiate the details in the master planning scheme and the connections between the individual dwellings. It became very apparent through this design testing that the planning and integration issues were a result of building scale issues.

The problem this thesis is trying to tackle, potentially calls for a larger range of building scales than what has previously been explored. Individual dwelling testing and how they can be linked and integrated together presents a fine grain of negotiating of in-between spaces and connections, leaving a larger scale issue of redundant space that could be used more effectively. As a means to address the site scale formal and aesthetic composition issues the next project will explore the aesthetic qualities of an in-between scale of MDH – between the individual row house and the larger complex.



4

Variation and Continuity

4.0 Common vs. Individual

commonality vs. individuality

key ref 14: Gartenweg // feld72 Architects

key ref 15: 440 Richmond Road // RTA Studio

design context tests

an abstracted relationship to context

4.1 An Architectural Synergy

design 4.1

larger scale site implementation

experimentation critique

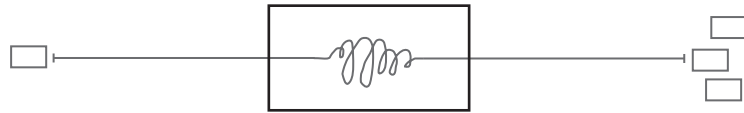
4.2 Typology Variation

design 4.2, 4.3, & 4.4

site composition

site compositional experiment series

design project four



4.0 Commonality vs. Individuality

Commonality and individuality are two very opposing ideas, the first represents a widely collective term and the other represents a narrower more personal term. It is the synergy between the individual and the common that has presented the biggest challenge in this thesis to date, as one cannot focus too strictly on either ends of the spectrum, otherwise the result will be one of a very unbalanced nature.

Through the findings from this thesis thus far it has become clear the next approach taken needs to adapt the most successful aspects of the previous investigations which sit both in the common and the individual. This chapter will focus on creating harmony between the common and the individual at a scale that presents new challenges and opportunities for medium density.

Reflecting back on the more significant findings in this thesis thus far, it is clear that this harmony between the common and individual can be achieved successfully. The first major significant finding was in the master planning from design project two. This design test focussed on the site circulation as a key aspect of the overall masterplan.

The key significance of this master plan was the main service street running through the centre of site. In particular the linear structure of the street, how it added the landscape space surrounding it and how it linked all of the housing together.

Additionally the street provided an excellent transitional space that presented opportunities both to minimise vehicular priority on site and add a rich sense of useable communal space. Both of these opportunities identified are important design tactics in the success of the integration in the design. This strategy is developed further in a new mid-scale intervention seen later in this design project.

The next key significant finding to reconsider in this current design project was the gradual variation method from design project two. The rigour of this experiment was somewhat lessened in the third design project due to the contextual analysis that took precedent. It is clear that the concept of gradual variation worked successfully in breaking up the monotonous and repetitive nature of the row housing typology. For this final design project it will be important to focus the experimentation on the exterior form and façade manipulation as a means of testing and understanding the thresholds for variation.

Finally, the last major point of significance to consider when designing this current Design Project is the contextual interpretation. Design Phase Two was an intense and thorough investigation of Kilbirnie. Although the methods explored proved successful in achieving a context based design, upon reflection it became clear that it also lost the aesthetic languages developed in project one and two. This investigation will not entirely be disregarded but rather paired back to achieve a more specific architectural aesthetic whilst simultaneously situating itself within a Kilbirnie context.

This will be done by working at three scales, a compositional site scale, a form scale and a building scale, by integrating the languages and developing the aesthetic palette and its synergy.

These techniques and strategies all offer their own aspects to the overall synergy between the common and the individual in terms of MDH. It is here, in this synergy, this thesis anticipates to develop its method for designing more aesthetically pleasing medium density housing.

***“Privacy is not lessened by common spaces
but by inadequate common spaces, lethal
for the dignity of people and buildings.”***

(Fernandez Per, 2011. p12)

4.01

KEY REFERENCE 14

GARTENWEG

*feld72 Architects
Kaltern, Italy
2010*

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SEE PHYSICAL COPY FOR REFERENCE

< fig 4.02 Overview of Gartenweg

European architects feld72 are well known for their collective housing developments throughout Europe. This particular example contributes to this thesis because of its masterplan and 'play street' intervention. Feld72 have designed this play street which acts as a communal/public circulation route through the development. This sits cleverly on top of an underground car park that services the dwellings from underneath.

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< fig 4.03 Overview of Play street

< fig 4.04 Overview of Play street

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< fig 4.05 Overview of Play street

This simple but intelligent design move has taken what could have been a bleak public space and really focussed on enriching the area for the users. It is this intelligent use of space and circulation that provides an excellent basis for larger housing developments to help implement a sense of community and take away the priority of the vehicle which in turn can focus more on the overall architectural expression.

This analysis below provides an insight into how the dwellings interact with the play street and which areas become more private. As seen, there are specific areas designated for playing/circulation and also relaxation areas.

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< fig 4.06 Play street analysis

4.02

KEY REFERENCE 15

440 RICHMOND ROAD

RTA Studios
Auckland, New Zealand

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< fig 4.07 440 Richmond Road



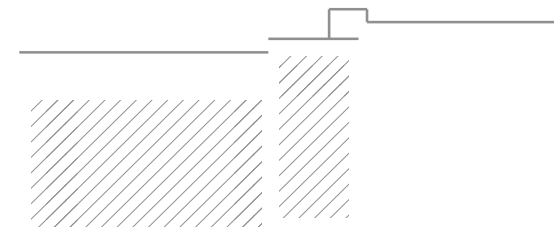
< fig 4.08 Comparative precedent analysis

RTA studios 440 Richmond Road project where the architects have very subtly given reference to the two neighbouring buildings whilst maintaining their own architectural aesthetic. This technique can provide abstracted contextual reference without overpowering the overall aesthetic expression.

4.03

DESIGN CONTEXT TEST

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< fig 4.09 Comparative Kilbirnie analysis

This context diagram examines an existing dwelling across the road from site in Kilbirnie, Wellington. This example is block like in form with the entrance passing through the centre and two similar sized blocks flanking either side. The garage acts as a large void in the façade which is an element that could potentially be brought through to the design.

DESIGN CONTEXT TEST

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< fig 4.10 Comparative Kilbirnie analysis

This context diagram examines an existing dwelling within close proximity to site in Kilbirnie, Wellington. This example is more common and traditional to the Kilbirnie aesthetic in formal and visual expression. The two large bay window blocks flanking the centre entrance way is seen again, with differing roof heights to emphasize this. The blocking is a successful design technique to separate programme and exaggerate certain elements. This is a strong formal technique that can be applied to a larger scale to potentially combat the issues of scale within MDH.

DESIGN CONTEXT TEST

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< fig 4.11 Comparative Kilbirnie analysis

This context diagram examines an existing dwelling within close proximity to site in Kilbirnie, Wellington. This example is of slightly simpler formal expression however it is a regular typology that is seen throughout the area of Kilbirnie. The two large blocks of glazing on the front façade separate the dwelling evenly and provides good symmetry. This is something that is noticeable in Kilbirnie as a common design technique and is an aspect that could be applied to the final design.



4.04

TOWARDS AN ABSTRACTED RELATIONSHIP TO CONTEXT

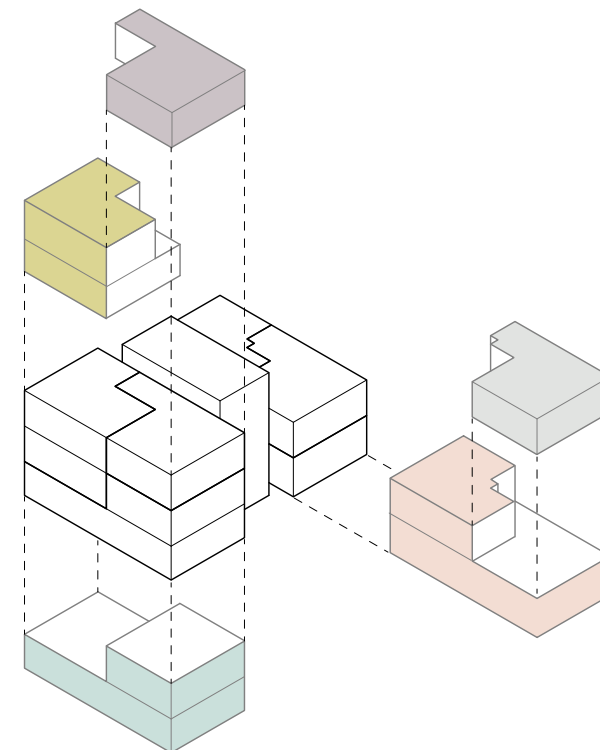
To date this thesis has looked closely at strategies to improve the current medium density housing aesthetics in New Zealand. These studies have considered row houses and individual houses, two very different scales, however it is missing a very important mid-scale typology – the apartment complex scale, this is needed to vary the site compositional scale. This experiment investigates the aesthetic opportunities within mid-scale medium density housing. By designing a small block of apartments, aesthetic issues that this thesis encountered previously such as scale and grain and judgements of beauty, begin to be addressed in a new light.

The formal design qualities of the block itself originate from the context of its direct surroundings which can be seen in the preceding context analysis. This exploration that is highlighted in the first component of this chapter section, embodies the context strategy of RTA studios which has been previously noted in this thesis. This strategy allows the newly implemented architecture to fit subtly into the surrounding context without forcing it in any aesthetic direction.

The apartment block houses 5 different sized dwellings spread across two separate wings. The dwellings range from one to three bedrooms and also all have access to a shared roof garden through the main core.

The split level feature allows for privacy from onlookers as well as variation in the aesthetic treatment to the exterior façade. The overall scheme presents well in terms of scale and aesthetic qualities. Working closely with all four of the façades has been a key technique here to minimize monotony and repetition where possible. The key investigation moving forward with this design will be to duplicate this scheme across a masterplan and identify the threshold where monotony does become an issue at this scale and implement previous strategies to reduce this.

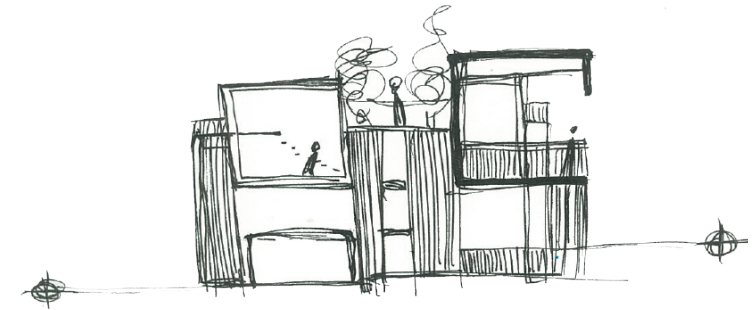
It is also key to note that this is the first variation of this block typology, an exploration will be carried out further into this experiment that will look to re-address the earlier explorations of implementing gradual variation to the façade.



< fig 4.12 Exploded form diagram of Design 4.1



< fig 4.13 Site visualisation of Design 4.1



4.1

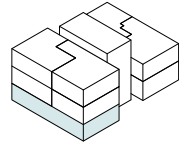
AN ARCHITECTURAL SYNERGY

Design 4.1 - small apartment block

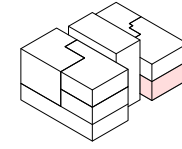
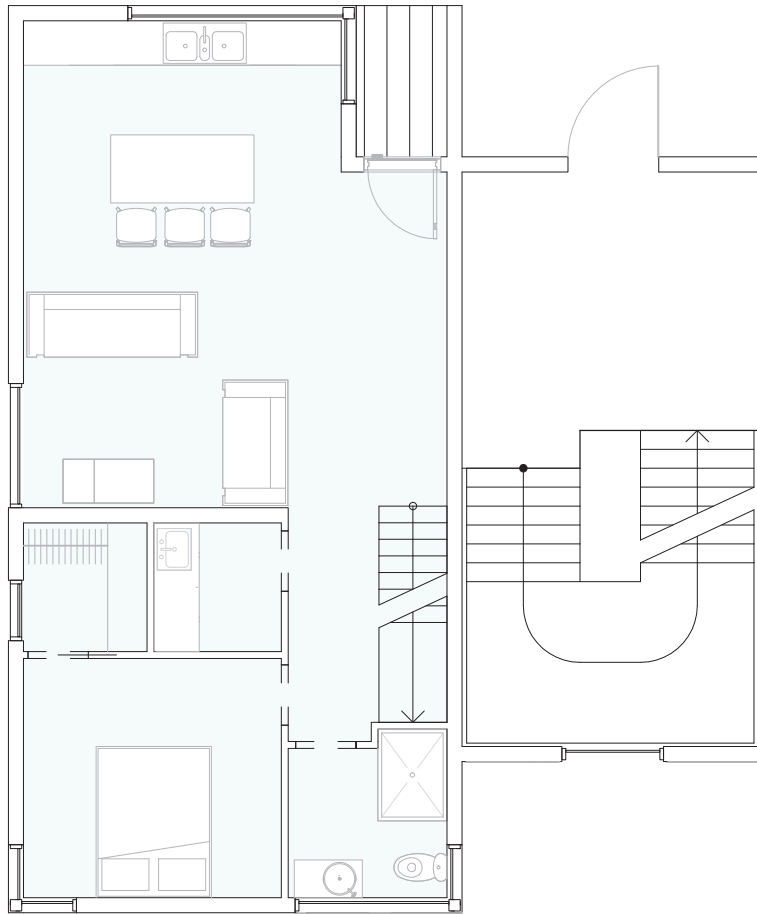
The following pages show the floor plans of the final designed smaller apartment block. Housing 5 different apartments of varying sizes varying from one to three bedroom units there can be a very mixed user demographic. This speaks to what is already existent in Kilbirnie as it is known as Wellington's melting pot – both of culture and of age groups.

The overall form was derived from the preceding contextual analysis. From this it was clear that the technique of blocking is something very apparent in the architectural aesthetic of Kilbirnie. For this reason the apartment block is sectioned into 3 areas to break down the apartment scale. The main circulation block through the centre and two blocks that have been slightly offset from each other housing the apartments. This offset has created an layered treatment to the façade and placement of architectural elements. Additionally the large glazing treatments to the façade have derived from this contextual analysis and comes through as a use of major elements and minor elements within the composition.

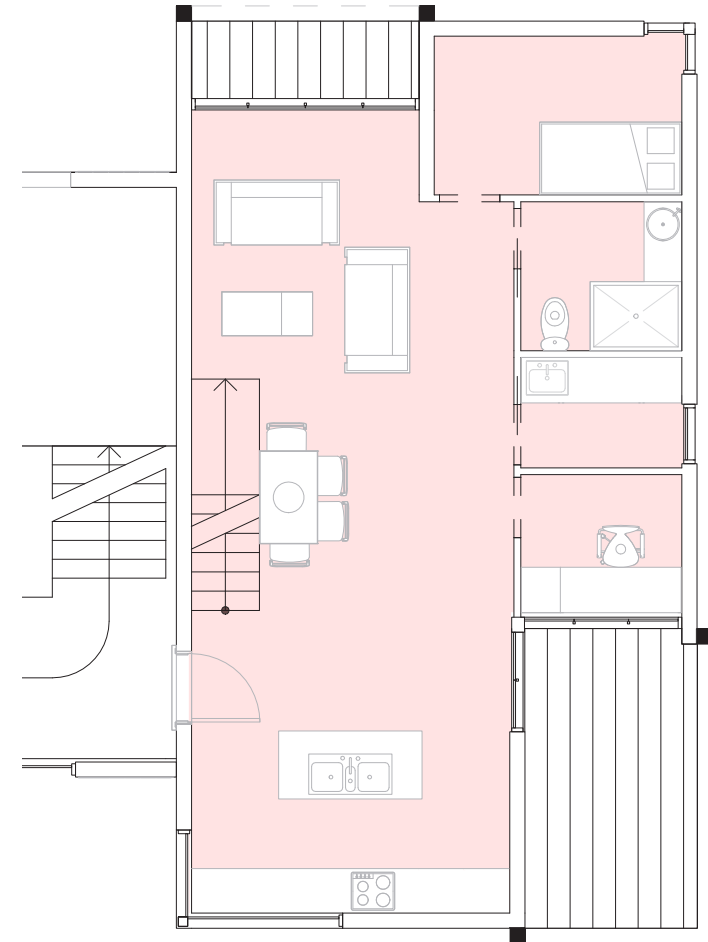
This design allows for some flexibility within the voids in the façade. The method of gradual variation can easily be applied to create slightly different results that still sit within the same aesthetic language. This is something that is discussed later in this section of the design investigation.

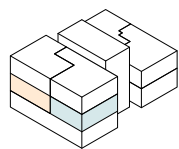


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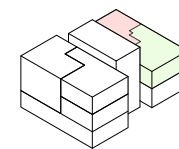
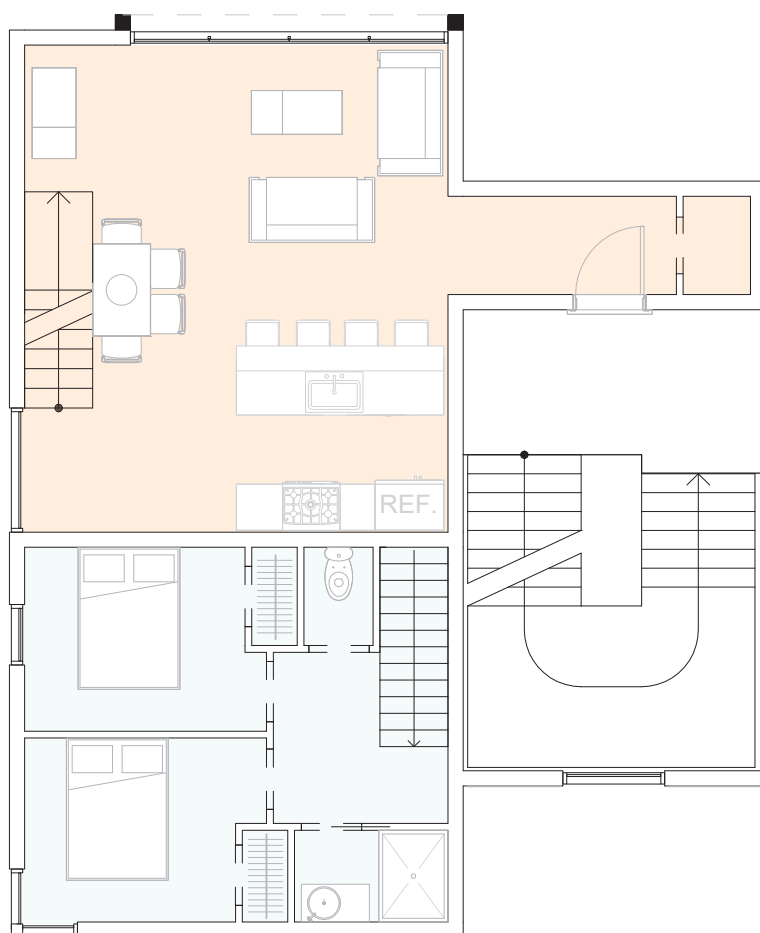


Level 0.5 +0.9m

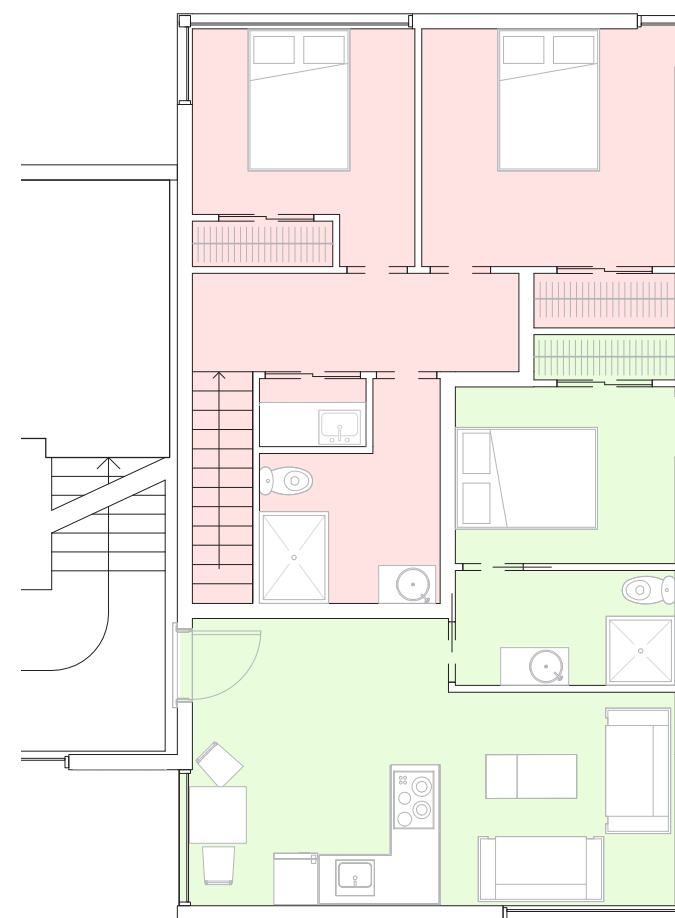


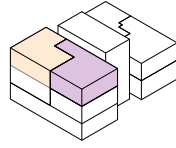


Level 1 +2.4m

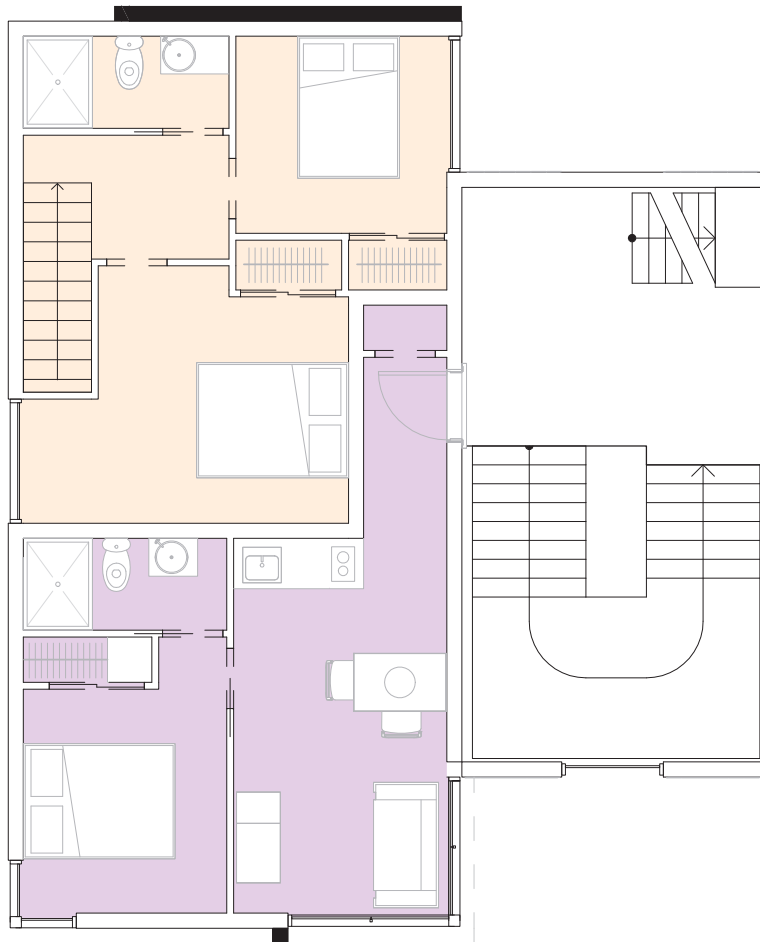


Level 1.5 +3.6m

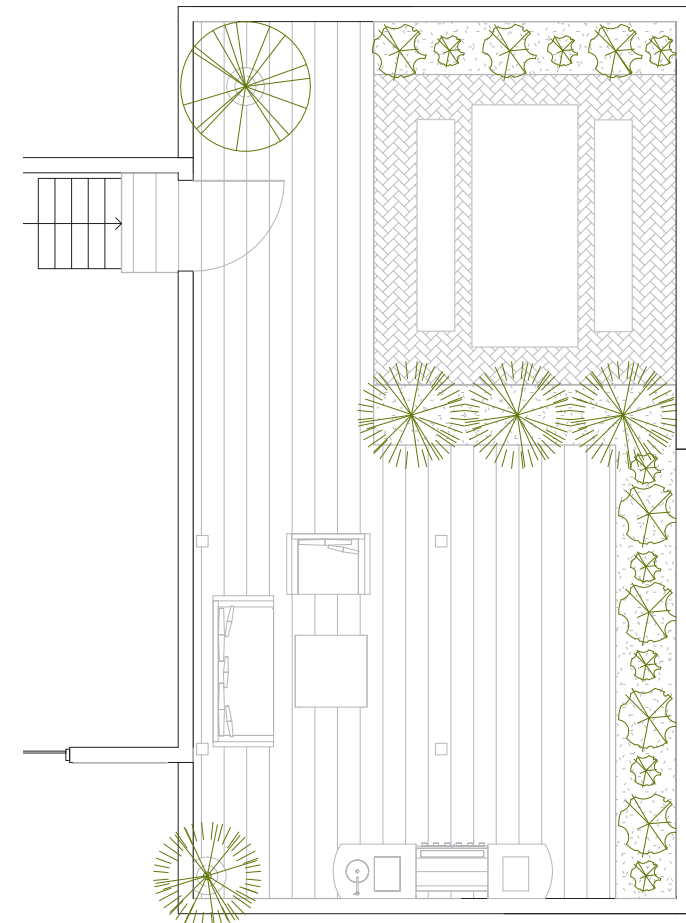


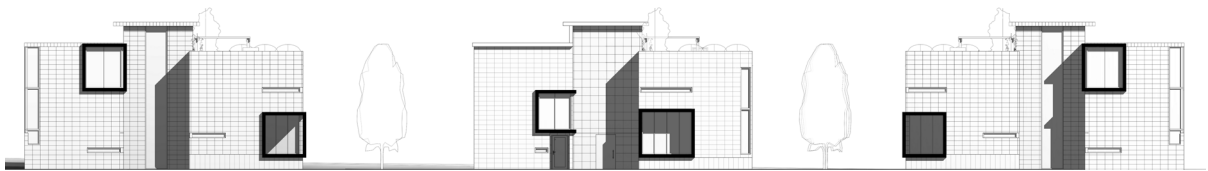


Level 2 +4.96m



Level 2.5 +6.18m





< fig 4.14 Design 4.1 variation elevations

4.12

LARGER SCALE SITE IMPLEMENTATION

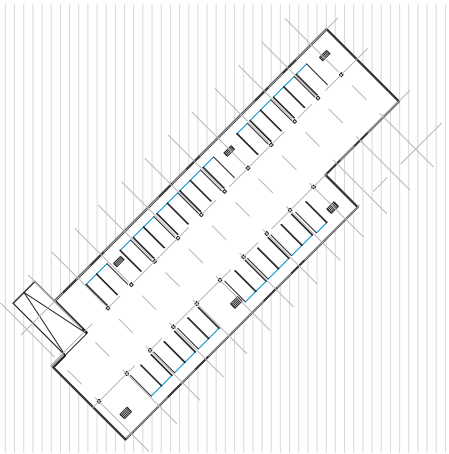
This section looks at the introduction of an underground carpark and the implications that this has on the overall site circulation. The main focus of the social street is to minimize the vehicular presence on site to aid the quality of social connections and experiences had. These explorations examine different variations for the underground entrance and what the successes and downfalls of each are. The social street was informed by these findings and begins to be developed further in more detail.

Each car park is relatively similar in organisation and allows for 30 parks which is enough to allocate one car park per dwelling in the centre block. Each block can be accessed by a set of stairs that feed up to its core stairwell. This strategy is similar to the earlier precedent Gartenweg, where all dwellings can access the carpark through a communal staircase.

Variation One Influenced by Precedent



< fig 4.15 Car park entrance - Iteration 1 Site Plan



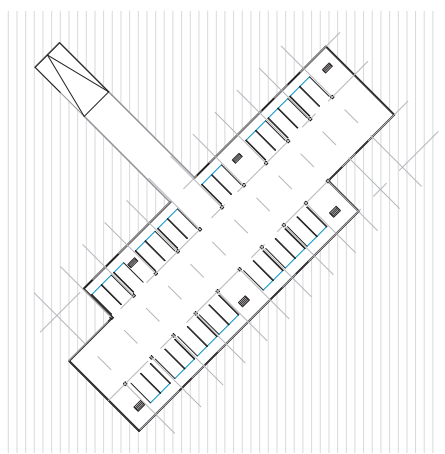
< fig 4.16 Car park - Basement Plan Iteration 1

This exploration has used the same strategy as the earlier precedent Gartenweg. By tucking the ramp neatly to the side of one of the blocks this allows for little interruption to the rest of the site circulation. Although this is positive factor, orienting it this way becomes quite difficult to access from the southern end of site due to the angle.

Variation Two Influenced by current access routes



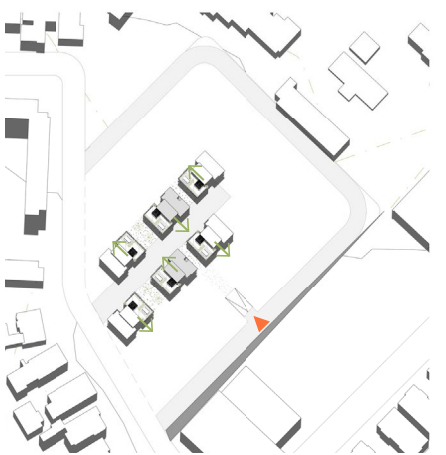
< fig 4.17 Car park entrance - Iteration 2 Site Plan



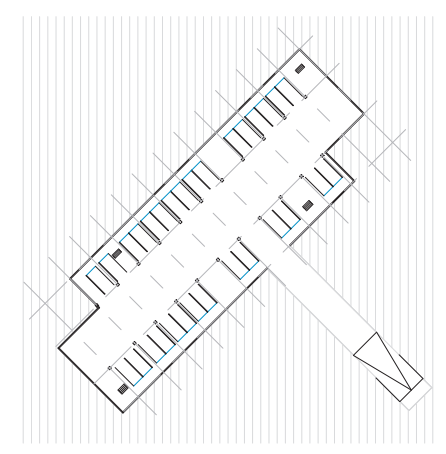
< fig 4.18 Car park - Basement Plan Iteration 2

This exploration has used the current access route as a point of entry. By extending the entrance closer to an existing route it minimizes doubling up on site works and allows for a slightly easier access. This is still difficult to access from the southern end of site as it sits at a sharp angle.

Variation Three Influenced by previously designed access routes



< fig 4.19 Car park entrance - Iteration 3 Site Plan

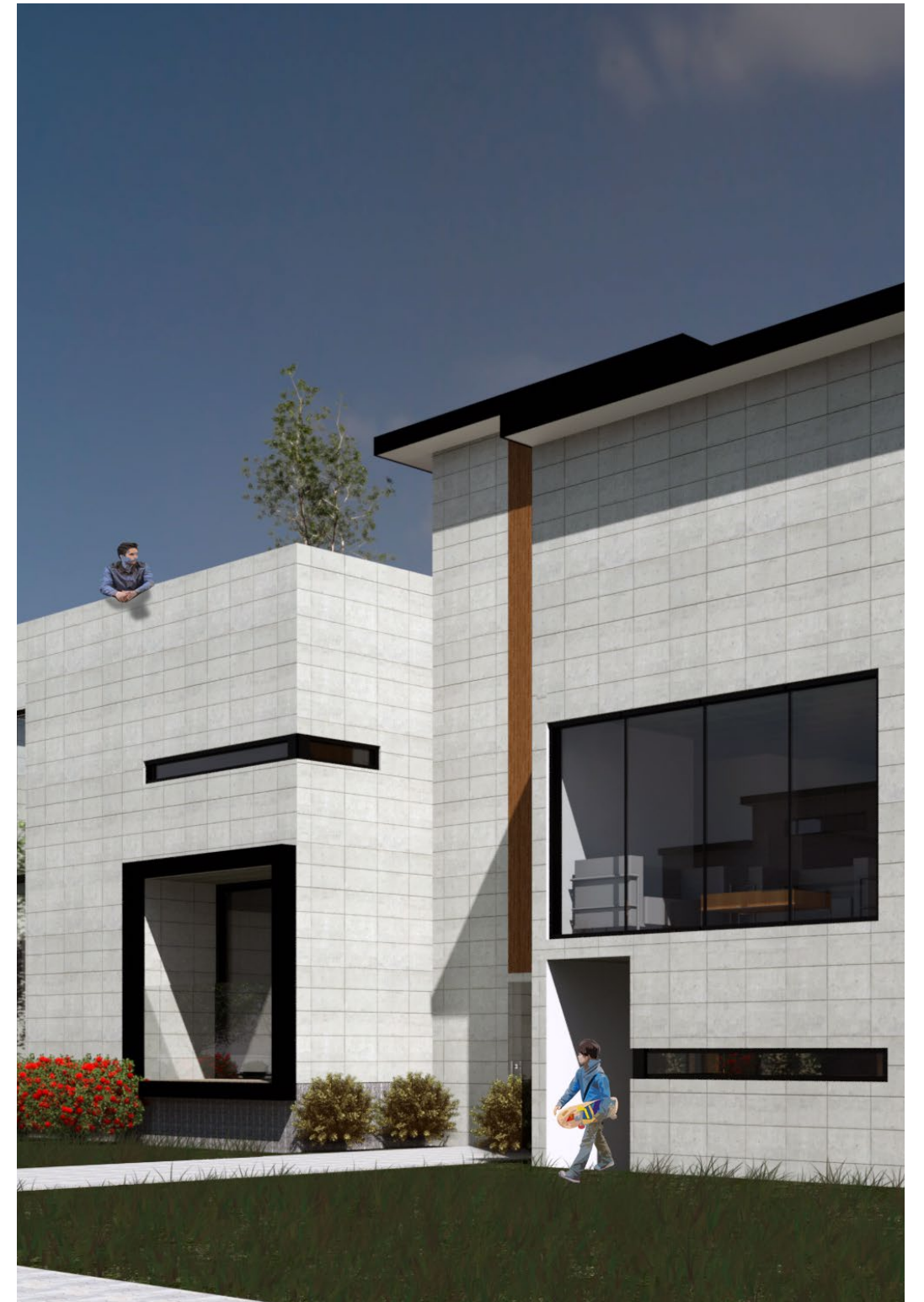


< fig 4.20 Car park - Basement Plan Iteration 3

This exploration has been influenced by the first design phase site circulation plan. By offsetting this entrance onto the existing exterior circulation plan it has allowed for a much smoother transition and ease of access. This has also allowed for the ramp to be tucked away behind another block of dwellings which will be added in to this masterplan in coming stages. Again, allowing for much less vehicular priority on site.

4.14 EXPERIMENTATION CRITIQUE

This design test investigating an appropriate mid-scale typology for MDH has provided a solid foundation of knowledge and findings to move forward in the overall final design. The small apartment complex has dealt with the issues of commonality and individuality, finding a harmony between the two differing ideas. This was successfully shown through the use of the common core through the middle of the design which allows access to all individual dwellings from the main staircase. The split levels additionally allow for more privacy to the entrances of each dwelling as no two dwellings enter on the same landing. This was an important design consideration as it becomes the threshold between the common and the individual. Through this approach a strong sense of synergy between the two is apparent. Moving forward to the next part of this design phase, it is important that these design considerations are being worked through in response to the scale and programme of each typology.



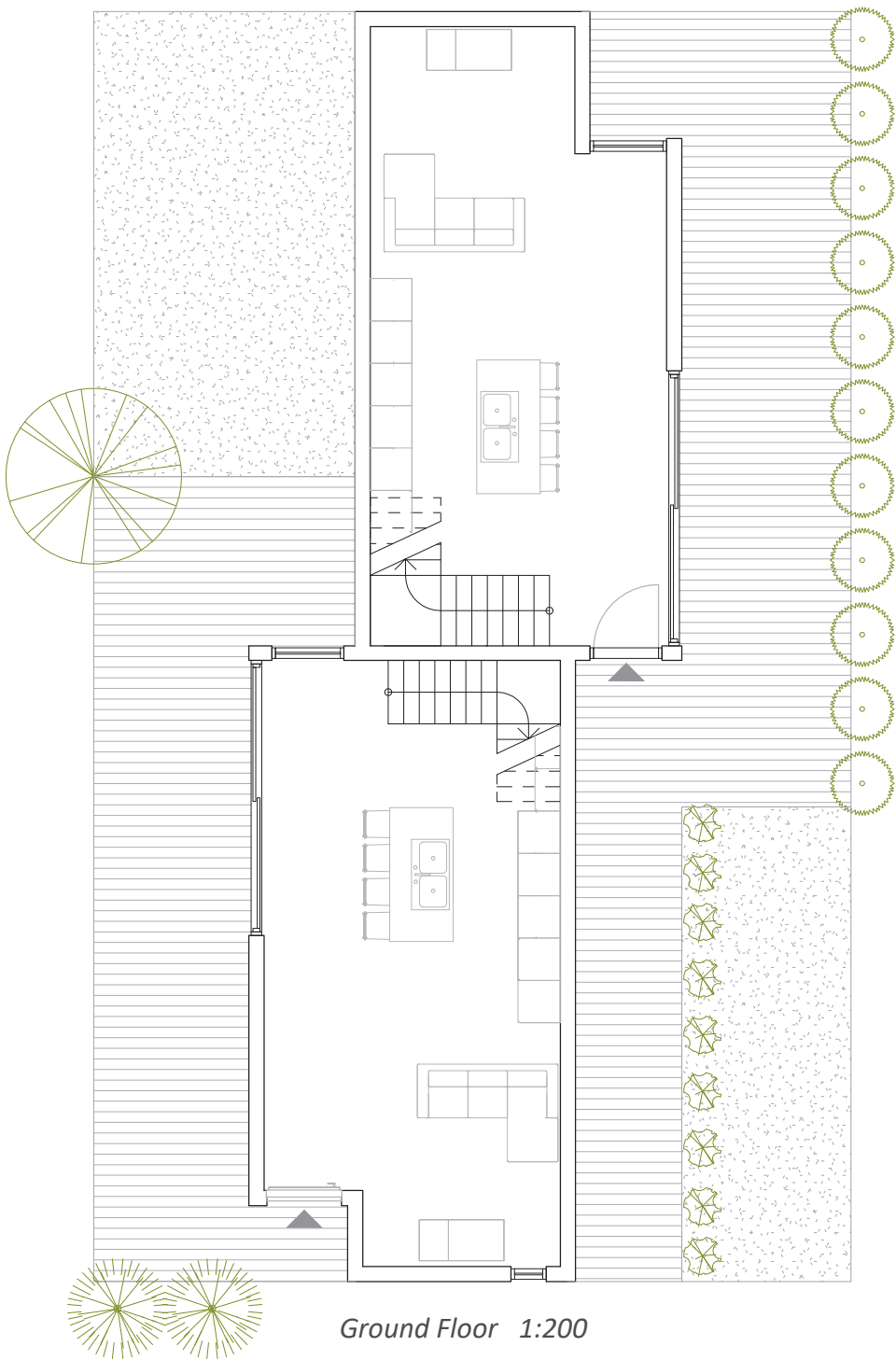
< fig 4.21 Site visualisation of Design 4.1

4.2 TYPOLOGY VARIATION

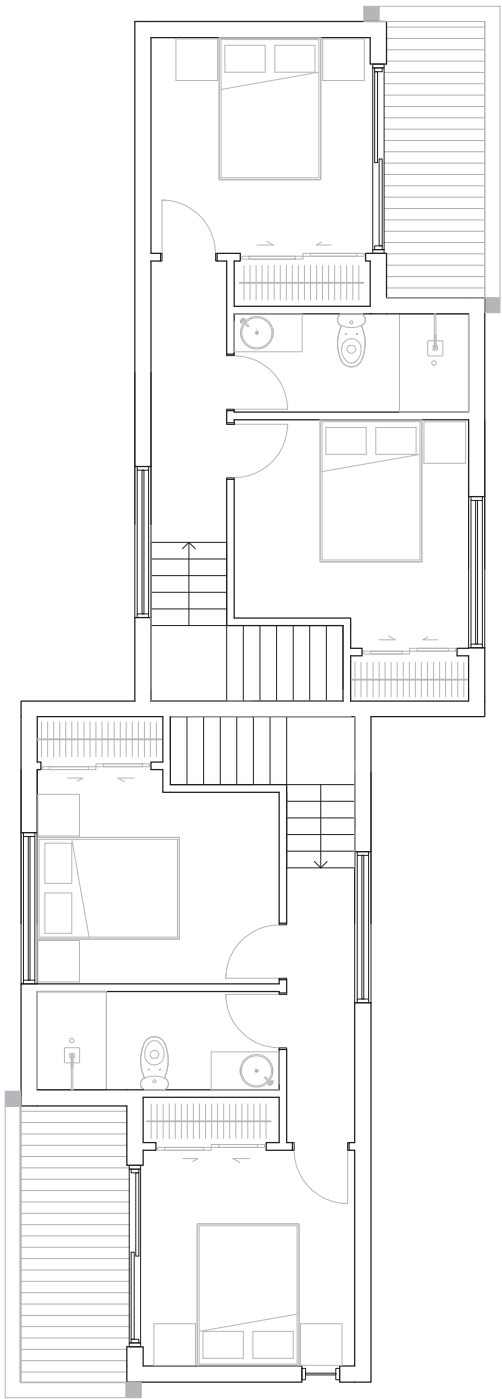
The next section of this design project was the design of a series of typologies that were informed by the aesthetics of the small apartment complex. These typologies vary in scale which gives possibility of scale variation throughout the aesthetic composition of the masterplan. As the new typologies designs were informed from the small apartment complex design they also embody the design tactic of continuity. All typologies have been designed with similar aesthetic language and tendencies, which again has led to a aesthetically coherent overall masterplan.



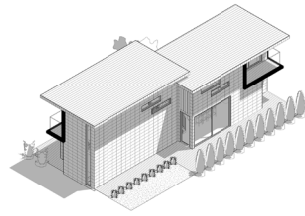
< fig 4.22 Site visualisation of Design 4.2



Ground Floor 1:200



First Floor 1:200



4.21

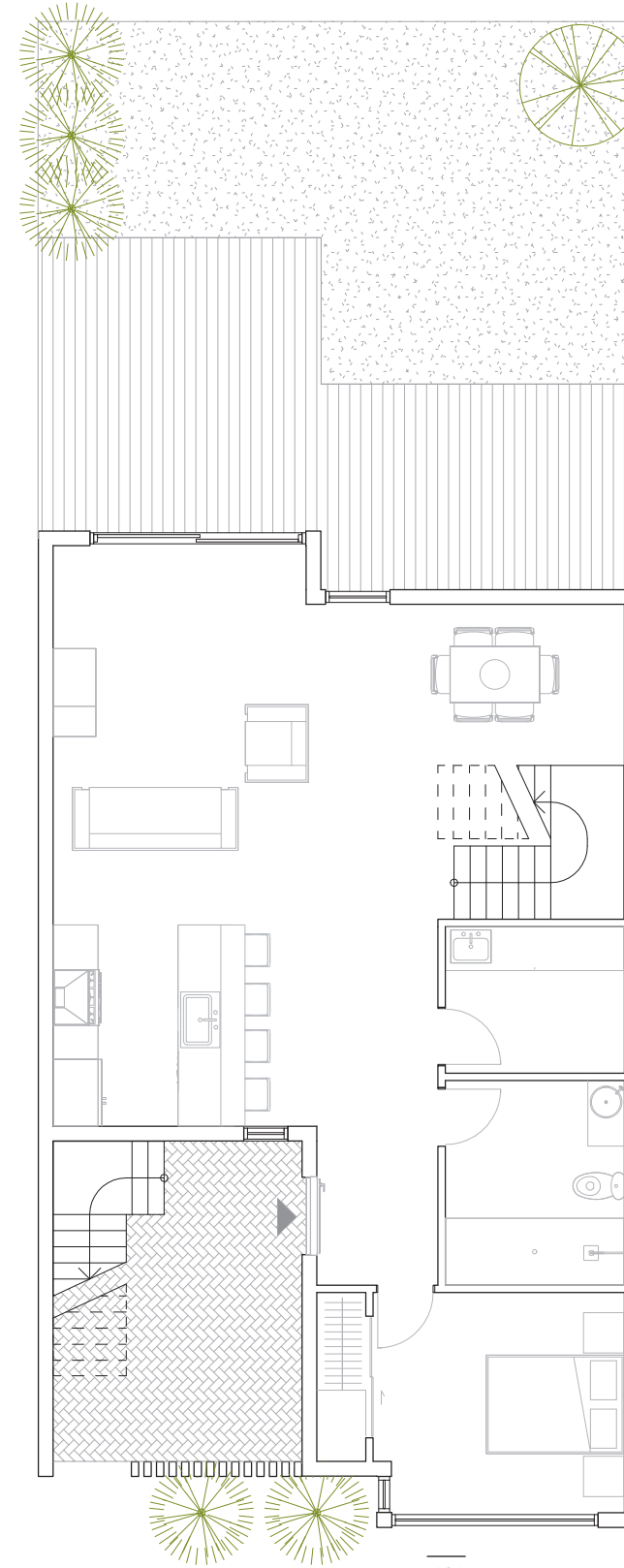
DESIGN 4.2

The Duplex

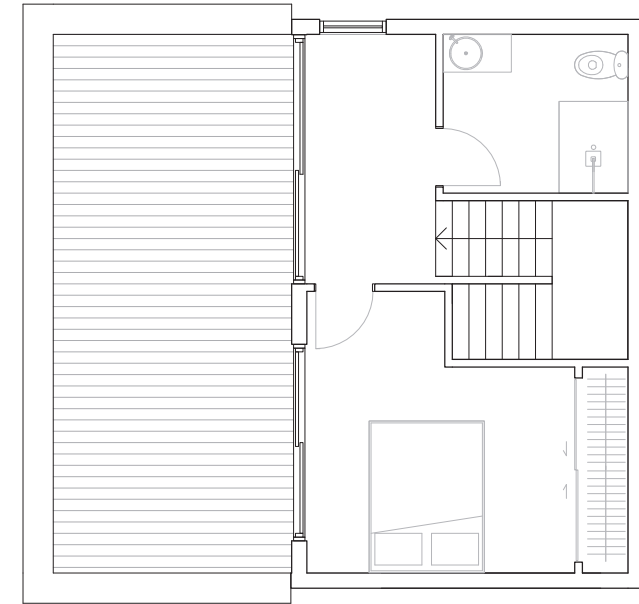
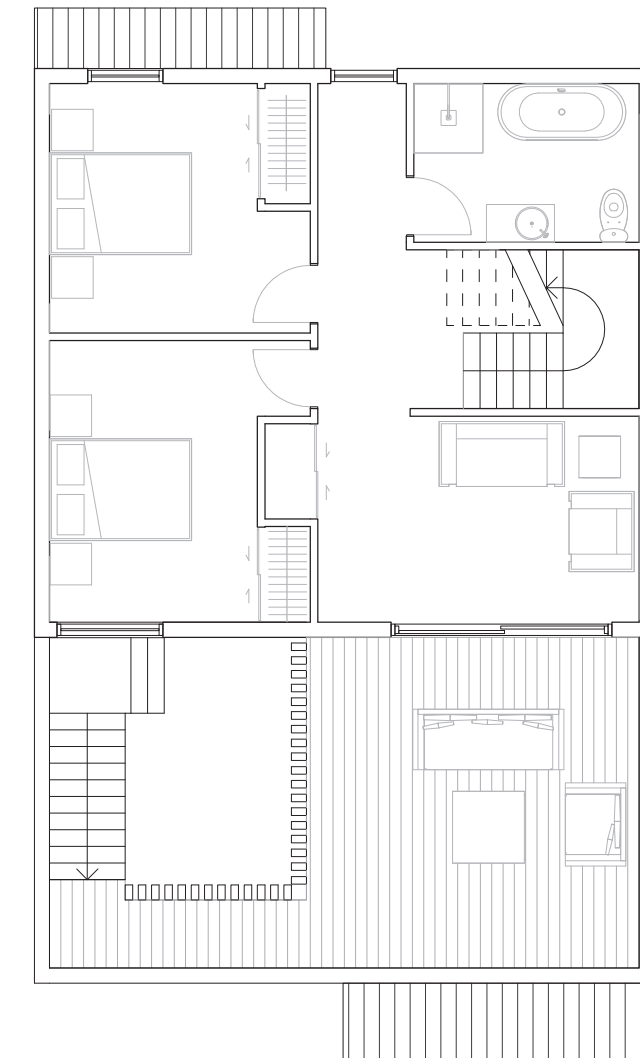
The Duplex typology is a compact 2 bedroom/1 bathroom design. The ground floor of each dwelling is an open plan Kitchen/Dining/Living area that spills out on to the respective garden areas. This design has embodied the blocking technique from the Kilbirnie context analysis and additionally uses the same material palette to the small apartment complex. This brings forward a cohesive architectural aesthetic language that is carried through to this typology.

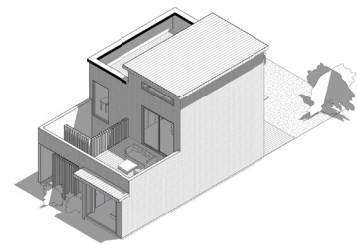


< fig 4.23 Site visualisation of Design 4.3



161





4.22

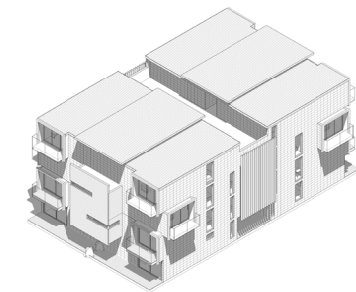
DESIGN 4.3

The Row House

The Row House Typology consists of a cluster of 4 Row Houses that sit together on site. Each Dwelling has 4 Bedrooms and 3 Baths across three storeys. The Ground floor hosts the open Kitchen/Dining/Living area and the laundry, a bathroom and a bedroom. The ground floor entrance is off a transitional courtyard area which differs in each of the four row houses. This courtyard area acts as a transitional space between the common and the individual as the dwelling is accessed directly off the shared garden areas on site. The courtyard and facades of these designs vary. The method of gradual variation is adopted to create a cohesive architectural aesthetic language to tie them together yet still express subtle individuality.



< fig 4.24 Site visualisation of Design 4.4



4.23

DESIGN 4.4

A Mid-scale Apartment Block

The Mid-scale Apartment Block houses 16 dwellings ranging from 1 to 3 bedroom units. The two building cores service 8 dwellings each and connect down to the underground car park. It was important in the larger scale compositional variation to include surrounding apartment and commercial buildings, it also references to the wider site. School and retail blocks surround the north-east corner of site and are of similar scale and proportion. This also provides high density options for some occupants which could work better for their circumstances. Similar aesthetic language and techniques have been implemented to create a coherent scheme.

Typical 1 Bed Floor Plan



□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □





< fig 4.25 Site visualisation of shared garden area

4.24

SITE COMPOSITION

Once the typologies were finalised it then became crucial to shift the focus back to the master planning scale. With the starting point of the 'play street' with parking below earlier in this design project and with reference to earlier studies done in the design project three, the coming experimentation looks at working with similar techniques and tactics.

4.25

SITE COMPOSITIONAL EXPERIMENTS

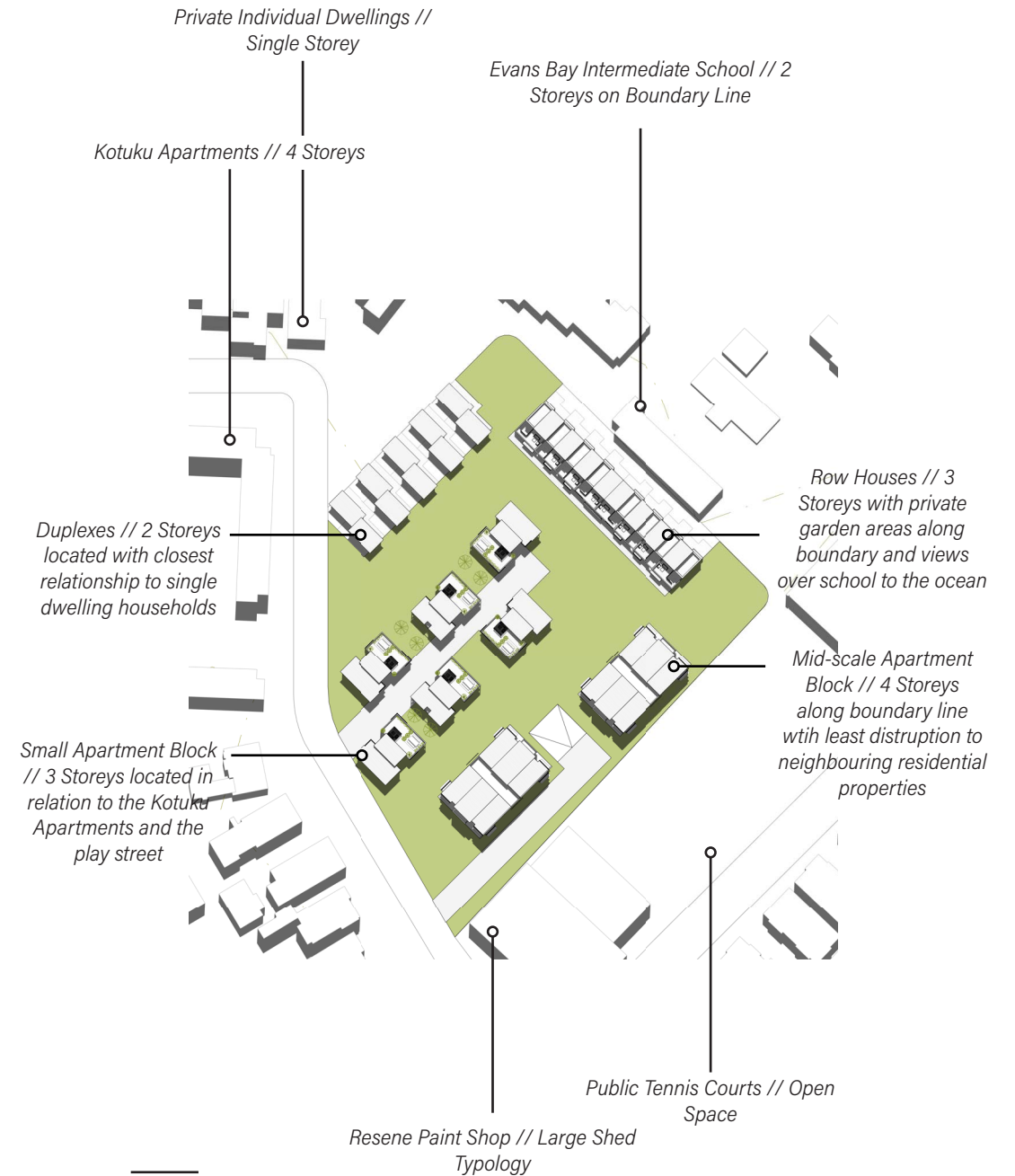
Iteration 1

This first master plan iteration embodies a clustering technique. By grouping together the same typologies the site has been organised from smallest to largest typology size respectively north to south of site. These have been positioned in direct relation to the site boundaries and with the 'play street' and car park entrance additionally taken into consideration.

The duplex typology has been sited in a row of 5 – totalling to 10 dwellings along that site boundary. The row house typology has been sited along the back site boundary in a row of 8 – the cluster of 4 which has been mirrored, bringing the total of these to 8 dwellings. The Apartment blocks have been sited either side of the car park entrance ramp. The front block hides the entrance, giving more priority to the architecture than vehicles on site. Through siting the typologies in this way there is a large amount of communal green space through the middle of the master plan and smaller pockets of green space in between which can be adapted to be more private.



< fig 4.26 3D Site Overview - Iteration 1



< fig 4.27 Iteration 1 - Site analysis

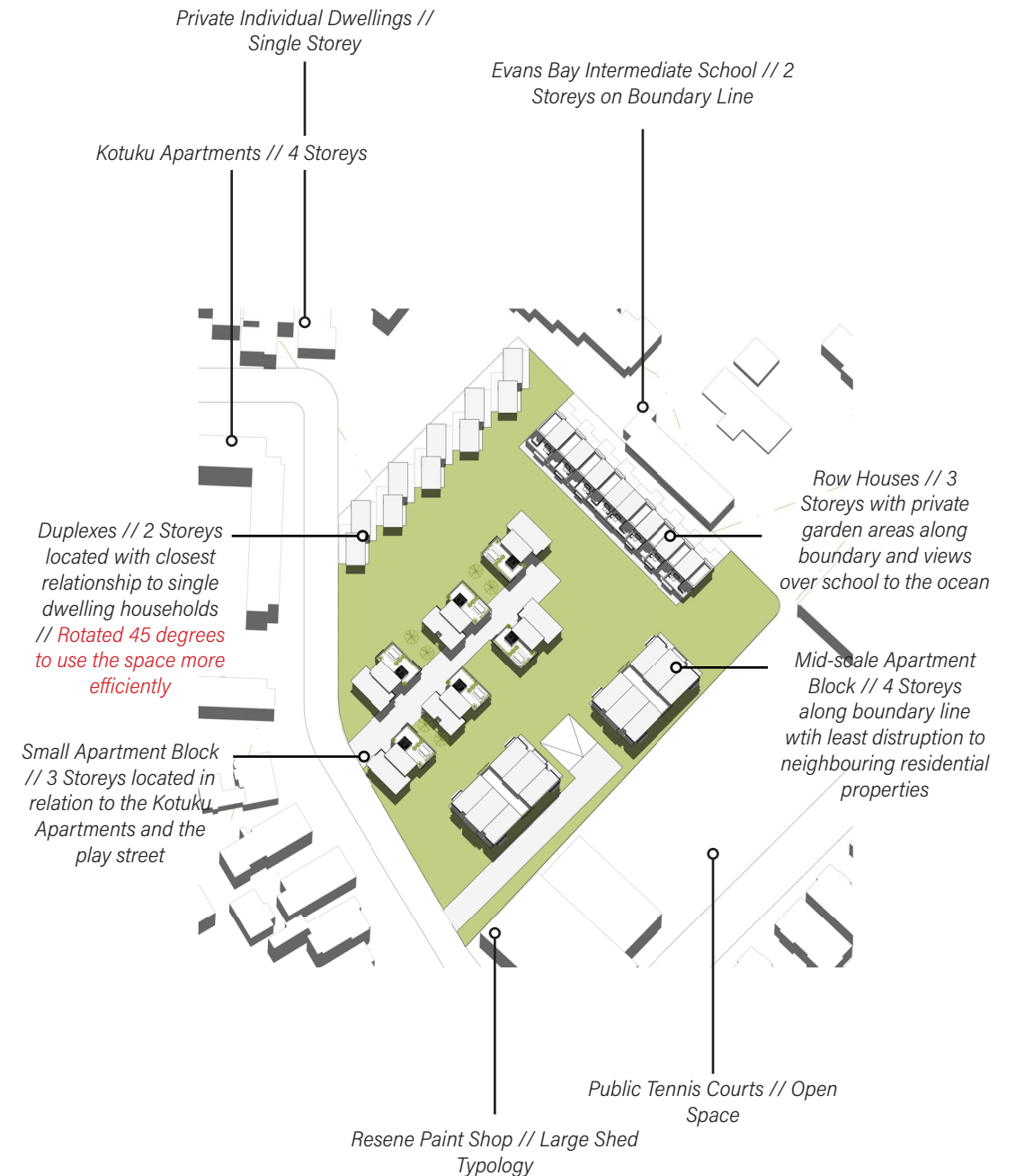
SITE IMPLEMENTATION

Iteration 2

The second variation to the overall master plan was the shifting of the duplex typology. Through rotating the dwellings by 45 degrees it has opened up more common space, staggered the entrances and overall been a much more efficient use of space. This also takes advantage of the morning and afternoon sun with minimal shading from surrounding dwellings. The nature of this duplex has been designed slightly more private, so the slight staggering and separation from the other typologies works successfully.



< fig 4.28 3D Site Overview - Iteration 2



< fig 4.29 Iteration 2 - Site analysis



SITE IMPLEMENTATION

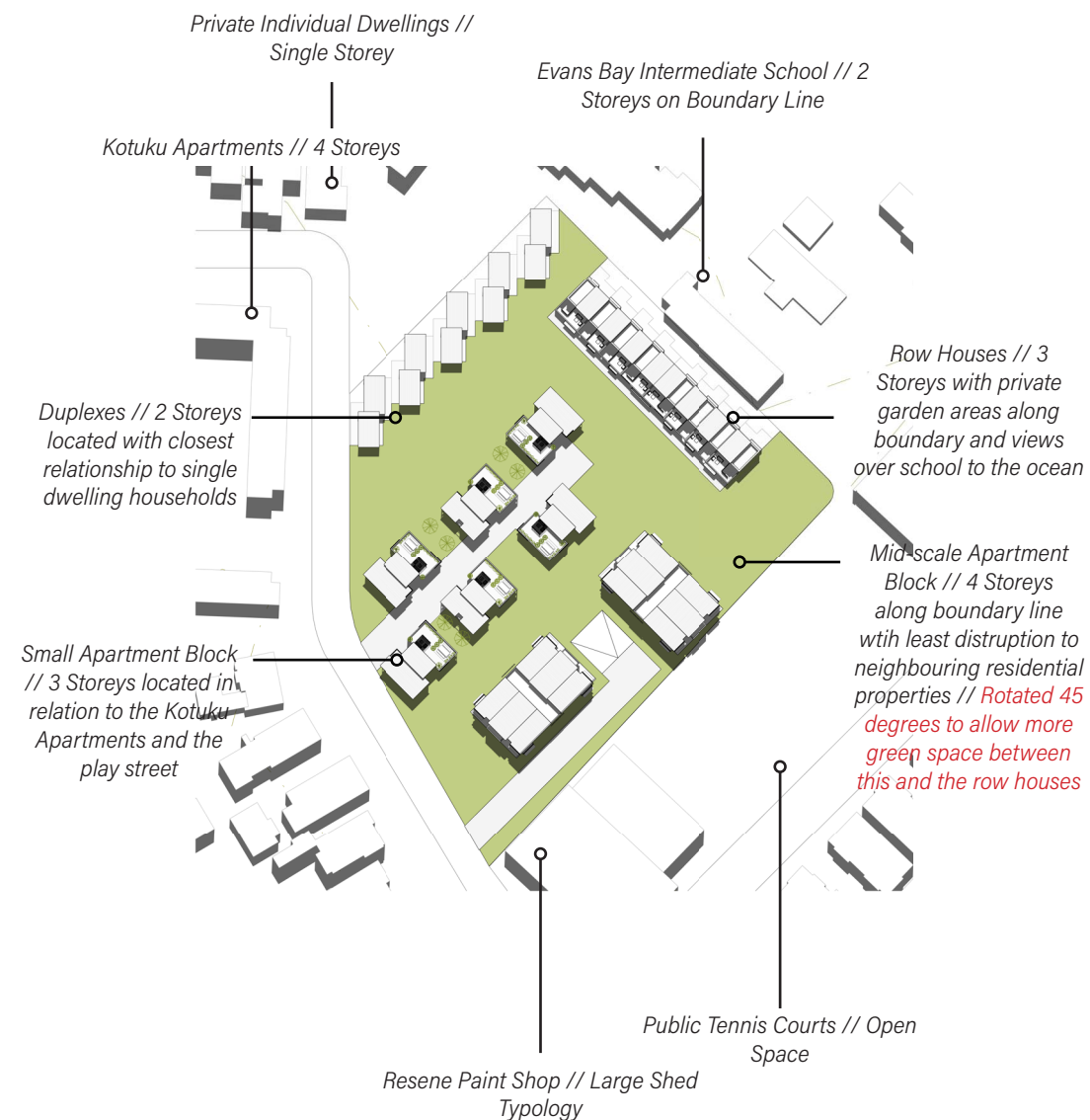
Iteration 3

< fig 4.30 Site Elevation - Middle Right

The third variation of the overall masterplan shifts the orientation of one of the large blocks. This move is subtle but begins to show variation in the master plan. It additionally opens up a large common garden area that could be used as a park or just open field. This presents some different options for the amenities that the development can add to the community. Potentially a community vegetable garden or something similar could work in a space like this. Additionally this could also allow more row housing typologies to border the back site boundary, thus increasing the density.



< fig 4.31 3D Site Overview - Iteration 3



< fig 4.32 Iteration 3 - Site analysis



SITE IMPLEMENTATION

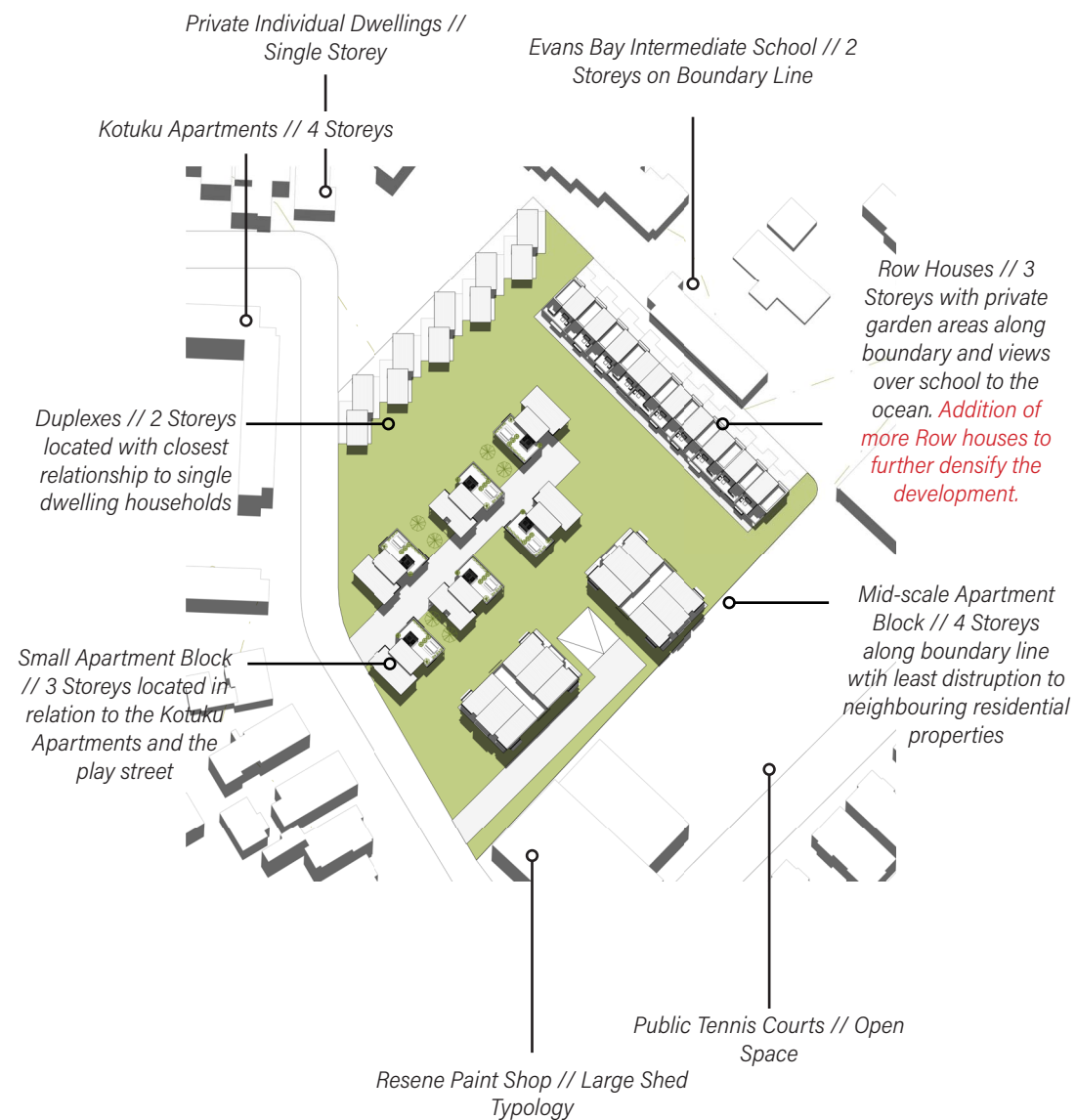
Iteration 4

< fig 4.33 Site Elevation - Middle Left

The fourth variation of the overall masterplan builds on the last and adds more row house typologies to the back boundary of site. This increases the density of site and also reduces the odd corner spaces that aren't as useful for amenity. Through this iteration, monotony becomes more apparent in the row house typology. To counter this, either more variation in the typology itself or more variation within the master plan would be necessary. Due to the fact there are already 3 variations of the exterior façade for the row house typology, this thesis has chosen to explore the variation within the master plan as a design tactic to improve this issue.



< fig 4.34 3D Site Overview - Iteration 4



< fig 4.35 Iteration 4 - Site analysis



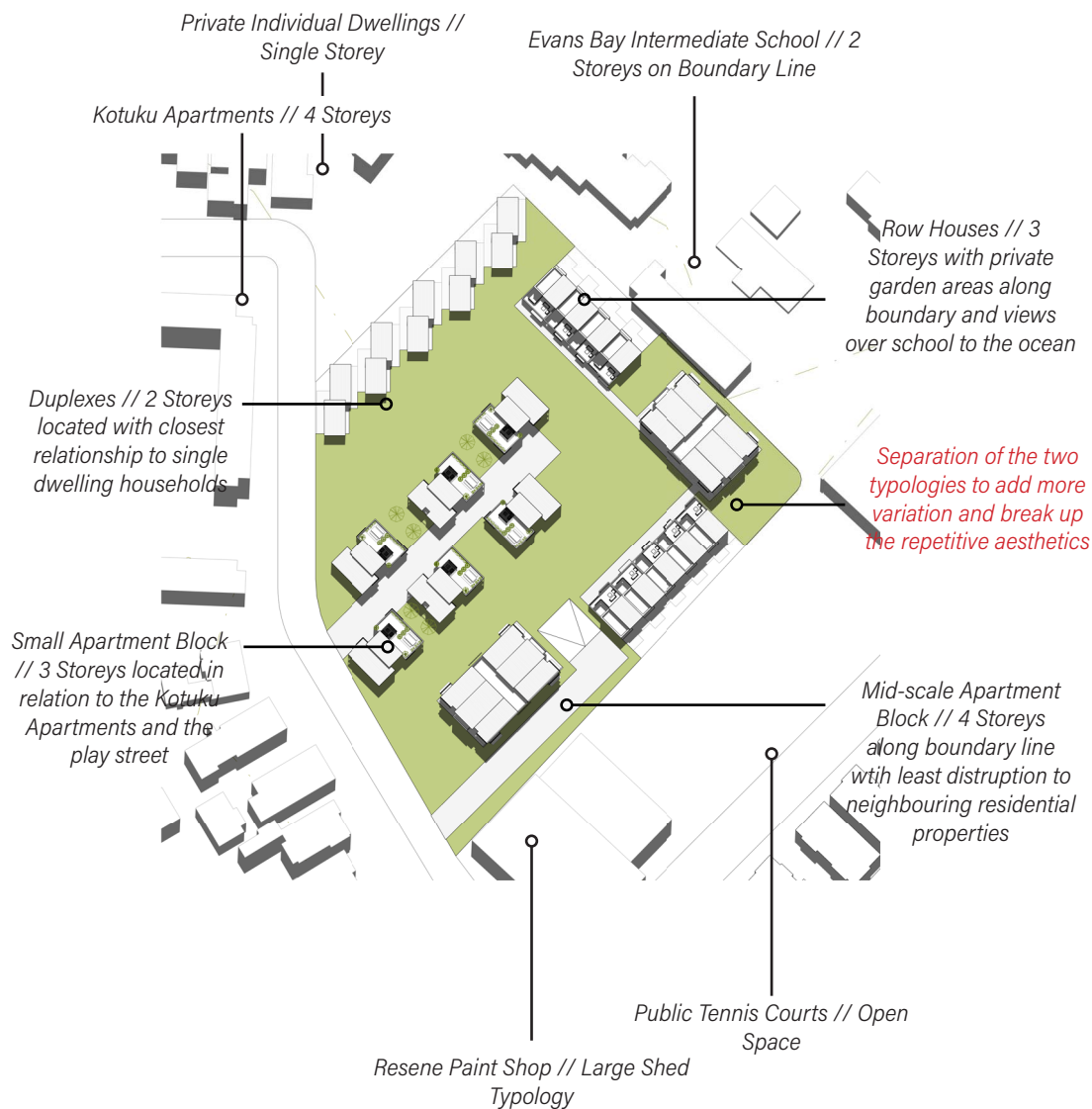
< fig 4.36 Site Elevation - Back

The final variation of the master plan has embodied all of the changes made to date with the addition of separating the row house typology into two blocks. Separating the row house typology and moving one of the larger blocks to the back boundary has also been a contextual response. The two larger blocks are sited in areas on site where the surrounding buildings are similar in scale and proportion. Whilst the row house typology that has been sited in between them, lies on a part of the site boundary where there are tennis courts directly opposite. Allowing for these dwellings to take full advantage of the morning sun and having little to no shadows from surrounding buildings.

This contextual response is successful both in the relation to its surroundings and additionally the variation it adds to the overall master plan. Seen in the 3D view on the next page, each shared garden area has been developed into useable space or site circulation space.



< fig 4.38 3D Site Overview - Iteration 5

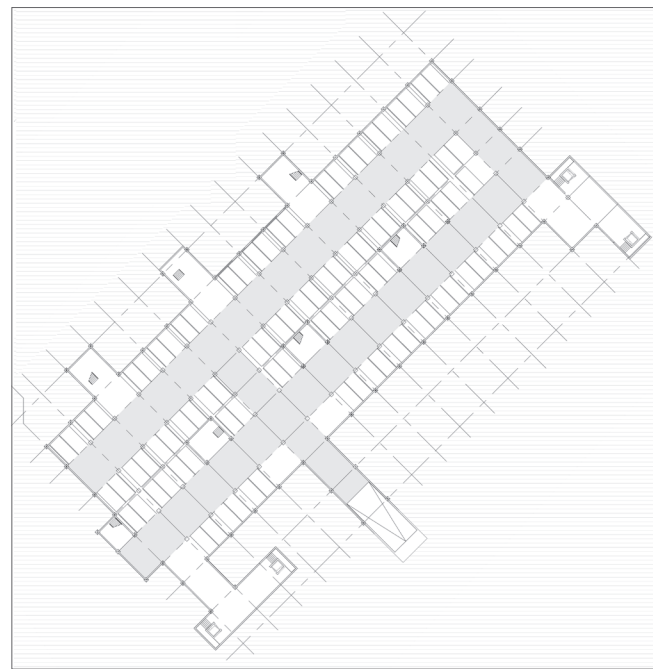


< fig 4.39 Iteration 5 - Site analysis

SITE IMPLEMENTATION

Final Master Plan

The final master plan embodies attributes from international precedents *Accordia* and *Gartenweg*. The introduction of useable common outdoor space has enriched the development as a whole, adding amenity and social connection through otherwise ordinary everyday spaces. Aesthetically this also provides a sense of variation as landscaping often adds a fluid feel to architecture. The underground car park has been adapted to include one car park for each dwelling – totalling to 85 spaces. This has been laid out in a 5m x 5m x 7m grid, allowing ease of circulation for cars. The final density sits at 71 dwellings per hectare, which is at the very top of the high density scale. A high density such as this is only possible at this spatial quality because of the carpark below site. The large amount of green spaces and urban environment do not reflect the actual density and contribute to a pleasing aesthetic.



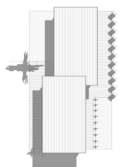
< fig 4.40 Basement Plan



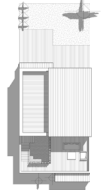
< fig 4.41 Master Plan of Final design

Master Plan

Duplex



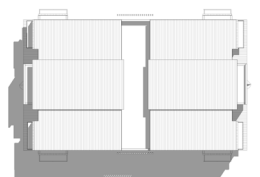
Row Housing



Small Apartment Block

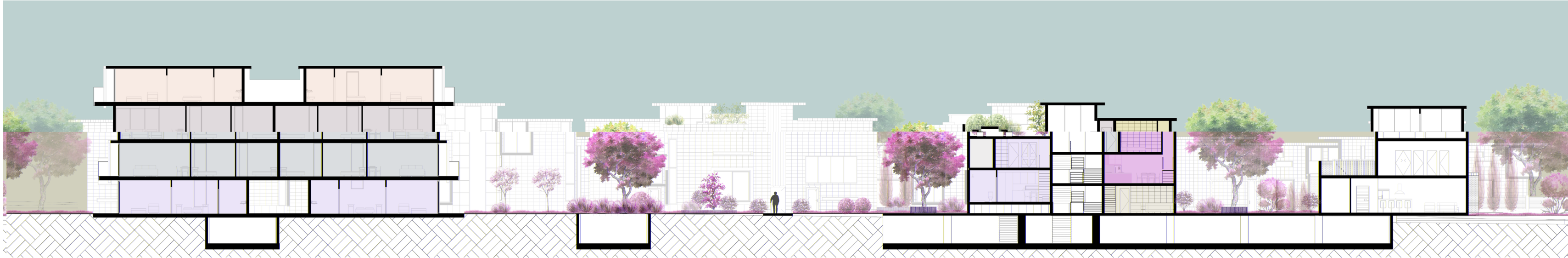


Large Apartment Block





< fig 4.42 3D Overview of Final Design Proposal



< fig 4.43 Transverse Site Section



< fig 4.44 Longitudinal Site Section

5

Conclusions

- 5.0

Conclusion

final thoughts & key findings

future moves

5.1

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CONCLUSIONS

The final design outcome offers a case study demonstrating methods towards balancing variation and continuity within the aesthetic treatment of Medium Density Housing developments in New Zealand. The design is located in Kilbirnie, Wellington, and was informed through study of a mixture of international and national precedent, as well as a thorough contextual response.

The design-led research outcomes demonstrate how the appropriate use of variation and continuity within an aesthetic language can improve the overall aesthetics of a MDH development. The research determined that the correct balance of variation and continuity can be achieved through exploring a diverse use of scale, grain and compositional techniques.

The final design outcome achieves a rich and varied aesthetic language that has been subtly integrated with the Kilbirnie context, through the implementation of gradual variation, various housing typologies and informed master planning techniques. This research concludes that a collective housing aesthetic that addresses both the individual and the collective housing identity can be achieved through a coherent material palette and the use of similar proportion, geometry and compositional techniques, to allow aesthetic unity between typologies. The use of various housing typologies adds to the individual identity aspect as the choice of residence is more generous than current case studies.

The final design outcome demonstrates that a key solution lies within the compositional layout of the site. This thesis concluded that an effective approach to achieve a varied and successful composition was to reference the surrounding context subtly through placement and break up large repetitive sequences with shared amenity or site circulation.

The final design outcomes propose a unique design solution by a single person due to the realities of the research. This may not result in a solution that is appropriate for every situation and allows for potential further exploration into the possibilities that this would present. The research is specific to this site, but the design tactics are relevant to other sites too.

A major factor on the aesthetics of a MDH development is the density. Throughout this investigation it was clear that different densities had various effects on the overall aesthetics. The act of balancing the various typologies and densities has been a key finding throughout this research and is something to be noted for potential further research.

This detailed design investigation indicates a delicate balance between the continuity and variation of aesthetic treatment, innovative design research that offers a basis for other research investigations into this topic.

5.1

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