

Alternative Infill

a design study of housing intensification, adaptation and choice
in the established suburbs of Adelaide

Damian Madigan

B. Arch. St, B. Arch. (Hons. 1)

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Department of Architecture

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Damian Madigan

Supervisors

Professor Shane Murray

Professor Nigel Bertram

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Abstract

Undertaken by major design project, this PhD research is a design study of infill housing potential in the established suburbs of Adelaide in South Australia. It argues that subjective opposition to the consideration of heritage precincts as potential infill locations is based on understandable concerns of a perceived loss of character and amenity, but fails to acknowledge the lineage of these inner precincts and their capacity for change. In doing so, the work recognises established suburbs as having been initially established to provide a variety of housing types and demonstrates ways in which they might return to doing so.

Design experiments put forward the notion that a deep understanding of the Adelaide villa and cottage and their sites has the potential to recognize these early houses as a typology that can continue to meet the evolving needs of the city.

Where the work of this thesis is concerned with identifying the capacity of Adelaide's established suburbs to accommodate housing diversity and supply, others may find its observations useful to deploy in suburban contexts that are similar-enough in their make-up so as to be broadly comparable with Adelaide. Further, the methods of analysis and exploration used in the work may prove effective for projects with subject matter and contexts that are not directly related to the conditions described in this work, but for which the methodology is transferable.

Declaration of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

A handwritten signature in black ink, appearing to read 'Damian Madigan', followed by a period.

Damian Madigan
December 2016

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Thank you to Matt Davis for providing clarity and encouragement when needed in the early stages of the project and to Flightpath Architects' Douglas Alexander for giving me my start and teaching me that the smallest of changes can deliver one more option.

Dedication

This PhD is dedicated to my parents, Colleen and Haydn Madigan and to my family: Deborah, Daisy and Maggie, without whose constant patience, encouragement and generosity this work would not have been possible. Thank you.

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Summary

PhD Title

Alternative Infill: a design study of housing intensification, adaptation and choice in the established suburbs of Adelaide

The work of this PhD positions the Adelaide Victorian-era villa and cottage – the basis for much of Adelaide’s inner suburban housing stock – as an identifiable system that can act as an armature for a variety of future housing scenarios. Often forming precincts with heritage and character overlays, these houses and the suburbs they create have been excluded as potential contributors to meeting density and housing targets by South Australia’s State and Local Governments. This position presents as one borne of instinct and comes despite the fact that such housing stock is rarely left in its original physical and occupational form and provides the basis of much residential adaptation work throughout inner Adelaide: whilst these houses prove individually malleable, no consideration to-date has been given to their potential for systematic change *en masse*.

Furthermore, this exclusion from housing needs strategy comes despite the fact that the South Australian Government’s empirical analysis of Adelaide’s opportunities for infill development identifies established suburbs as potentially significant contributors to the city’s housing targets.¹ And although these targets are modest compared with those of other Australian cities, they require a significant shift in the volume and nature of existing housing stock relative to Adelaide’s existing capacity.

1 Government of South Australia, *Housing and Employment Land Supply Program*, ed. Transport and Infrastructure Department of Planning (Adelaide: Government of South Australia, 2012), 29.

The method of investigation of this PhD:

- **defines**, for the purposes of the study, a typical Adelaidean villa and cottage and their common allotment arrangements;

- **discusses** the lineage of these houses, the nature of their original occupation and the notion of character as a fluid, temporal condition;
- **abstracts** an established neighbourhood block in order to identify the capacity for diversity held in Adelaide's otherwise mono-cultural inner suburbs;
- **describes** the housing anomalies that are commonly accepted as normative adaptive reuse tactics in the established suburbs;
- **leverages** off such anomalies to show, via three detailed design studies, that these current day adaptation tropes can be appropriated for new housing models;
- **preferences** a whole-of-site approach to infill that sees Victorian-era housing, their sites and new built form as a single entity that can be reconfigured holistically as opposed to being intensified via sub-division;
- **demonstrates** that medium density housing intensification and an increase in housing choice can be achieved in Adelaide's established inner suburbs whilst retaining original housing stock and mature landscape; and
- **acknowledges** that current statutory, development and funding models present a challenge to such change, but that potential future implementation may lie within existing deliberative development models such as Germany's *Baugruppen* 'construction-groups' and Melbourne's Nightingale 'ethical investors' frameworks.

Ultimately, *Alternative Infill* is concerned not with wholesale change, but with making what we have work better. It demonstrates that the established suburbs are more malleable than they appear and if thought of differently, can continue to adapt to meet our changing needs.

Preface

Architectural practice for most architects working in small firms, or as sole practitioners like myself, inevitably involves small-scale residential alterations and additions – such work is a staple of the profession. It is also a vehicle with which to test new methods of practice and ways of understanding and responding to existing conditions. The work of this PhD is an adjunct to and continuation of such practice, but in a new speculative form. It is tempting in practice, and unfortunately often commercially necessary, to maintain a rhythm of operation that is conducive to the production of work but not the requisite critical reflection and professional recalibration the discipline demands and deserves. This thesis is a response to that condition and comes not from the perspective of a historian or policy maker, but from that of an architect pausing to consider alternative solutions to housing needs outside of individual projects with their respective exigencies.

If small scale residential work is a mainstay of architectural practice, then for an architect working in Adelaide this inevitably involves negotiating the Victorian-era masonry villa and cottage, particularly in the city's inner suburbs where many original suburbs remain largely intact. Through my practice I have experienced these very Adelaidean conditions, examples of which appear in the Appendices and in the example of House H, which follows. I have observed that each project of this nature shares common physical and spatial traits, yet no established set of architectural tactics with which to work within this suburban system, which appears to have the capacity to continue to meet our housing needs but sits outside current housing debate when related to the provision of new housing forms. This thesis temporarily shifts a mode of architectural practice in order to describe that system and the means with which we might begin to work within it differently to meet a new set of pressing social needs.

House H

In 2012 I was approached by a couple with two adult daughters who were each in their early twenties, studying at university and with ambitions to move out of home in the coming years. The couple enjoyed where they lived, but not *how* they lived and came close to purchasing a house I had designed a few streets away. This would have provided the type of open plan accommodation the couple was seeking whilst enabling them to stay in their existing neighbourhood, however it would have been oversized for their needs, particularly as they anticipated being 'empty nesters' once their daughters moved out of home. Significantly, due to the size, newness of the house and change-over costs, the shift would have created a large mortgage at a time when the couple was looking ahead to retirement. They pulled out of the sale and instead engaged me to undertake internal alteration works to their existing house. The brief, in short, was to adapt the house internally to provide reconfigured accommodation that would enable them to age in place for the foreseeable future.

A four roomed symmetrical brick cottage faced with stone, the house had received a two-storey rear addition by previous owners in the 1990s (Figure H.1 on page xiv). The couple occupied the large upstairs bedroom and wanted to move downstairs in anticipation of minimising use of the stairs as they got older. At the ground floor level, they desired improved circulation, ease of access in the common areas and a self-contained bedroom, wardrobe room and bathroom.

The design response as shown in Figure H.2 on page xv, was to refit the upstairs bathroom, but otherwise leave this space untouched and to give it over to one of the two daughters. On the ground floor, one of the original four rooms of the cottage was split in two and reconfigured with a bathroom and robe, each accessed off one of the front two rooms of the cottage,

which was configured as the couple's bedroom. The other two cottage rooms were left as a bedroom and sitting room cum study. The 1990s extension was gutted at the ground floor level and redesigned with removable joinery acting as partitioning in order to create large connected spaces suited to potentially reduced mobility in the future. A further benefit of using joinery to define space was that it could be further adapted over time if needed. Before the project was completed, both daughters had moved out, one to a share house and another interstate for further study, unexpectedly bringing forward the altered household structure being planned for.

Upon completion of the project, I analysed the spatial tactics and physical modifiers involved in bringing about the initial change. The purpose of this was to quantify how much or how little design intervention and construction work was required to achieve the change. These manoeuvres are diagrammed in Figure H.2. This then prompted speculative design overlays to test how little additional work would need to be done to provide alternative scenarios should needs change further: a work-from-home scenario with a public interface (Figure H.3 on page xvi) or subdivision into two dwellings (Figure H.4 on page xvii). Discovered in this process was that the initial act of giving over half of one of the original four rooms of the cottage to a serviced function such as a bathroom, unlocked future occupational scenarios. What it suggested was that the couple's house was agile, displaying the ability to continue to adapt to their changing needs if, for example, their work patterns changed or they wished to downsize further whilst enabling the renting, sale or gifting of a portion of the house to a family member or the market.

The reflective analysis of House H served as the major fillip for this thesis and prompted a key research question: how might meaningful organisational change be achieved through minimal physical change?

House H Existing 4 bedroom family home

household 2 x 50+ parents
2 x 20+ children

disposition 4 x bedrooms
2 x ensuites
bathroom
wc
laundry
kitchen + family room
dining room
sitting room

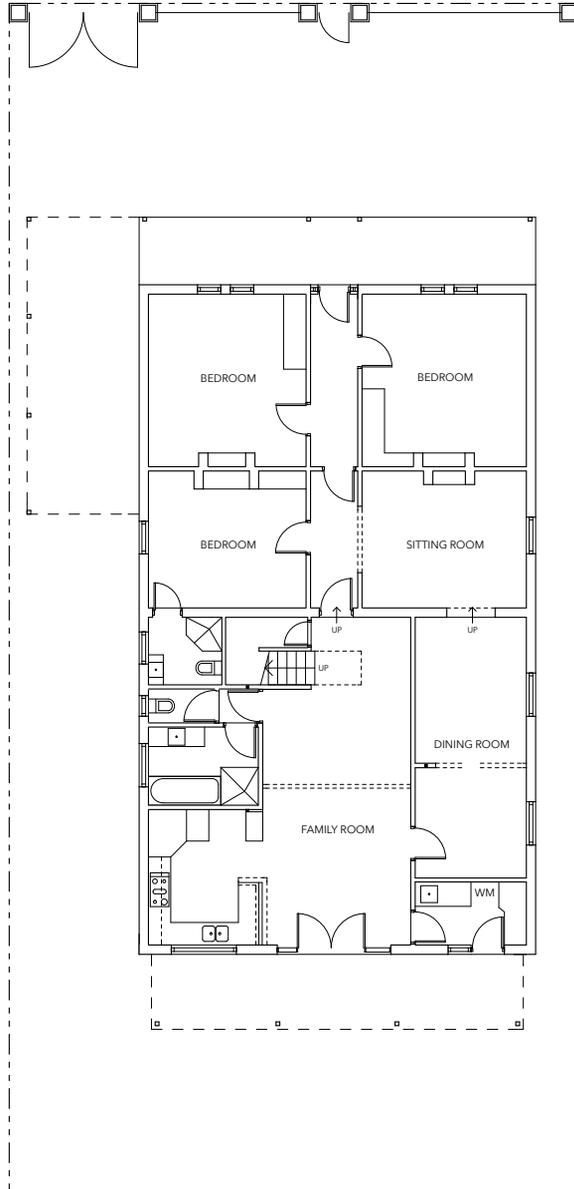
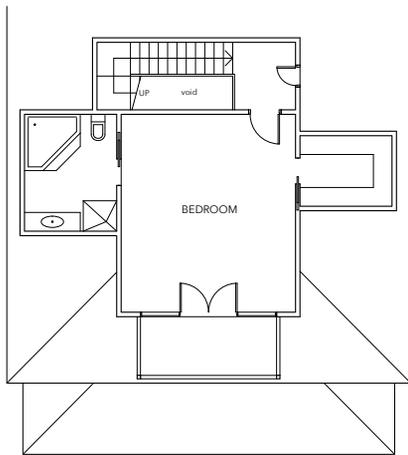


Figure H.1
House H, Rose Park
existing conditions



- House H Mode 1: multi-generational living
- condition enable living at ground level for empty-nesters
- spatial tactics create a **ground level zone** for sleeping, dressing + ablutions
 free the plan at the rear of the house to facilitate access
 provide **direct access** from living zone to utility yard
 give over upstairs zone to visitor accommodation
- physical modifiers 1. convert bedroom to bathroom + robe, off front room
 2. re-direct bathroom entry
 3. create joinery elements to define spaces
 4. brace wall to accommodate removal of internal walls
 - block openings; form new openings to suit

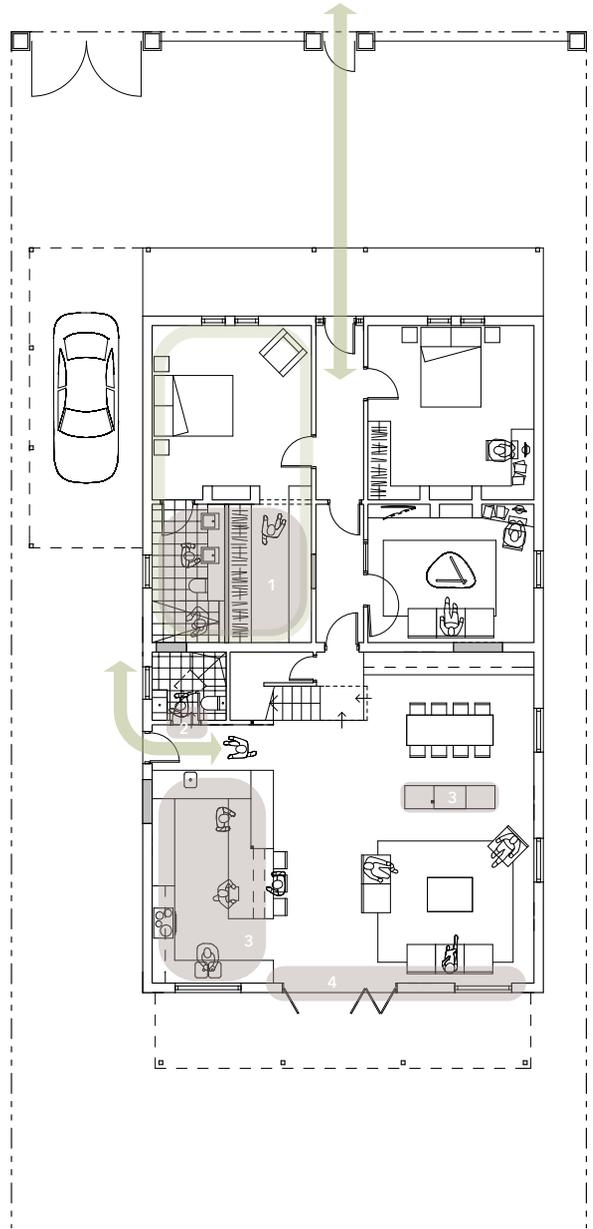
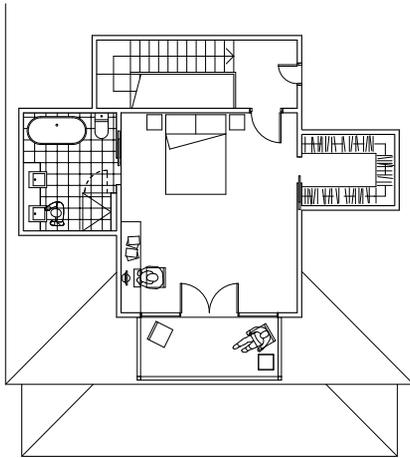


Figure H.2
 House H
 completed conditions



- House H Mode 2: work from home
- condition enable a home office with a public interface
- spatial tactics maintain privacy and separation between living / work uses
 create a **working zone** with **separate entrance** at front of house
 maintain **private link** with dwelling
 retain existing **front entry** and yard for **private use**
 share vehicular access
- physical modifiers 1. screen outdoor space
 2. convert bedroom to bathroom + kitchenette / utility space
 3. re-direct bathroom entry
- block openings; form new openings to suit

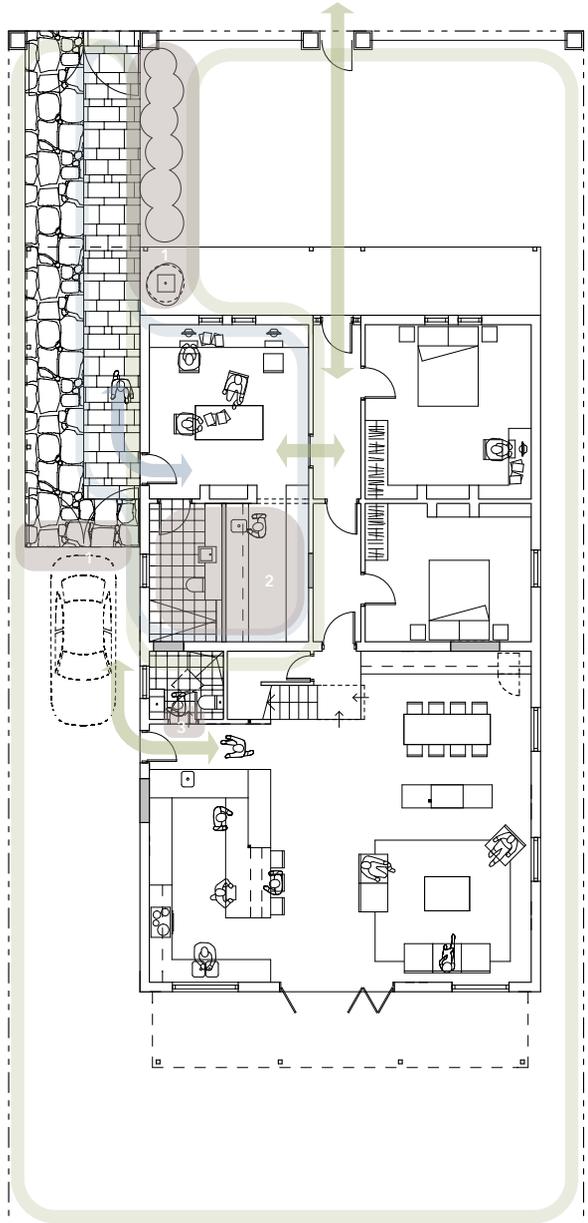
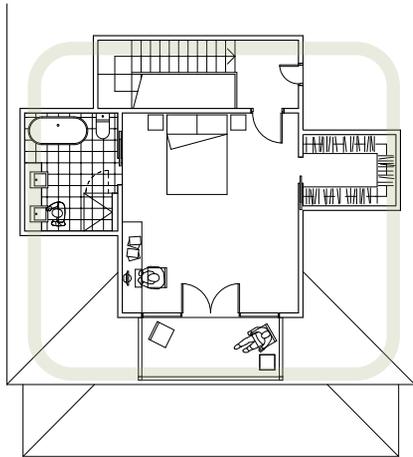


Figure H.3
 House H
 speculation 1: working from home

- House H Mode 3: subdivision
- condition create two self-contained dwellings, one designed for **accessibility**
- spatial tactics segregate **front half** of dwelling from **rear**
create separate pedestrian accesses
share vehicular access
combine front dwelling car parking with outdoor living
- physical modifiers
1. screen outdoor space
 2. convert bedroom to bathroom + kitchen
 3. open front bedroom to hallway to form living space
 4. re-direct bathroom entry
 5. convert dining room and laundry to bedroom and open living space or 2 x bedrooms
- block openings; form new openings to suit

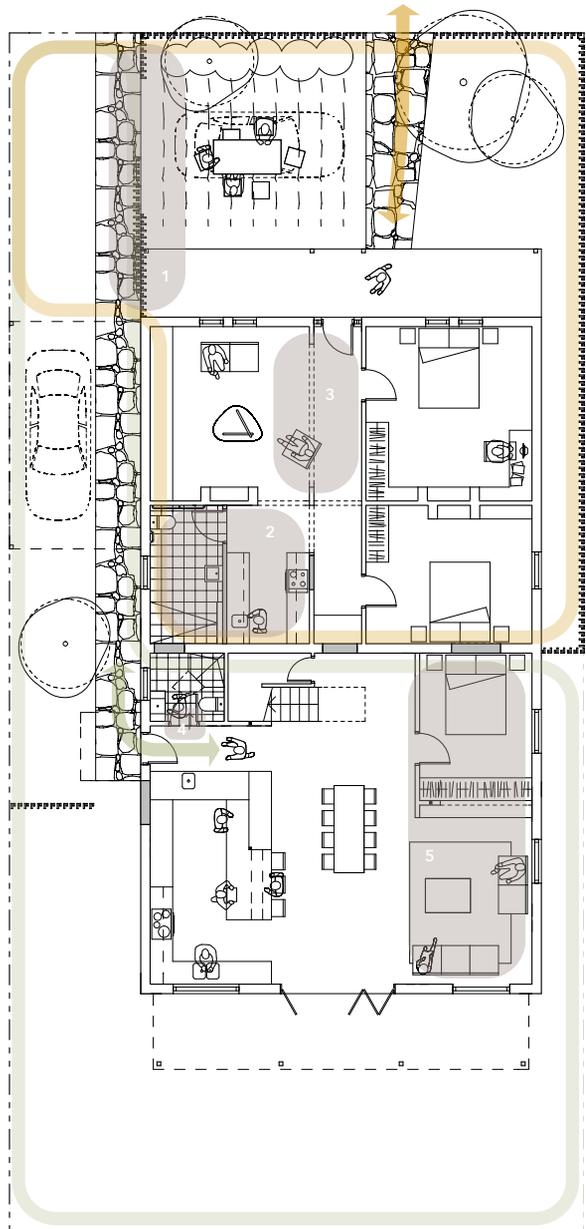
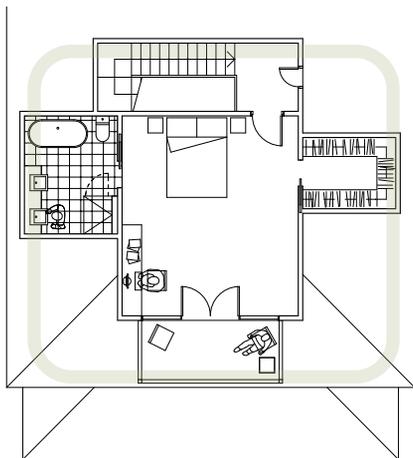
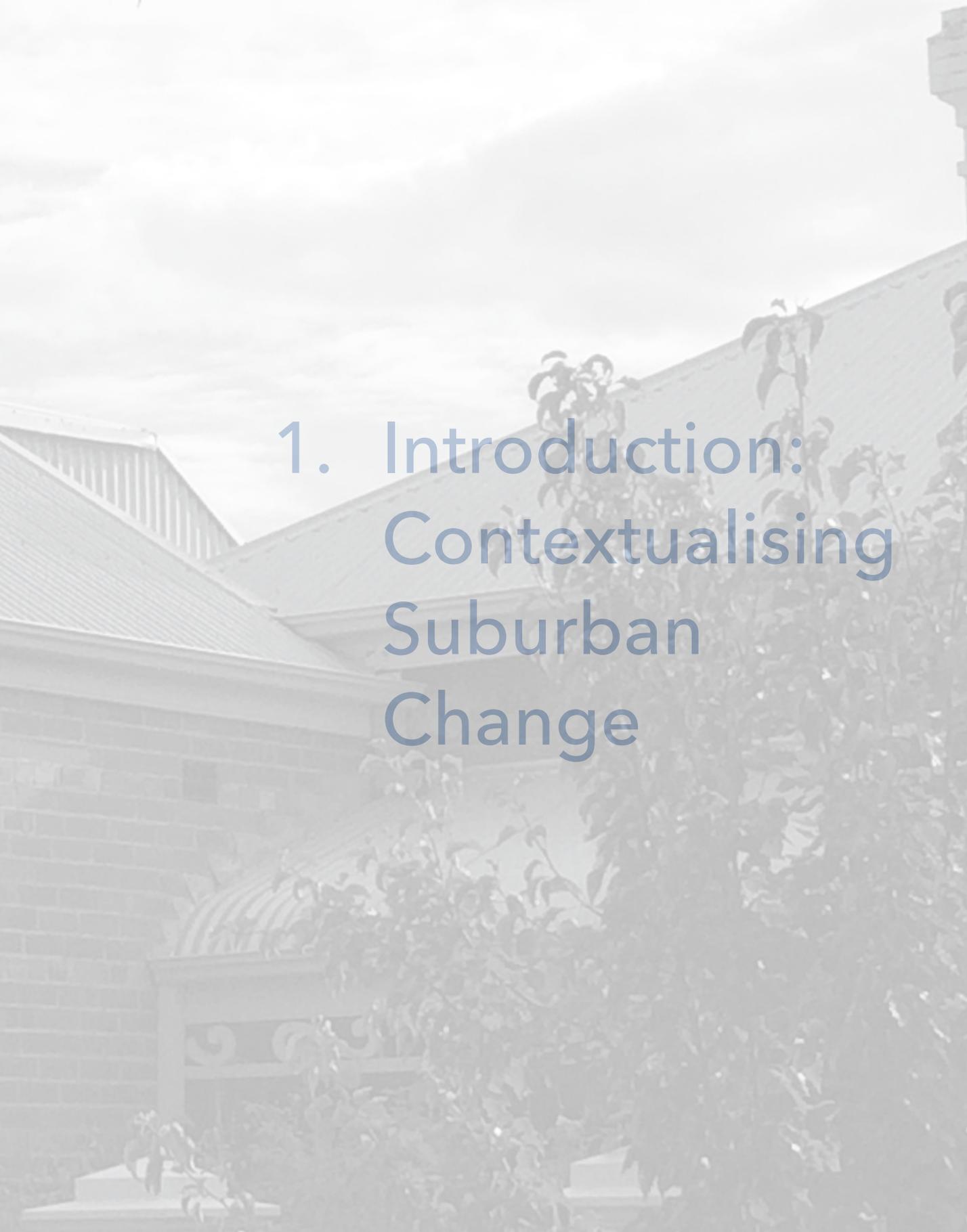


Figure H.4
House H
speculation 2: subdivision







1. Introduction: Contextualising Suburban Change

To manage this growth and preserve liveability, the focus will be on locating more intense housing development in and around activity centres, along tram routes and the orbital bus routes on the Principal Public Transport Network, in areas close to train stations and on large redevelopment sites. Designated heritage buildings and precincts will continue to be protected and high standards of urban design will be expected.¹

Melbourne 2030: A Planning Update - Melbourne @ 5 Million

By focusing growth in transit corridors we can be sure that we preserve Adelaide's distinctive urban character, leaving about 80 per cent of metropolitan Adelaide largely unchanged as a result of the Plan.²

The 30-Year Plan for Greater Adelaide

- 1 Victorian Government,
Melbourne 2030: A Planning Update - Melbourne @ 5 Million, ed. Department of Planning and Community Development (Melbourne, Victoria: State of Victoria, 2008), 17.
- 2 Government of South Australia,
The 30-Year Plan for Greater Adelaide: A Volume of the South Australian Planning Strategy, ed. Department of Planning and Local Government (Adelaide: Government of South Australia, 2010), vii.

1.1 Social Pressures and Responsive Urban Policy

Australian cities face a dilemma: populations are increasing, housing construction rates are lagging and at the same time household structures are changing, with a move towards smaller households of more complex variety. However, although the country's housing needs are changing, houses are largely still being supplied in a family model of multiple bedrooms, bathrooms and living spaces. Significantly, these repeated housing models are creating entire suburbs lacking in housing choice.³ Across both new and established suburbs, residents have few options to downsize or upsize their housing whilst remaining in the suburb of their choosing.

Similarly, a homogeneity of housing results not only in a limited choice of house types for both existing and potential new residents of a suburb, but establishes price points that are largely consistent across a suburb. Those outside a particular suburb can struggle to purchase into the area while existing residents can face prohibitive change-over costs when looking to move to something nearby that better suits their current and future needs, assuming that a choice of housing model is available in the first instance.

3 Jane-Frances Kelly et al., *Tomorrow's Suburbs*, (Melbourne: Grattan Institute, 2012).

What is clear is that Adelaide's demographics are evolving and housing pressures are mounting. An increase in population growth despite falling fertility rates has resulted in South Australia becoming the oldest state in the country, with 15.4% of the population currently aged over 65. By 2025, and for the first time in the state's history, children will be outnumbered by the elderly.⁴ In terms of housing, the result is a rise in smaller households, with a decrease in the proportion of couples with children, but increases in couples without children, one parent families and those living alone.⁵

Put simply, more houses are needed to accommodate the same number of people as in the past and these houses need to be of a far greater variety. In Adelaide in the 1950s to 1970s, 300 new homes were required in order to house every additional 1,000 people. Today, 420 homes are required and by 2036 this will have increased to 435.⁶ By that time, Adelaide's population will grow by 54% to 1.85 million people⁷ and although this figure is modest when measured against cities such as Brisbane, Melbourne and Sydney, its growth rate will see enormous pressures, particularly for an ageing population. By 2036 in Adelaide:

- the number of people aged 65 and over will increase by 110% over 2006 figures to 407,000 and will make up 22% of the population;
- those aged 85 years and over will increase by 222%; and
- this ageing of Adelaide will be reflected by the number of people living in lone-person households, which is projected to be one third of all household types in Greater Adelaide.⁸

To accommodate these changes, the State Government of South Australia has set a target of 258,000 new dwellings by 2040. Significantly, current development patterns that favour

4 Government of South Australia, *Renewing Our Urban Future: Unlocking South Australia's Potential*, (Adelaide: Government of South Australia, 2015), 3.

5 *ibid.*

6 Government of South Australia, *The 30-Year Plan for Greater Adelaide*, 34.

7 *ibid.*, 31.

8 *ibid.*, 31-34.

greenfield development will be transitioned to a model that will place 70% of all new housing development in infill locations with only 30% on Adelaide's fringes, but done in a manner that will leave 80% of the existing urban fabric largely unchanged.⁹

As such, we need to consider how our houses and suburbs might adapt over time to meet increasing social and environmental demands: more houses of a far greater variety, interconnected in a socially and environmentally sustainable manner.

In South Australia, the policy framework established to address these social pressures, *The 30-Year Plan for Greater Adelaide*, reflects similar thinking across Australia, evidenced in plans for other cities such as the *Metropolitan Strategy for Sydney*, *Melbourne 2030: A Planning Update - Melbourne @ 5 Million*, the *Hobart Capital City Plan* and *Perth's Directions 2031*. Common across all plans are urban policies centred on the notion of establishing an interconnected compact city, however tangible built outcomes resulting from such strategies are slow to emerge.¹⁰

The underlying principles and rhetoric of these plans are similar:

- the pattern of providing requisite new development must shift from a reliance on developing cities' fringes to providing increased densities in infill locations; and
- this shift will occur without negatively impacting established character and urban patterns by concentrating development in transit-oriented developments (TODs), activity centres and transit corridors where mixed used developments can be created at higher densities and scales than in traditional suburbs.

⁹ *ibid.*, 17.

¹⁰ Peter Newton and Stephen Glackin, "Understanding Infill: Towards New Policy and Practice for Urban Regeneration in the Established Suburbs of Australia's Cities," *Urban Policy and Research* 32, no. 2 (2014): 2.

These new mixed use zones will be places that are vibrant, social, well-serviced, community-focussed and people-centric whilst being socially and environmentally sustainable. They will be networked, walkable places supported by well-connected public transportation systems.

One of the intrinsic difficulties with this policy framework, particularly in a low-scale, low-density city such as Adelaide, is that such a demarcation of zones establishes tensions between the existing settlement patterns and the new. The urban and occupational nature of the proposed higher density mixed-use zones is largely unknown and is defined by aspirational goals rather than tangible built space that people can engage with and understand. Additionally, there are often assumptions that there will be negative relationships between these higher density, higher scale new forms and the established low scale precincts and neighbourhoods they adjoin.

Where the zoned density principles are common across the various city plans, they risk a 'one size fits all' approach, when not all cities are the same. Among Australian cities, population projections and housing targets differ markedly, as does public transportation infrastructure and attitudes to its use. In cities such as Adelaide there is little experience with, and few good examples of, higher density apartment living, the supply and take-up of public transportation is poor, access to car parking is easy and inexpensive and there is a resulting reliance on car usage. Attempting to apply a universal principle of transit-oriented urban housing in a city with little tradition of it and without the requisite public transport system in place not only takes time, but can arrive with a fear of the city's established suburbs losing their character and qualities.

Adding complexity is the fact that state-authored city-wide ambitions benefit from local government support and

legislation in order for density and housing targets to be met. However not all councils are supportive of the established policies and anticipate negative consequences for high- and medium-density, high-rise development. The City of Burnside in Adelaide's east – the initial site of investigation for this study – argues that density and housing choice targets can be met in its suburbs without the introduction of the State's proposed mixed use transit corridor zones (and the significant increases in density and heights that these bring).¹¹ However this local governmental policy assumes the same strategy as that of the State: dedicated nodes of more dense activity in locations that are considered to have the least impact on established low scale residential areas. Where *The 30-Year Plan* advocates a number of large concentrated zones, Burnside's local strategy is to fragment and disperse these into smaller zones across a larger field; a variation on the same theme.

There is a gap in the strategies. To date, there is no investigation of how existing residential areas, particularly those close to the city centre with heritage and character overlays, might adapt over time to meet the demands of the identified housing pressures.

Crucially, The City of Burnside's *Strategic Directions Report*, its Ministerially mandated alignment of its strategic policies and Development Plan with the State's *30-Year Plan*, identifies Burnside's above-average predicament with changing household structure, housing choice and community services:

- at 19%, the population aged 65 years and over is higher than the state average, which in turn is already higher and faster growing than the national average, and ageing in place preferences will therefore place particularly concentrated pressure on access to appropriate housing types, support networks and access to age-specific services;

11 City of Burnside, *Strategic Directions Report: Draft for Consultation*, (Adelaide: City of Burnside, 2012).

- approximately 25% of the population will be aged over 65 years by 2020, with less than 14% being younger than 14 years;
- there will be an increase in the number of people on fixed incomes;
- rises in house prices will continue to preclude younger people and families from moving into Burnside; and
- there will be an increase in the demand for aged accommodation, smaller houses with smaller yards, accessibility to open space, the demand for passive recreation and access to transportation, local shopping centres and health care services.^{12 13}

There is an argument to be made that in the process of addressing the existing and approaching needs of inner city suburbs, precincts traditionally considered inappropriate for adaptation should be considered alongside all others as crucial components of a remodelled city. Rather than assuming that established residential areas cannot or should not contribute to meeting the needs of a changing demographic, design approaches that actively engage with the flexibility and adaptability of existing housing stock, whilst working within the existing urban pattern of these neighbourhoods, can provide a contribution to the debate that is currently absent.

12 *ibid.*, 11-12.

13 Government of South Australia, *The 30-Year Plan for Greater Adelaide*, 32.

The work of this thesis broadens this discussion.

Figure 1.1 (facing page)
the greater Adelaide metropolitan
area, between hills and coast

source: Google Earth (modified)



1.2 On Transit Corridor Strategy

Greater Adelaide's geographic limits, bordered to the east by the Mount Lofty Ranges and to the west by the Gulf St Vincent, have seen its metropolitan area spread north and south disproportionately (Figure 1.1). This asymmetrical development has detached the city centre from its outer suburbs, whilst the Park Lands, which are almost three times larger than New York City's Central Park and have survived intact from Colonel Light's original 1837 plan for Adelaide, have inhibited the city from spreading into the suburbs.¹⁴ Faced with an inland detached CBD and a metropolitan area limited in width to around 8km to the west and 6km to the east, Adelaide has a limited framework within which to design a strategy for achieving density and housing choice targets close to the city. By design and geography, Adelaide does not present as a radially-developed city with inner, middle and outer ring suburbs. However, the rhetoric of Adelaide's *30-Year Plan* around what types of neighbourhoods are appropriate to support change is similar to that of the policy documents for other much larger cities that have grown in this mould, in that its development method aims to:

preserve existing neighbourhood character by ensuring appropriate redevelopment in existing suburban areas and directing the majority of infill housing to transit corridors and transit-oriented developments.¹⁵

However, the boundaries of Adelaide's dedicated Inner Metropolitan Growth Area, within which the bulk of intensification is to occur, measure between only 4 and 6km from the city centre (Figure 1.2 on page 14). Included within this is the CBD and Park Lands fringe, meaning that in real terms the metropolitan breadth of the growth area is as little as half of these dimensions. Such proximity to

14 Craig Allchin and 6° Urban, *Adelaide Fine Grain: A Strategy for Strengthening The Fine Grain of The Adelaide City Centre*, (Adelaide: The City of Adelaide, 2013), 30. The Park Lands are generally discussed in equal measure as Adelaide's great virtue and its biggest impediment. Allchin observes them as an urban and civic barrier "you need a run up to jump". This dilemma has always existed, as illustrated by the *Melbourne Argus' 1875 narrative of Adelaide discussed in Chapter 2*.

15 Government of South Australia, *The 30-Year Plan for Greater Adelaide*, 94.

the city results in a significant portion of Inner Metropolitan Growth Area neighbourhoods being early suburbs formed of late nineteenth- and early twentieth-century settlement, with resultant heritage characteristics and policy constraints. However, despite their prevalence in the growth zone, such areas have been excluded from infill redevelopment policy. Three conditions within the growth area are therefore established: areas targeted for medium density mixed use development (indicated in blue in the Inner Metropolitan Growth Area map), existing residential areas where some form of intensification is deemed acceptable (light grey) and residential areas with heritage and character overlays that will not be considered for infill redevelopment at all (dark grey).

These conditions as diagrammed in Figure 1.3 to Figure 1.5 on page 15 point to the suburban conditions established by the policy of *The 30-Year Plan*. Given its diminutive size, the Inner Metropolitan Growth Area presents a dilemma of proximity between urban zones. It also begs a spatial capacity question of why one would not consider the existing residential areas in such a policy zone for inclusion in helping to achieve housing targets. Setting aside concerns over heritage preservation and perceived loss of character, there is an argument to be made that on size alone, the existing residential areas, including those with heritage and character overlays (which are eight- and two-times the area of the transit corridor zones, respectively) might logically form part of a broader housing strategy discussion. Given such constrained conditions and the proximity of these policy areas, it can be argued that such demarcation is merely academic and diagrammatic and that in real terms, engaging with Adelaide's inner metropolitan growth area suburbs necessarily means engaging with established suburbs that have heritage and character overlays. This in turn, requires direct and tangible engagement with Adelaide's four roomed villa and cottage, house types that are analysed and defined in Chapter 2.



- transit-oriented developments
- medium-density transit corridor development zones
- established heritage and character precincts
- other existing residential precincts

Figure 1.2
Adelaide's Inner Metropolitan
Growth Area

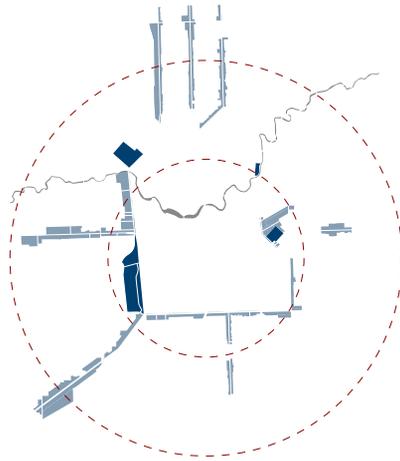


Figure 1.3
transit corridors:
545ha

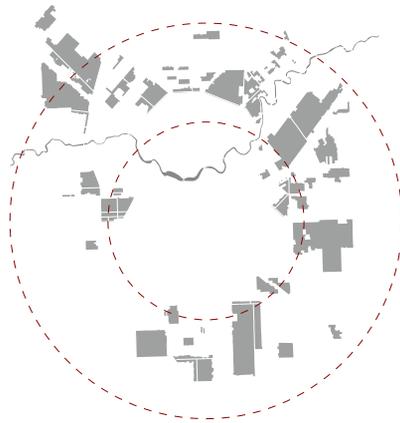


Figure 1.4
heritage and character precincts:
1,130ha (2x transit corridors)

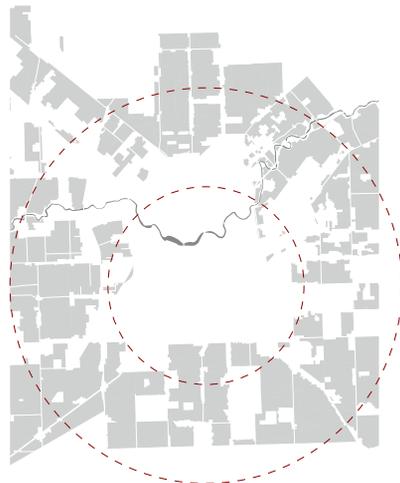


Figure 1.5
other residential precincts:
4,405ha (8x transit corridors)

- 16 Alan Davies. "Could Major Housing Developments Be Outside Activity Centres?" *The Urbanist* (blog), *Crikey*, November 23, 2011, accessed January 14, 2015. <http://blogs.crikey.com.au/theurbanist/2011/11/23/retrofitting-should-there-be-major-housing-developments-outside-activity-centres/>.
- 17 "Are The New Suburban 'Supercentres' Attracting Residents?" *The Urbanist* (blog), *Crikey*, October 6, 2010, accessed January 14, 2015. <https://blogs.crikey.com.au/theurbanist/2010/10/06/are-the-new-suburban-supercentres-attracting-residents/>.
- 18 Robin Goodman and Susie Moloney, "Activity Centre Planning in Melbourne Revisited," *Australian Planner* 41, no. 2 (2004).
- 19 "not-in-my-backyard"
- 20 Ralph McLaughlin, Anthony Sorensen, and Sonya Glavac, "Intra-Metropolitan Housing Supply Elasticity in Australia: a Spatial Analysis of Adelaide" (paper presented at the State of Australian Cities Conference, Sydney, 2013).

Another fundamental limitation of Adelaide's transit corridor policy is the fact that the city has a limited public transport infrastructure system. Figure 1.6 displays the once prolific tram network that connected Adelaide suburbs and the city centre before its decommission in the 1950s. When overlaid on the growth area map, the minimal reach of the city's current rail, tram and O-Bahn busway networks can be read (Figure 1.7). Witnessed in this drawing is the fact that the existing residential areas hold a greater claim to Adelaide's transit system than do the proposed transit corridor development zones, which are located on road-based - and therefore bus, car and truck - routes.

Beyond this, a further limitation is found in the concept of medium-density, medium-rise developments being targeted in transit corridors, in that it has been seen in other cities that a deliberate zoning for such buildings in these locations will not guarantee they are built there. In Melbourne, it has been shown that developers are understandably opportunistic and will look for developable sites as they arise, regardless of whether or not they fall inside the city's transit-oriented activity centres. This is particularly the case if earmarked transit corridors represent a cost encumbrance due to their established location and the need to make legal and planning arguments against higher levels of resistance from neighbours.^{16 17} Furthermore, arguments have been made that stronger regulations and local government involvement in selecting the locations for these zones is required in order to achieve sufficient uptake.¹⁸ In Adelaide, the effect of 'NIMBY'¹⁹ resident push-back against infill development has been demonstrated, where a potential correlation has been found between the wealth of the residents and council area and success rates when opposing new developments. McLaughlin et al have found that wealthier residents often have stronger connections to government, the financial means to fight development, a strong incentive to maintain their established amenity and the ability to mobilise as a group.²⁰

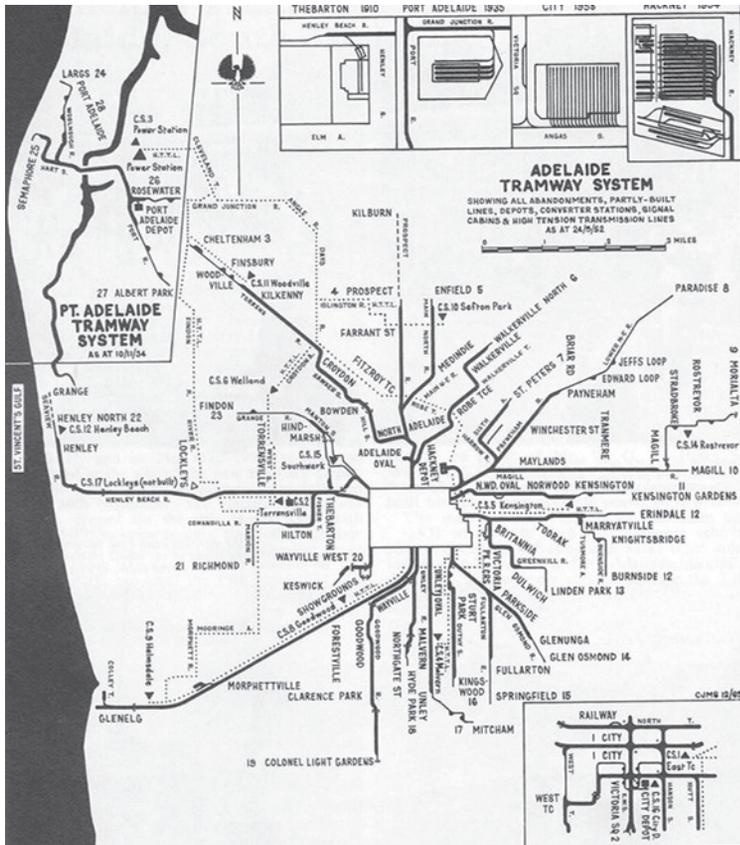


Figure 1.6 (left)
Adelaide's former tram system, 1952
source: 5000plus.net.au/ideas/278,
accessed 29/4/15

Figure 1.7 (below)
Adelaide's current rail network,
single tram line and single O-bahn
busway line as they relate to the
Inner Metropolitan Growth Area's
transit corridors, residential
heritage and character precincts
(centre) and other residential areas
(right)



- 21 This is discussed further in Chapter 2 in relation to the effects of Adelaide's settlement pattern on the development of its domestic architecture.

Figure 1.8 (below left)

The Queen Victoria Apartments on the Fullarton Road transit corridor, looking east from the Park Lands towards the Mount Lofty Ranges.

Figure 1.9 (below right)

The city and Park Lands viewed from a north-facing balcony.
source: www.realestate.com.au/property-apartment-sa-rose+park-119131127, accessed 26/2/15

1.3 Fear of the Known

Resistance to infill development in inner-Adelaide can be partially explained by the fact that the city does not have a deep history of apartment living – an artefact of a slower rate of growth compared with larger Australian cities, an early unbridled sense of room to grow and of having been settled as a free colony where the idea of space was sold as a virtue to potential settlers in England.²¹ However, the potential spatial effects of apartment complexes in the city's new transit corridors can be evidenced by an adaptive reuse apartment project that falls within these zones, the former Queen Victoria Hospital on Fullarton Road at Rose Park (Figure 1.8). Located immediately outside the Victoria Park Race Course on the edge of Adelaide's southeast Park Lands, the hospital was closed and converted to the Queen Victoria apartments in the late 1990s.



At nine storeys tall, the building exemplifies the type of mixed-use medium-density development encouraged for Adelaide's transit corridors under *The 30-Year Plan* and Inner Metropolitan Growth strategy.

Looking from the balcony of a top floor apartment northwest across the Park Lands to the city (Figure 1.9), a sense is given of the immediate change in scale from the low-lying Park Lands belt to the transit corridor development zone of Fullarton Road. Turning northeast (Figure 1.10), the scalar jump between the apartment building and its nineteenth-century domestic neighbours is evident. This is further understood at an occupational level, where the apartments' shared ground floor gymnasium sits adjacent a villa neighbour, with a domestic fence and domestic-scale side setback separating the two (Figure 1.11).²²

- 22 These side setbacks between the apartment building and its villa neighbour can be expected to be mitigated for new apartment developments, where it can be anticipated that current planning controls will dictate greater setbacks and a gentler transition in scale.

Figure 1.10 (below left)
Balcony view over Rose Park villas and cottages.
source: www.realestate.com.au/property-apartment-sa-rose+park-119131127, accessed 26/2/15

Figure 1.11 (below right)
The Queen Victoria Apartments/
villa neighbour side boundary relationship.
source: www.realestate.com.au/property-apartment-sa-rose+park-119131127, accessed 26/2/15



Such tensions between the two modes of development were voiced upon approval of a transit corridor development for Unley Road, south of Adelaide (Figure 1.12). The seven storey 150 apartment Cremorne Plaza complex, a somewhat minor development by larger cities' measures, was criticized by residents as a "slum of the future" that would create enormous traffic and parking problems for nearby residents and "destroy" Unley, whilst local traders welcomed the addition of new residents to the area and the economic stimulus this might deliver.²³

Much of the debate, including from local elected members of council, centred around anger that the State Government's new policy measures were encouraging and allowing a seven storey development where the local council had previously mandated a maximum of five. The proposal's planning approval, issued by the State Government's Development Assessment Commission rather than by the City of Unley, ultimately lapsed without construction having commenced.²⁴

Despite having approvals in place in an established commercial strip located only 1.4km from the edge of the Park Lands, the development - which would have been one of the first in Adelaide's new transit corridors - did not proceed. Although the developers did not issue a reason for allowing the planning application to lapse, and it is not suggested here that residents' protests were a determining factor, it is interesting to note that the apartments were proposed for sale between \$300,000 and \$1.5m²⁵ in a suburb where median prices over the life of the planning approval were \$419,000 for units and \$867,500 for houses.²⁶

In an established inner suburb where demand for housing is strong, these apartments would seem to have provided an opportunity for desired additional housing at price-points suited to the area.

23 Celeste Villani, "Unley Cremorne Plaza: Residents Angry Permission Has Gone Through," *Eastern Courier Messenger, The Advertiser*, 29 March 2015.

24 James Gratton, "Developers of \$80 Million Cremorne Plaza Complex on Unley Rd Miss Deadline to Start Work," *ibid.*, 27 March 2016.

25 Celeste Villani, "Unley Cremorne Plaza."

26 RP Data Pty. Ltd. "Unley Property Market: House Prices and Suburb Profile, 1 Apr 2015 - 11 Apr 2016." REA Group Limited, accessed April 15, 2016. <https://www.realestate.com.au/neighbourhoods/unley-5061-sa>. During this twelve month period of the proposal's planning application lapse, the median sale prices were \$565,500 for a two bedroom house, \$832,500 for a three bedroom house and \$1.19m for a four bedroom house.



An artist's impression of Cremorne Plaza, planned for Unley Rd.

East & Hills

Unley Cremorne Plaza: Residents angry permission has gone through

Celeste Villani, Eastern Courier Messenger, The Advertiser
March 29, 2015 7:16pm

UNLEY residents have vowed to continue the fight against an \$80 million, 150-apartment complex on Unley Rd, despite the development winning planning approval.

The State Government's Development Assessment Commission has approved the seven-storey Cremorne Plaza – to be developed opposite the Cremorne Hotel – despite more than 100 written objections.

Resident Roslyn Chataway, who lives in nearby Opey Ave, was "appalled" by the decision.

Describing the complex by developers Xinyu International as a "slum", she said residents "would chain themselves to trees" to stop the building process.

Her main concern was increased traffic and parking issues in her street and Hart Ave.

"This slum of the future will destroy Unley for all residents while Xinyu walk away with an exorbitant profit," Mrs Chataway said.

"We do plan on disrupting the construction process ... and I think the council and State Government should hang their heads in shame.

Figure 1.12

The Cremorne Plaza development for the Unley Road transit corridor.

source: <http://www.adelaidenow.com.au/messenger/east-hills/unley-cremorne-plaza-residents-angry-permission-has-gone-through/news-story/1ada7388763256581afc451890b243>, accessed 7/4/15

Although *The 30-Year Plan* proposes new transit-oriented housing models yet to be seen in Adelaide, it can be argued that what concerns residents as much as a fear of the unknown, is a concern over the potential escalation of more widespread instances of the types of infill developments that already occur. A far more common form of intensification in Adelaide's suburbs that reflects similar development models elsewhere in Australian cities is the hammerhead subdivision, where the back yard of the original house is sectioned-off for a new house, accessed via a driveway down the side of the original dwelling. This commonly results in two houses of equivalent size, a significant shift in site coverage and loss of landscape when compared to the original conditions. Related models see the original house removed in order to fit more accommodation, often resulting in a three-for-one intensification. An alternative approach sees the removal of the original house and replacement with two duplex houses running the length of the allotment. Both conditions are evidenced by the houses of Figure 1.13 in suburban Trinity Gardens in Adelaide's east.

In all cases, the result is changed street conditions, altered relationships between the house and its site, and significant increases in built space and hard landscape surfaces. This latter condition becomes particularly apparent with corner allotments, where developers often struggle to design a corner that addresses both streets. This is exemplified by the three replacement dwellings of Figure 1.14, where the corner house faces the street of its listed address whilst offering a solid fence to the second street, which in precinct terms is larger and hierarchically higher. Given this hierarchy, logic would dictate that the house be designed with two faces and a better connection to both its streets, however such an approach appears outside of normative practice for residential development of this nature.

Figure 1.13 (facing page)
Current suburban infill behaviour:
battleaxe, duplex and triplex
development

source: Google Earth (modified)



As with the other examples of subdivision, individual privacy for each dwelling, usually achieved using a 1.8m high steel fence, often presents as a trump card that beats other logic.

This is the context of infill development and increased density presented to Adelaideans.

Figure 1.14

A three-for-one intensification of a corner site with a subsequent hierarchical shift in street address: the normative 'knock-down-rebuild' infill model struggles to reconcile dwelling privacy and amenity with neighbourliness

In the absence of established mixed-use apartment models, or single allotment intensification forms that think beyond division into smaller privatised individual lots, discussions around increases in density in the suburbs face the task of first having to move beyond a fear of the known.



1.4 Case Studies of Alternative Intensification

What is not understood widely in Adelaide are alternative approaches to infill in established suburbs that seek to appropriate space differently; to discard traditional notions of visual and segregated privacy in order to seek an overall increase in shared amenity. Traditionally, subdivision statutes have been underwritten by two ambitions: to establish minimum allotment sizes for both the reconfigured dwelling and new addition, and to ensure the provision of separate private landscaped open space for each. The case study projects that follow, whilst varied in scale and geographically dispersed, collectively represent alternative approaches to creating infill housing in constrained conditions and offer departure points for the design work of this thesis.



The Norwood Shed, Adelaide

Peter Scriver and Kilpatrick Architecture, 2013
(Figure 1.15 and Figure 1.16)

Designed by architectural historian and academic Peter Scriver, the 2013 Norwood 'shed' project in Adelaide's inner-east reinterprets traditional single allotment subdivision. Desiring a detached studio at the end of the garden in which to write, Scriver designed a space accommodating a bathroom, kitchenette and sleeping area. In this way, work can be undertaken all day without the need to retreat to the house proper, while the sleeping, bathing and cooking accommodation suits the visits from overseas relatives who arrive regularly for stays of several weeks. High quality landscape between the original cottage and new outbuilding is shared, with no demarcation of ownership.

Operating independently, the studio can serve the family over time if dual occupancy is desired. Pedestrian access from the street down the side of the original cottage, coupled with both pedestrian and vehicular access via a rear lane, enables familial or non-familial occupation to be accommodated if required.

Significantly, this latter condition would most likely need to be achieved informally, as the local planning provisions currently preclude the studio from being considered a separate dwelling. Whilst the project can operate successfully as a second house, it cannot do so as a recognised independent dwelling. Behavioural and statutory occupation in this instance are separate concepts.



Figure 1.15
The backyard Norwood Shed, Adelaide, viewed from the existing cottage across the shared garden. The rear laneway and parking are beyond.



Figure 1.16
The Norwood Shed, Adelaide (left) and cottage extension (beyond), viewed from the rear laneway access.

Backyard Homes, Southern California

cityLAB: UCLA Department of Architecture + Urban Design, 2014
(Figure 1.17 and Figure 1.18)

Recognising patterns of development in the suburbs of southern California, cityLAB's ongoing Backyard Homes project seeks to maximise development potential in typical single family home backyards. Responding to new state legislation allowing secondary dwellings at the rear of these properties, Backyard Homes provides housing propositions for the estimated 500,000 backyards spread across southern California.

cityLAB's researchers specifically use the term 'Backyard Home' in lieu of the more common 'Accessory Dwelling Unit' or 'ADU';²⁷ as they argue that the latter term is pejorative – suggestive that the additional dwelling is somehow of lesser quality or value than the original house. Along with arguing that infill dwellings should not be subordinate to the established housing, the researchers position backyard houses as financial gains for property owners – houses that provide necessary accommodation, but with a commercial return for owners, particularly in cases where up to three new dwellings can occupy a former backyard as in Figure 1.18.²⁸

This approach differs from traditional ADU models, such as the city of Vancouver's laneway housing allowances, where one additional backyard dwelling is allowed if it has access to a laneway, is used by family members or is rented out, but where strata titling in order to sell to a different owner is prohibited.²⁹

27 'Granny flat' is the precursor term to ADUs and although still widely in use, is falling out of favour due to its age and gender biases.

28 Vinit Mukhija, Dana Cuff, and Kimberly Serrano, *Backyard Homes & Local Concerns: How Can These Concerns Be Better Addressed?*, (Los Angeles: cityLAB, UCLA Department of Architecture + Urban Design, 2014).

29 City of Vancouver, *Laneway Housing How-To Guide*, (Vancouver, Canada: City of Vancouver, 2013).

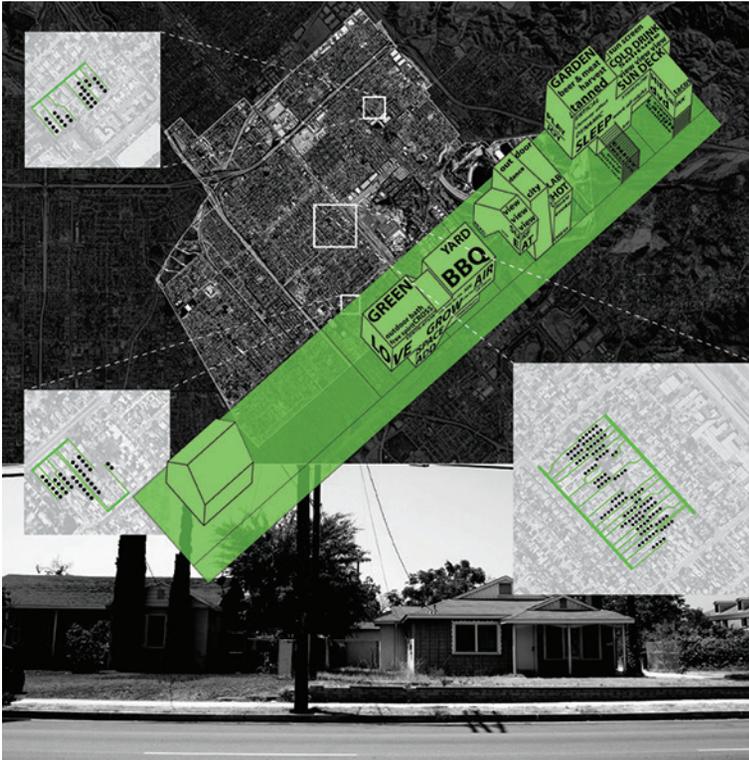


Figure 1.17
cityLAB's *Backyard Homes* strategy for underutilised Californian suburban backyards.

source: Cuff, Dana, and Per-Johan Dahl. "Rx for the R1: Sustaining the Neighborhood."



Figure 1.18
Backyard Homes incremental development strategy (detail).

source: Cuff, Dana, and Per-Johan Dahl. "Rx for the R1: Sustaining the Neighborhood."

Whatcott's Yard, London

Annalie Riches, Silvia Ullmayer and Barti Garibaldi, 2001
(Figure 1.19 and Figure 1.20)

Located in a former brownfield site between rows of terrace houses in London, and accessed through an old carriage lane under traditional mews housing, Whatcott's Yard is a singular building housing three similar, yet individual houses. Formed over three storeys as a terrace building, each dwelling is separately owned and configured but within a unifying singular housing shell that reads as one dwelling. Internally, each new terrace house has been configured by its owner-architect and each uses the tactics of voids, mezzanines and double height volumes to create access to light and a sense of greater space than the footprint would generally suggest.

As a reinterpretation of the neighbouring Victorian-era terrace houses, Whatcott's Yard reconfigures outdoor space by swapping privacy for connectivity. This model favours greater amenity over privacy, in essence making an argument for quality over quantity. Notions of privacy are further challenged by the complete glazing of the garden façade, where overlooking between neighbouring terraces windows is reciprocal, as evident in Figure 1.20.

Such direct visual connection between and into unrelated dwellings is not commonly experienced in Australian cities, where obscure glazing to 1.7m above upper floor levels is a common requirement for planning approval.



Figure 1.19
Whatcott's Yard, London.

source: www.ullmayersylvester.com/content.php?page_id=609,
accessed 21/11/13



Figure 1.20
Whatcott's Yard, London.

source: www.ullmayersylvester.com/content.php?page_id=609,
accessed 21/11/13

Chimney Pot Park, Manchester

shedkm Architects, 2008

(Figure 1.21 and Figure 1.22)

Favouring reconstruction over demolition, Chimney Pot Park reconfigures rows of dilapidated Victorian-era red brick terrace houses in Manchester, creating 349 new houses of varied plan and room forms. shedkm's strategy was to work with rows of back-to-back terraces, remove their rear extensions, combine the small previously individual rear yards with the narrow laneway that traditionally divided the terrace blocks and give this combined new space over to undercroft car parking.

Above this, a unifying landscaped terrace was built to give back the rear yard space lost in the transaction and to link directly with each house's living space on the first floor, the volume of which is opened to the roof space, often with additional mezzanine use. Employing a strategy similar to that of Whatcott's Yard, the emphasis here is on quality of the landscape and internal space and volume, coupled with a non-traditional approach to backyard privacy.

Programmatically, the architects break with the traditional repetition of the repeated terraces. In order to provide a variety of housing choice, programs are interconnected across the original ownership divides of party walls, creating interlocking houses of varied sizes and configurations, examples of which are shown in Figure 1.22.



Figure 1.21 (left)
Chimney Pot Park, Manchester;
existing vs new strategy
source: [www.shedkm.co.uk/
project/37/chimney-pot-park/](http://www.shedkm.co.uk/project/37/chimney-pot-park/),
accessed 13/3/15

Figure 1.22 (below)
Chimney Pot Park, Manchester;
reconfigured ownership divisions
source: [webarchive.
nationalarchives.gov.uk/
20110118095356/http://www.
cabe.org.uk/case-studies/chimney-
pot-park](http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/case-studies/chimney-pot-park/), accessed 16/4/16



Supurbia, London

HTA Design, 2015-

(Figure 1.23 and Figure 1.24)

Like cityLAB's Backyard Housing, HTA Design's Supurbia concept for London's outer suburbs seeks leverage off underused allotments. Designed as a speculative staged development of an entire neighbourhood block³⁰ over 20 years, the concept sees small changes to established suburbs at first, resulting in eventual replacement of many of the existing dwellings by the end of the program.

Where wholesale housing replacement is proposed, schemes commence with partial retrofits of the existing housing in yard space freed by car sharing in the first five years. Over the following five years the concept then sees 10% of existing houses removed to make way for alternative dwelling types such as an apartment for older residents, with additional land made available in yards by increasing car sharing to 40%. After a further five years, car sharing is increased to 60% and all original houses are replaced. In the final five years, car sharing is increased to 80% and all yard spaces between the replacement dwellings have additional new infill buildings provided to create a mixed-use development.³¹

Supurbia's ambition is to increase density throughout London's suburbs by creating avenues for property owners to become developers of their allotments. By speculatively designing these scenarios at the scale of an entire block, the architects demonstrate the greater potential of the scheme when allotments are considered as a collective and transformed with an overarching long term strategy.

30 A note on the nomenclature of this thesis: 'allotment' is used to describe a single house site, while 'block' is a collection of allotments, usually bordered on all sides by a street or laneway, for example a neighbourhood block.

31 Ben Derbyshire, *Supurbia: A Study Of Urban Intensification In Outer London - Work In Progress*, (London: HTA Design, 2015).



Figure 1.23
Superbia, London:
existing suburban conditions



Figure 1.24
Superbia, London: partially
developed conditions with new
infill and replacement dwellings

source: Derbyshire, Ben, Andrew
Beharrell, Yolanda Barnes, and
Pauline Roberts. "Transforming
suburbia: Superbia semi-
permissive."

1.5 *Alternative Infill's* point of difference: a predictable armature

The field of infill housing is broad and these case studies are not offered as a comprehensive analysis of it. Rather, they represent examples of the themes investigated by the work of this thesis. The Norwood Shed provides additional accommodation in the yard of a Victorian-era attached single fronted cottage,³² not attempting to demarcate territory between the two. CityLAB's Backyard Homes recognizes the spatial capacity of the suburban backyard and offers analyses that demonstrate the density increases that can be achieved over large suburban territories should property owners become property developers.

Whatcott's Yard demonstrates such low scale entrepreneurialism in its methodology: underutilised space between dwellings collectively developed by three unrelated parties, designed as a single building but with enough agency to allow individual approaches to its use. Externally, the site design demonstrates the potential benefit of sharing a single space with one's neighbours rather than opting for compromised private space. Chimney Pot Park extends these co-operative themes over a far greater territory, whilst dealing directly with its Victorian-era context. The project demonstrates that diversity of housing can be achieved within a previously repetitive housing system.

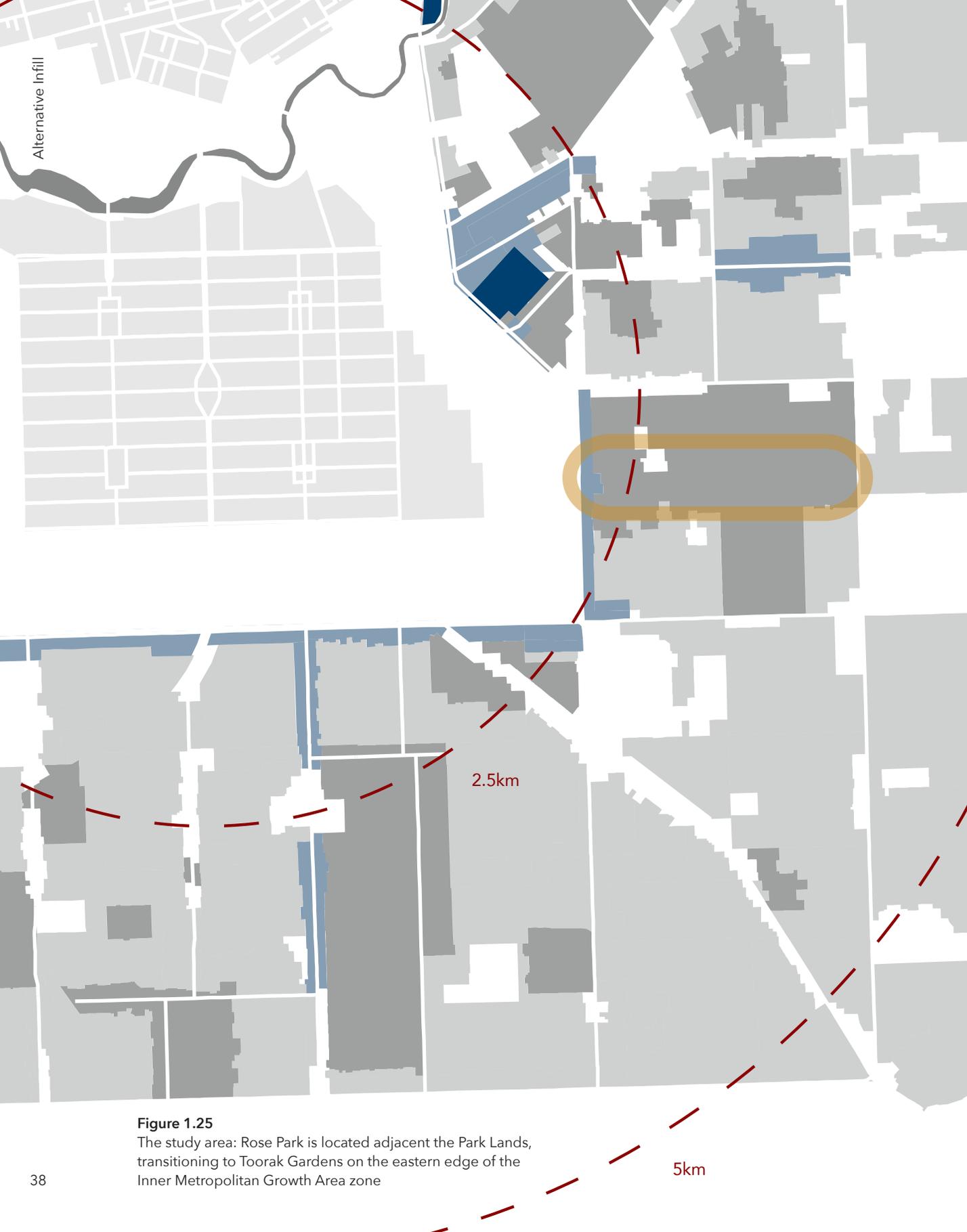
32 A single fronted cottage, attached or detached, is a narrow house one room wide, and usually two or three rooms deep. A side hall connects these before opening to a sitting room and terminating in a kitchen, bathroom and laundry area. The focus of this study is the villa and cottage, the morphologies of which are discussed in Chapter 2.

On face value, the Supurbia project has perhaps the strongest resonance with the work of this thesis: it seeks new responses to changing housing needs in established suburbs and demonstrates that density increases can be achieved strategically in these areas. Like *Alternative Infill*, it argues that the established suburbs have capacity for change and

can help to meet a city's density targets. A critical difference however, is that Supurbia assumes two positions contrary to this work: that yard space is available for wholesale redevelopment and that eventually the existing housing gets wholly replaced.

By comparison, *Alternative Infill* does not differentiate between house, site and mature landscape. Instead of viewing the site as remnant *tabula rasa* space around the villa or cottage, this work seeks a holistic development approach where mature landscape is retained along with the rooms of the original house. As such, the existing house, new housing and the landscape are considered a combined entity.

Significantly, *Alternative Infill* views the established housing stock as holding its utility over time. It considers the villa and cottage as crucial to a new housing mix: the base elements that have held currency since their establishment and continue to do so even as the suburbs change around them. On first appearance perhaps not as understandable a housing system as a string of attached London terraces, the work demonstrates that suburban villas and cottages form a system nonetheless. Once understood, the reuse of this housing stock goes beyond notions of heritage and character and associated mandated retention, and lies in the pragmatic: the robust fabric of their construction, the nature of their site placement and in the ability of their room layout to adapt to a variety of programs. Importantly, it is the predictability of these conditions that enable them to be seen as an armature to support new housing models. This is discussed in more detail in Chapter 2.



Alternative Infill

2.5km

5km

Figure 1.25
The study area: Rose Park is located adjacent the Park Lands, transitioning to Toorak Gardens on the eastern edge of the Inner Metropolitan Growth Area zone

1.6 The Study Area

Rose Park is inner suburban, on the fringe of Adelaide's Park Lands (Figure 1.25). It is recognised as a 'character area' by Burnside Council and forms part of a Historic Conservation Zone.³³ It consists of many houses that might be described as four roomed dwellings: symmetrical cottages, asymmetrical (projected room) villas and return verandah villas, and the redevelopment of these under current statutes is subject to local council-specific heritage and character-retention guidelines. As such, it is a challenging and untested context within which to investigate infill strategies and has been strategically selected for three reasons:

- along with the Hills Face Zone, it is the only precinct specifically identified by Burnside Council as an area that is not to be considered for infill development and as such it can be used to test 'no-go' development assumptions;
- its proximity to the CBD and Park Lands renders it potentially susceptible to pressure for change in order to meet increasing social and environmental demands, exacerbated by the fact that the value of its properties is largely held in their land rather than in the housing stock; and
- its contested nature means that strategies developed here are likely to be applicable in other suburbs of Adelaide and beyond, and importantly, with exponentially less difficulty as heritage and character overlays diminish.

It is crucial to consider how sustainable infill intensification development might be designed in established suburbs, and what the effects may be of the insertion of small scale housing functions in what were originally planned as single family allotment areas. Furthermore, the potential impact of not addressing social needs in inner suburbs such as Rose

33 A Historic Conservation Zone under South Australian Development Plans is an identified precinct in which specific houses may not be heritage listed individually, but are deemed to contribute to the overall history of the area. Approval to demolish such a house is not impossible, but is deemed non-complying development, requiring a case to be made on its lack of contribution or inability to be brought up to an acceptable standard of construction.

Park and its neighbour Toorak Gardens is increased pressure on other suburbs and precincts within the same council area. These competing forces suggest that some form of dispersed adaptive re-use throughout council areas, where new building insertions work in concert with extant fabric, is a prudent response and one requiring detailed design investigation, speculation and analysis.

The question then becomes one about an appropriate sharing of load: what is the breaking point at which a precinct cannot sustain infill development? Such thresholds might relate to:

- the number of people that can reasonably be accommodated within the established character of activity (that is, human density or human mass);
- the identifiable retention of aesthetic character (dwelling density or building mass);
- the identifiable retention of mature landscape;
- the capacity of the urban infrastructure (transport, parking, cycling, walking and open space); and
- the cost benefit (at what point does a 'do nothing' approach provide a greater financial incentive to property owners and state and local governments than redeveloping via infill?)³⁴

Ultimately, notions of 'heritage' and 'character' must be understood relative to the changing intent of a suburb over time. This requires a potential shift in thinking about heritage as something that must be made static in the present in order to avoid further loss, to something that is organic, malleable and responsive over time. In this manner, the original intent of Rose Park can come into play: a suburb on the penny section of Adelaide's tram system, popular with middle class city

34 Detailed cost analysis is deemed beyond the scope of this project and potentially restrictive to the design processes presented, however projections of potential financial models are acknowledged and discussed in Chapter 5.

workers seeking affordable start-up suburban housing, where extended families would purchase multiple houses to provide familial support, and where those with the means to do so would build duplex housing adjacent their own house in order to commercialise parts of the suburb through the rental market.³⁵

Discussed in Chapter 2, such themes are consistent with much of the rhetoric around contemporary aspirations for infill development and densification:

- affordable housing of a high quality, where housing choice is possible;
- easy and efficient access to services, local traders and transport; and
- confidence that building stock and support networks exist in order to work, live, parent and age in place, in the neighbourhood in which one wishes to remain.

Perhaps heritage custodianship in suburbs like Rose Park then, becomes the notion of assisting character precincts to flex with needs over time in order to continue to serve their intended role amidst unavoidable social and urban change. Utilising the four roomed house typology as an identifiable and communicable system of elements, it becomes possible to be projective about what the future Adelaide house and its precincts might become. By speculating on the established inner Adelaide suburb as a scaffold that can support a variety of infill and adaptive reuse patterns, a new Adelaidean urban form might emerge. Such a form would be borne neither of the universal principles of the State Government's *30-Year Plan*, nor of local governments' council-level strategic directions policies but of the inherent qualities of the underlying neighbourhood fabric: new urban form that is familiar, yet subtly radical.

35 Elizabeth Warburton and Burnside (S. Aust.) Corporation, *The Paddocks Beneath*, (Burnside, S. Aust.: Corporation of the City of Burnside, 1981).

1.7 Synopsis of Chapters

This chapter is the first of five sections, which are described in more detail below. Chapter 2 discusses the broader context of suburban character, with an emphasis on Adelaide and its early suburbs. Chapter 3 presents abstract design experiments in order to provide a new way of analysing the established suburbs and the design tools established are used to underpin the detailed two-site infill design studies of Chapter 4. The document concludes with a reflection of the work and projections for future research in Chapter 5.

Chapter 2 - Suburban Character: Unintentional Monuments

This chapter defines the Adelaidean villa and cottage and discusses them in relation to the development of Adelaide's inner suburbs, establishing usable definitions for a 'typical' villa and cottage for use in this study and by others. *Commonly accepted anomalies* of everyday use are explained and are discussed in the context of historical photographs and narratives of Victorian-era life in Adelaide. Notions of character are discussed relative to housing occupation and dwelling activity and the concept of *character shaping* is put forward as a means by which the development of a precinct's character can be understood as a continuum.

Chapter 3 - Design Research: A System of Options

The role of abstraction in providing new ways of seeing the familiar is discussed and contextualised through the work of architects of the modernist movement. The chapter details three backgrounding design exercises, internal to the project, that have enabled the study area to be observed as a housing system. In the third of these, four international multiple housing projects of different typologies are superimposed onto a Rose Park block in order to test spatial capacities not otherwise identified in an Adelaide suburb. New York's High Line urban infrastructure and landscape project is then mapped onto the block as a means of describing the capacity

of a precinct to support significant landscape elements. The three backgrounding studies are followed by three outward looking studies that distil the findings and communicate them as sets of design tactics that can be used by others when undertaking their own design project in an established suburban context.

Chapter 4 - Design Application: On Diversity

This chapter describes three design studies that use the tactics established in Chapter 3. Each operates over two adjacent sites: one arranged side-by-side, one arranged back-to-back and the third arranged side-by-side with access to a rear lane. These three studies together show the range of opportunities for two connected sites in a typical inner-Adelaide suburb. Two sites are put forward as an ideal for infill development as the addition of one neighbouring site to another is realistic to achieve while the doubling of the site area demonstrates the spatial and occupational gains achieved by broadening a single site's territorial field.

Chapter 5 - Observations and Projections

The final chapter reflects on the project and comments on its exclusions, limitations and potential effectiveness relative to its ambitions. Whilst outside of the scope of this thesis, some of the potential financial and procurement implications of the demonstrated infill models are acknowledged and discussed relative to current property values in the subject suburbs. The reality of housing in the inner suburbs is that they are expensive and from a financial perspective, a 'do nothing and sell-up' approach often makes sense. Whilst not attempting to resolve nor prove the financial logic of this study's alternative infill housing forms, a simplified hypothetical owner-driven development scenario is described to illustrate how such alternative housing models might become financially feasible under certain conditions. Chapter 5 concludes with a projection for future research that is encouraged by this work.



A photograph of a porch with a wooden railing and a stone wall, overlaid with a semi-transparent grey box containing text. The scene is brightly lit, with shadows cast across the wall and railing. The text is centered within the grey box.

2. Suburban Character: Unintentional Monuments

Modern life is characterized by programmatic fluctuation: turbulent shifts in demographics, changes in the desires of restless populations, and the alternation of local and regional political wings. The initial program brief of even a single building is typically shaken up and reorganized during the planning process. When a portion of the program is taken away, new programs are invented to occupy the building envelope.¹

Steven Holl
Parallax

- 1 Steven Holl, *Parallax* (New York: Princeton Architectural Press, 2000), 210.

2.1 Suburban DNA

Building can be seen as a social act, the process of which is rooted in the subtleties of local culture and is fluid over time. It is also seen as a systematic process led variously by the access (or lack thereof) to finance, materials, labour and sites. Howard Davis has written of the complex relationships that exist not only at the physical level of building creation, where construction techniques and procurement methods operate together to affect settlement patterns, but also in socio-cultural terms. In the latter, large variances can occur in the manner with which settlements are established, ranging from a building's patron being one person gathering and arranging material to create a building, to a collection of invested people including owners, architects, builders, developers, financiers and statutory authorities. These relationships also vary with scale, as development grows from the single building towards villages, towns and cities, each with their own sub-groupings. When viewed over time, the culture of building as an activity can be seen as reflective of the social and political culture that has informed and enabled it.²

Thomas Peirce's 1875 etching of Adelaide and its surrounds, a detail of which is shown in Figure 2.1 on page 51, is the earliest bird's-eye view of the city. Looking east over the plains towards the Mount Lofty Ranges, it provides the first post-

2 Howard Davis, *The Culture of Building* (New York: Oxford University Press, 2006), 11.

European settlement indication of the *tabula-rasa* conditions of Adelaide's yet-to-be suburbs.³ Created 39 years after the proclamation of Adelaide, where the potential to be a land owner in the new free colony was used as a drawcard for English immigrants, the etching appeared in *The Australasian Sketcher*, a supplement to the *Melbourne Argus* newspaper, accompanied by a narrative describing the city:

With a background formed by an almost perfect semicircle of gently rising hills, known as the Mount Lofty Range, the prospect from the city, looking east and south, is one which gladdens the eye by its quiet beauty, and possesses a charm at whatever season of the year it may be seen . . . there are slopes dotted over in summer with the vivid green of teeming vineyards and luxuriant orchards, and standing out in pleasant relief at frequent intervals are handsome mansions, pretty villas, or humble homesteads, never without their gardens of greater or less pretensions . . . (The city) is surrounded by a belt of park land, of about half a mile in width, which has been permanently reserved, so that the city can never expand beyond its present limits, nor can the suburbs approach nearer to it. From a commercial point of view this may be considered a mistake, but in many other respects it is an excellent idea. The roads leading to the suburbs are bordered by umbrageous trees, some of the streets are planted with them, and, in fact, one can't go much about Adelaide without being refreshed by the sight of "verdant green."⁴

- 3 When speaking of the early history of the Adelaide plains in this text I am specifically referring to the undeveloped conditions following colonisation. Describing the suburban plains as *tabula-rasa* is not to ignore nor diminish the significance or history of the Kaurna people as the traditional custodians of the Adelaide plains and the concept of 'development' is used solely in relation to post-colonial built form.
- 4 The Melbourne Argus, "Adelaide," *The Australasian Sketcher*, 10 July 1875, 54-55. The positive and negative effects of Adelaide's Park Lands are still debated today, as discussed in Chapter 1.

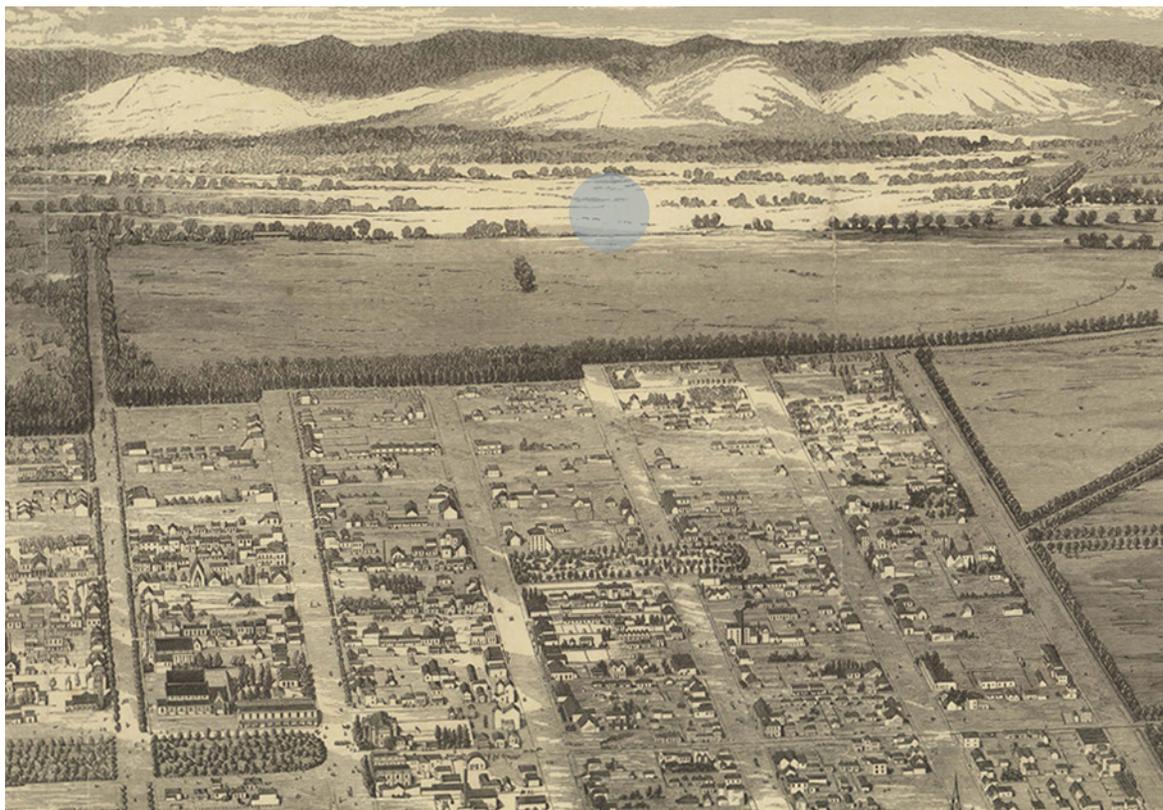
Clearly, the early perception of Adelaide and its outer plains is one which places enormous importance on the availability of and access to green space and a certain genteelness is described as a great virtue. Depicted in this early view of Adelaide's eastern plains are the emerging suburbs of

Kent Town and Norwood in the upper left of the image an. Immediately to the right lies the Victoria Park Racecourse in the southeast Park Lands, marked by a single central tree around which the horse track ran. Shown in detail in Figure 2.1, the racecourse is delineated by the stepping East Terrace on its boundary with the city. On its other long side to the east is the dirt track of Fullarton Road - now one of the State Government's strategic Inner Metropolitan Growth Area transit corridors discussed in Chapter 1. Beyond Fullarton Road is the distinctly cleared land of Prescott's farm, which will later become the suburbs of Rose Park and Toorak Gardens; the primary subject of the formative investigations of this study.

Figure 2.1
Thomas Peirce:
Adelaide 1875 (detail)

source: sahistoryhub.com.au/
map-and-plans, accessed
26/11/14

The primary study area for this work is indicated by the blue dot.

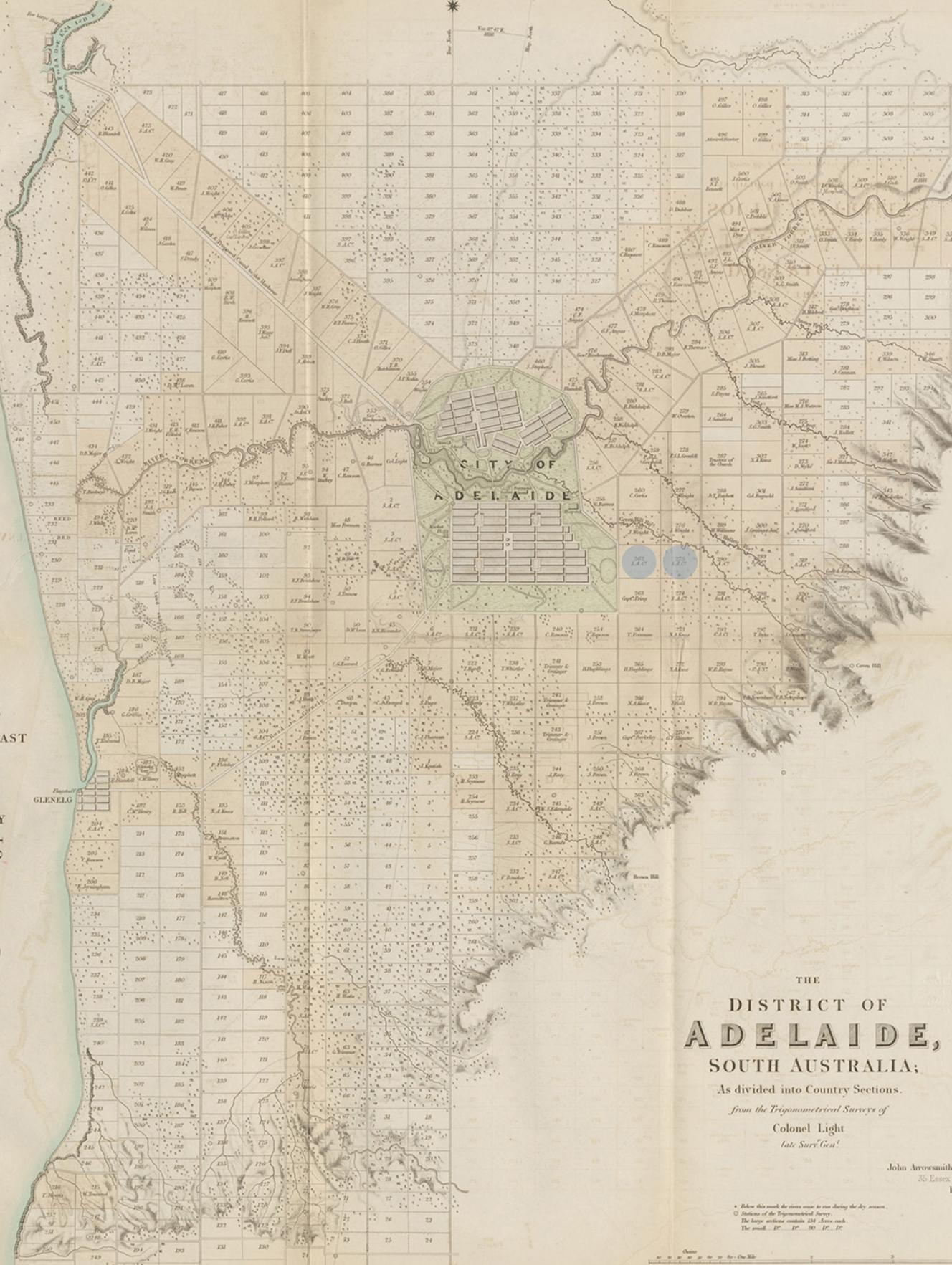


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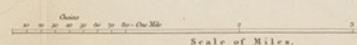


THE
DISTRICT OF
ADELAIDE,
SOUTH AUSTRALIA;

As divided into Country Sections.
from the *Trigonometrical Surveys* of
Colon Light
Int. Surv. Gen'.

John Arrowsmith
35 Essex Street
1833

* Below this mark the rivers cease to run during the dry seasons.
O Station of the Trigonometrical Survey.
The large circles contain the Area each.
The small 10' 10" 80' 10" 10'



William Prescott leased this land – identified as Sections 262 and 275 in Colonel William Light’s original plan for Adelaide (Figure 2.2) – from the South Australia Company who in 1878, three years after the *Australasian Sketcher* etching was created, subdivided the area for housing in what would be the first of four subdivisions up to 1909. Remaining largely residential, Rose Park presents as one of Adelaide’s most intact Victorian- and early Edwardian-era suburbs.⁵

This commercial enterprise, where land was first cleared for leased farming before being subdivided for speculative housing lots, equates in manner to what we today describe as greenfield fringe development. Advertised to city residents as the best of town and country, Rose Park was pitched as a nearby suburban alternative on the inexpensive penny ticket tram stop from the city. Promoted as affordable, accessible and closer to nature, it was an attractive alternative not only to workers who could escape dirty city living without leaving their jobs in town, but to those in the country desiring a return to the city but in a more attractive setting than Adelaide-proper currently afforded.^{6 7}

Historian Elizabeth Warburton describes the entrepreneurial spirit with which the subsequent new housing of Rose Park was realised:

The first auction sale of Rose Park allotments was held in November 1878 . . . The idea of a country residence in a first-class suburb was dangled before potential buyers, regardless of the patent contradiction in terms – for as a suburb comes into being the country disappears . . . Real estate did not skyrocket in price at Rose Park as it would have done so close to a bigger city but it held its value comfortably.⁸

Figure 2.2 (facing page)

John Arrowsmith,
*The District of Adelaide, South
Australia: As divided into County
Sections, from the Trigonometrical
Surveys of Colonel Light late Survr.
Genl., 1839.* William Prescott’s
farming parcels are indicated by
the blue dots.

source: www.catalog.slsa.sa.gov.au/record=b1593753~S1,
accessed 25/11/14

- 5 Margaret Black, *Historic Self-Guided Walk: Rose Park*, (Tusmore, South Australia: The City of Burnside, 2011), 3.
- 6 Elizabeth Warburton and Burnside (S. Aust.) Corporation, *The Paddocks Beneath: A History of Burnside from the Beginning* (Burnside, S. Aust.: Corporation of the City of Burnside, 1981).
- 7 By ‘Adelaide-proper’, I refer to what we currently understand as the Adelaide CBD bounded by North, East, South and West Terraces and the suburb of North Adelaide over the River Torrens. At the time of settlement and the design of Colonel William Light’s plan for Adelaide, these two areas were known collectively as the city, and referred to as South and North Adelaide respectively.
- 8 Warburton and Burnside (S. Aust.) Corporation, *The Paddocks Beneath*, 285.

In this initial land release, the Prescott family purchased 22 allotments, retaining some for housing and reduced farming for themselves and on-selling the rest. Builder Alexander Maddern returned to Adelaide in 1879 from the mid-north copper mining town of Moonta and purchased multiple allotments in Rose Park and neighbouring Dulwich in order to create speculative housing for sale, as did builder Charles Boswarva who, having built housing for sale in New South Wales, the United States and South Africa, built speculative housing in the area before moving on to Perth. In addition to building two large homes for others on land he had purchased, Boswarva "built rows of villas" across Rose Park.⁹

Throughout this suburban establishment "consciously or otherwise, the first generation of residents worked to promote community feeling and an identity for Rose Park."¹⁰ Warburton describes how the speed of this community creation was hastened by the fact that settlers to the area came not just singly but in familial groups, buying houses within close proximity to each other and spreading the family territory beyond the single house. As the suburb developed, the Rose Park Primary School was established as a public enterprise reflective of the middle- rather than upper-class status of the new community, while The Cottage Homes Incorporated group built a series of small cottages to meet the needs of older people wishing to live in the area but unable to afford to purchase a home for themselves and looking for local options at an affordable rent.

The history of Rose Park, then, can be read in relation to the types of commercial imperatives in play in today's new suburbs: land is cleared, released and purchased not just in the poetic form of the pioneer settler on the single undeveloped plot, but by those seeking alternative living arrangements and by developers with pecuniary interests offering pre-completion sales and rental options for those

⁹ *ibid.*, 288.

¹⁰ *ibid.*, 290.

unable to purchase a home of their own. Easily lost in the current day picturesque quality of such a largely intact Victorian-era suburb is the fact that adjacent allotments were settled together for strategic spatial and familial gain, that it was common for duplex developments to be established in order to live in one half and rent the other and that single family homes were built speculatively and then put to market with attractive deposit conditions to assist with the purchase. This latter condition, demonstrated by Warburton, is exemplified by any number of newspaper advertisements from the *South Australian Register* around this time, as shown in Figure 2.3, the text for which reads:

£50 DEPOSIT. Balance £300, weekly payments of 15s. or otherwise, for those MODEL VILLAS, New, Detached, Four Large Rooms, Passage, Verandah, Grates, Ovens, &c; Land, 42 [12.8m] x 115 [35m]; close to Tram. Title - Real Property Act. Transfer given and mortgage taken on payment of £50 deposit. Persons seeking desirable houses would find this a safe investment. Several now completing.¹¹

11 S Gully, "Model Villas" advertisement, *South Australian Register*, 8 September 1880, 6.



£50 DEPOSIT. Balance £300 weekly payments of 15s. or otherwise, for those MODEL VILLAS, New, Detached, Four Large Rooms, Passage, Verandah, Grates, Ovens &c.; Land, 42 x 115; close to Tram. Title—Real Property Act. Transfer given and mortgage taken on payment of £50 deposit. Persons seeking desirable houses would find this a safe investment. Several now completing.
S. GULLY,
233c Licensed Broker, Waterhouse Chambers.

Figure 2.3
early villa advertising,
The South Australian Register,
8 September 1880, p. 6

source: trove.nla.gov.au/newspaper/page/4009285,
accessed 25/11/14

Central to this suburban development is the four roomed house, shown in the developer's advertisement as the projected bay villa, a variant of the symmetrical cottage. Advertised by S. Gully and later by S. Gully Junior, Licenced Brokers in King William Street, advertisements such as this can be found in the *Register* at least as early as May 1880 and as late as March 1886, with the latter showing discounted sales arrangements of a £25 cash deposit but with increased weekly payments of 20s.

This regular advertising over several years, combined with reconfigured financial arrangements and the declaration of "several [houses] now completing" suggests the four roomed villa was an attractive house type in Adelaide's newly established suburbs for developers to construct and for purchasers to buy 'off the plan' (Figure 2.4).

By the time suburban Rose Park had been proposed, the free-standing cottage had already established itself as the predominant housing type in Adelaide, even within the city centre, where an inevitable competition for space could have reasonably been anticipated by even the earliest of settlers. Established as a pre-planned migrant town where neither the limitations of space nor the speed of growth were the defining features of settlement, the single storey detached cottage in a garden setting quickly became favoured for new Adelaideans, as detailed in *The Australasian Sketcher's* 1875 editorial:

The boundaries of the town are four terraces, favourite places of private residence, and here it will be noticed, as is the case in the more private streets, that the great majority of the houses, large or small, are possessed of flower-beds and shrubberies. The cottage style has been much resorted to, many capacious dwellings having no upstairs. Surrounded by wide verandahs, they look most comfortably [*sic*] and homely.¹²

12 The Melbourne Argus, "Adelaide", 55.

MALVERN ESTATE.

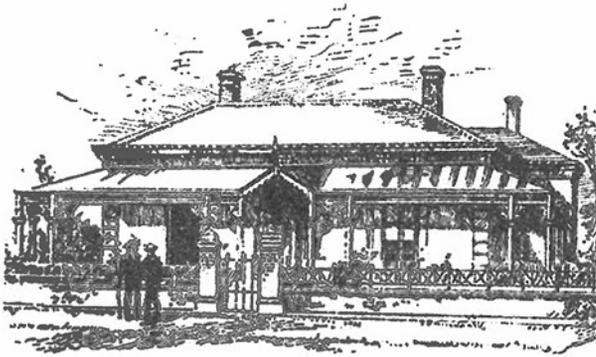
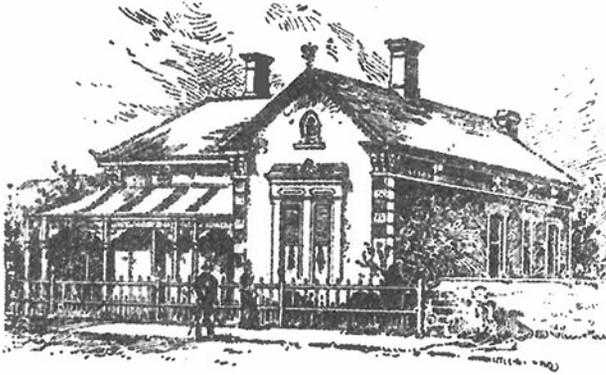
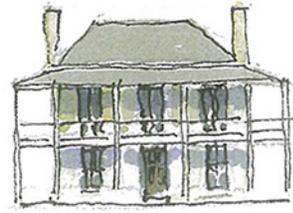
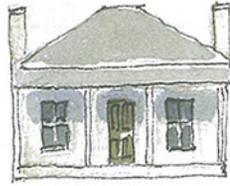


Figure 2.4
Malvern Estate advertising, 1892

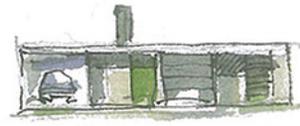
courtesy: The City of Unley



English cottage and mansion to verandah vernacular



English cottage and mansion to verandah vernacular



Arts and Crafts to modern

- 13 Robin Boyd, *Australia's Home: Its Origins, Builders and Occupiers*, New M.U.P. ed. (Carlton, Vic.: Melbourne University Press, 1987), 22.
- 14 Philip Cox, Philip Graus, and Bob Meyer, *Home: Evolution of the Australian Dream* (Paddington, NSW: Jane Curry Publishing, 2011), 61.
- 15 John Persse and Duncan Rose, *House Styles in Adelaide: a Pictorial History* (Adelaide: Australian Institute of Valuers and Land Administrators (Incorporated), 1989).
- 16 Cox, Graus, and Meyer, *Home*, 62.

The four roomed cottage, variously described by Robin Boyd as the 'bungalow'¹³ and by Philip Cox *et al* as 'verandah vernacular',¹⁴ is an identifiable derivative of the eighteenth century English cottage (Figure 2.5). For the sake of this study the common Adelaidean name is used, specifically 'double-fronted cottage' or 'symmetrical cottage'.¹⁵ For brevity, these are shortened to simply 'cottage'. Its early Australian form as described by Cox, was "rectangular in plan, divided into four components by a central hall which linked to either a detached or attached kitchen block [with ablutions] at the extreme end of the garden connected by a lane for the operation of the night cart".¹⁶ Boyd described how the cottage and its 'asymmetrical front' variant - referred to in this study as the Adelaidean projected bay 'villa' - formed two of his *Five Principle Plan Types* by which all Australian housing up to the mid-twentieth century could be described (Figure 2.6).

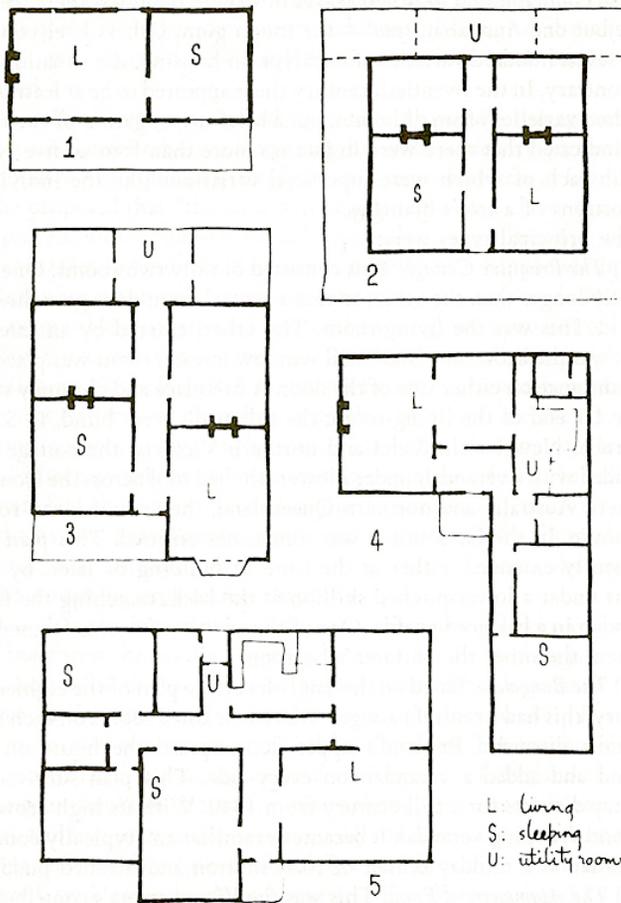


Figure 2.5 (facing page)
Philip Cox:
Australian housing evolution

source: *Home: Evolution of the Australian Dream*

Figure 2.6 (left)
Robin Boyd:
Five Principle Plan Types

source: *Australia's Home*

Boyd described the significance of the spatial and climatic adjustments English settlers faced in creating the 'bungalow' cottage:

Australia discarded England's upper floor, spread the house on the ground and added a verandah . . . With its high crowned roof and drooping verandah it became as familiar and typically country Australian as a midday dinner of roast mutton and steamed pudding.¹⁷

A variation of this cottage type saw the asymmetrical front villa represent "the Victorian era's contribution to the bungalow plan", with one of the street-facing front rooms "thrust forward in line with the front verandah and the main roof . . . broken to extend over this projection."¹⁸

¹⁷ Boyd, *Australia's Home*, 7.

¹⁸ *ibid.*

So pervasive were these adjusted English varieties, that they were favoured not only by those settling country Australia, but by those establishing the cities.¹⁹ However, where many of these houses have been lost over time, Adelaide would seem to have a significant number of remnant late nineteenth and early twentieth century villas and cottages throughout its older suburbs. Whilst this may be partially attributed to a slower growth rate than most other Australian capital cities (resulting in a reduced need to consolidate the suburbs into denser forms), it can largely be attributed to the state's statutory limitation of the use of non-flammable cladding materials and by further statutes that established limits for the size of allotments and the spaces between dwellings.²⁰ The South Australian Building Act of 1858²¹ set into legislation rules relating to fire protection that would fundamentally change the material characteristics of the City of Adelaide's buildings. Prior to this, as identified by Adelaide architect and historian Stefan Pikusa, timber buildings roofed in thatch or timber shingles predominated colonial Adelaide, with the only statutory restriction being an 1841 ruling governing that footpaths could be encroached only with a verandah.²² The 1858 Fire Act would profoundly change this vernacular manner of building by dictating that:

No building having its sides, ends, roof, or other part of its exterior covered wholly or in part with wood, canvas, thatch, or other inflammable material, shall be erected in the City of Adelaide, nor shall the partitions or ceilings of any building hereafter to be erected, or any part thereof respectively, be of calico, canvas, paper, or other inflammable material whatsoever.²³

Significantly, the Act stipulated that by January 1 1863, any existing buildings fitting this description and located within 30 feet (9m) of another building, were to be either wholly demolished or have the affected flammable elements removed in their entirety. When coupled with the fact that

19 In country South Australia it is not uncommon to see isolated masonry lean-tos in the absence of the front four rooms of the house-proper. Built in the hope that more prosperous times would deliver an opportunity to complete the house, these were often finished with decorative trims and verandahs, as noted by John Archer, *The Great Australian Dream: the History of the Australian House* (Pymble, N.S.W.: Angus & Robertson, 1996), 129

20 Stefan Pikusa, *The Adelaide House 1836 to 1901: The Evolution of Principal Dwelling Types* (Netley, S. Aust.: Wakefield, 1986), 35.

21 Parliament of South Australia, *An Act to Regulate Certain Buildings, and for Preventing Mischiefs by Fire in the City of Adelaide*, 1858. No. 17.

22 Pikusa, *The Adelaide House 1836 to 1901*, 35.

23 Parliament of South Australia, *An Act to Regulate Certain Buildings, and for Preventing Mischiefs by Fire*.

there was no building set-back statute in place in Adelaide until 1923, this nine metre proximity rule saw many existing buildings removed. Pikusa argues that this move away from timber cladding (and therefore its associated timber framing), reinforced the stylistic preference of the times, which favoured brick construction when it could be sourced and afforded.²⁴ Pikusa observes that by 1861, many original colonial houses had been replaced, with stone and brick dwellings making up 64% of Adelaide's houses.²⁵ After 1860, the availability in Adelaide of corrugated iron for roof sheeting not only complied with the newly-formed fire regulations, but provided a more efficient, reliable and available alternative to slate, which was becoming increasingly difficult to source and lay in the expanding city. Such was its popularity, that corrugated iron was used in roofing without discretion, and could be evidenced in both grand and humble houses.²⁶

The legacy of these Adelaidean stylistic preferences, material developments and statutory requirements, is suburbs formed of masonry construction that have remained intact over time. Importantly, the plan form of the four room typology has proven to be supple enough to flex with changes to evolving household structures and living patterns since their establishment, further prolonging their utility. Significantly, the city displays limited examples of row and terrace housing, which are more common in other Australian cities. In Adelaide, these typologies became difficult to achieve following the Municipal Corporations Act of 1880, which stipulated minimum allotment widths of 40 feet (12m) for public streets and 30 feet (9m) for private streets.²⁷

These factors of English inheritance, free settler history, perceived spatial freedom, material tastes and statutory obligation combine to explain the DNA building-blocks of Adelaide's highly identifiable suburban form, which sees a predominance of detached low-rise villas and cottages, constructed in brick and arranged in free-standing rows.

24 The impact of brick production on construction methods and tastes is also described by Archer in *The Great Australian Dream*.

25 Pikusa, *The Adelaide House 1836 to 1901*, 23.

26 *ibid.*, 65.

27 *ibid.*, 121.

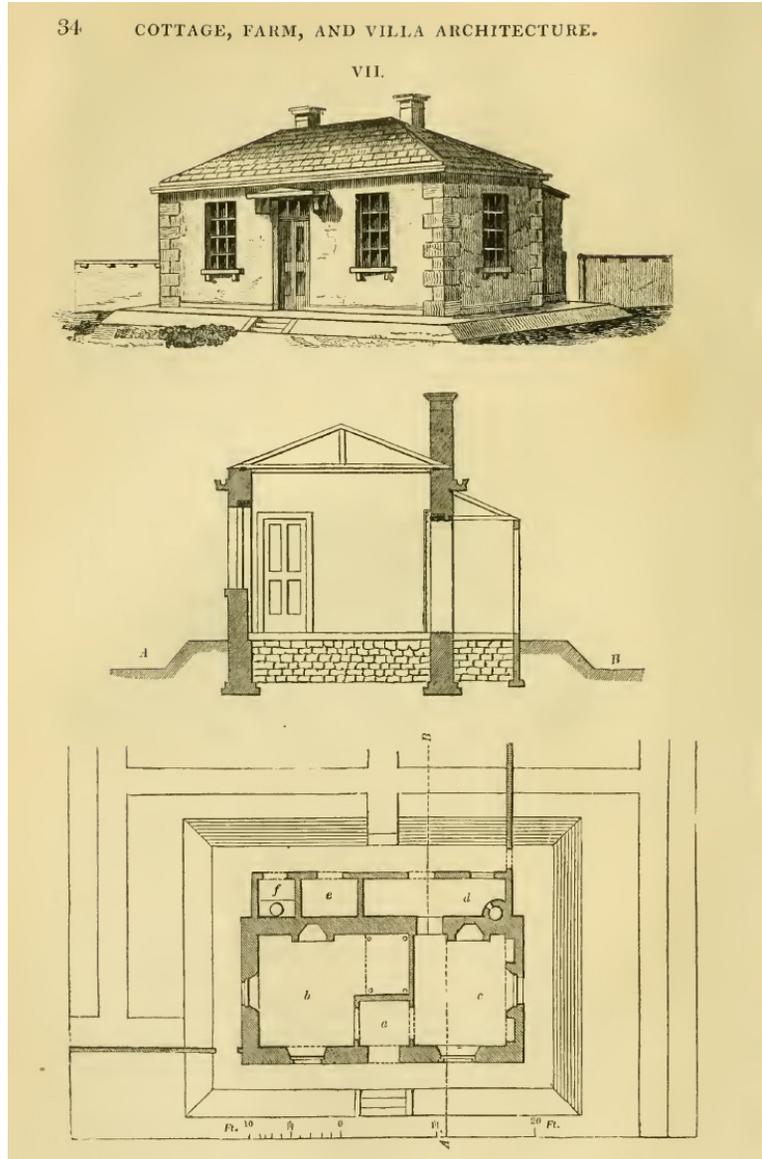


Figure 2.7
J. C. Loudon:
A pattern book two roomed
cottage with entry ante-room
and lean-to, 1833

source: *Loudon's Encyclopaedia*

2.2 Adelaide's Elusive Victorian Housing

A predominance of house type has not, however, resulted in a conclusive size or room proportion when attempting to identify and define Adelaide's early suburban housing, as although the lineage of villas and cottages can be explained, their creation has not resulted from a definitive identifiable pattern book. It is clear that such books existed in public and private collections of the time, were readily available to architects, builders and the general public and were no doubt significant in formalising and legitimising stylistic tropes.²⁸ However, while the character of the inner suburbs in one respect is readily present, an exact definition of the house types and their arrangement within precincts remains elusive.

In order to undertake systematic design testing of Adelaide's inner suburbs for this study, it has been necessary to establish housing patterns in the absence of recognised pattern books in use at the time these suburbs were established. It is clear from the predominance of cottages and villas and the similarities between them that their design and construction were formulaic and followed established modes of production. It has been identified that the Italianate style of villa was popular in England in Victorian times²⁹ and its influence can be seen in the pattern books of the time that might reasonably be expected to have been known to Adelaideans, such as Loudon's *Encyclopaedia of Cottage, Farm and Villa Architecture and Furniture* of 1833,³⁰ Robinson's *Designs for Ornamental Villas* of 1836³¹ and Kerr's *The Gentleman's House* of 1865.³² Figure 2.7 goes some way to describing the prevailing tastes present in the formative years of Adelaide-proper and its suburbs, although Kerr himself pointed to the limitations of pattern book development, stating that "[i]t is distinctly to be understood that these sketches are not offered as model plans. Such designs are never of any value; they appear to lack inevitably something like life, which a specific practical purpose alone can give."³³

- 28 Timothy Hubbard, "Towering Over All: The Italianate Villa in the Colonial Landscape" (PhD diss., Deakin University, 2003).
- 29 See, for example, English architectural historian Neil Jackson's thesis "The Speculative House in London c1832-1914" (PhD diss., Polytechnic of the South Bank, 1982), 155-62. Boyd also discusses the influence of the Italianate style on the Australian villa in *Australia's Home*. Many Adelaide Victorian-era villas, particularly later varieties and those of a more grand proportion, present much of this Italianate styling.
- 30 John Claudius Loudon, *An Encyclopaedia of Cottage, Farm, and Villa Architecture and Furniture* (London: Longman, Rees, Orme, Brown, Green and Longman, 1833).
- 31 Peter Frederick Robinson, *Designs for Ornamental Villas* (London: H. G. Bohn, 1836).
- 32 Robert Kerr, *The Gentleman's House: Or, How to Plan English Residences, from the Parsonage to the Palace; with Tables of Accommodation and Cost, and a Series of Selected Plans* (J. Murray, 1865).
- 33 *ibid.*, 437.

As described by Pikusa, a distinct lack of formal housing plans, elevations or sections in Adelaide's formative years is explained by the fact that up until the Building Act of 1881,³⁴ no formal drawings were required under any statute in order to gain approval for a building. Even then, this act only required drawings for sanitation purposes, resulting in simple line drawings that provided the minimum required information to describe the plumbing system and little of the house itself. This drawing phenomenon was similar in London in the late nineteenth century, where the only statutory requirement for building was to have the sanitary system approved by the local district surveyor.³⁵ It was not until South Australia's Building Act of 1923 that builders were required "to furnish Plans and to comply with certain Requirements" and provide Council's surveyor with

complete plans and working drawings of the erection, construction, or alteration of such building, which shall . . . show the position, elevation, form, and dimensions of the building, and several parts thereof . . .³⁶

By this time, almost 90 years after European settlement of Adelaide first began, the inner suburbs had been established and the inter-war styles of the gentleman's bungalow, mock Tudor, Spanish mission, Art Deco and English arts and crafts movement houses had grown in popularity.³⁷

Prior to this, the only pattern book recording distinctly Adelaidean examples is local architect Fredrick Dancker's 1904 *Modern Dwellings: 100 Selected Designs*, selected from his own body of work supplemented by English, European and North American examples.³⁸ With a distinct bias towards the picturesque, Dancker's designs are marketed towards bespoke forms, with higher levels of decoration and more articulated and complex planning than the traditional villa and cottage (Figure 2.8).

34 Parliament of South Australia, *An Act for Regulating Buildings and Party Walls in the City of Adelaide and Other Municipalities*, 1881. No. 208.

35 David Kroll, "The Other Architects Who Made London: Planning and Design of Speculative Housing c. 1870-1939" (PhD diss., University of London, 2013), 135.

36 Parliament of South Australia, *An Act to Consolidate and Amend the Law Relating to Buildings in the City of Adelaide and Other Municipalities and Districts, and for other purposes*, 1923. No. 1600.

37 Such stylistic periods have been commonly identified by Adelaide's local councils as part of their strategy to assist residents in understanding the local heritage of their suburb, as the City of Unley's "Appreciating Heritage and Character Dwellings: Design Guide 1," (Unley, South Australia: The City of Unley, 2008).

38 Fredrick William Dancker, *Modern Dwellings: 100 Selected Designs* (Adelaide: Webb and Son, 1904).

It is reasonable to assume in the absence of concrete data for Adelaide's formative villas and cottages that the design and construction of these simple and repetitive houses resulted not from the preparation of formal drawings, but by a tacit understanding of their makeup by both builders and owners (who in some cases would have been the same person). Formal design decisions therefore, were likely limited to discussions around room sizes, fireplace locations, the size and placement of utilities in the rear lean-to and the decorative facing and timber joinery to be applied to the façade, verandah and roof edges. What has been required for the sake of this design research, then, is a common measure of the villa and cottage in order to establish a usable suburban system; this has been undertaken using first principles, in what I describe as a set of *highly nuanced assumptions*.

Figure 2.8
Fredrick Dancker:
Adelaidean pattern book
villas, 1904

source: *Modern Dwellings*

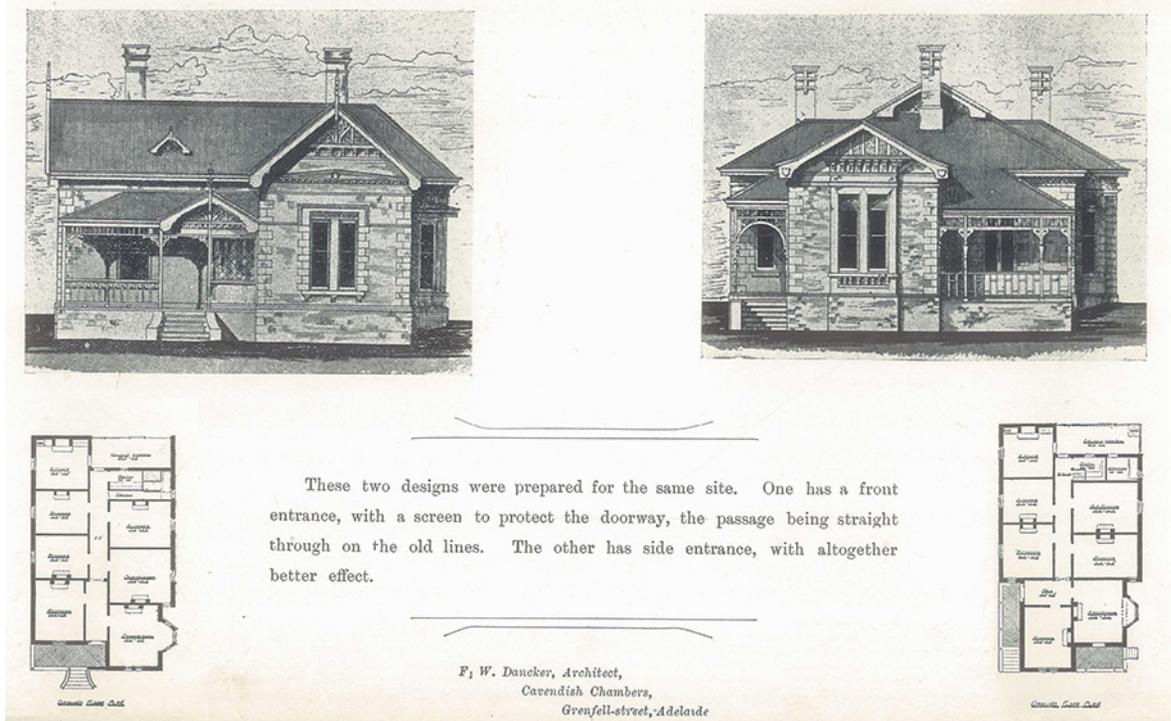


Figure 2.9

Return verandah villa, Rose Park.
 The street is to the right hand side of the plan. The extension of the verandah to one side steps the hallway and creates asymmetrical rooms.

source: www.realestate.com.au/property-house-sa-rose+park-122708930, accessed 22/5/16

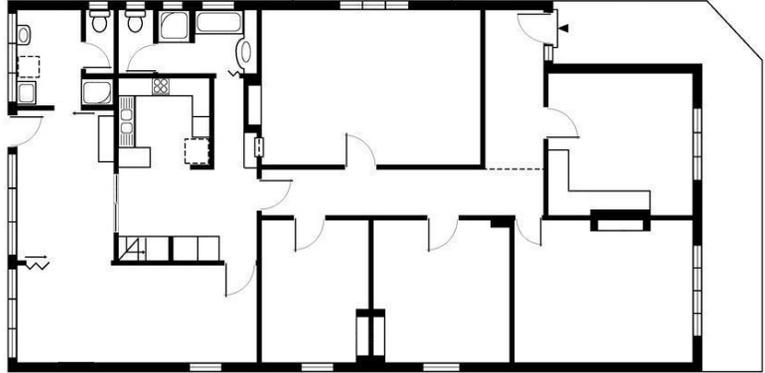


Figure 2.10

External 280mm cavity brick wall in a Forestville cottage, exposed after the demolition of the lean-to. The remnant timber dado course marks the line under which the lean-to roof connected to the house-proper, while the back wall of one of the rear rooms is made evident by the smooth hard plaster, painted white. The line where the paint finish ends marks the ceiling level of the lean-to.



2.3 Highly Nuanced Assumptions

Rose Park, as an early and largely intact inner-Adelaide suburb, provides a stable testing ground for the establishment of raw data for villas and cottages and their siting strategies. Although variants to the two standard house types of cottage and villa occur, most notably in the arrangement of return verandahs, side entries and projected side bays (Figure 2.9), the intact nature of the suburb lends itself to use as a measure by which standard room sizes, configurations and heights might be determined.

Notwithstanding the vagaries of any form of established pattern book already discussed, what there is a direct measure of is the building fabric of early houses. Pikusa has identified that up until 1890 the standard hand-made brick used in Adelaide was approximately 225mm long x 105mm deep x 65mm high; a match to the traditional London brick, allowing interchangeability between locally made and imported materials. With the advent of the Hoffman machine-made brick process, introduced in the 1890s after ten years of prior use in Melbourne, brick sizes shifted to the standard still in use today: 230mm long x 110mm deep x 76mm high. Laid from the late 1890s onwards as a double skin cavity wall externally, outside walls became generally standardised at 11 inches (280mm) thick: two layers of 110mm bricks separated with a 50mm cavity, with the internal leaf receiving a 10mm hard plaster finish. Internally, walls were of a single brick leaf and plastered each side, resulting in a thickness of 130mm.³⁹ These Hoffman brick measures have been used in this study, as they are more typical of the construction of remnant villas and cottages (Figure 2.10).

Three standard plan forms have been adopted for the study: one for a symmetrical cottage and two for the projected bay villa - the two villas being mirror images of each other to suit

³⁹ Pikusa, *The Adelaide House 1836 to 1901*, 61-63.

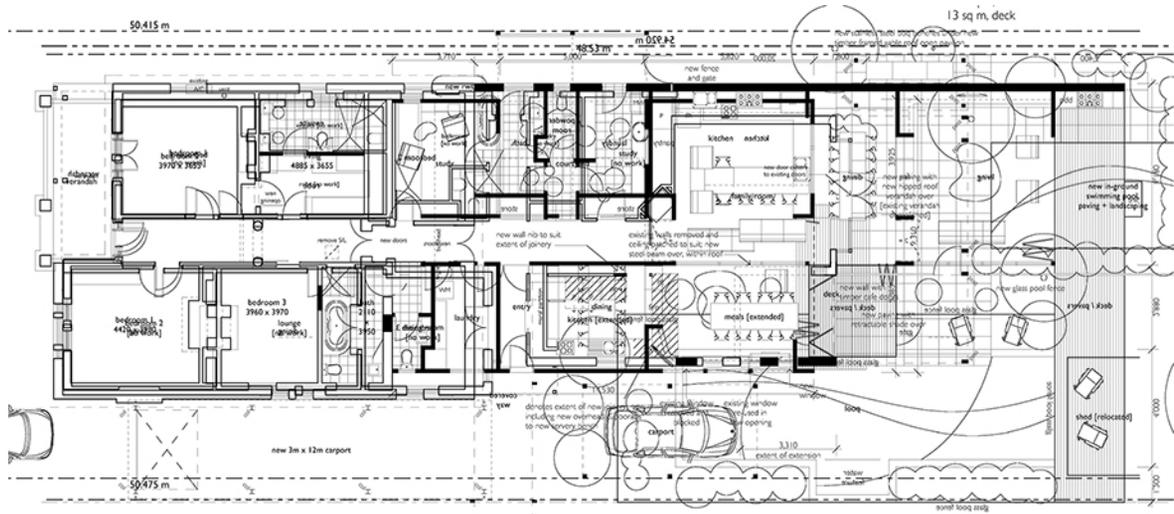
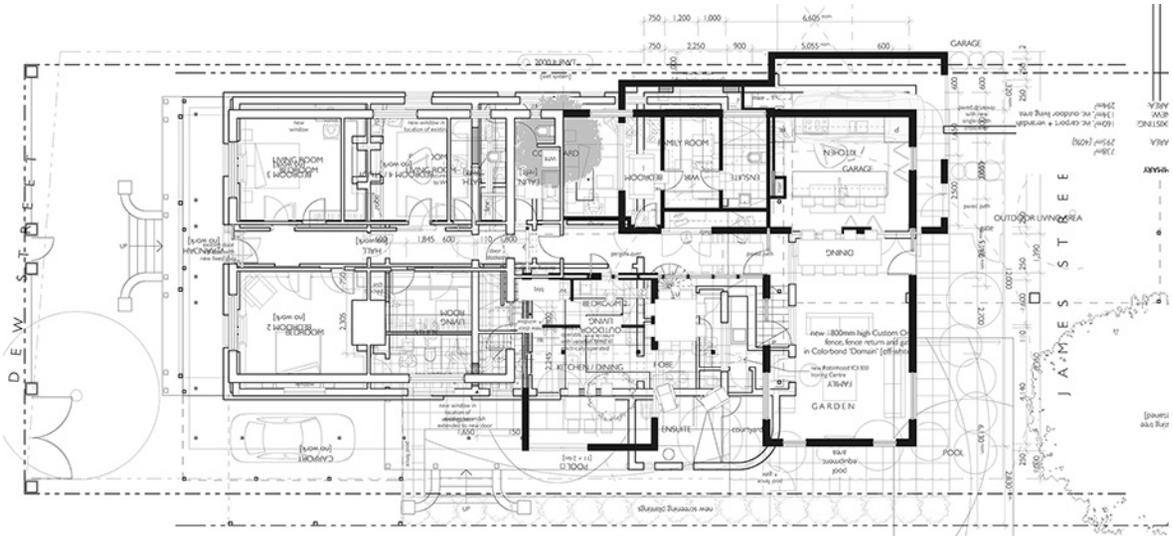


Figure 2.11
 Villa overlays
 (refer appendices)

the projecting bay being either left- or right-handed. Both the plan forms and room sizes have been determined as amalgams of floor plans from my practice in various suburbs of Adelaide combined with floor plans sourced from real estate listings for Rose Park and its adjacent suburb, Toorak Gardens.

When the floorplans from my professional practice are oriented the same way and overlaid, what becomes apparent is the similarity between the make-up of the houses, illustrated for the villa in Figure 2.11 and for the cottage in Figure 2.12. Differences in overall size are clearly evident, but these scalar changes do not alter the overall pattern evident in the type: each house scales up or down proportionally. In both the villa and cottage forms, regardless of the house size, verandahs are commonly either 1.5m (5 feet) or 1.8m (6 feet) deep, the latter dimension reflective of the maximum corrugated iron sheet



length available at the time and buildable without additional intermediate framing.⁴⁰

Figure 2.12
Cottage overlays
(refer appendices)

Together, these sample plans have formed a benchmark for determining what is considered to be a typical villa or cottage for the purposes of this study. It is important to note that early colonial two roomed variants with simple hipped roofs running along the width of the house survive in a similar form to Loudon's pattern book version described by Figure 2.7 on page 62, but not in large numbers and often with such extensive additions that the original form is rendered difficult to recognise. Additionally, larger six roomed types are common, with roof bays extruding in an M-form down the length of the house. However, the four roomed house predominates much of inner-Adelaide and is often in direct relationship to the transit corridors discussed in Chapter 1. For these reasons, the villa and cottage form the focus of this study.

⁴⁰ This material characteristic is observed by Pikusa, *ibid.*, 65.

In order to mitigate the potential risk associated with translating the theoretical design investigations of the study to real scenarios for a particular site, the prototypes err on the side of caution and use the smallest identified room sizes. This has been done on the premise that this presents the most difficult scenario in which to undertake design experiments, with the understanding that application elsewhere should become exponentially easier as room sizes increase in real-world project-based scenarios.

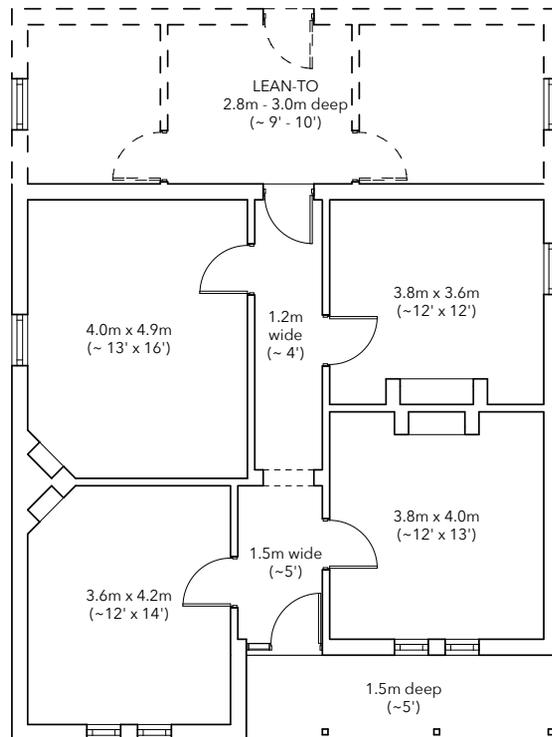


Figure 2.13
Villa working assumptions: plan



Working assumptions for a villa are shown in Figure 2.13 and for a cottage in Figure 2.14. Fireplaces can be found centred on internal walls or in the corner of a room, as indicated on the floor plans.

There appears to be no pattern to this positioning and it is not uncommon to find both forms within the one house, and this condition is included in the villa plans.

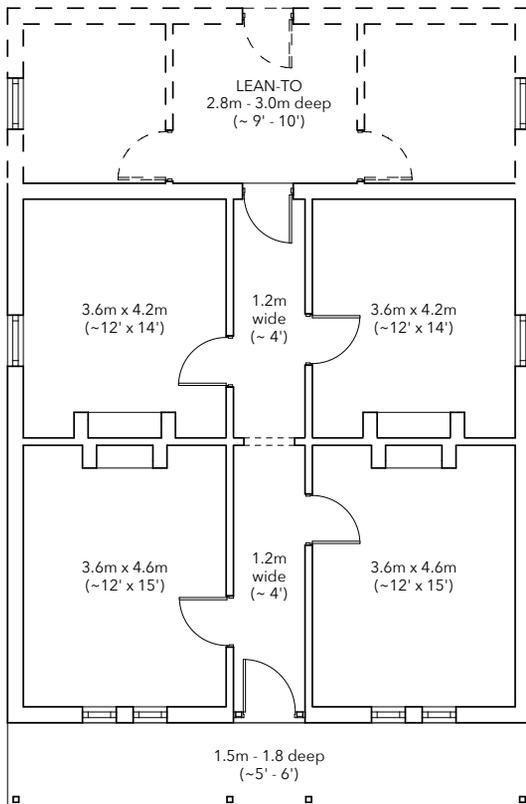


Figure 2.14
Cottage working assumptions: plan

Formally, these houses can be more difficult to define into one simple type, with roof orientation and pitch, fenestration, verandah forms and eaves heights varying over time and across precincts. Data has again been collected from my professional practice work and supplemented with fact sheets for residents provided by the City of Unley.⁴¹ Formulated into a template style to match the floorplans, these are presented for the villas in Figure 2.15 and for the cottage in Figure 2.16. Roof forms generally present as a Dutch gable running either parallel or perpendicular to the street, with no predominance of one over the other and with neither form presenting a discernable spatial or functional advantage (illustrated by Figure 2.17 on page 74).

41 "Appreciating Heritage and Character Dwellings: Design Guide 1."

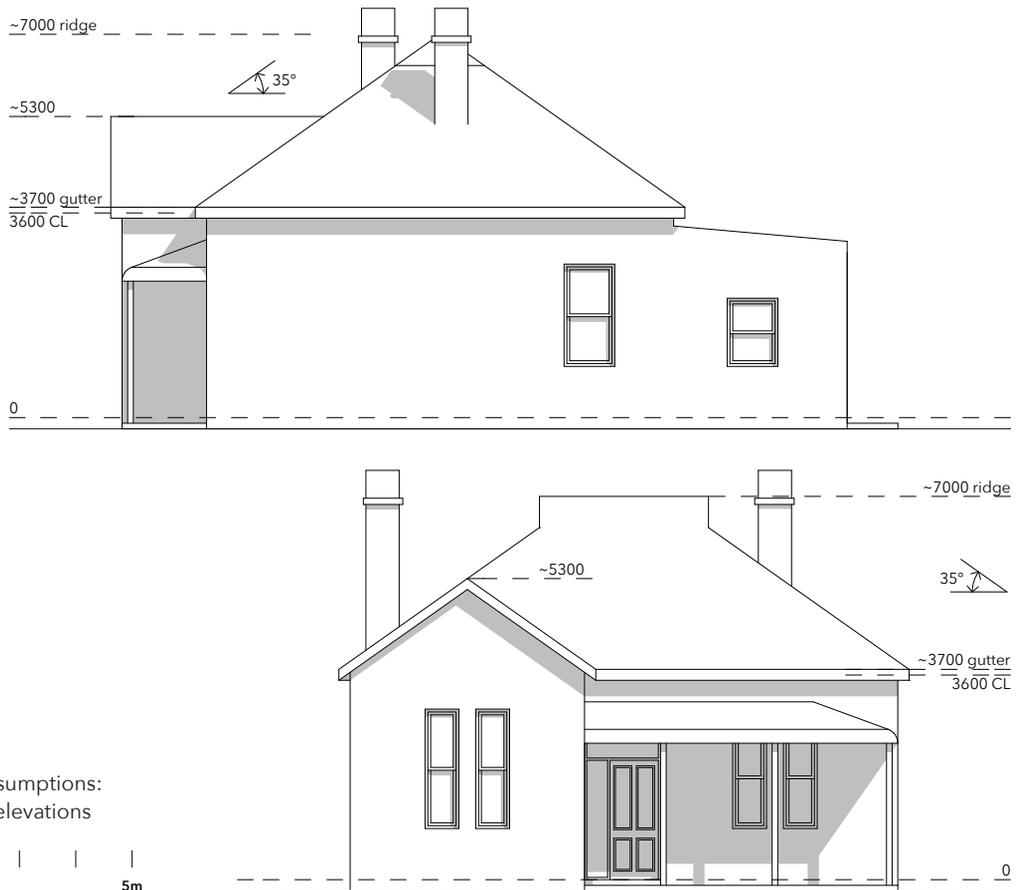


Figure 2.15
Villa working assumptions:
street and side elevations

Chimneys can be either inboard from the edge of the roof or projecting through the eaves, as dictated by the alternative fireplace locations discussed above. Windows are generally singular when in a side or rear wall, but in the street elevation are regularly split into two narrower panes separated by a thin masonry mullion. Eaves heights vary, but not enough to record these discrepancies, and verandahs - which can be formed as a simple extension of the roof, particularly in early examples - are most commonly evidenced as separate constructions under the eaves line. Formed in a straight pitch, in a concave eyelash form or as a convex bullnose, the bullnose verandah form is illustrated as it is the predominant type.

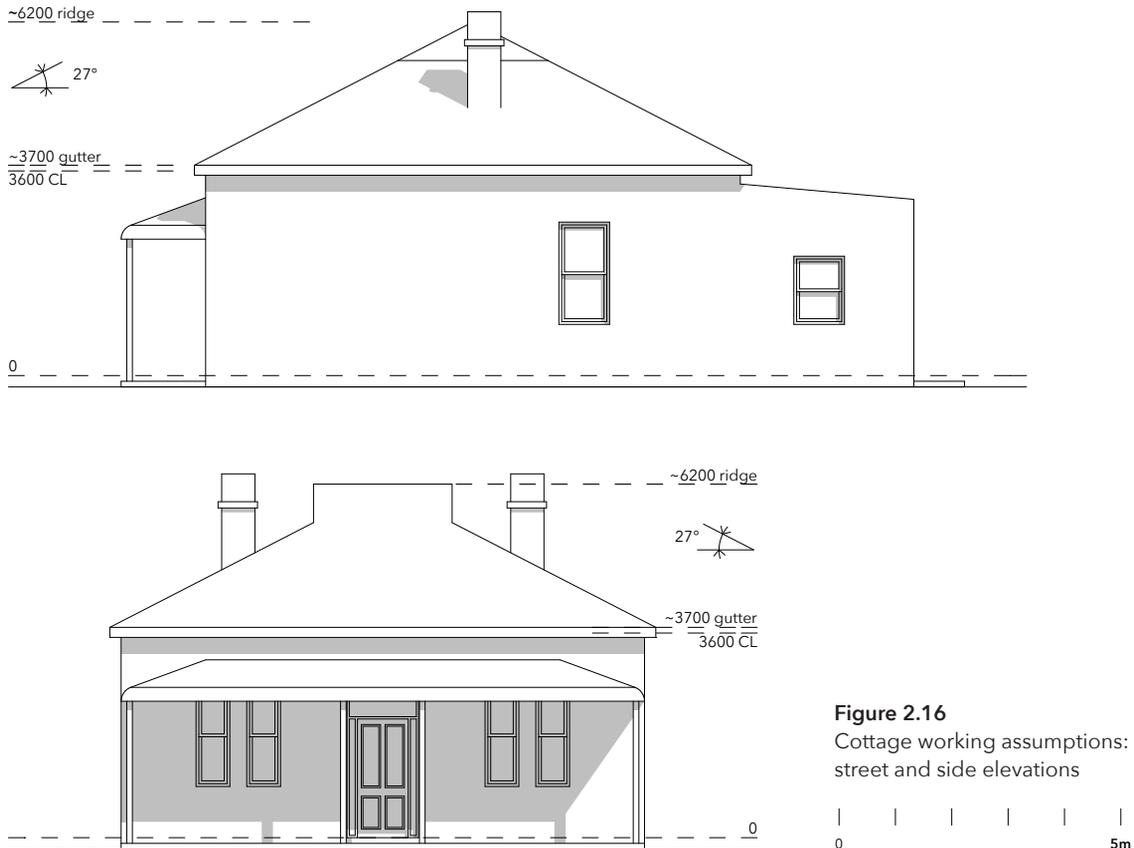


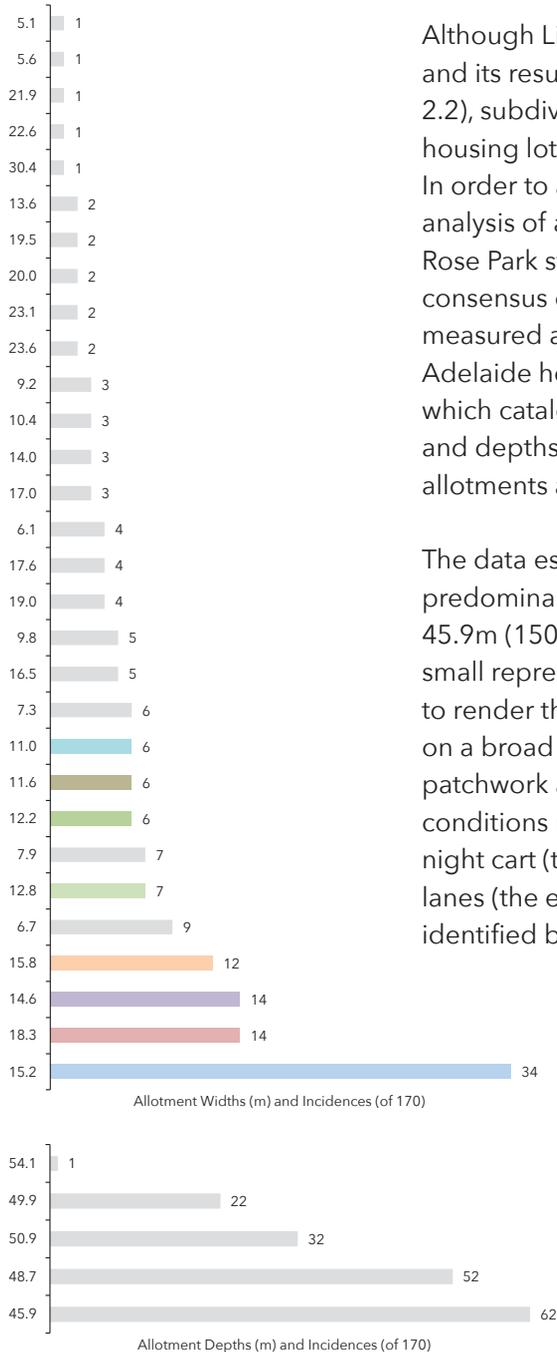
Figure 2.16
Cottage working assumptions:
street and side elevations

Figure 2.17

Cottage roofs viewed from the rear, Norwood.
The orientation of the Dutch gable presents as a stylistic choice with no obvious advantage or disadvantage. The cottage on the left has had its lean-to replaced with a larger masonry version while the cottage on the right retains its original lean-to, supplemented with a simple shed-like laundry addition. Although single storey, the significant vertical scale of the houses is evident when viewed relative to the human scale, emphasised by the presence of a set-down to the garden.







Although Light's plan for Adelaide is orthogonal in its logic and its resultant initial allocation of parcels (refer Figure 2.2), subdivision has not resulted in uniformity of individual housing lots, although there are consistencies within precincts. In order to attempt to describe a typical allotment type, analysis of a sample of 170 residential allotments across the Rose Park study area has been undertaken so as to form a consensus of data. Allotment widths and depths have been measured and collated in an attempt to describe a 'typical' Adelaide house site. This data is illustrated in Figure 2.18, which catalogues allotment sizes according to their widths and depths as separate measures, and in Figure 2.19, where allotments are collated by their width and depth together.

The data establishes that in this particular precinct, the predominant allotment size is 15.2m (50 feet) wide by 45.9m (150 feet) deep, however even within this relatively small representative sampling there are enough anomalies to render this information interesting, but not overly useful on a broad scale. Figure 2.20 on page 78 illustrates the patchwork arrangement of allotment sizes, rear boundary conditions relative to the presence or otherwise of an early night cart (toilet waste) lane and the existence of carriage lanes (the early forms of what we today call driveways, as identified by Warburton).

Figure 2.18

A sampling of Rose Park allotment data showing the variety of allotment widths (top) and depths (bottom), relative to the incidences of each

(data count is rounded)

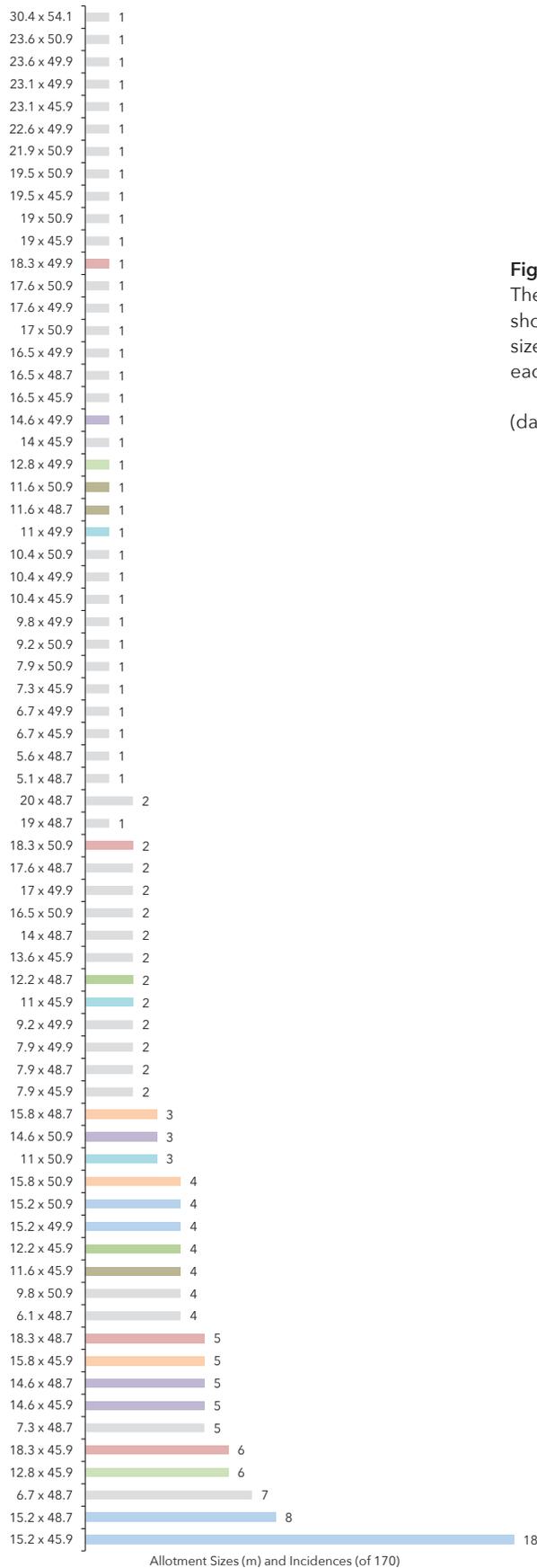


Figure 2.19

The same Rose Park allotment data showing the variety of allotment sizes relative to the incidences of each

(data count is rounded)

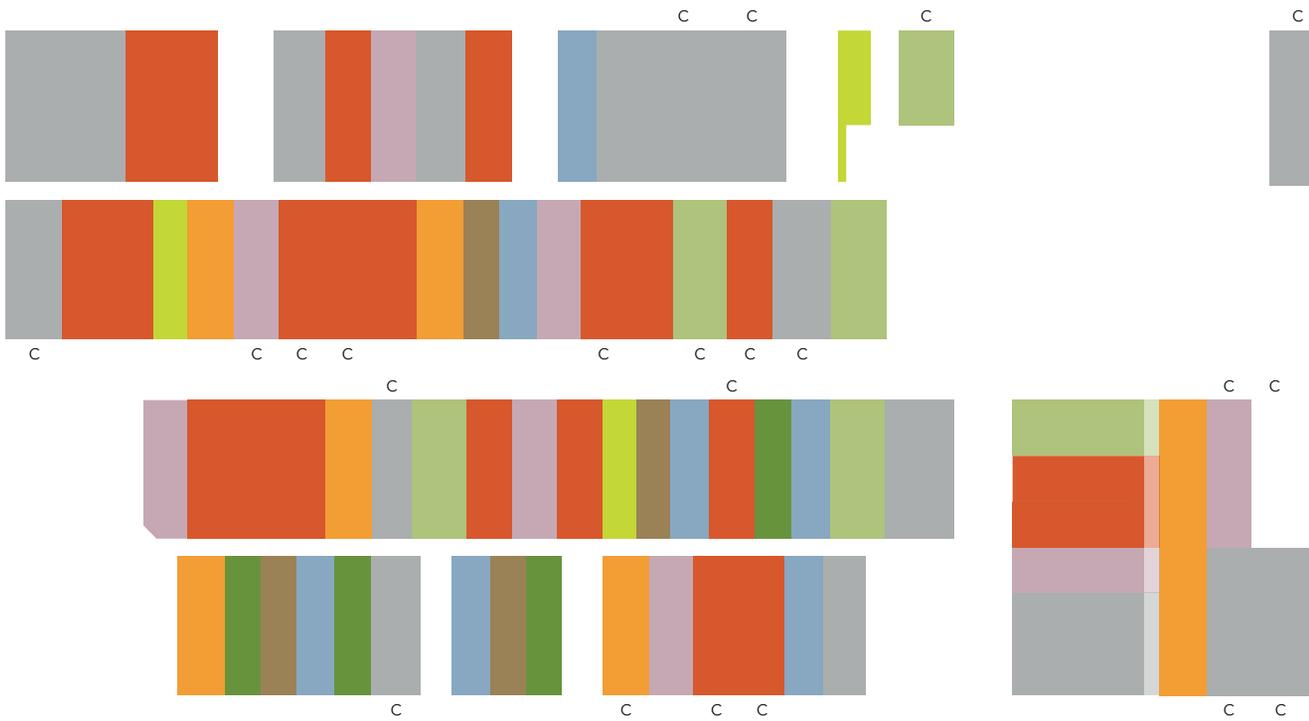
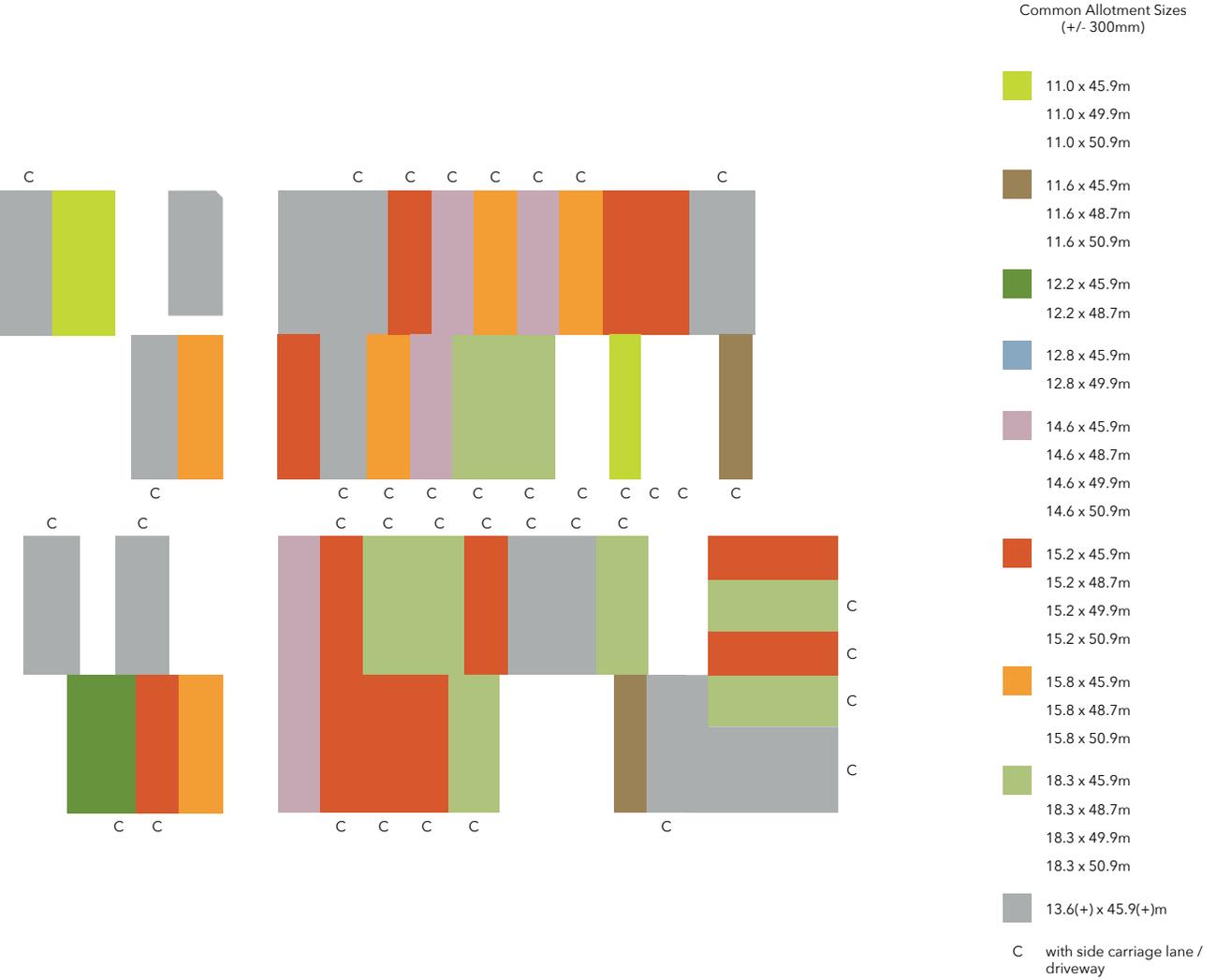


Figure 2.20 (this and facing page)
 The Rose Park study area mapped by allotment size, with 'C' denoting the existence of a carriage lane. Although one of Adelaide's earliest suburbs with little organisational change since its development, the identified variances in site size display a patchwork of allotments in spite of Light's highly ordered plan for the city's suburbs.



What has proven to be far more useful for this study however, is an alternative approach to site analysis which sees common walkway and carriage lane widths determined. This has been achieved by measuring the distances between the side walls of the houses and their fences, resulting in common walkway widths of 0.9m (3 feet), 1.2m (4 feet), 1.5m (5 feet) and 1.8m (6 feet). Carriage lanes, whilst measured as narrow as 3.2m and as wide as 5.4m are commonly around 3.6m (12 feet). When combined with the data established for the houses, these site measures can be described by Figure 2.21 and Figure 2.22. Furthermore, when the nuances of walkways, carriage lanes, night cart lanes and rear boundary alignments are taken into consideration, the siting combinations can be described at a meso scale, as illustrated by Figure 2.23 on page 82 to Figure 2.26 on page 83.

The purpose of this analysis is to provide generative design tools. The effect of this is discussed in Chapter 3 in the context of design testing undertaken by others using this base data as an established framework. Its ambition is to simplify what has otherwise been made complex by the aggregation of building, landscape and activity over time in order to see the base conditions afresh. The material presented here will never be precise and relies on assumptions and generalisations, but that is its demystifying and therefore unifying role. The ambition is for the diagrams of the 'typical' to be both consistent- and accurate-enough to enable utility and reliability in the design work that follows and for use in design work by others outside this study if desired. Importantly, this analysis, coupled with the mode of its presentation, is a means by which to step away from the nuances of an individual house and site in order to test design possibilities more broadly at larger territorial scales than the single house on a single allotment; the focus of the work discussed in Chapter 3. It is a means by which to temporarily remove the visual layers of character and the idiosyncrasies of a particular precinct in order to explore new opportunities.

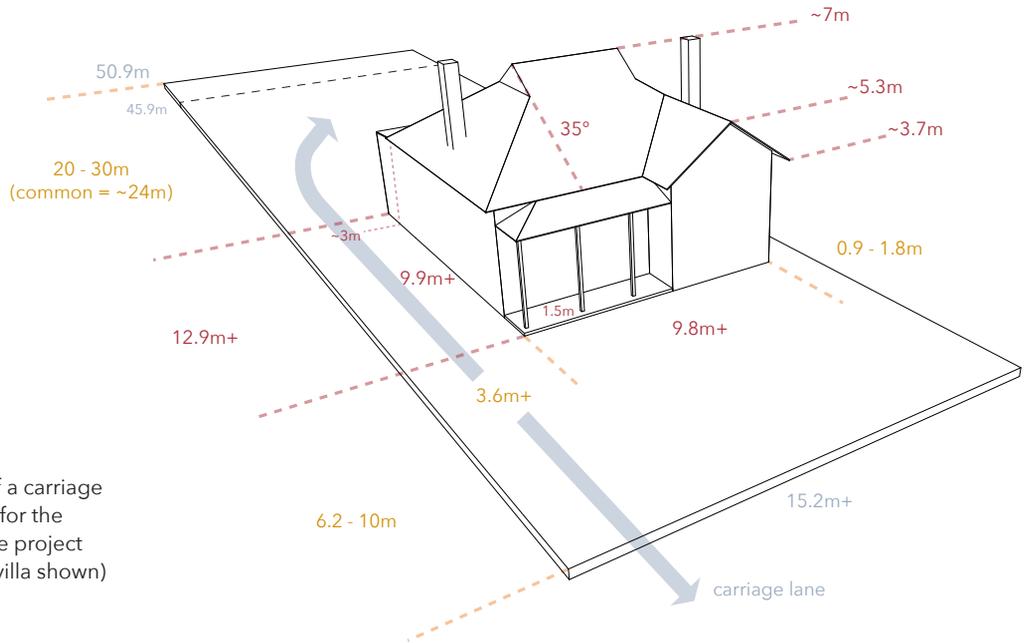


Figure 2.21
Morphology of a carriage lane allotment for the purposes of the project (right handed villa shown)

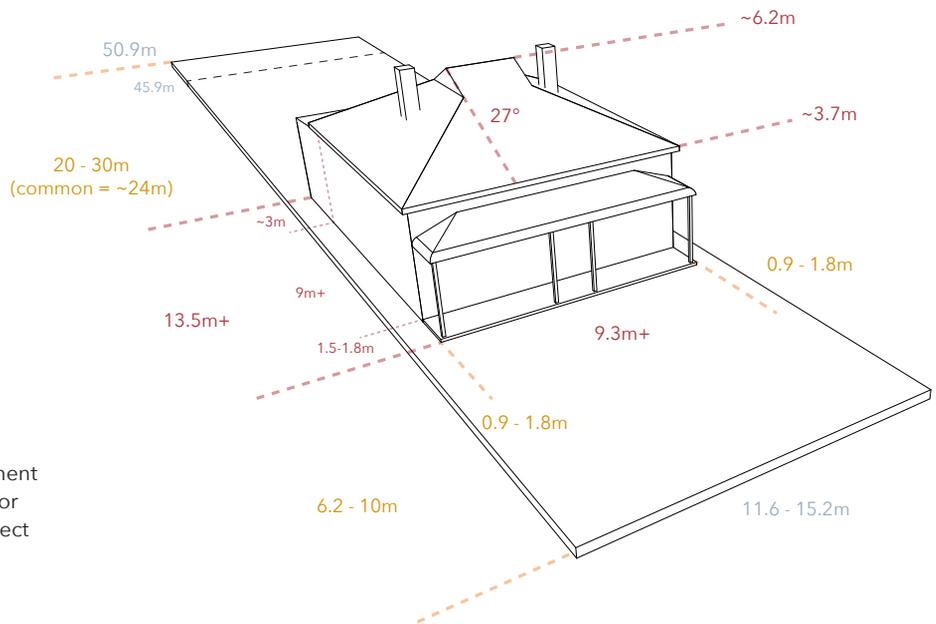


Figure 2.22
Morphology of an allotment without a carriage lane for the purposes of the project (cottage shown)

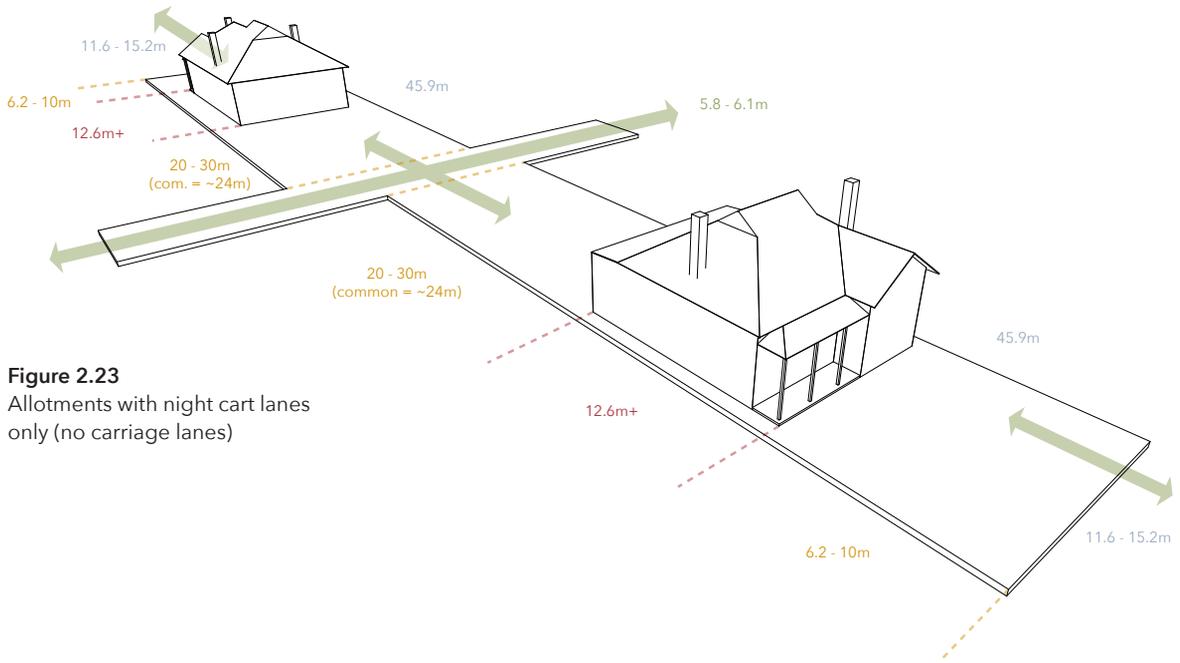


Figure 2.23
Allotments with night cart lanes only (no carriage lanes)

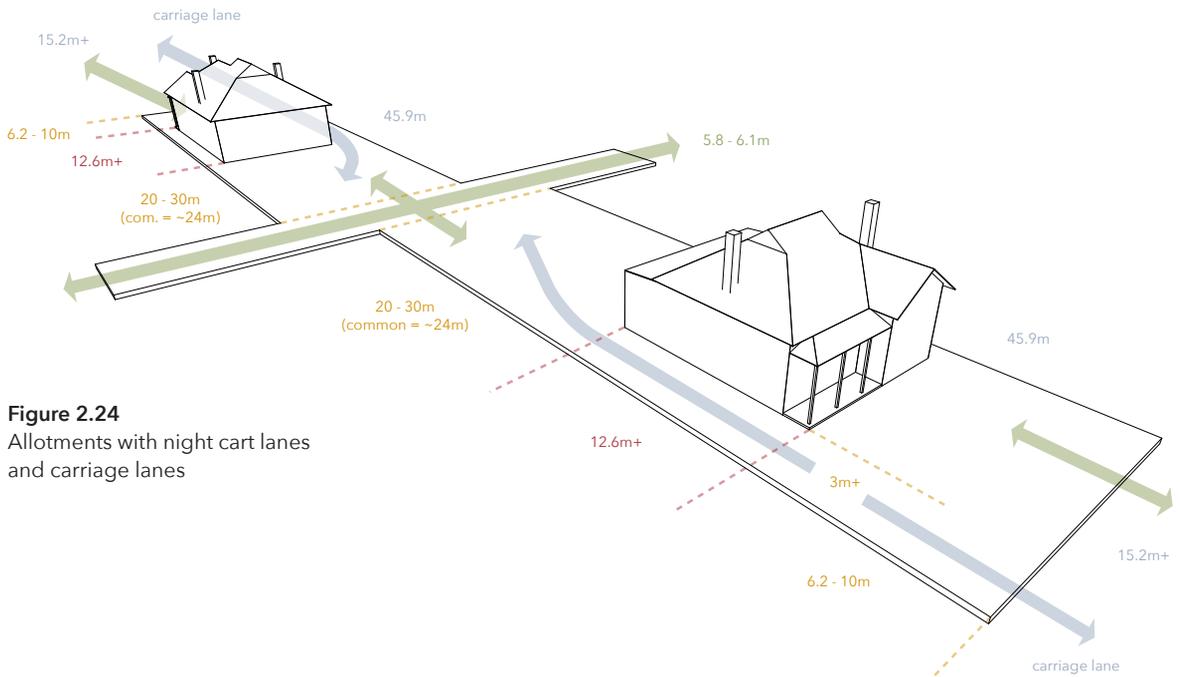


Figure 2.24
Allotments with night cart lanes and carriage lanes

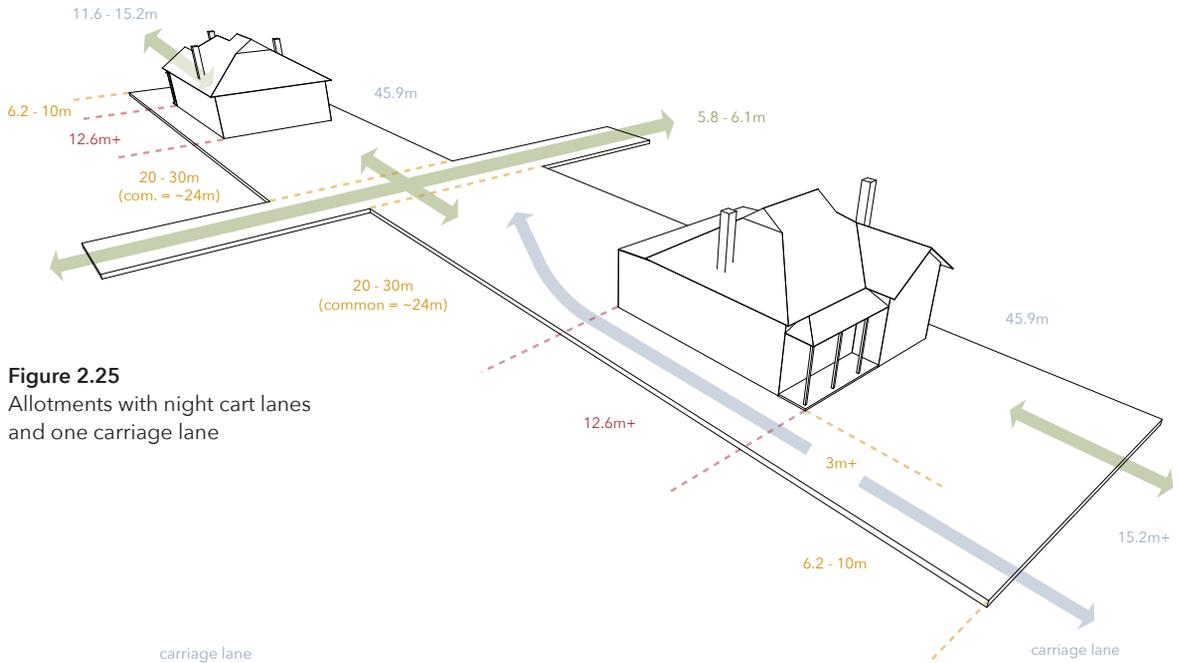


Figure 2.25
Allotments with night cart lanes and one carriage lane

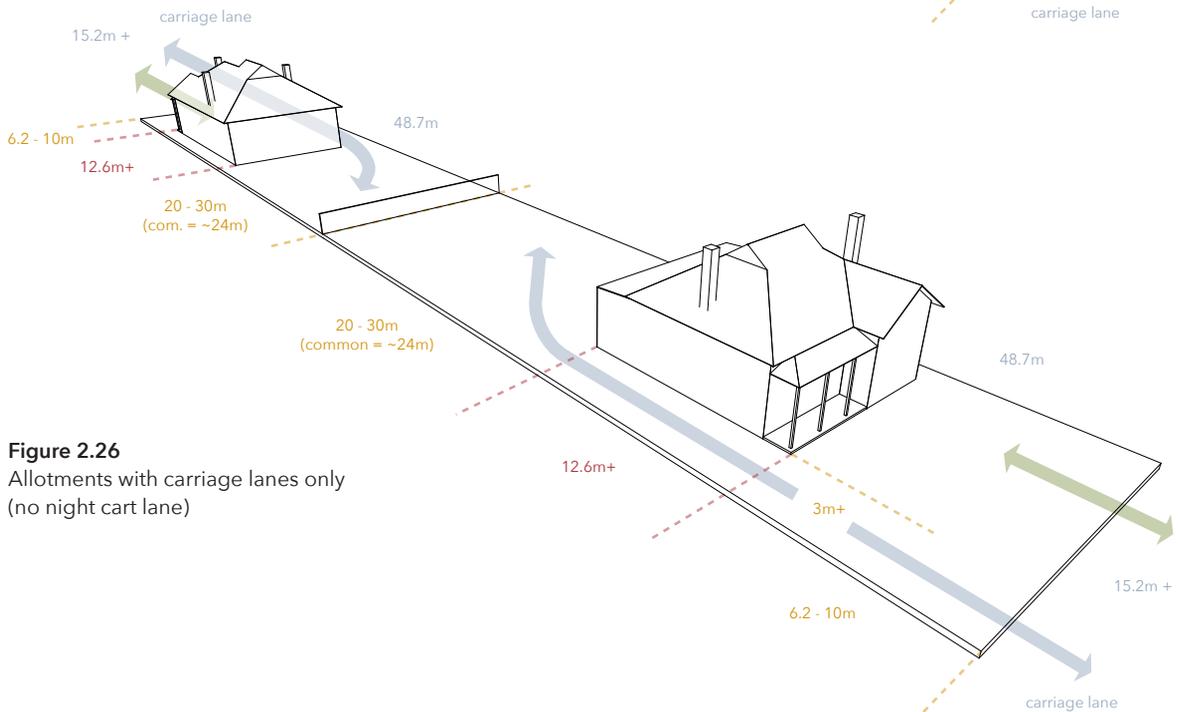


Figure 2.26
Allotments with carriage lanes only (no night cart lane)

2.4 On Ubiquity

This method of description, where the houses are diagrammed in a typical layout and at the small end of the sizing scale, enables individual allotment sizes and setbacks to be applied relative to local conditions. Once front, side and rear setbacks are established for a particular site, the rooms of the typical villa or cottage can be expanded to fill the vacuum, with the overall house size increasing to suit the local conditions. To have broad applicability, however, the patterns established in this analysis must be observable beyond the initial study area into other parts of the city, which they are.

To illustrate this condition, projects have again been drawn from my professional practice, the locations of which see them, in general terms, represent precincts throughout the Inner Metropolitan Growth Area. This is illustrated by Figure 2.27, which plots the projects' locations and uses only projects that have a four roomed dwelling as their base form. Floor plans for each project are included in the Appendices for reference.

While the mapping demonstrates case studies on all four sides of the city centre, there is a clear bias to the east and south, although this is indicative only of a particular client base and not of any larger suburban pattern that would suggest strong villa and cottage morphologies do not exist north and west of the city. When viewed in the greater context of their neighbourhood blocks, these projects bear witness to Adelaide's predominant inner-suburban conditions (Figure 2.28).

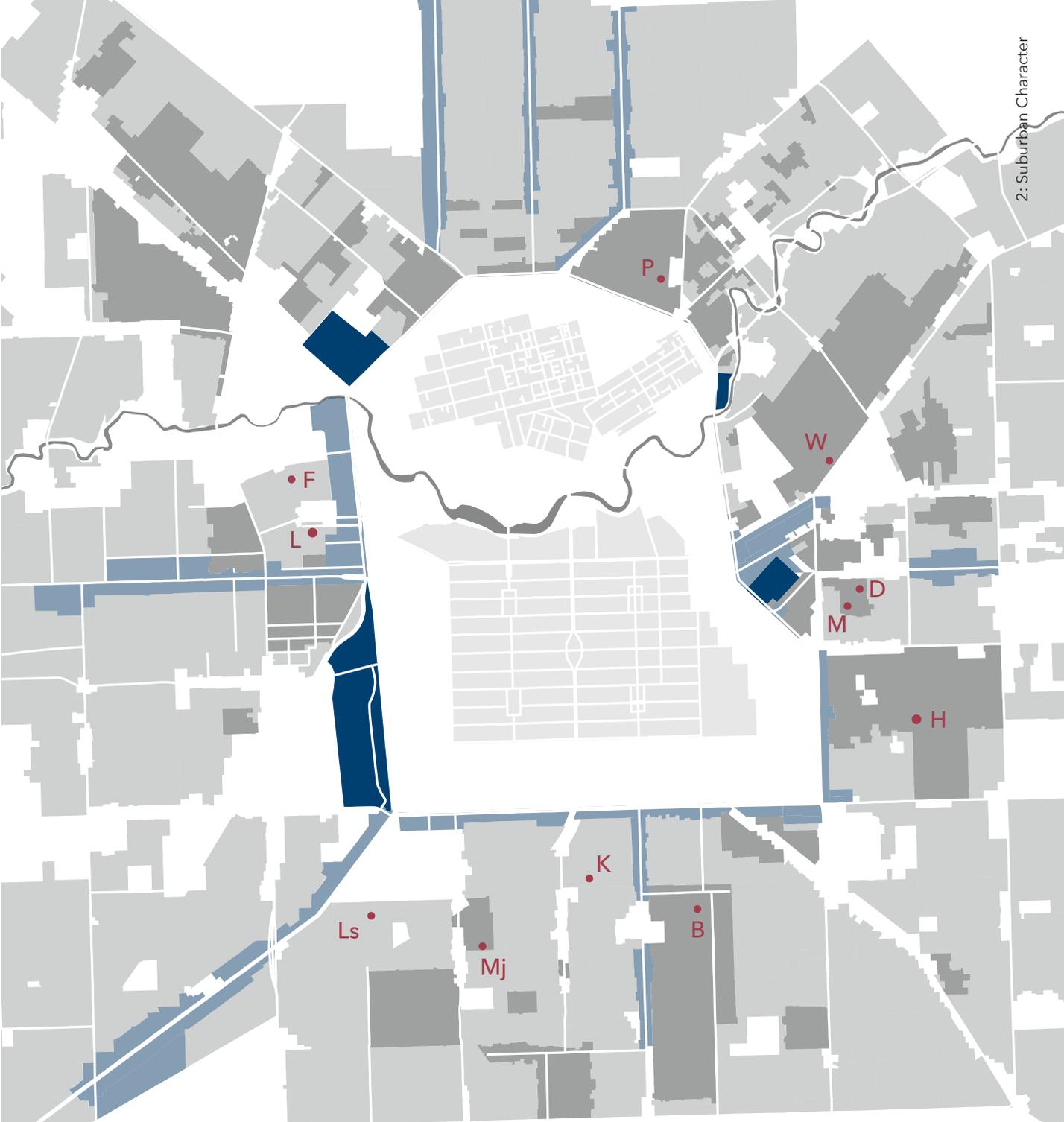


Figure 2.27 (above)
 Adelaide's Inner Metropolitan Growth Area Map with Madigan Architecture villa and cottage projects plotted

Figure 2.28 (over)
 The twelve projects arrayed as a ubiquitous suburban field.
 Source: Google Earth (modified)

• Wi



Alternative In fill

House L, Thebarton



House F, Thebarton



House Ls, Forestville



House K, Hyde Park



House Wi, Colonel Light Gardens



House Mj, Goodwood



House P, Medindie



House W, Payneham



House M, Norwood



House D, Norwood



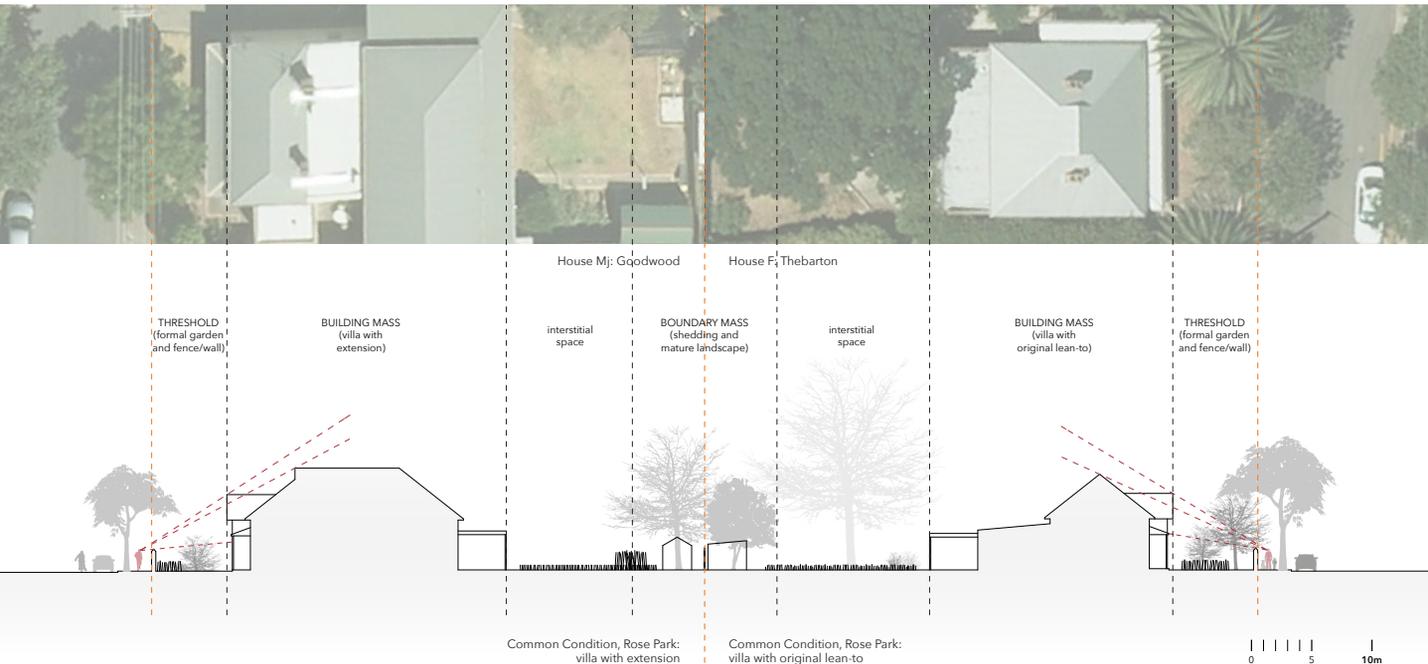
House B, Unley



House H, Rose Park

Furthermore, comparisons can be made at the scale of the allotment. The diagram of Figure 2.29 is an exercise in directly comparing the Rose Park Study area to two of the practice case studies. The drawing in the bottom of the figure is a profile outline cutting through two randomly selected typical Rose Park back-to-back allotments from Swaine Avenue on the left to Grant Avenue on the right. The house on the left is a left-handed projected bay villa, the roof of which has been extended to house later additions and a pergola. The house on the right is a right-handed villa, the lean-to of which has been retained and subsequently added to under an extended lean-to roof.

Figure 2.29
Suburban alignments:
ubiquitous conditions
across three suburbs



Each house, left and right, is then directly aligned with a practice case study from Goodwood in Adelaide's south and Thebarton in the west, respectively. The Goodwood house is a former two roomed symmetrical cottage with a large addition behind the lean-to and an ensuite pod attached to the side, whilst the Thebarton house is a four roomed cottage with its original lean-to intact and no additions.

Guide lines have been overlaid to align the boundaries and identify key site and building features. Evident in the drawing are the similarities in allotment depths, building setbacks and building mass. Significant is the general pattern observed, which sees formal gardens acting as thresholds to the street, additive building masses occupying significantly increased depth to the foundation conditions of the original house, collections of shedding and trees on the rear boundary lines and interstitial spaces at the rear of houses that are variously filled at the owners' discretion, but generally are of similar sizes.⁴²

Returning to the Rose Park study area and looking across the boundaries of the Inner Metropolitan Growth Area, the present-day settlement pattern illustrated in Figure 2.30 on page 90 can be compared with that of the foundation conditions of Figure 2.31, where all later additions to the original housing are removed to reveal the original housing pattern. Together, these observations speak to an understandable and ubiquitous pattern across inner-Adelaide that, whilst different to the foundation conditions of these early suburbs, have developed in a complementary manner across suburbs; a memetic shifting of built and occupational character over time.

42 Notions of consistency and patterning at the broader scale of the neighbourhood block or precinct are important to the work of this thesis only to the extent to which they establish a repeated morphology across suburbs. This is not to imply that such patterns fail to produce their own larger-scaled formal and social character traits that result from such consistency, as identified by Gandelsonas' discussion of the effects of the 'continental grid' in *X-Urbanism: Architecture and the American City* (New York: Princeton Architectural Press, 1999).

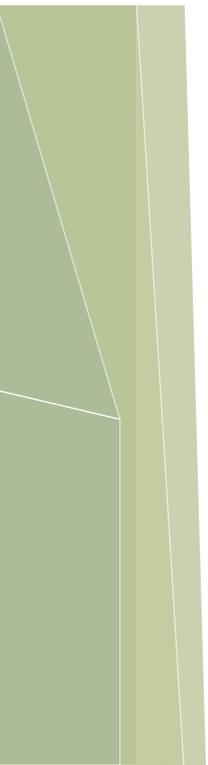


Figure 2.30 (above and facing page) Foundation conditions

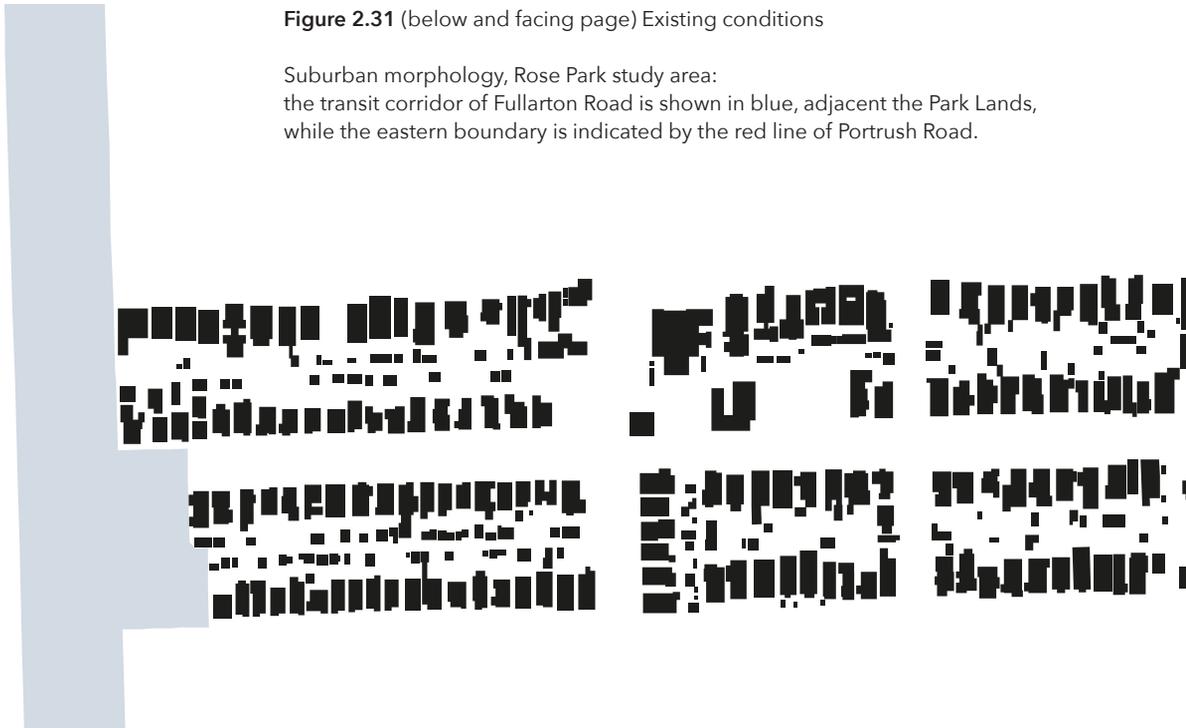
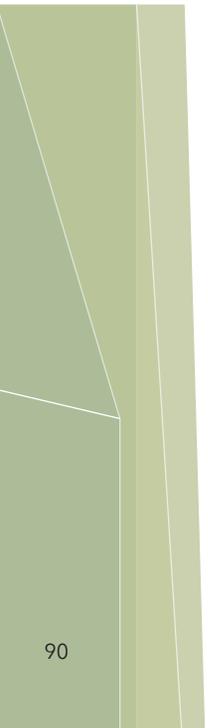
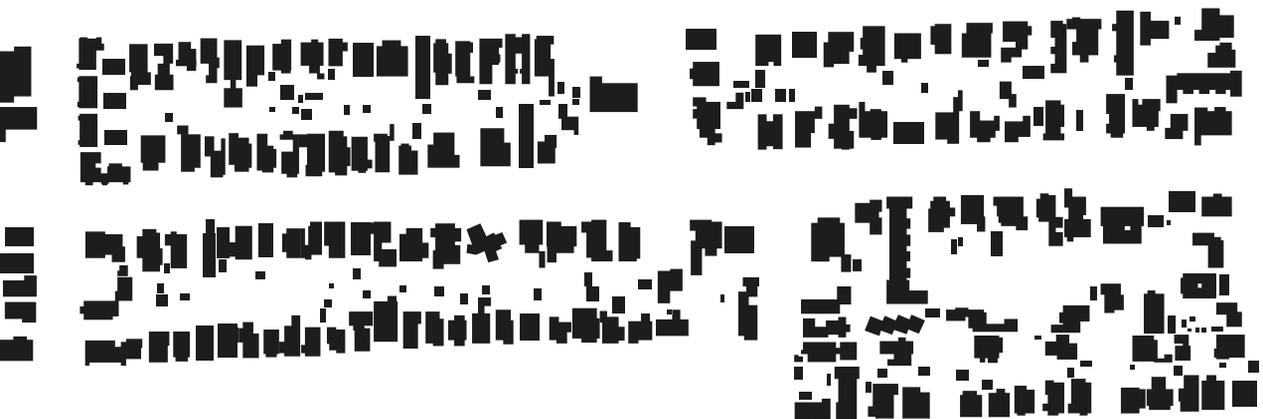
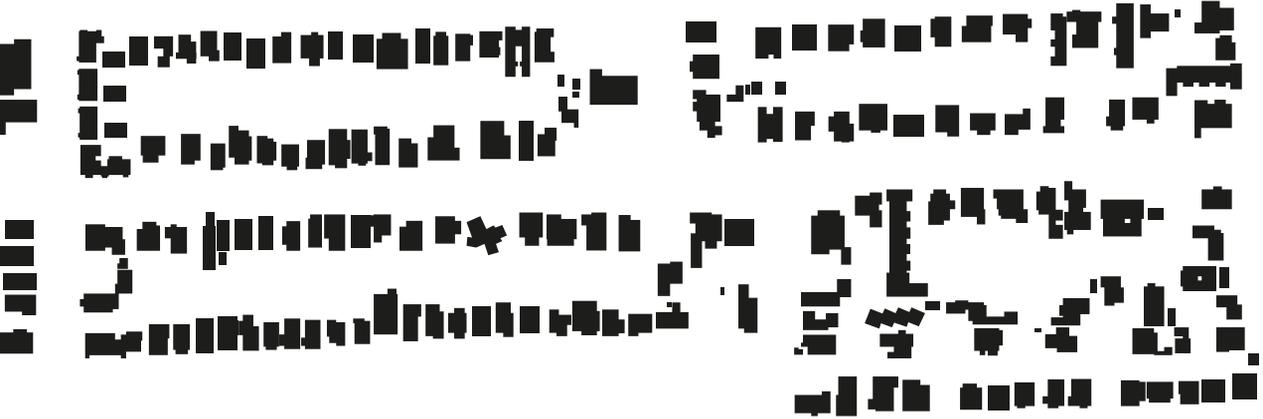


Figure 2.31 (below and facing page) Existing conditions

Suburban morphology, Rose Park study area:
the transit corridor of Fullarton Road is shown in blue, adjacent the Park Lands,
while the eastern boundary is indicated by the red line of Portrush Road.



INNER METRO GROWTH AREA BOUNDARY

INNER METRO GROWTH AREA BOUNDARY

2.5 On Character

When evaluating the merit of the heritage or character value of a building or place, subjective perception and hard objective data are not always compatible measures. Upon commencing work as an architecture graduate in the late 1990s, one of my first major projects was the undertaking of a heritage survey of towns of the upper-north of South Australia for the (then) State Government Department of Environment, Heritage and Aboriginal Affairs. This required assessing buildings for retention on, or removal from, the existing heritage register and for the identification of previously unlisted items that might be considered for inclusion. For each case, a written argument was put forward to the Department for consideration, accompanied by a verbal presentation of the findings. As such, the process required documentary evidence supplemented by a discussion of each case in hand.

One of the buildings I remember most vividly from that study was also one of the most unassuming - a small (former) Country Women's Association meeting hall in Terowie (Figure 2.32). Located 225km north of Adelaide, Terowie was a pivotal rail town up until the 1970s, and during World War II it served as a hub for the transportation of troops and supplies where the narrow and broad rail gauges met. Because of this change of gauge, the town served as a significant rest spot for train travellers, made notable in 1942 for being the site of American General Douglas MacArthur's "I shall return" speech, as he stopped at the station to change trains and address the media regarding his withdrawal from the Battle of the Philippines.⁴³ Terowie's heritage as a rail town and the character of activity associated with the enterprise of railways could be read as a continuum over time as well as in relation to a singular recognized event.

43 Peter Bell, *The Heritage of the Upper North: a Short History*, (Adelaide: Professional Historians Association (South Australia), 1998), 30, accessed March 12, 2016, <http://www.sahistorians.org.au/175/documents/the-heritage-of-the-upper-north-a-short-history.shtml>.



Figure 2.32
Terowie CWA

source: (creative commons)
en.wikipedia.org/wiki/Terowie,_South_Australia,
 accessed 14/12/15

I most clearly remember the small former CWA building not so much for its architecture or setting, but for the awkward narrative I used when advocating for its heritage listing and for the speed with which the Department subsequently rejected the proposition. My sense with this building was that it seemed a natural fit for its prior occupants – that is, I felt that it *looked* like I thought a small-town CWA hall should look – and that its heritage significance lay not in the architecture as such, but in its resonance with a period in Terowie’s history when local women would meet to discuss town business, socialise and serve. I presumed the latter issue of serving to be of particular significance in war years when transiting soldiers would be welcomed to the town with home made tea and cake refreshments served from the CWA building. And whilst the heritage statute allows for the protective listing of buildings and places based on their cultural and civic significance,⁴⁴ I misjudged how an argument on these grounds might best be made and was ill-equipped to successfully argue the building’s character fit.

44 Government of South Australia, “South Australia Heritage Places Act 1993,” (Adelaide: Attorney General’s Department, Government of South Australia), 11-12.

In what I can recognize now as a flawed, if earnest, argument of significance, I used descriptors such as 'polite' and 'reminiscent' to describe the building's street presence in general, and its Dutch gabled roof in particular, going so far as to write that the building's demureness presented in a manner that matched what I imagined its custodians' decorum to have been like, particularly in the busy days of the town when it served as a vital railway hub and local hospitality was a commodity. What I was attempting to do in this rather clumsy discussion of 'fit' was to put into words not just the character of what the building looked like, but the character of activity associated with the building, its users and a particular period in history when the town thrived due to its railway operations. My inability to describe this in tangible terms was an early professional lesson in the difficulty one faces when attempting to discuss the important character of a building or place beyond distinctly formal and material terms, although this as a phenomenon has been identified in the past, notably by Alois Riegl.

45 Alois Riegl, "The Modern Cult of Monuments: Its Character and Its Origin," in *Oppositions Reader: Selected Readings from a Journal for Ideas and Criticism in Architecture, 1973-1984*, ed. K. Michael Hays (New York: Princeton Architectural Press, 1998).

46 I have substituted 'buildings' for 'monuments' in this argument, as was Riegl's intention, and as has been done by others such as Alan Colquhoun. See, for example, Alan Colquhoun, "'Newness and 'Age-Value' in Alois Riegl," in *Modernity and the classical tradition: architectural essays, 1980-1987* (Cambridge, Mass.: MIT Press, 1989).

A vast historical field, I qualify the following discussion of character by stating that I invoke Riegl in a limited form, simply as one means by which to describe the popular nostalgic values attributed to the Victorian-era housing of this study.

In interpreting the more elusive aspects of what draws us to the old, Riegl spoke of commemorative as opposed to purely artistic values.⁴⁵ Writing in Austria in 1903, Riegl was speaking of monuments as works created either specifically to keep cultural memories alive for future generations ('intentional monuments'), or by accident, where later generations attribute meaning to a work that may never have been intended by its creator ('unintentional monuments').⁴⁶ For Riegl, 'age value' and 'historical value' are not the same thing when attributing meaning to an unintentional monument. Where historical value requires some formal understanding of the building's

place and role in an historical context, and will be of more or less significance to a person based on their ability to contextualise that history, age value is universal. Providing the age of the building is sufficiently identifiable from the new, everyone will appreciate its age value to some degree – as a value system available to all, age will always have the advantage over more obscure socio-cultural characteristics.⁴⁷ If one accepts Adelaidean villas and cottages as unintentional monuments then, this may explain part of their attraction, or to be more direct, their character. Even in the absence of specific historical significance, their age value offers the opportunity for nostalgia – a characteristic potentially identifiable by and therefore attractive to anyone.

Riegl argued however, that value could be evidenced beyond qualities of age and history; if this was not the case, all artistic works would eventually achieve a high level of value based on some level of longevity infamy or by their age alone, yet clearly it is entirely possible for a new work to be valued more highly by aesthetic, technical and/or monetary measures than something older. Beyond age and history, there are other aspects of value at play which Riegl identified as ‘use value’ and ‘newness value’. Use value is the ability for a building to maintain its utility in current times. Without it, a building becomes locked in its time and worthy of protection and upkeep only for its own sake. When related to Adelaidean four roomed houses, use value is seen in their robust masonry construction and in the general layout and size of the rooms; qualities that lend themselves to longevity coupled with adaptability. Newness value, described by Riegl as age value’s most “formidable opponent”,⁴⁸ is inexorably linked to domestic adaptive reuse where villas and cottages are concerned, as they are moulded to work with contemporary life. What is required, then, is a means by which to discuss how use and newness values compete with or complement the values of age and history.

47 Riegl, “The Modern Cult of Monuments,” 633-34.

48 *ibid.*, 642.

I would argue that when the concept of age value is in play when making the decision to retain a villa or cottage, it is often actually the *idea* of age, or in another word 'nostalgia', that drives the decision. To put this in Riegl's terms, the idea of age value when applied to Adelaide's Victorian era housing is one that can be comfortably overlaid with use value and newness value, coupled as a matched pair. In its simplest form, this is evidenced by reproductions, which attempt to replicate the Victorian house so dutifully as to render it difficult to identify a new construction from a recently renovated old house (Figure 2.33). Such reproduction of style occurs in the absence of any attempt to recreate the programmatic pattern of the source material (Figure 2.34).



Figure 2.33 (top)
Figure 2.34 (bottom)

2015 reproduction villa in St Peters in Adelaide's inner northeast: the street facade replicates an original villa with far more deference than its corresponding program, albeit with the addition of a side garage.

source: www.realestate.com.au/property-house-sa-st+peters-120415945, accessed 1/2/16

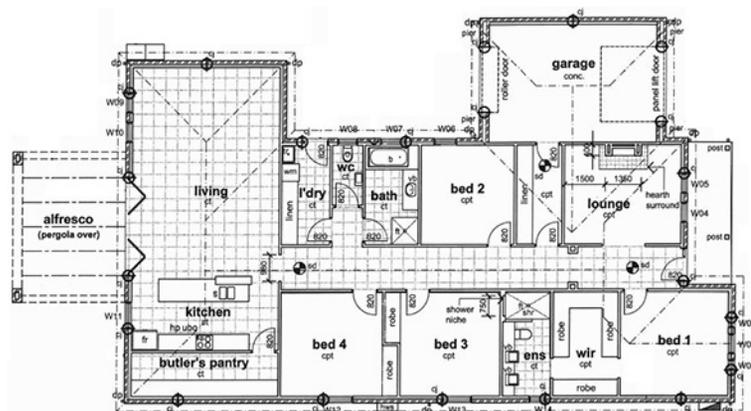




Figure 2.35 (top)
Figure 2.36 (bottom)

2015 alterations and additions to a Rose Park villa where only the facade was retained and all else, including the landscape, was removed.



The same can be said of villa and cottage renovations even before changes in programmatic conditions are considered, where almost all elements - timberwork, roof framing, roofing, rainwater goods, joinery, flooring, mortaring and pointing - can be replaced, leaving only the original masonry elements intact. In its most extreme form, as shown in a 2015 new building project in Rose Park (Figure 2.35 and Figure 2.36), the need to protect the masonry street façade is so dominant that it becomes the only element retained as all else gets built anew behind it. The perceived character of the façade alone is so embedded that it can serve as the only element required to trigger memories of the past. Significantly, such limited retention of the outward face of the dwelling is enough to satisfy the statutory conditions of what is otherwise a wholesale demolition of house and garden in order to start afresh.

49 Tony Hall, *The Life and Death of the Australian Backyard* (Collingwood, Vic.: CSIRO Publishing, 2010). In addition to the effects that the growing house has had on the use and character of the backyard, Hall points to the significant micro-climatic effects that loss of backyard habitat has had, particularly when backyards are read not as single entities, but as connected landscapes across allotments. Hall writes: “[g]iven the large land area taken up by suburbs, these effects have not been inconsequential”, 147.

Beyond considerations of the physical changes to old houses, both material and occupational, is the impact of change at a site level, where it appears the value of newness often trumps all others. As contemporary dwelling has shifted the small cottage and villa towards larger houses with less yard space, and the yards themselves from productive and active space to decorative space, it can be argued that the push to new patterns of living has been so strong as to outweigh the benefits of retaining any mature landscape at all in many instances.⁴⁹ This is not a value statement, but it is a way in which to describe the character of a dwelling in broader terms. Images such as those in Figure 2.37 and Figure 2.38 exemplify the ease with which the traditions of outdoor space are far more easily replaced by the desire for vastly different contemporary versions. As such, it would appear that the character of mature landscape, which is important to note as a mid-history character layer that has evolved over time, is often of far less preservation significance than the character of the house as it presents to the street. Beyond the street, which becomes the setting for the house and an opportunity to experience architectural decoration and patterning

Figure 2.37

A cleared site:
common suburban
starting conditions



rather than a full understanding of the house itself, broader notions of character become far less defined and far easier to manipulate.

Inasmuch as villas and cottages have become unintentional monuments, they carry a value that we as a contemporary society apply to them. These values are, by nature, temporal and evolutionary and include both age and historical values: values that did not exist when the houses were first created, other than via the appropriation that results from translating the centuries old English cottage from its origins to new Colonial settlements. These transported house types allow (if not welcome) changes of use and physical additions in response to changing needs, domestic patterns and tastes. They accommodate the evolving temptations of newness value and use value in both material and occupational terms and as a society we have formed mannerisms with which to change and add to them; identifiable patterns that have become part of Adelaide's suburban character.

I call these tropes *commonly accepted anomalies*.



Figure 2.38
A foreshortened backyard after site clearing: common reinterpretation of suburban open space

source: www.realestate.com.au/property-house-sa-rose+park-118935555, accessed 30/1/15

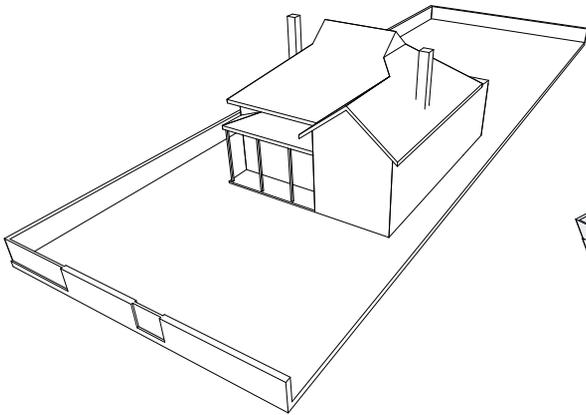


Figure 2.39
A villa's foundation conditions

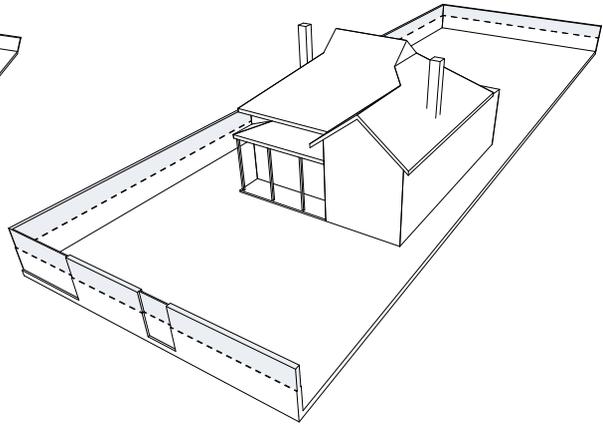


Figure 2.40
Anomaly 1: raised fences

Figure 2.41 (below)
The rear of a symmetrical cottage
with remnant lean-to under an
extended main roof



2.6 Commonly Accepted Anomalies

Sedentary in their make-up and highly useful in their four roomed plan arrangement, Adelaidean villas and cottages resist wholesale demolition due to their masonry construction and the ease with which their room structure continues to accommodate domestic life. It has been identified that in their base form, four roomed houses when accompanied by their original lean-tos can be described as shown in Figure 2.39. Although increasingly rare, examples of original houses that have remained largely intact can still be found, as illustrated by the house shown in Figure 2.41 from Norwood in Adelaide's inner east.

However, Adelaide's established suburbs that are formed of villas and cottages commonly accept a range of anomalies from this foundation form, the simplest and most common of which is a solidification and vertical extension of the fences (Figure 2.40). As evidenced again by the Norwood example of Figure 2.41, even in the absence of other changes, including the retention of transparency to the front fence, side and rear fences have routinely grown over time as both privacy and the creation of space-enclosing perimeters have become increasingly important. In many instances, rendered masonry walls or high brush fences (a particularly common South Australian fencing form) provide little clue as to the activity beyond the street boundary (Figure 2.42 on page 102).



Figure 2.42
The commonly accepted anomaly
of a high wall to the street





An artefact of carriage lanes having changed their use from rear stable access path to a driveway and garaging space for cars, verandahs are commonly extruded to read as a natural extension of the house-proper (Figure 2.43). Often extending back with a roof for the entire length of the house in order to accommodate two vehicles parked back-to-back, they are either left as an open carport (Figure 2.44) or enclosed with a garage door (Figure 2.45).

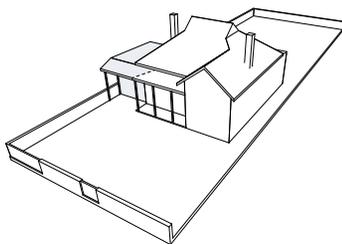


Figure 2.43 (above)
 Figure 2.44 (above right)
 Figure 2.45 (right)



Anomaly 2: extruded verandahs

Symptomatic of the privatisation, increase in and relocation of bathrooms from the rear of the house, which itself was a significant shift away from simple Victorian-era relocatable washstands, ensuite bathrooms are commonly formed in two varieties. When internalised, one of the four villa or cottage rooms is often adapted and serviced as necessary to suit its new function. However, when this space cannot be afforded, ensuites are commonly realised as pods attached to the side of the house, most often in the walkway gap as opposed to the carriage lane (Figure 2.46).

Usually presenting to the street with a parapet that sits under the eaves line of the house, current suburban tastes would appear to dictate that mimicking the materials of the house-proper is a default method by which a reduction of the visual impact of the new insertion might be attempted. Although the most common reason for inserting new side additions currently would appear to be for bathrooms, earlier forms with external doors served other, perhaps commercial purposes (Figure 2.47).

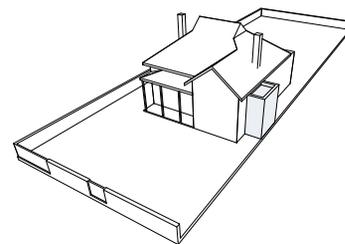


Figure 2.46 (above)
Figure 2.47 (left)

Anomaly 3: side pods

source: www.realestate.com.au/property-house-sa-rose+park-111123735, accessed 12/2/15

Exemplifying the most identifiable change to the traditional four room house typology is the rear extension, which can include incursions into the roof space (Figure 2.48). Providing not only a major increase in the size of the house and a resultant reduction in yard space, extensions have fundamentally altered the manner in which villas and cottages are now occupied when compared to their foundation state. The front room parlour, which once gave life to the street-half of the house, has generally become a bedroom and been replaced by the open plan family room encompassing a dining area and kitchen. Usually capped in height to two storeys, rear extensions often replace or absorb the original lean-to and are commonly seen obliquely from the street when looking down the carriage lane, although visible examples behind the original roof are also evidenced, as seen in Figure 2.49 from Leabrook, in Adelaide's inner southeast foothills.

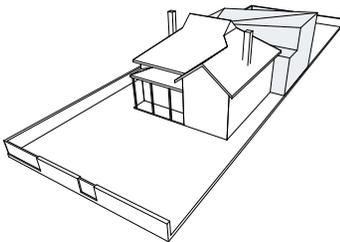


Figure 2.48 (above)

Figure 2.49 (right)

Anomaly 4: rear extensions.
In this instance, the rear addition is teamed with a raised fence, extruded verandah and side pod.



It is increasingly rare, however, that these anomalies appear in isolation, as illustrated by Figure 2.49 and in certain circumstances, there is even a logic to using one of the anomalies to support another. It is not uncommon for ensuite pods, as an example, to be constructed as part of an overall development staging strategy before the original bathroom is decommissioned to make way for a new rear addition. When viewed as an undeveloped and fully developed pair (Figure 2.50), what becomes evident is the retained legibility of the villa or cottage in both forms, exemplified by Figure 2.51 on page 108.⁵⁰

- 50 By “fully developed” form, I refer to the current normative method and extent of development accepted societally and statutorily. This is, of course, not to suggest that what is observed here is the limit to which an Adelaidean villa or cottage might be developed.

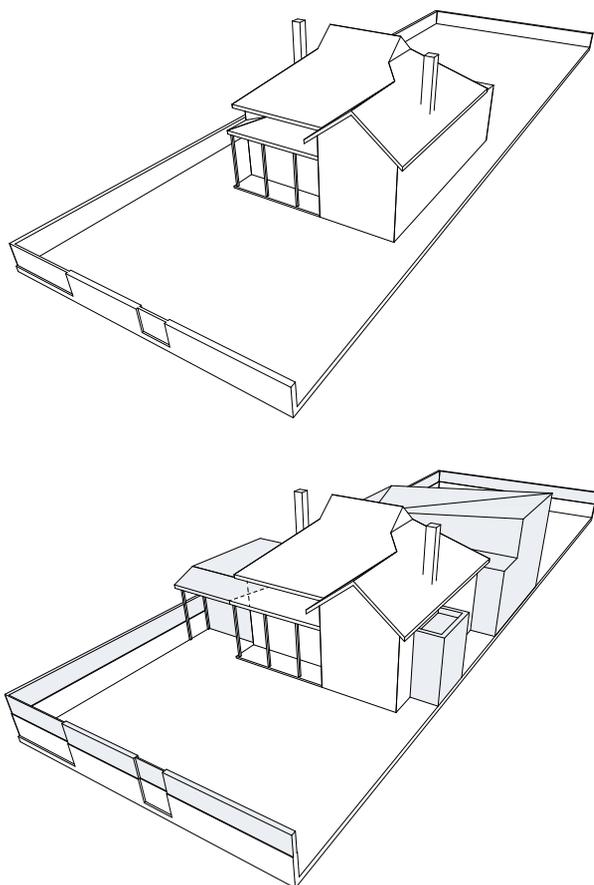


Figure 2.50

Base conditions and commonly accepted anomalies

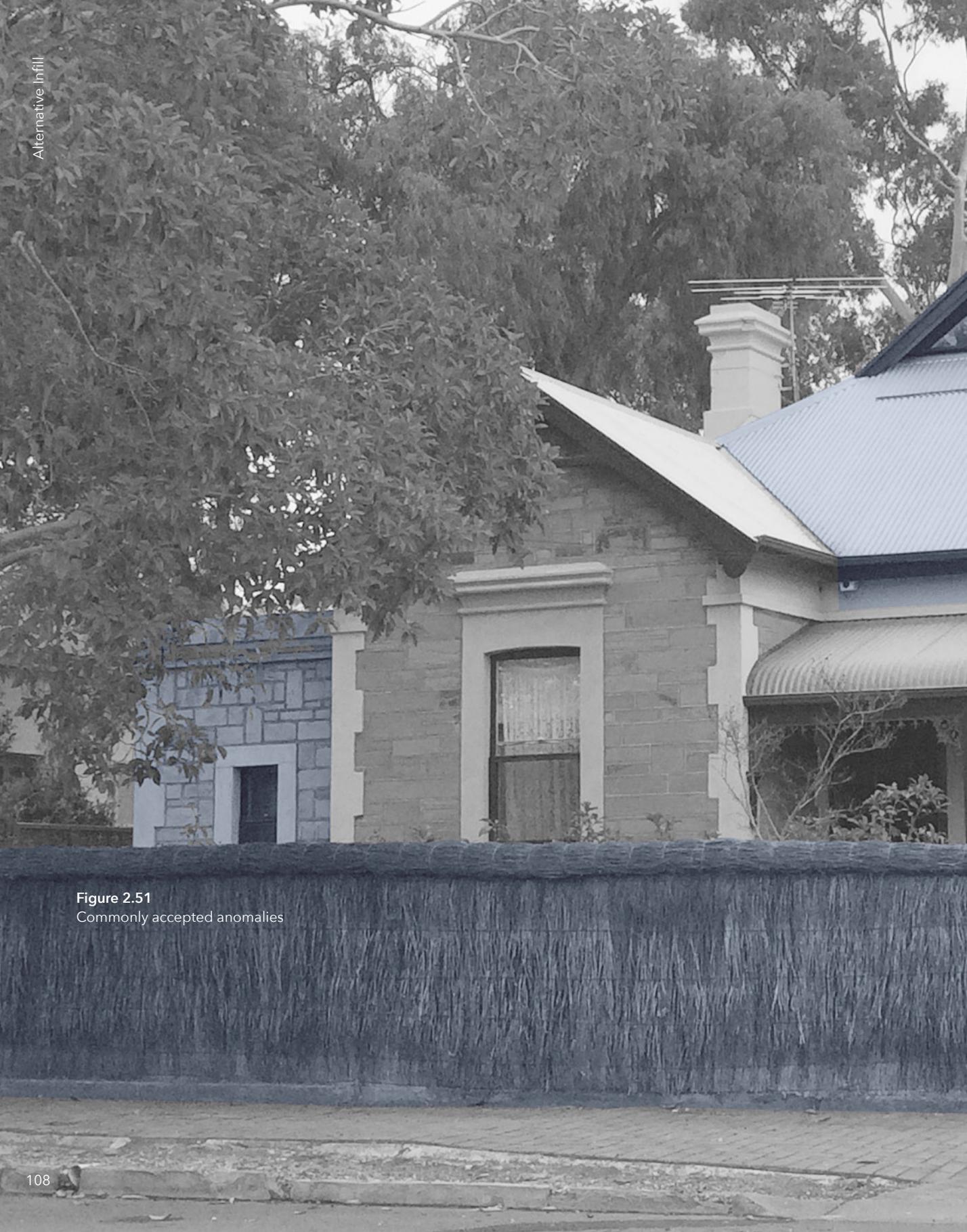


Figure 2.51
Commonly accepted anomalies



12

A final suburban anomaly, the front addition, is included here for discussion, however it is not diagrammed as a common manoeuvre. Although it may once have been commonly accepted, particularly for commercial reasons before notions of heritage protection came to prominence around the 1970s-80s, the front yard addition now sits outside social and statutory norms and is not encouraged nor supported by planning statutes. This denial of front additions to cottages and villas, seemingly universally applied across all local government areas, is belied by the fact that many examples still exist such as that in Figure 2.52, evidence perhaps that the utility of such additions still holds currency, albeit in opposition to what is now deemed to be normative adaptive reuse principles. Pikusa has noted that in Adelaide-proper, “[t]he common practice of building cottages close to the footpath effectively precluded the possibilities of later additions at the front . . . thus the usual additions took place at the rear”,⁵¹ and it may be that this early settlement pattern in the city established the early stylistic norms that have largely continued in its suburbs.

51 Pikusa, *The Adelaide House 1836 to 1901*, 23.



Figure 2.52
Front addition in Tusmore in Adelaide's east: a no longer normative anomaly

With the exception of front additions, these commonly accepted anomalies are so pervasive in the suburbs that the method of their deployment is regularly adopted in new housing, such as that shown in Figure 2.33 on page 96 and Figure 2.53. So engrained is the character of the foundation villa and cottage that even when designed from the outset with ensuites and garaging - the 'add-ons' to the platonic four roomed form, which of course are not additions at all but are foundation elements of the overall house program - they present as additive elements in the fashion of the day. They are reminders of the persuasive power of the nostalgia of age value whilst simultaneously reinforcing the four roomed house as the building blocks of Adelaide's inner suburbs.

Together, the *Commonly Accepted Anomalies* are not just descriptive, but instructional. Inasmuch as they describe what is there, they have the capacity to also imply what might be. They help to form the *Spatial Operations* design strategies described in Chapter 3 and deployed in the two-site design studies of Chapter 4.



Figure 2.53
A reproduction symmetrical cottage in Payneham in Adelaide's northeast, following anomalous norms



Figure 2.54

Theo Bachmann

Group: *Father, Elise, Miss*

*Appleton, taken May 92 at 10
o'clock pm ... [no. 38], 1892*

source: State Library of South
Australia, collections.slsa.sa.gov.au
/resource/B+71826/502,
accessed 22/2/15

2.7 Learning from Theo Bachmann and Joseph Elliott

If the physical character of a place, coupled with the character of activity it accommodates, both evolve in line with Riegl's age, historical, use and newness values, then our current understanding of the suburbs' character can only be temporal. The real question of character then, becomes not about how things look *per se*, commonly referred to as 'fitting in', but how a true sense of fit might be realised at an occupational level. The design projects presented in Chapters 3 and 4 of this study are ultimately concerned with this question - that is, experimenting with new modes of occupation that ultimately affect change in the established suburbs subtly. 'Subtlety' is deemed important not because infill development is something to hide or have secreted into the suburbs by stealth for fear of push-back, but because that is the manner with which the established suburbs have evolved and will continue to evolve over time.

A common criticism of infill work in established inner suburbs is that it is being undertaken in the wrong place; that there are suburbs where density increases do not matter as much and where these suburbs' lack of aesthetic coherence means that new forms of housing can be more easily absorbed into the existing housing mix. This was an argument levelled at an early form of the work of this study when it was presented to the Australian Institute of Urban Studies, where a representative from an inner-Adelaide residents' association argued this point. Furthermore, she argued that she chose to live in a character-laden area due to her suburb's leafiness and overall amenity and these qualities deserved to be protected. This can be a difficult argument to counter, as the weight of evidence is often in favour of those who can point to any number of poor subdivision and infill developments in

the established suburbs, usually associated with large scale demolition of both the house and its mature landscape. It has been discussed in Chapter 1 that such push-back from residents and councils when it comes to infill development is not a result of a fear of the unknown entering a precinct, but rather a fear of the known, as sites are often individually developed for financial rather than social or civic gains, resulting in new infill developments of varied quality.

A more productive way of forming an argument is by discussing the potential future of established suburbs within the context of time, and the work of Theo Bachmann, an Adelaide photographer capturing domestic scenes from the end of the nineteenth century, provides the opportunity for direct comparisons of eras. Many of the people photographed by Bachmann are his own family and their friends, the Plunket family,⁵² and his familiarity with his subjects results in images of common domestic space and life of the time. Presenting as un-staged and often intimate records of those around him, Bachmann's images enable a reading of a century-old occupation of what one can accept to be a typical inner-Adelaide early suburb.

Internal domestic life is captured by images such as *Group: Father, Elise, Miss Appleton, taken May 92 at 10 o'clock pm . . . [no. 38]* (Figure 2.54 on page 112). Seated together at the end of a table and working by lamp light, two figures are reading whilst the other writes. Their dress, formal by twenty-first century standards, belies the relaxed atmosphere of the room as they share sherry, fruit and cake from the table. Behind them against the wall is a dresser, while a small side table and wall-mounted shelf each hold books. There is a proximity of every element in the photograph, evidenced by the placement of furniture, the items they house and the three figures, who are clearly undertaking complementary, yet singular activities.

52 "Collection of Photographs Taken Around Adelaide by Theo Bachmann," State Library of Australia, accessed February 22, 2015, <http://collections.slsa.sa.gov.au/resource/B+71826/501-601>.

This domestic intimacy was common in nineteenth century housing and its early Adelaidean form was tangibly described in words and drawings by English immigrant Joseph Elliott.⁵³ Manager of the printing room of *The Register* newspaper, Elliott wrote an illustrated 14,000 word manuscript for his mother back home in England, writing and drawing over a seven month period, beginning in the winter of 1860. Hoping to entice his mother to join his family in the new colony, Elliott detailed every item of furniture in every room of his four roomed North Adelaide row house, which he rented from the owner who lived in the other half.⁵⁴ Describing the sitting room (Figure 2.55 on page 116), he provides an intimate detailed walk-through narrative for his mother. The text might as easily accompany the domestic life of Bachmann's 1892 photographic subjects and deserves quoting at length:

... when the table flaps are up you will find it necessary to squeeze between them & the different articles surrounding them. We will go straight on round the room ... First we pass a little chair (James's) and of great comfort & use it has been to him & others ... Next we have James's Cupboard made out of a packing case ... On the cupboard stands a most useful article - Becky's Work Box & all its contents. Over the cupboard & hanging to the wall by red window blind cord is a book shelf, or rather 3 Bookshelves, of my own manufacture & painting (common). On the bottom shelf are sundry old books ... as also, on the shelf immediately above it; on the top shelf is Bep's cradle &c ... Well, next to this cupboard we have another little chair ... this is Bep's and you ought to see her sitting in it. We must turn now, & pass another of the same chairs ... & then exactly in front of the window, you may sit down in my easy cane chair ... then pass another chair & run bang up against 'Neddy! A regular old hard worked 'Gee up Neddy! ... Next we have the Sofa (cedar),

53 Joseph Elliott and Stefan Pikusa, *Our Home in Australia: a Description of Cottage Life in 1860* (Sydney: Flannel Flower Press, 1984).

54 Elliott also described the contents of each piece of furniture, numbering drawers and describing the items they held and for whom. This cataloguing of items provides detailed evidence of the multiple uses Victorian era rooms served and the manner in which all rooms were occupied in some form by all members of the family.

no back to it. Miss E airs it every night by sleeping on it, until we sometime or other can find her a room for herself and her things . . . Next & exactly in the corner is a round cane clothes basket, then a chair & next to that my idol! (almost). This is a Seraphine, Harmonium, or 'Euphonicon' as the name on the maker's plate describes it . . . Of course you have noticed the table (cedar) with the cedar flaps put to it by myself. Now you must just take a peep out of the window, pushing aside the muslin curtains, & beyond the garden you see a very extensive plain or park lands (for nothing obstructs the view at our back premises excepting the fence or palings) . . . The sea breeze blows fresh into our back windows & door & sometimes rather too fresh & cold, but still it is pleasant . . . This is the room in which our poor little Josey died. I think it is time I conducted you out of this room, don't you think so? ⁵⁵

55 Elliott and Pikusa, *Our Home in Australia*, 37-42. The brackets are Elliott's.

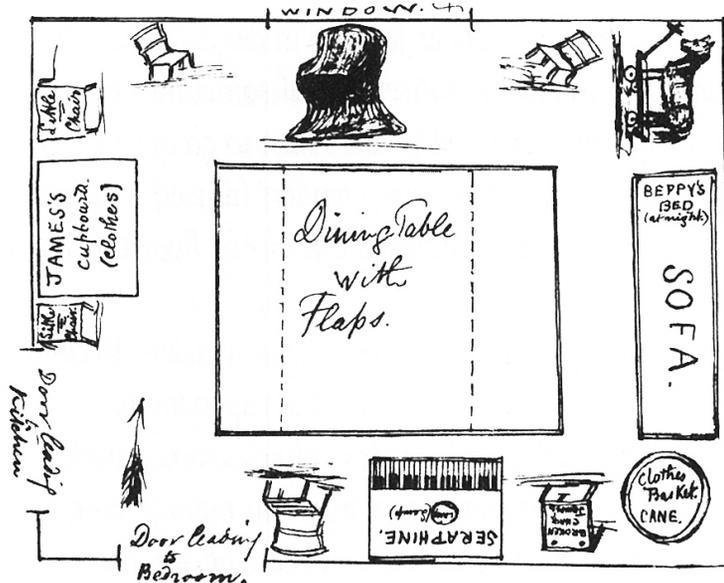


Figure 2.55
Joseph Elliott
Sitting Room, 1860

source: *Our Home in Australia*

Elliott's further description and diagramming of the back yard (Figure 2.56) indicates that, like the rooms of the house, the external space served multiple uses as playground, lumber yard, productive garden, fowl house, play ground, water store, rubbish heap and overflow storage for household items that could not be accommodated indoors.⁵⁶ Bachmann's *Group, 1912 [no. 37]* (Figure 2.57 on page 118), depicting a mother and her three daughters, displays such a working backyard where the ground has been left as dirt, a chicken pen occupies the back corner and a rubbish or compost pile sits behind a makeshift enclosure formed of remnant chicken wire.⁵⁷ An unlocked gate provides access outside the property, potentially to a neighbouring yard but most likely to a rear night cart lane.

56 *ibid.*, 74-75.

57 Elliott described the difficulties he and his wife faced in establishing their own garden in times of limited water supply, as "one season some three or four years ago we planted a host of vegetables but they were everyone blighted! So that disappointed us so much that very little trouble has been since taken with it & in fact I have done nothing at all with it but Rebecca has been much hopeful & done a little with it". *Ibid.*, 72.

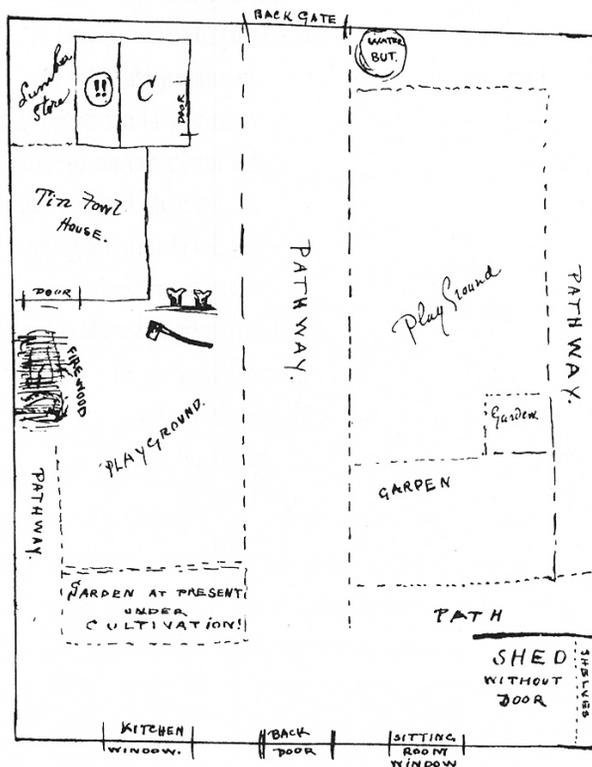


Figure 2.56
Joseph Elliott
The Backyard, 1860

source: *Our Home in Australia*

Figure 2.57

Theo Bachmann
Group, 1912 [no. 37], 1912

source: State Library of South
Australia, [collections.slsa.sa.gov.au
/resource/B+71826/24](https://collections.slsa.sa.gov.au/resource/B+71826/24),
accessed 22/2/15



Figure 2.58

Theo Bachmann
*Group pear tree December 1915
[no. 367], 1915*

source: State Library of South
Australia, [collections.slsa.sa.gov.au
/resource/B+71826/292](https://collections.slsa.sa.gov.au/resource/B+71826/292),
accessed 22/2/15



In Bachmann's *Group pear tree December 1915 [no.367]* (Figure 2.58), taken at the rear of a backyard in Fullarton, the clothing worn again suggests a formality and restrained character by today's standards, but such decorum is absent from the backyard itself. Close inspection of the children's dusty and scuffed shoes and loose-fitting socks indicates the family has not dressed nor prepared for the photograph, an observation supported by the stains on the older woman's dress, the boy wearing shirt sleeves without a jacket, the scratched and dirty legs of the bentwood chairs and the general untidiness of the yard. Despite the nostalgic appearance of the subjects, the setting has not been romanticized and points to everyday conditions. This casualness is reinforced by the children being photographed in the garden at the rear of the house in *Group of children in the garden at Gladstone Street Dec. 1915 [no.366]* (Figure 2.59). Here, just beyond the lean-to (which has been extended with a rear verandah) are zones of yard use, with a clear transparency between the neighbouring yard, from where Bachmann has taken his photograph.



Figure 2.59
 Theo Bachmann
Group of children in the garden at Gladstone Street Dec. 1915 [no. 366], 1915

source: State Library of South Australia, collections.slsa.sa.gov.au/resource/B+71826/291, accessed 22/2/15

Figure 2.60

Theo Bachmann
Gladstone Street, November 1915
 [no. 361], 1915

source: State Library of South
 Australia, collections.slsa.sa.gov.au
 /resource/B+71826/286,
 accessed 22/2/15

Shown from the street in *Gladstone Street, November 1915* [no.361] (Figure 2.60) the house presents with a far more formal character; one that is at odds with the relaxed semi-private back yard. When compared with contemporary imagery of the same house (Figure 2.61), what becomes clear is the accretion of character, evolving over the last 100 years and formed of construction and habitation anomalies coupled with significant street and neighbourhood change.



Figure 2.61
Gladstone Street, 2015

source: Google Earth



2.8 Unintended Hubris and Character Shaping

To suggest, then, that the established suburbs should not form part of a city's broader discussion around housing needs and resultant suburban change is to ignore the fact that these suburbs are neither physically nor occupationally the same now as they were when they were first established. By extension, these suburbs will not be the same in the future as they are now. To suggest that suburban change should happen elsewhere and away from those suburbs with heritage and character overlays, is to not only fail to acknowledge that change is a continuum in which the current day forms only one moment, but is to also suggest that our current day experience of a place is where we as a society decide that our version of its history is where a line in the sand is drawn. Such a position sets our current development pattern as the norm.

- 58 The sense of 'unintended hubris' put forward here is not done so universally. Much of contemporary heritage and policy discussion and practice centres on recognising and managing change as opposed to ensuring outright preservation. In the context of this thesis, hubris can be applied to those who accept the types of anomalous change described in this chapter (and by extension, the policies that enable them) but not a broader discussion around strategic infill and density increases for the established suburbs. This applies not only to the general public, but to policy makers attempting to negotiate the conflicting ambitions of targeted infill zones and established residential precincts.

This can be described as hubris, as it is clearly understood that the settlers and mid-history custodians of the established suburbs would not recognise all of their current day traits, even as an argument is made to preserve the suburbs' current form from further development. I would argue that this hubris is, however, unintended: an inadvertent yet understandable sense that the status quo must be maintained, even in the face of the types of change described by the new norm of commonly accepted anomalies.⁵⁸

- 59 The Elliott family lost three of nine children in infancy and early childhood, the first of whom was the child of Joseph Elliott's first wife Elizabeth, who died shortly after childbirth. *Our Home in Australia*, 14-17.

Joseph Elliott's sitting room, which formed just one-quarter of his small family home, was at any given time a place to eat, sit, read, entertain, play, mend, dress, sleep, and, as was common in Victorian times, be nursed through death.⁵⁹ Occupying an underdeveloped part of North Adelaide, it was not only afforded views out of its rear windows over Adelaide's north-west Park Lands, but could access sea breezes that were yet to be interrupted by the completion of North Adelaide and the western suburbs development that was to come between city

and coast. His narrative to his mother, espousing the virtues of his new life in Australia, speaks to the fact that the physical character of our housing and the character of our domestic activity operate at multiple scales, evolve over time and are difficult to predict.

Character is evidenced, then, not just in how something looks or is styled and formed, but by the manner in which a space is occupied and imbued with everyday activity.⁶⁰ This requires a shift away from the identification of character as a static visual entity towards one of elasticity where character is shaped over time, and witnessed at a variety of material and occupational scales. This is not to suggest that the concept of character shaping is a reformist activity, nor that there is something wrong with the established suburbs that needs to be fixed. Indeed, the success of the established suburbs is perhaps the largest impediment for discussing their change, as they support so well the types of rewritten activity described by the commonly accepted anomalies. Villas and cottages have accepted ensuite pods, side garages, large extensions and internal alterations, while their sites have adapted to reduced and reconfigured private landscapes. The suburbs are justifiably prized by their custodians and continue to evolve *ad hoc* as needs and wants arise.

Character shaping, then, becomes the act of acknowledging the success of this continued development and marshalling the identified elements of suburban change into new housing forms that are similar, yet different to existing conditions. What follows in the next chapter are strategic design investigations that take leverage off the characteristics of evolving activity that have always been present in the suburbs.

These are tactical design speculations for new housing needs; formed of the suburbs' character but interpreted with a different grain.

60 For a broader discussion of this, see for example Ruddick's account of her neighbour's suburban garden, developed *ad hoc* and incrementally according to his changing needs in "Tom's Garden," in *Architecture of the Everyday*, eds. Harris and Berke (New York: Princeton Architectural Press, 1997). Although not responding to Ruddick, Till describes such architecture as 'moments of occupation' or 'Lo-Fi Architecture' in *Architecture Depends* (Cambridge, Mass.: MIT Press, 2009).





3. Design Research: A System of Options

... everything ordinary seems at once neutral and indispensable, but it is a delusion, and a delusion with consequences too, as it hides the power that the customary arrangement of domestic space exerts over our lives ...¹

Robin Evans
Figures, Doors and Passages

- 1 Robin Evans, "Figures, Doors and Passages," in *Translations from Drawing to Building and Other Essays* (London: Architectural Association, 1997), 56.

3.1 On Abstraction and Distillation

One of the inherent difficulties in working within an established context is how to avoid simply designing (in the case of the projects presented here) a better, more flexible, more sociable and more carefully considered version of what currently exists. Whilst such an outcome is not problematic when providing a tailored design solution for an individual project, it has limited ongoing or outward value when the desired effect is a set of new understandings that can be broadly applied to varied scenarios and by multiple people. Furthermore, a difficulty exists in how to undertake design experiments for an established suburb using its particularities as the design basis without those same traits burdening the work by limiting its applicability elsewhere. To this end, deliberate and strategic abstraction of the suburbs and their housing has been employed in this work in an effort to move beyond merely undertaking thoughtful localised design and towards shifting the way we might interpret the established suburbs in the first instance and then reimagine their future.

For the purposes of this work, I define 'abstraction' as a design exercise that elucidates an existing context in order to generate new outcomes. It is a design-led activity that attempts to move beyond the idiosyncrasies of the initial Rose Park study area so as to describe in more universal terms the underlying suburban physical structure at play. In simple

terms, it is a distillation of what exists in order to temporarily remove the layers of fine grain in order to understand the foundations of a precinct. In doing so, the work takes highly specific suburban data from a particular neighbourhood block and distils it to a set of traits that are borne of the local area, but are diagrammed in such a way as to be broadly applicable elsewhere. It is not important to describe in detailed terms the actual location of the particular study area (which forms part of the suburb of Rose Park in Adelaide's inner east), nor its fine grain material characteristics, as its sole purpose is to provide raw physical data for analysis and dissemination. Retaining its anonymity, the character of the study area can be restricted to a discussion around abstracted and simplified spatial patterns that might support more diverse physical and social structures.

But such work requires distillation that is not total in its approach. Different degrees of abstraction, from minor shifts in the reading of rooms to wholesale blurring of the relationships between adjacent dwellings, have been deployed at different moments in the study and at different scales, both conceptually and in the physical manifestation of the design investigations presented here. At varying stages, sets of design tactics have been established that have been developed from the specific fabric of the initial Rose Park study area, but these have then been reorganised and described in a manner that makes them more universally applicable. These design toolkits are centred around what I have described in Chapter 2 as a set of *highly nuanced assumptions* about the established inner-Adelaide suburbs. Thought of in this manner, the specific and the general work as a paired system: an idiosyncratic character-laden precinct, when analysed and reframed into a set of definable principles, serves as the basis not only for a reimagining of a future version of that precinct itself, but for the establishment of a set of suburban assumptions that can then be used as the

foundation for design investigations elsewhere in Adelaide or in any other city's suburban context that can be described in largely similar terms. In essence, the defining qualities of a particular neighbourhood precinct, once codified, become common enough to be broadly applicable elsewhere in Adelaide and beyond.

This chapter details six explorations in abstraction that together have provided the freedom to reimagine suburban futures without the encumbrances that established neighbourhoods and current housing typologies present:

Backgrounding (internal) studies:	1 <i>Porous Rooms</i>
	2 <i>Grid Block</i>
	3 <i>The Block Apartment</i>

Communication (external) studies:	1 <i>Seven Design Tactics</i>
	2 <i>Algebraic Siting Strategies</i>
	3 <i>Spatial Operations</i>

These abstraction studies range in scale from myopic design exercises for a single room of a single villa, to how typical suburban allotments might be explained and further, to how an entire neighbourhood block might be reimaged as a single entity composed of multiple four-roomed parts. Each is underpinned by a position on how the villa and cottage themselves have been defined for the purposes of this study (refer Chapter 2).

There is an inherent risk in any attempt to make the complex simple that the desired clarified form presents as *too naïve* and therefore of little meaningful use. The potential reward, however, is that the process of distillation enables a more coherent way of seeing the familiar with new eyes. If this new understanding can then be described in a broadly accessible manner, these descriptors might generate design outcomes,

potentially created by others who are not necessarily familiar with the backgrounding material of the project. It may be that these outcomes were hitherto unknown, not known to the same degree or thought to be too challenging to be attempted. This is difficult to justify, however, and the testing of this ambition has been limited in this work to the student design studies explained in the *Algebraic Siting Strategies* discussion that follows in this chapter. Further design testing by lay people or professionals is beyond the scope of this work, but a logical extension to it, best investigated as a series of ongoing corollary research projects.

This gives rise to the question of audience, and specifically, for whom these abstraction studies have been undertaken. In the first instance, the work is personal and heuristic; a way for me as an individual architect to defamiliarise the well-acquainted in order to move beyond professional tropes that have been simultaneously established and corralled by the statutory, preservationist, constructional, financial and programmatic requirements of individual projects in established suburbs. As such, other architects may find utility in most or all of the exercises and discover clues for how they might establish a project methodology for their own design tasks at hand, whether or not those projects resemble housing studies for the inner suburbs of Adelaide. For those whose background may have a relationship with but sit outside of design fields, such as policy makers or building owners and occupiers, it is more likely that resonances will only be found in the work that is more recognisably architectural in its graphic language and therefore more directly translatable to the nuances of their particular project concerns. At its core, the audience for the work is anyone who might find it useful to reconsider the established suburbs through alternative modes of graphic, (sub)urban and architectural exploration, and might benefit from the discussions that such images invite.

Chapter 1 introduced the notion that the default political and popular positions on systemised change in established suburbs is to do nothing, or at most, very little. Broadly underpinning this thinking is what I have described as an impending sense of loss should these suburbs be intensified or reconfigured, coupled with notions that such precincts (and the statutes that seek to protect them) are too localised and idiosyncratic to enable strategic thinking *en masse*. This is despite the fact that such suburbs have always been subject to significant physical and social change, as argued in Chapter 2. The purpose of applying the process of abstraction to the suburbs, then, is not only to experience them with new eyes, but to do so in a manner that frees the designer from what can be the debilitating restrictions of working in and around areas of heritage and character, where the aesthetics of character and the supremacy of the individual detached house often outweigh all other suburban character traits. And whilst the tactics of abstraction may be new to a rethinking of Adelaide's inner suburbs, its lineage can be found in modernism.

For the purposes of this discussion, I am referring to the modernist movements in architecture described by Jencks' *Evolutionary Tree*, specifically the 'logical' and 'idealist' modes. These are identified by Jencks as the 'functionalism' and 'heroic' periods of the 1920s to early 1940s, through to the brutalist period of the late 1940s and 1950s.²

In what Colin Rowe would describe as a system of proportioning rules in 1947 in *The Mathematics of the Ideal Villa: Palladio and Le Corbusier compared*, one could imagine for the first time Renaissance and modernist architects using similar organisational tools and operating as an unlikely matched pair. Where Palladio sought strictly-observed classical organisational design arrangements from which a resulting structure must emerge, Le Corbusier looked to the organisational patterns that newfound structure itself might enable.³

- 2 Charles Jencks, *Modern Movements in Architecture*, 2nd ed. (Harmondsworth, Middlesex, England: Penguin, 1985), 28. Jencks himself has described the difficulties in defining architectural movements in exact terms, noting that certain movements form 'attractor basins' across time and that some architects have 'reinvented' themselves every ten years or so as they respond to varying world conditions. See "Jencks' Theory of Evolution, an Overview of 20th Century Architecture," *The Architectural Review*, no. 1241 (July 2000): 76-79.
- 3 Colin Rowe, "The Mathematics of the Ideal Villa: Palladio and Le Corbusier Compared," *The Architectural Review*, no. 603 (1947): 101.

Common to both architects' ordering systems, Rowe argued, was a conscious deployment of mathematics and geometry in order to both conceptualise and make architectural space and form.⁴

Rowe's observations were in themselves a study in architectural abstraction, as he formed adjacencies between works of radically different eras, scales, forms and materials in order to critically engage with each in a new way. In collaging the two architects, he established a resonance between their old and new architectures where a search for order and an underlying logic was a desirable generative tool for each.

Such analytical patterning of architecture, where an ordering system is put in place in an attempt to describe the built environment in new ways, would be sought by CIAM, the *Congrès Internationaux d'Architecture Moderne*, which existed as a self-organised group of modernist architects and thinkers from 1928-1959. Established by architects including Le Corbusier, the group's ambition was to advance modernist architecture and the International Style in the face of the prevailing trend of neo-classicism.⁵ One of the group's stated aims was "to formulate the contemporary program of architecture"⁶ and to bond architecture with the mechanisms of government and economics in order to shift architectural production from the realms of the singular aesthetic work towards urban models that could consciously reshape cities into new modern ideals. The establishment of the group was seen as a formalised organisation of activist ideas that until its inception had only been evidenced in a growing suite of *avant-garde* magazines that primarily used text as its influencing medium. For its first formal congress, CIAM's agenda (drafted by Le Corbusier) started with the ambition to realise a "modern architectural expression";⁷ expression that would be found not just in the architecture, but in the manner in which it would be visually discussed.

4 The limitations of the modernists' reliance on structural systems to generate architectural dimensions is discussed by the Smithsons in *Ordinariness and Light*: "In fact we are getting conditions exactly opposite to those intended by those who put forward aesthetic and moral arguments for the use of dimensional systems; for the observed consonances in nature on which the validity of these systems depend grow out of circumstance and performance and are not due to any imposed laws." Alison Smithson and Peter Smithson, *Ordinariness and Light: Urban Theories 1952-1960 and their Application in a Building Project 1963-1970* (London: Faber, 1970), 93-94.

5 Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge, Mass.: MIT Press, 2000), 9.

6 *ibid.*, 10.

7 *ibid.*, 12; 14.

CIAM's aims were to find new modernist order out of the chaos of unplanned nineteenth century European cities through reconsidered "relationships between places devoted respectively to dwelling, work and leisure".⁸ For the architects involved, such modern architectural expression could be understood beyond the physical manifestation of the architecture of the city *per se* to also become discoverable in a developing analytical form of architectural communication. For CIAM, relaying new ideas for cities required fresh modes of communication, exemplified by their work for the fourth CIAM congress held in 1933, the findings of which were published in 1934 by Le Corbusier as *The Athens Charter*.

Themed *The Functional City*, the congress looked to case studies of 34 international cities, mapped in such a way as to directly compare what the group determined to be the underlying structure and shortcomings of each. Designed to an established congress template such that each case study could be described uniformly and therefore analysed comparatively, each city analysis was exhibited in triptych form, with each image measuring 1.2 x 1.2m (Figure 3.1 and Figure 3.2).

The first mapping, drawn at a scale of 1:10,000 described the city's functional zoning, activity and density. The second, also at 1:10,000 showed the transportation system of the city, whilst the third, at 1:50,000 scaled out to show the city's spatial organisation within its regional context.⁹ Through this repetitive comparative method across the case studies, architecture was abstracted away from the individual aestheticised building and discussed in urban terms, where architecture's role in the establishment of the qualities of urban dwelling, work, recreation and transportation - CIAM's four functions of planning - could be made evident.

8 *ibid.*, 87.

9 *ibid.*, 61-63.



Figure 3.1 (above)
Figure 3.2 (right)
CIAM analyses of Barcelona:
Map II at 1:10,000 (above) and
Map III at 1:50,000 (right)

source: *Atlas Of The Functional City: CIAM
4 And Comparative Urban Analysis*

The role of the group's evolving modes of urban mapping, as described by van Es *et al*, marked a transformative turning point not only for the architects involved, but for those who would follow:

The requirements of propaganda had an undeniable impact on the maps' design . . . the important work that was accomplished during these endeavours to visualize and communicate the four functions of planning . . . demonstrate[s] the great extent to which ambitious communication strategies and artistic interventions transformed the practice of thematic urban mapping and distinguished the work of the CIAM architects from that of other surveyors.¹⁰

Significantly however, to achieve such distinction the congress organisers looked outside the field of architecture to the Austrian philosopher and economist Otto Neurath, who could not only bring his non-architect's position on the city to the congress, but as a key figure in the development of the isogram method of graphic communication, would prove highly influential in providing the necessary level of abstraction required in order to analyse urban conditions in new and more useful ways. Whilst it has been argued that Neurath's impact on the work of CIAM had limited direct effect at the time of the congress, as the architects' preferred a methodology that applied more personal critique to urban conditions and less detached observation,¹¹ his work had a profound legacy on current urban analysis methodology:

[Neurath] inaugurated a new way of reading that was premised on the subject's ability to grasp ratios, relationships, and contingencies rather than objects, places, and "things."¹²

10 Evelien van Es *et al.*, eds., *Atlas Of The Functional City: CIAM 4 And Comparative Urban Analysis* (Bussem, Netherlands: Thoth, 2014), 34.

11 *ibid.*

12 Nader Vossoughian, "Mapping the Modern City: Otto Neurath, the International Congress of Modern Architecture (CIAM), and the Language of Urban Planning (1931-1935)" (paper presented at the 93rd ACSA Annual Meeting - The Art of Architecture/The Science of Architecture, Chicago, Illinois, 2005), 486.

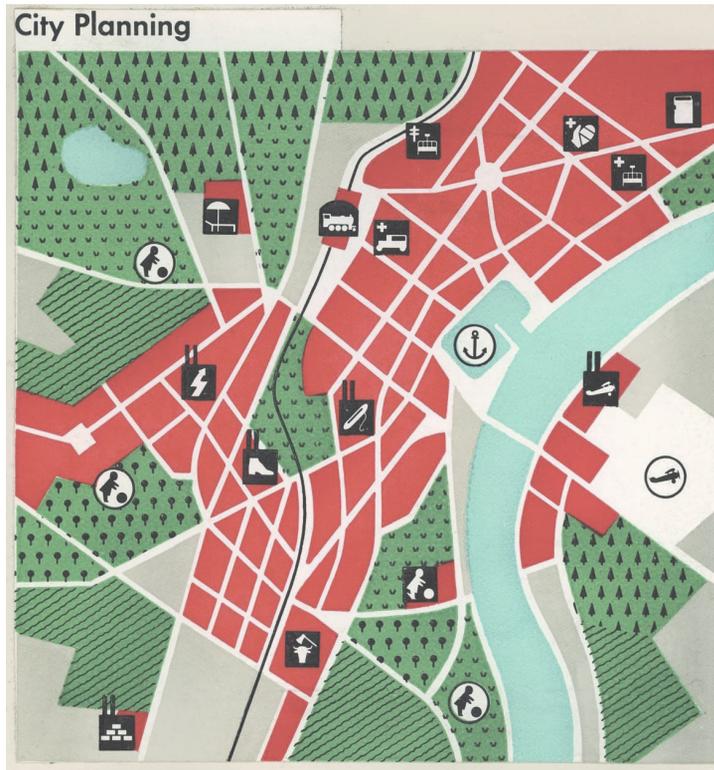


Figure 3.3
Otto Neurath
City Planning, 1937

The Otto and Marie Neurath Isotype Collection, University of Reading.

source: Martin Kohlrausch, 'Communicating the city', *Inventing Europe*, www.inventingeurope.eu/knowledge/communicating-the-city, accessed 15/1/16

Importantly, Neurath was integral in diverting the architects' attention, at least temporarily, from the need to precisely describe spatial conditions via the drawing of literal (geographic) maps, towards more abstract diagrams that mapped activity.¹³ For modernist architects and thinkers, it was clear that new ways of understanding the familiar required new techniques (Figure 3.3).

Ultimately, as described by Mumford, CIAM's "precise influence in the world of built artefacts is difficult to define",¹⁴ as the world's cities struggled to couple the group's modernist ideals of efficiency and unity with those of desirable and accommodating humanist buildings and spaces, particularly in the post-World War II era of rapid reconstruction. In 1970, English architects Alison and Peter Smithson would write reflectively of the dissatisfaction their generation of young architects had felt by 1955 with the great mass of housing estates and civic centres that continued to evolve out of the rationalised modernist tradition.¹⁵ The Smithsons identified in this realisation, which had begun two years earlier in 1953 with their involvement in CIAM's ninth congress at Aix-en-Provence, that the completion of their Golden Lane housing competition project marked the beginning of their "great walk back" from the early traditions of modernism to a "new aesthetic . . . shown in real buildings for the first time".¹⁶ The *zeitgeist* the Smithsons and their peers were experiencing saw them collaborate to form Team 10 at CIAM IX and respond to CIAM's urban objectives with their own ambitions for a more humanist architecture. However, Team 10 would undertake these investigations using similar abstract graphic techniques.

This new beginning . . . has been concerned with inducing, as it were, into the bloodstream of the architect an understanding and feeling for the patterns, the aspirations, the artefacts, the tools, the

13 Sophie Hochhäusl, "Otto Neurath: Mapping the City as a Social Fact?" (paper presented at the Image and Imaging in Philosophy, Science, and the Arts: 33rd International Wittgenstein Symposium, Kirchberg am Wechsel, Austria, 2010).

14 Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, 267.

15 Alison Smithson was 27 and Peter was 32 in 1955; young by architectural practice standards.

16 Smithson and Smithson, *Ordinariness and Light: Urban Theories 1952-1960 and their Application in a Building Project 1963-1970*, 103-04.

modes of transportation and communications of present-day society, so that he can as a natural thing build towards that society's realization-of-itself.¹⁷

These ambitions would be evidenced in two of the Smithsons' speculative housing projects where the mapping of the embedded project ideas became as important as the finished concepts. In the Golden Lane housing competition project (1952), described by the architects as a scheme in which to "develop solutions and techniques",¹⁸ design responses were sought that would accommodate dwelling flexibility, construction rationalisation (and thereby economy), permeability, pedestrianism, and housing choice whereby people might live, work and gather as a community within a community. Resonating with the work of this thesis, Golden Lane was envisaged as a housing type that could grow as sites became available over time. In diagramming their strategies, the Smithsons sought an overlay method that described the three underlying systems of the road network, the ground elements outside of the project,¹⁹ and the actual residential building systems themselves. Together, these formed the coherent whole (Figure 3.4). As described by the architects,

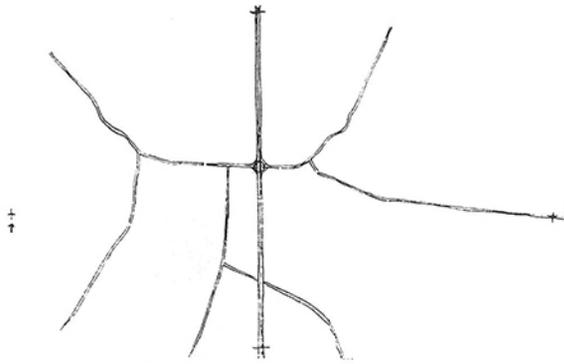
To build up street and district complexes at several levels with such houses a structural system capable of absorbing considerable variation must be devised, one that can give the varying lengths of decks, different kinds of district arrangements, and such links and penetrations as will ensure the ease of circulation and looseness of grouping that is fundamental to the idea.²⁰

17 Alison Smithson and Team 10, *Team 10 Primer* (London: Studio Vista, 1968), 3.

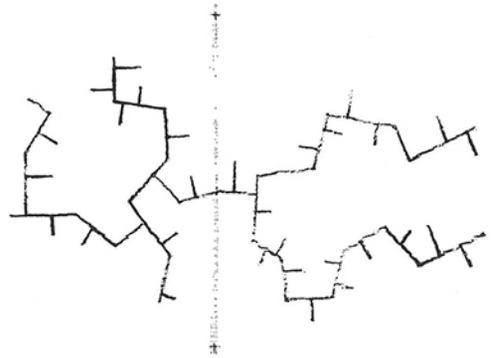
18 Smithson and Smithson, *Ordinariness and Light*, 95.

19 The Smithsons described a concept of 'streets-in-the-air' - a device to introduce opportunities for socialisation for residents at multiple levels through a housing scheme and one that would eventually be realised in 1972 in their Robin Hood Gardens project. Under this premise, "[g]oing to the ground would be a small event, like going to the cinema, to school, to the office, or to play tennis, a special journey for a special purpose." *Ibid.*, 54; 59.

20 *ibid.*, 96.



Roads on the ground. The Golden Lane overlay



Space elements. The Golden Lane overlay



Ground elements. The Golden Lane overlay

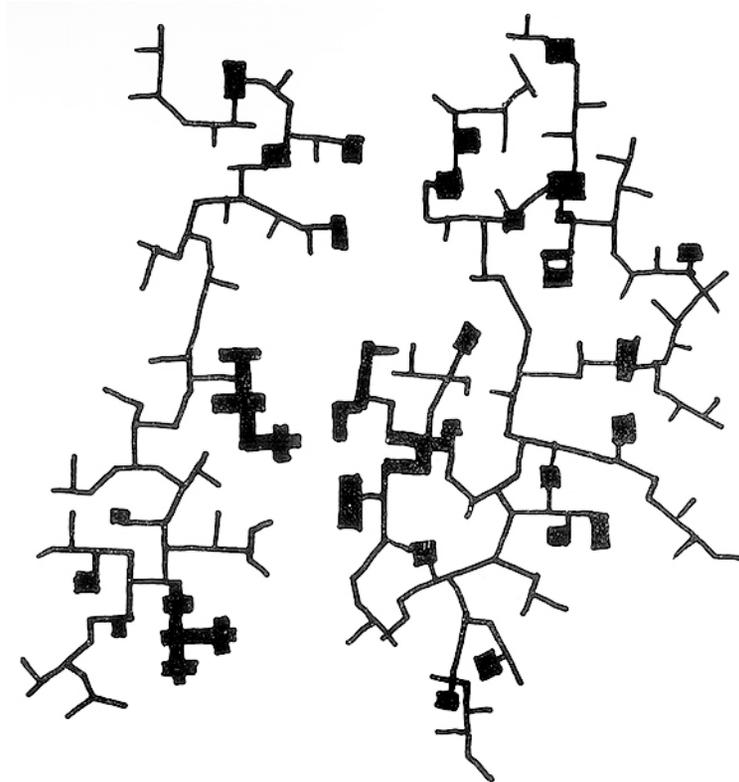


The Golden Lane complete overlay

Figure 3.4

Alison and Peter Smithson:
Golden Lane overlays, 1952

source: *Ordinariness and Light*



Reaching out to a random aesthetic

Figure 3.5
Alison and Peter Smithson:
Golden Lane project, 1952

source: *Ordinariness and Light*

Significant here is the fact that this project was speculative and projective, and relied on diagramming techniques to express its ideas. In “reaching out to a random aesthetic” (Figure 3.5),²¹ the Smithsons’ Golden Lane project sought to give simplified diagrammed form to complex collective housing strategy.

In their 1957 studies of the ‘Cluster City’, specifically their analyses of ‘close’ or row housing, the Smithsons were again able to deploy the diagram to imagine a new pattern of living and one which resonates with the work of this thesis more directly:

There must be inherent in the organisation of every building the renewal of the whole community structure. Take, for example, the problem of rebuilding three houses in an existing street. The houses on each side of the street form with the street itself a distinct urban idea; the three new houses should not just live off this old idea, but should give an indication, a sign, of a new sort of community structure. But this cannot be done unless the architect has a more or less completely conceived idea or ideal towards which all his work is aimed.²²

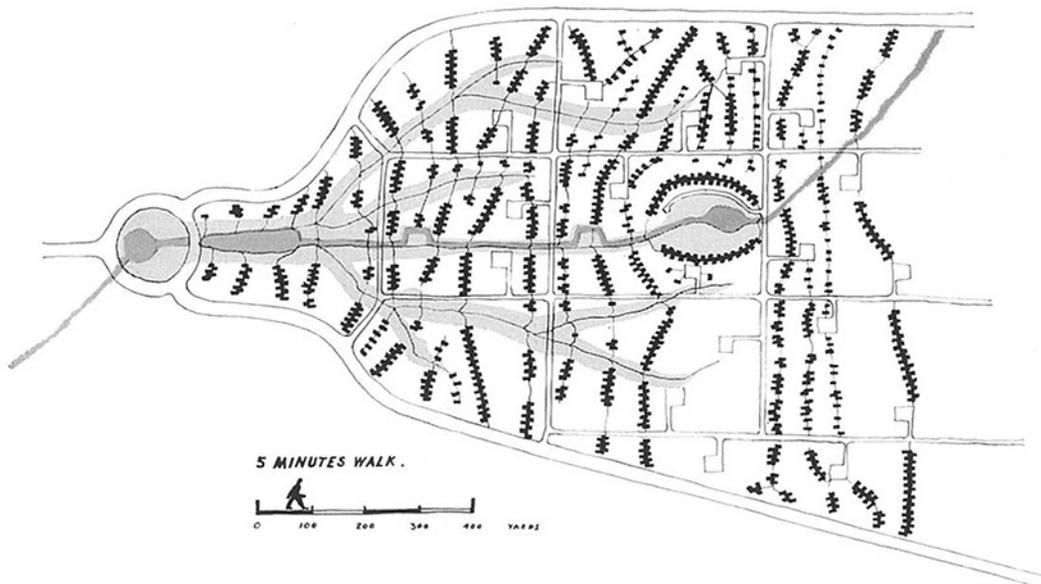
It might be said that the project experiments of my study operate within the Smithsons’ legacy, both idealistically and via the means of abstract architectural explorations that are necessary in order to unpack known conditions and describe a variety of new housing possibilities. The ‘idea or ideal’ the Smithsons took to their study was that of the cluster; in my studies the idea might be described as that of an arranged (and therefore rearrangeable) linear system.

21 *ibid.*, 10.

22 *ibid.*, 130.

In reinterpreting the traditional row house as a contemporary close house for evolving needs, the Smithsons could describe “vertebrate systems” of new housing to create multiple city centres in reduced abstract form (Figure 3.6). When made more traditionally architectural, “an orderly and urban aspect” is revealed in orthogonal drawings (Figure 3.7), and when conceptualised at the scale of the street, the new housing forms “ride the landscape” (Figure 3.8).²³ The result is new descriptors for reconfigured suburban form.

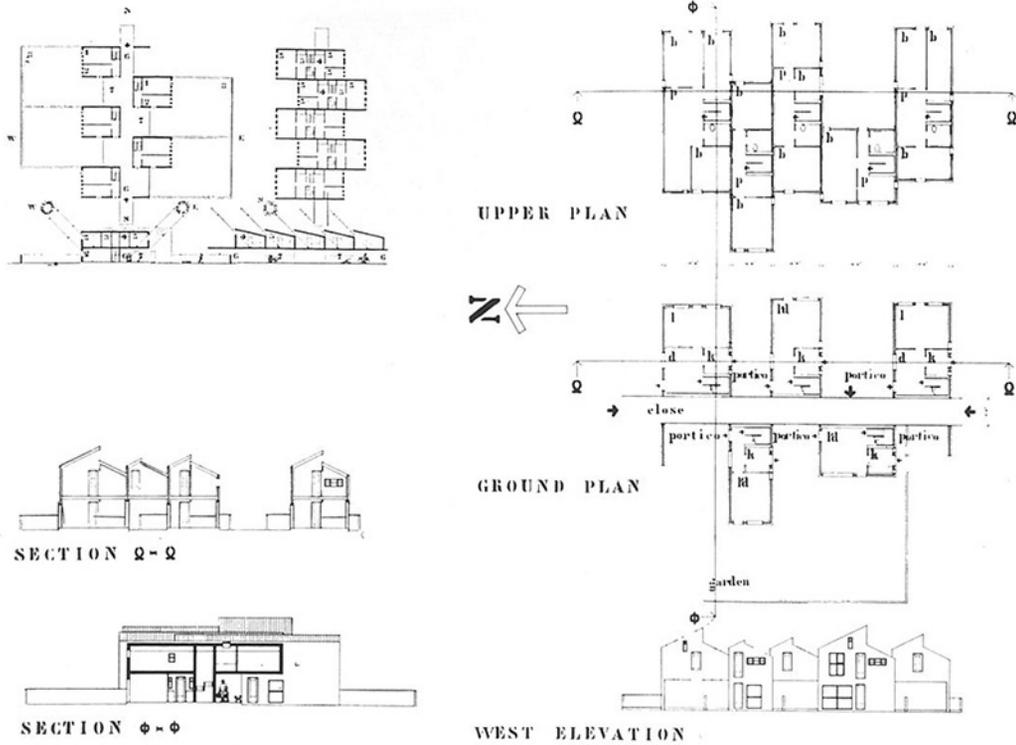
23 *ibid.*, 131-33.



Close house cluster. Motor traffic enters this vertebrate system at the interruptions in the runs of buildings, and it parks there without penetrating further

Figure 3.6 (above)
 Figure 3.7 (facing page, top)
 Figure 3.8 (facing page, bottom)
 Alison and Peter Smithson:
 Golden Lane project, 1952

source: *Ordinariness and Light*



Close house plans, sections and elevations; giving an orderly and urban aspect, even to areas of fairly low density where the houses have large private gardens



Close houses ride the landscape. Urban, yet without destroying the feel of the landscape

Common across the works of these precedents and the work of this study, is the importance of a temporary removal of context in the drawing method, despite (or perhaps because of) the contexts' significance as generative conditions.²⁴ As such, the ambition of my work is to find meaningful ways of not just describing Adelaide's inner suburbs as they currently exist, but methods of working with existing housing stock so that a wider audience can make use of the tactics established. The outcome might be one that enables unexpected results to be produced that can then feed back into this new suburban understanding. In that regard, the analysis and design tactics presented here and the outcomes they enable work as a circular system.

That is not to say, however, that this is an entirely novel approach, with Christopher Alexander et al's *A Pattern Language*²⁵ requiring perhaps the most direct address, as it shares similar ambitions to both abstract and describe existing conditions in order to deliver a set of generative design tactics for the recalibration of those conditions. And similarly, Alexander seeks to explore new architectural conditions at the scales of the city, the neighbourhood, the site, the building and room; multi-scalar conditions that "create a coherent picture of an entire region, with the power to generate such regions in a million forms, with infinite variety in all the details".²⁶

To achieve this, Alexander presents 253 observed conditions, or 'patterns' of social and built circumstances, some reliant upon the others for their existence or successful implementation. When combined, they form a (pattern) language "for building and planning".²⁷ The absence of the word 'designing' is notable here, as the underlying philosophy seeks to wrest control of design from architects and instead place it in the hands of a community of users who, collectively or in isolation, are assumed to be the most likely to target a

24 Such drawing strategy, where context is deliberately absent, is evidenced in Kaijima et al's analyses of Tokyo's ad hoc architecture in *Made in Tokyo* (Tokyo: Kajima Shuppankai, 2001). Studies of Melbourne's terrace house patterns by Bertram and Halik employ a similar representational strategy in *Division and Multiplication: Building and Inhabitation in Inner Melbourne* (Melbourne: RMIT University Press, 2002).

25 Christopher Alexander, Sara Ishikawa, and Murray Silverstein, *A Pattern Language: Towns, Buildings, Construction* (New York: Oxford University Press, 1977).

26 *ibid.*, xxxv.

27 *ibid.*, ix.

successful user-centred outcome and might do so by taking a series of Alexander's patterns and agglomerating them in order to self-design a successful built outcome.

There is a resonance with my work described here, but for different reasons. Like my design tactics and *Spatial Operations* that follow, the patterns are not complete or infallible and invite alternative interpretations and improvements. Indeed, Alexander's patterns are described by the authors as their "best guess as to what arrangement of the physical environment will work to solve the problem presented".²⁸ However, where my design tactics likewise seek to present as a series of options to be used by others, they do so assuming that they are not so knowable as to be universally applicable. Whilst some tactics might present as quantifiable rules to be applied, they are designed to allow possibilities of design thought that summarise potential applications. Their successful application lies in the manner in which they are deployed, as on their own they may only provide a strategic direction that might be taken rather than a recipe to be followed. As such, my tactics might have greater or lesser meaning depending on the lay or professional audience using them.

By contrast, Alexander offers the patterns as a template to success, evidenced by the authors' use of the example application of selected patterns to design a front porch, specifically, "one of a thousand possible languages of a porch".²⁹ This exercise sees one of the authors take ten patterns, ranging from the general (for example, 'outdoor room' and 'private terrace on the street') to the specific ('front door bench' and 'different chairs'). The argument is made that the character of the resultant porch is borne of the judicious selection of 4% of the available patterns, where "[t]he character of what you build, will be given to it by the language of patterns you use, to generate it."³⁰

28 *ibid.*, xv.

29 *ibid.*, xxxv.

30 *ibid.*, xxxvii.

But what if the predilections of the author of both the porch and the patterns, who in this instance is the same person, are not aligned with my own? If my landscape sensibilities preference keeping the porch a purely built space and the garden a strictly landscape space and I therefore avoid 'raised flowers' (pattern 245), am I somehow diluting the potential success of the outcome? The manner in which the patterns are put forward suggests that perhaps I am in some way. And if my aesthetic predilection is for a singular set of chairs that look and feel alike and are presented in a staged and static array of my choosing, does it matter that I go against the rule to "never furnish any place with chairs that are identically the same"?³¹ One might argue that a deliberate breaking of the pattern language, perhaps in the first instance to do the opposite of what is dictated, might open desirable possibilities the authors had not imagined.

Such criticisms are easily made and it is perhaps more useful to make comparisons around the types of aspirational social manoeuvres that Alexander puts forward. The contention of 'old people everywhere' (pattern 40) that "[o]ld people need old people, but they also need the young and young people need contact with the old",³² is so reduced that it becomes almost meaningless, however accurate and earnest a statement it is. It also begs the question of *how* we design to be socially inclusive, or to respond more directly, how - through technique and process - one attempts to *design* 'old people everywhere'? As the solution, Alexander puts forward the provision of dwellings for "50 old people in every neighbourhood", spatially arranged as a cluster in three mandated rings³³ - a highly specific and designed response that I would argue is too superficial and singular a solution to be of use in answering such an open-ended and complex social question. It also assumes a *tabula rasa* and non-culturally specific condition with no relationship to existing urban patterns, housing typologies or demographic trends.

31 *ibid.*, 1159.

32 *ibid.*, 216.

33 *ibid.*, 219.

Of course, the inclusion of patterns in any design response is no guarantee of success any more than their exclusion is a guarantee of failure. However, the patterns are presented in such an insular and circular manner that they suggest that mandated rules can be written, understood and applied, and be useful; the patterns are, after all, presented as intact solutions to problems, which elevates their status as design tools. Significantly, and perhaps to its greatest detriment, this positioning occurs in the absence of external testing by others.

Where the work of this thesis departs from that of Alexander, is in the fact that the latter describes a series of physical and social aspirations with an argument that, when assumed to be a desirable kit of parts and then agglomerated, create spaces and forms that deliver character and amenity as a direct by-product. Alexander's premise behind this is that the city is in need of repair and with problems to be solved. Indeed, each pattern is put forward as a solution to an assumed problem.³⁴ As argued in Chapter 2, my intention has never been to solve a perceived problem of the suburbs. Indeed, I have argued a counter point that such reformist thinking is counter-productive and risks alienating the custodians of the suburbs, who quite justifiably would rail against being told their modes of living and the suburbs of their choosing are problematic or in some way wrong. So whilst *A Pattern Language* is an important precursor to this work, it is too prescriptive, insular and untested (within itself) to be used as a direct device. Its highest value lies, perhaps, in being used as a qualitative measure to be applied to the design outcomes during and after the fact, however that exercise is deemed outside the scope of this work. In that regard, the work of the a+t research group is more directly applicable, as they use fourteen specific case studies of 'desirable homes' in order to extract and define the tangible and repeatable design elements that afford desirable qualities.³⁵

34 *ibid.*, xiii.

35 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *Density is Home*, a+t density series (Vitoria-Gasteiz, Spain: a+t Architecture Publishers, 2011).

What follows is a discussion of six alternative modes of perception and of ways of finding housing possibilities within them. Each is part analysis and part speculation. The last of them, *Spatial Operations*, is put forward as a more universal way of thinking about a localised suburban system, where the complexities of working around and between Adelaide's villas and cottages are distilled to a series of spatial patterns that are communicated through generative diagrams. In describing siting and massing properties as a series of three-dimensional strategies, complex relationships between old and new are made simple and provide design cues for investigating new patterns of suburban living. These simplifications can then be overlaid with the more nuanced tactics of the other design studies.

Such cartooning of strategy is not unprecedented and in a manner follows the work of Di Mari and Yoo (Figure 3.9), who in their cataloguing of spatial verbs seek to establish a simple set of architectural strategies that together form a unified design logic:

By setting up a systematic process, opportunities for a focused design are facilitated by a set of deliberate moves. This can be referred to as a code of design and an attempt to develop a design methodology. In using the word code, the key goal is not a clear legibility of form, but a clear legibility of process. The design logic that results from the systematic approach creates consistency in the process and, ideally, the result. This does not suggest anything short of multiple iterations, for the system contains a variety of design conditions based on the original operations.³⁶

36 Anthony Di Mari, *Conditional Design: An Introduction to Elemental Architecture* (Amsterdam: BIS Publishers, 2014), 9. The architectural strategies described by Di Mari are prefaced by simplified spatial formation devices in Anthony Di Mari and Nora Yoo, *Operative Design: A Catalogue of Spatial Verbs* (Amsterdam: BIS Publishers, 2012).

The ambition of my design tactics is similar: a series of mapped possibilities that encourage new opportunities borne of a design logic, in what Di Mari and Yoo would describe as a 'system of options'.

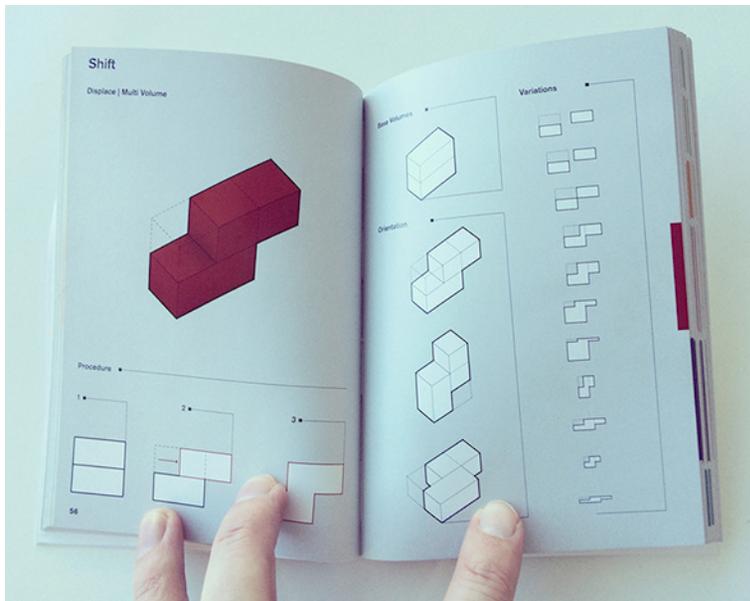


Figure 3.9
Anthony di Mari and Nora Yoo
Operative Design, 2012

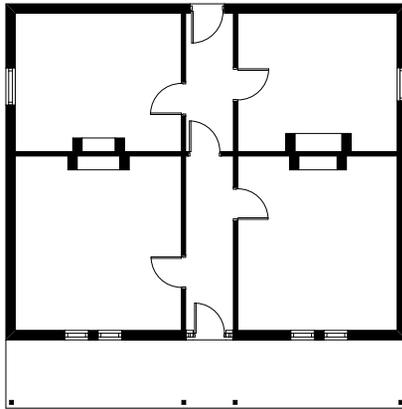
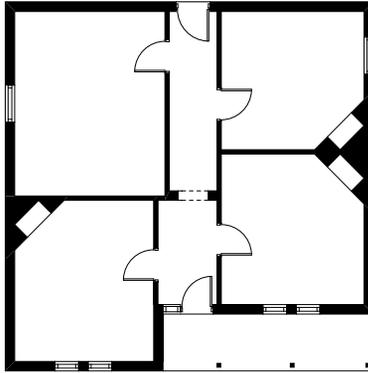


Figure 3.10

A villa (top) and cottage (bottom):
a consistent arrangement of cells.

3.2 Backgrounding (internal) studies

Backgrounding 1: Porous Rooms

Any attempt to reconfigure the design thinking around the four roomed house risks being limited by the highly identifiable plan form of the house itself. Whether in the symmetrical layout of the cottage or the projected bay form of the villa, the assemblage of four rooms about a central hallway resists being read as anything other than a consistent arrangement of cells (Figure 3.10). However, if each cell is considered in isolation and denied the relationships that come with its adjacency to other cells, rooms can be seen for their accommodative potential purely from a spatial planning perspective.

In this simplified form, rooms become an abstracted subset of the house, liberated of the overlays of heritage and character that can inhibit investigation before it has fully begun. Character in this instance is limited to the nuances of a room's hearth, door and window locations and becomes discoverable in activity rather than through architectural form or decorative appliqué. Thought of as a collection of discrete cellular rooms, the villa and cottage become systems formed of generative parts.

The *Porous Rooms* abstraction study takes this premise as its starting point and explores the types of activities one room can support and the spatial amenity afforded each activity. In this manner, one room might be a place to live, sleep, cook, eat, bathe, work or meet, and these activities might be studied solely in relation to their sense of fit in a villa or cottage room rather than to the logic of how they are arranged in the dwelling or located on a site (Figure 3.11). Such isolation studies are not complex, but they do not have to be. Their purpose is to allow an exploration of potential usage patterns

Figure 3.11
(this and facing pages)
One room studies.

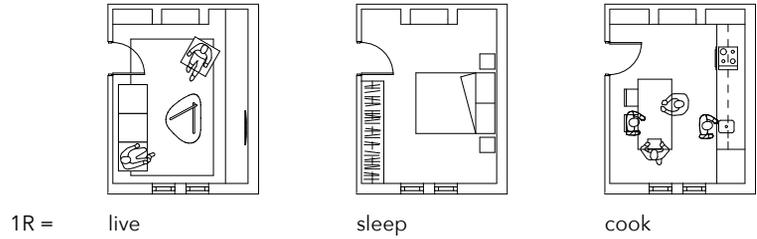


Figure 3.12
(this and facing pages)
Half room studies.

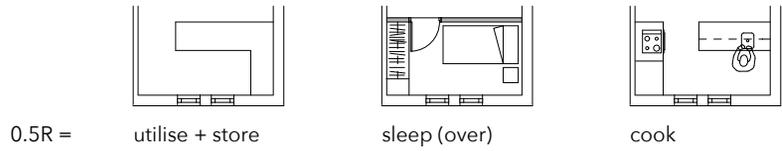
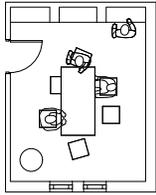


Figure 3.13 (left)
Figure 3.14 (right)
Hallway studies.

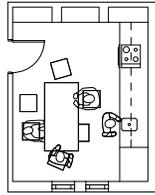


Figures 3.11 - 3.14:
Studies of the fit of activities within
a room or part-room, divorced
from the logic of those activities' fit
in the house-proper or on the site.

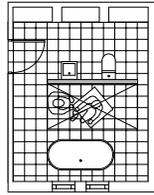




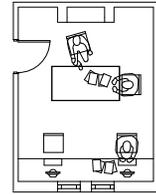
eat



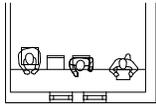
cook + eat



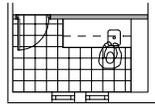
bathe (assisted)



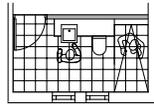
work + meet



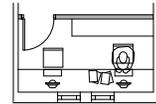
eat



wash



bathe



work

without the encumbrance of having to determine whether or not an assemblage of the parts constitutes a coherent whole. To this end, a half-room can be tested simply for its accommodation value, divorced from any common-sense decisions of *why* such a function might be massaged into such a half-space in the first instance (Figure 3.12).

The benefit of this reduced process can perhaps best be seen when the hallway is treated as a single entity. Viewed as a contained space of its own, it becomes clear that a villa or cottage hallway can only be used as a connective and minor storage space to be moved through – an artefact of its narrow width coupled with a minimum of four doors opening onto it (Figure 3.13). However, when a hallway is merged with an adjacent space, even when that space is a half-room, it has the potential to add amenity, a more generous use of space or a more sophisticated circulation pattern (Figure 3.14).

Further agglomeration of rooms and part-rooms begins to create more identifiable small dwellings or gathering spaces. The combination of one room and two half rooms, for example, can generate a small studio apartment or a work environment (Figure 3.15), whilst the simple act of further adding a hallway to this configuration provides added amenity through improved privacy, increased space or additional storage (Figure 3.16). Perhaps the most useful outcome of such an additive exercise is the manner in which small spaces might be assembled to form self-contained entities with their own logic without being reliant on the building whole. This allows new or reconfigured uses to be housed wholly within a villa or cottage and created from one single space up, rather than simply resulting from a wholesale alteration of the original house in its entirety, as per normative adaptive reuse exercises. This partial-development thinking, where only components of a whole house are worked with as opposed to the house in its entirety, is further advanced in *The Block Apartment* abstraction study, described later in this chapter.

Central to the study of spatial relationships in the *Porous Rooms* exercise is the ability to incorporate common building technology that is rooted in the pragmatic and evidenced in the ordinariness of the Australian Standards. This design exercise offers a matrix of spatial possibilities that become apparent when one room is opened to another. Given the material characteristics of villas and cottages outlined in Chapter 2, such an opening-up exercise, which finds its lineage in traditional adaptive reuse methods such as that shown in Figure 3.17, relies on portions of brick walls being removed so as to form large connective openings between rooms. Contemporary forms of these openings are supported by steel lintels, the types and sizes of which can be found in common construction rules-of-thumb.

0 5m

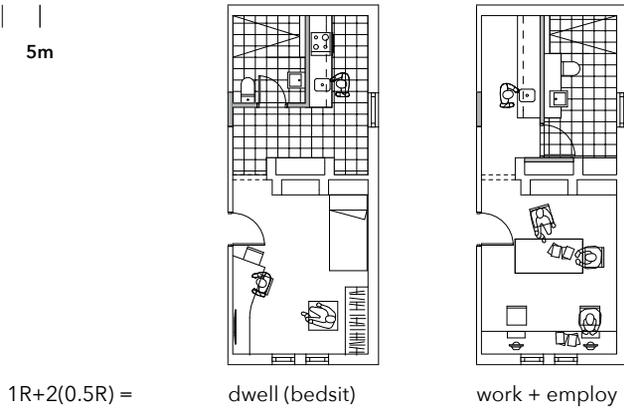


Figure 3.15
Combined room studies.

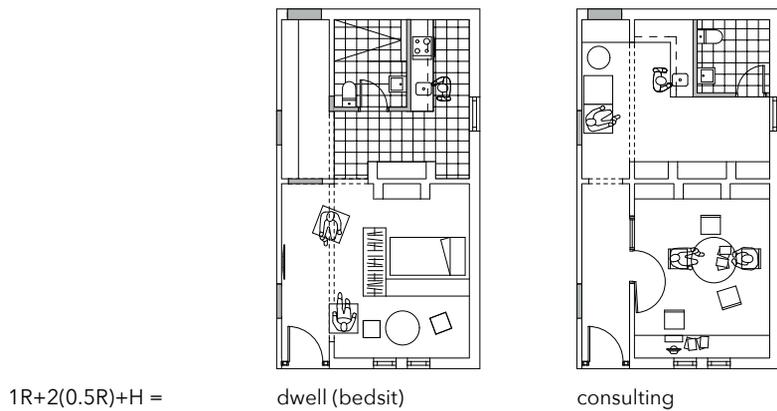


Figure 3.16
Combined room studies.



Figure 3.17
North Ryde Primary School, New South Wales, 1887: opening one room to another in order to create new space is neither new nor restricted to housing and can be witnessed in various forms.

Australian Standard AS 4773.1: 2015 Masonry in Small Buildings - Part 1: Design describes the scale of wall opening widths that can be formed in brick walls efficiently by using readily-available proprietary steel lintels. These are the established measures with which builders undertake routine domestic alterations without the potential time and cost impediments of designing a tailored structural solution. Whilst structural requirements vary depending on the amount of overhead building material being supported,³⁷ small openings of only 700mm in width might be formed using a simple flat bar lintel of 75mm width and 8mm thickness, whilst large openings of up to 4.2m wide can be achieved using a 180mm deep by 90mm wide universal (I-shaped) beam.³⁸ When measured against the typical villa and cottage room dimensions described in Chapter 2, such larger openings take the form not of an aperture in a wall, but of almost total material removal, wherein one room is absorbed into the next.

37 The size and form of a lintel will vary depending not only on the width of the desired opening, but on the amount of remnant material above the opening that is to be supported. The lintel sizing tables in AS 4337.1 allow the user to factor this material into their calculations when selecting the appropriate lintel for the desired opening.

38 Standards Australia, "AS 4337.1:2015 Masonry in Small Buildings - Part 1: Design," (Sydney: Standards Australia, 2015), 70.

Also stipulated in the Standard is the extent of wall or bearing material required on each side of an opening in order to support a lintel: minima of 100mm for openings up to 1m wide or 150mm for larger openings. This is simple building technology, where elements of wall must be retained in order to provide a seat on which to sit the lintel (Figure 3.18).

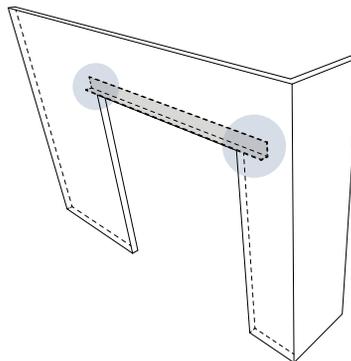


Figure 3.18

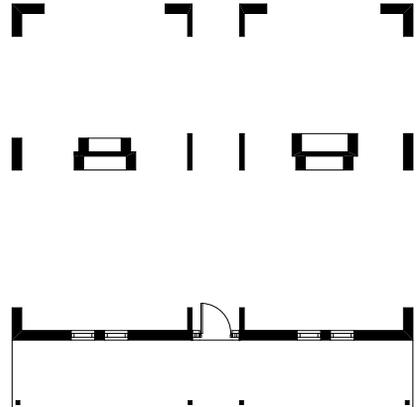
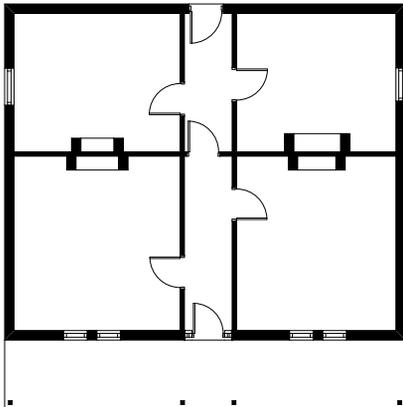
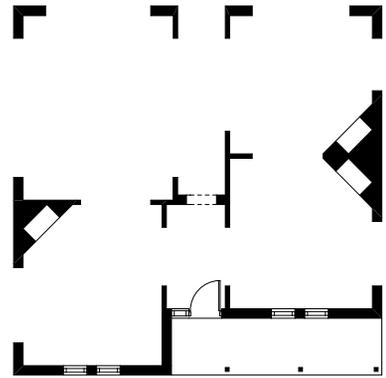
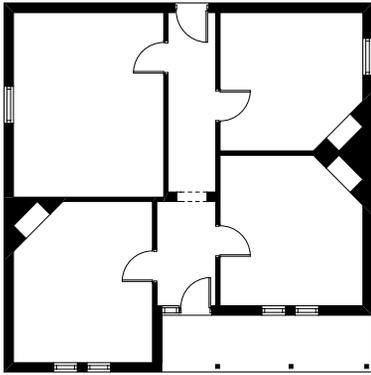
Lintel effects, after AS 4773.1: the pragmatic and statutory requirement for remnant wall material to provide a bearing, as located in blue, gives rise to particular corner conditions in affected rooms.

However, these minimum bearing requirements have an unintended spatial significance, as they give rise to idiosyncratic plan forms: individual rooms with expressed corners of at least 100mm in length. And whilst it can be attractive in construction projects to deliberately work to the extents of legislation and provide the minimum statutory compliance possible in order to maximise space, providing bearing widths (that is, wall nibs) greater than those stipulated by the Standard allows for tactical spatial manoeuvres to be made. Expressed corners of at least 600mm, for example, provide niches for joinery: kitchen units, desks, wardrobes and cupboards; elements that add convenience and utility or fix the use of a space without interfering with the spatial gains acquired by the process of opening one room to another.

A further by-product of this retained wall material is that it allows the architectural character of the original house, both physically and occupationally, to remain at least partially legible. This retention of character is perhaps most evident at ceiling level, where the introduction of a lintelled opening with remnant wall material above allows for the original ceilings to remain intact. This has clear construction cost benefits, as avoiding the need to replace the ceilings not only removes the material and labour costs associated with such work, it avoids the need to rectify ceiling height differentials which are often found from room to room in old houses. But beyond these practical construction savings measures is the less tangible benefit of retained cultural memory, witnessed in the individual's ability to read one original room as different from another, even if the current altered space blurs new uses across the two. As such, whilst new patterns of use might exist where others previously existed, it remains possible to identify elements of the original physical and human character of a place. As a result, the original character of a room plays a formative and legible role in establishing the character of the evolving new use.

Through this coupling of physical construction technology with the less tangible notions of character, *Porous Rooms* abstracts the house from its most intact to most degraded forms (Figure 3.19). Having already defined minimum working room dimensions of 3.6 x 4.2m (refer to the discussion in Chapter 2), the exercise progressively opens each room one wall at a time before combining all wall opening possibilities so as to reveal an almost completely porous space in plan. This creates a matrix of cells ranging from intact rooms through to semi-porous and fully porous spaces (Figure 3.20). Once established, these spaces can then be tested for their ability to accommodate the utilities of storage, kitchens, bathrooms and stairs, and whilst this exercise is useful for showing the basic fit of certain occupation elements, it is the exercise of temporarily ignoring all other building and siting context that is of most interest. This exercise in isolation is further tested in *The Block Apartment*.

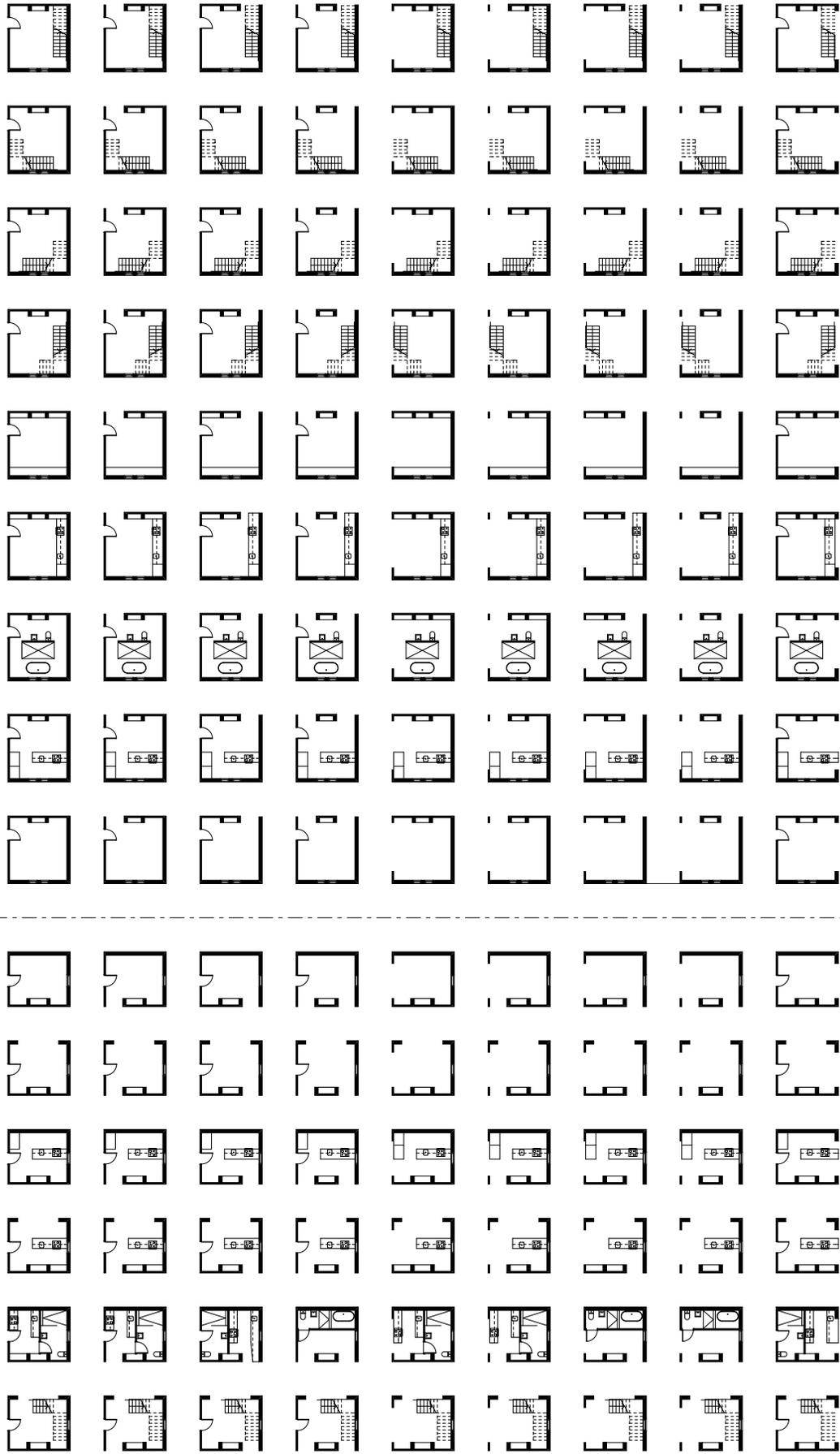
Figure 3.19 (facing page)
A villa and cottage in their most intact forms (left) and most degraded forms after the implementation of lintels (right).



INTACT

FRONT ROOM

REAR ROOM



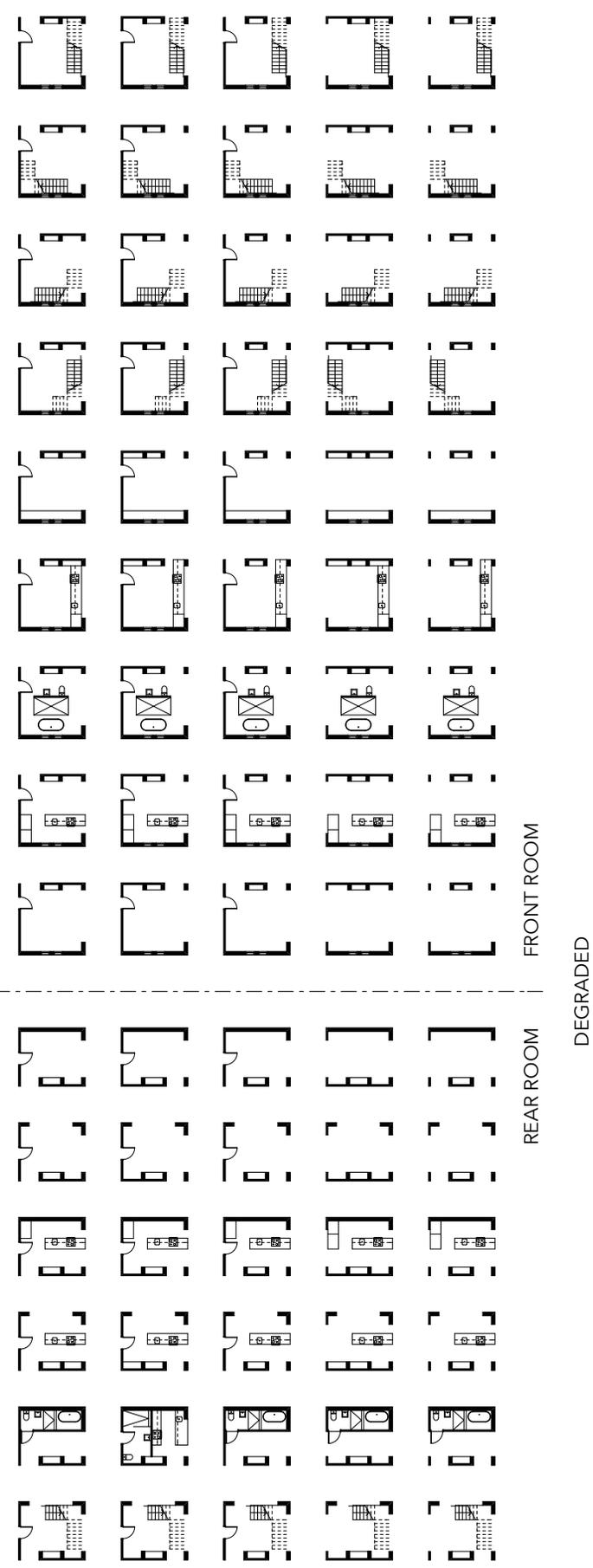


Figure 3.20
Room porosity matrix.

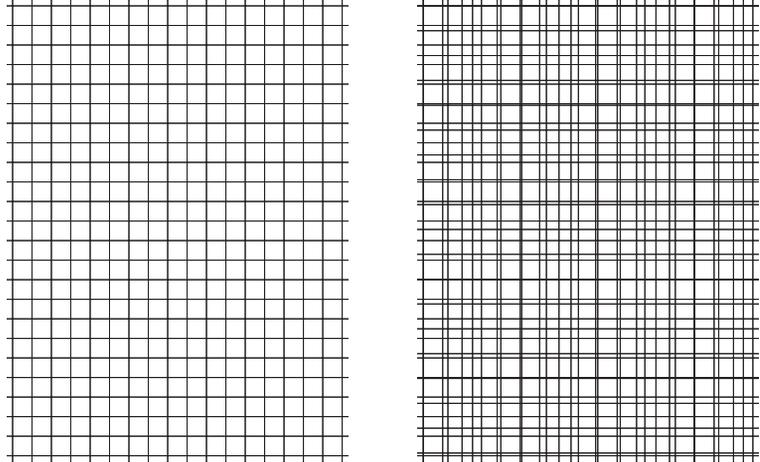


Figure 3.21 (left)

Figure 3.22 (right)

Carsten Nicolai, *Grid Index*, 2009

source: *Grid Index*

Backgrounding 2: Grid Block

Where *Porous Rooms* sought to isolate the room from the house, Grid Block works to decouple the intricacies of individual houses from their settlement pattern across the neighbourhood block.³⁹ It does so by deploying the suburban morphology data of the Rose Park study area described in Chapter 2 in combination with the two-dimensional graphic explorations of Carsten Nicolai's *Grid Index*.⁴⁰ For graphic designer Nicolai, *Grid Index* operates as a 'visual dictionary' of the relational opportunities afforded the designer when working with multiple grids, and it serves two stated purposes.

Firstly, in identifying and overlaying contrasting grids of different sizes, Nicolai establishes graphic patterns that are designs in their own right. Forming "surface subdivisions, commonly known as grids and tilings"⁴¹ these patterns range from the simple to the complex. In its most simple form, an

39 To clarify the nomenclature used here, 'allotment' is used to describe a single site as it currently exists - it is assumed to have a single house on it. The word 'block' is used to describe the agglomeration of those allotments to form a neighbourhood block surrounded by a street on each of its four sides.

40 Carsten Nicolai, *Grid Index* (Berlin, Germany: Gestalten, 2009).

41 *ibid.*, 1.

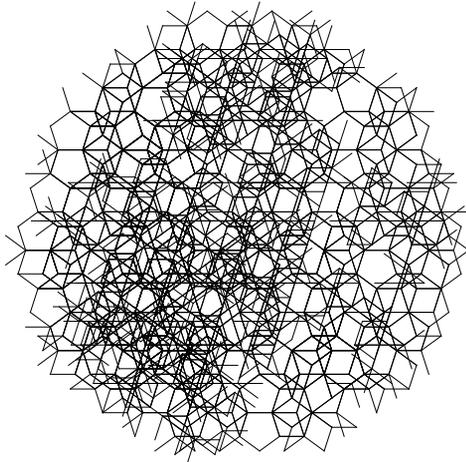


Figure 3.23

Carsten Nicolai, *Grid Index*, 2009

source: *Grid Index*

orthogonal grid is generated by the overlay of horizontal and vertical grid lines of the same dimension (for example, 10mm) to form a uniform chequered pattern (Figure 3.21). Such a 10mm grid can then be made more complex with the overlay of an additional $\frac{1}{2}$ " grid to create an irregular two-dimensional field formed of the fact that one measure is not equally divisible by the other (Figure 3.22). Extended further, irregular tiling patterns arranged symmetrically might form increasingly complex patterns that grow in unexpected ways (Figure 3.23).

Beyond this pattern-making, Nicolai's second intent with *Grid Index* is to identify a graphic process of organisational arrangement that can be a useful development tool for other designers both within the discipline of graphic design and without. How other designers might use the graphic thinking in *Grid Index* is never described and the book's utility is therefore left to the reader's interpretation and discretion. This ability to apply a two-dimensional graphic overlay of grids to an urban context is the starting point for the *Grid Block* design

exercise and results in the classification of what I describe as suburban block patterns that are either 'known grids', 'partially known grids' and 'unknown but understandable grids'.

The purpose of drawing an established suburban block as Nicolai might diagram a graphic grid, is to defamiliarise the overly familiar; to find new ways of analysing and communicating its underlying structure in the first instance in the hope that it generates new ways of working with its fabric that otherwise might not have been discovered. In essence, its ambition is to see what might be possible when traditional ownership boundaries between existing properties are denied – it is a matter of exploring through abstract analytical diagramming without a predisposed sense of what results, if any, might be found. The simple act of drawing suburban context – in this instance a section of the Rose Park precinct – differently to the manner in which one ordinarily might, offers the potential to temporarily limit context to a discussion of adjacencies, with all other issues of aesthetic, spatial and occupational context removed. This is in opposition to a more normative urban diagramming process where the orders of street, footpath, allotment boundary and building footprint are deliberately made evident and hierarchical.

As a strategy for opening up thinking by overlaying one element on another, the *Grid Block* exercise begins by establishing the precinct's known grids: streets (Figure 3.24) and laneways (Figure 3.25). Drawing all roadways neutrally, that is, with the same pen weight and with the same unbroken line type, negates the hierarchy normally observed when differentiating roads, streets and lanes from each other based on their individual widths, capacities to carry traffic and their abilities to create separation between allotments. Creating a deliberate absence of footpaths, kerbs or other street data aids this neutralising effect.

The property allotments themselves however, provide an opportunity to establish the final known grid system, being the depth of the existing houses and their location relative to the street (Figure 3.26). Given the identified uniformity of villas and cottages identified in Chapter 2 and their consistent setbacks within neighbourhood blocks, one can establish an accurate grid system representing the alignment of the front and rear walls of the original four roomed houses, confident that this measure will represent a datum within an acceptable design tolerance of approximately $\pm 1\text{m}$. Whilst such assumptions may be a limiting factor for detailed design exercises around an individual house on a single allotment, they provide a meso-scale datum that is consistent *enough* for the sake of design experimentation across a broader territorial field.⁴²

Once determined, this tertiary grid system, overlaid on that of the streets and lanes, works to substantially blur the traditional ownership boundaries of individual allotments. Furthering this abstraction is the deliberate avoidance of providing a grid system for allotment boundaries or fence lines perpendicular to the street. Doing so would be counter-intuitive to the intentions of the exercise, in that it would undermine the goal of reading the block as a potentially continuous rather than contiguous ground plane that can be studied as a single system comprised of individual housing parts.

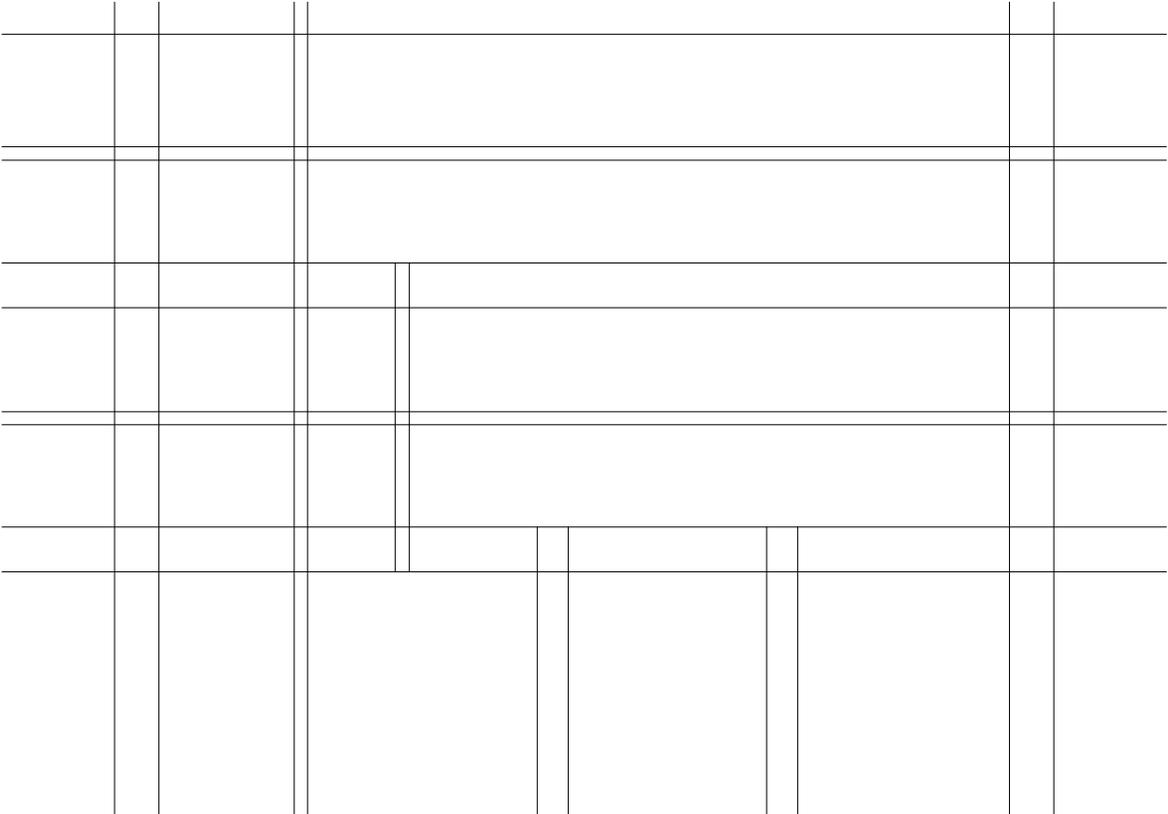
Boundary lines are not diagrammed and are therefore denied grid or hierarchical status. This deliberate subjugation of ownership divisions enables an alternative reading of the physical base conditions and is an important tactic for the two-site design studies of Chapter 4.

42 The importance and usefulness of making assumptions on suburban morphology for the sake of undertaking effective design experiments has been discussed in Chapter 2 as part of a broader explanation of this research project's methodology.



Figure 3.24
Known grid: streets.

Figure 3.25
Known grid: streets with lanes.



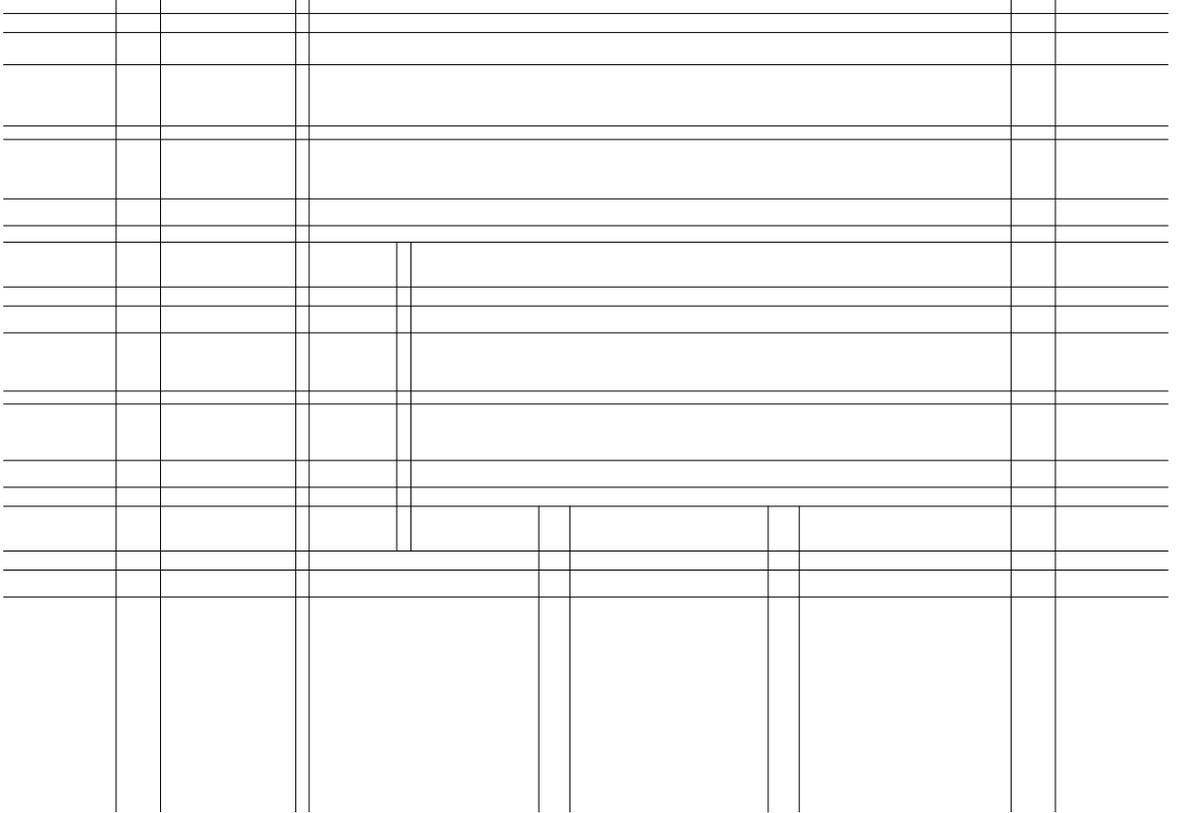


Figure 3.26
Known grid: villa/cottage setbacks and depths.

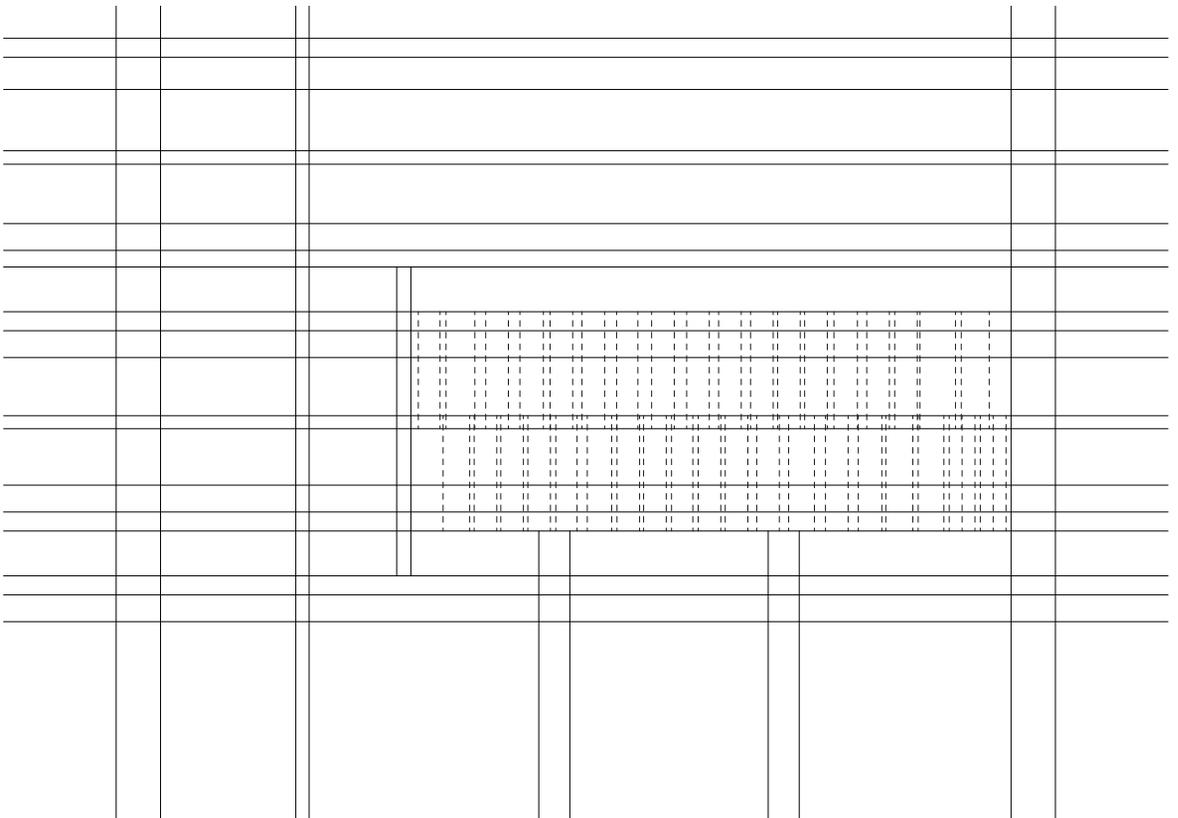


Figure 3.27
Partially known grid: villa/cottage widths.

Having established the most quantifiable grid systems of the neighbourhood block, the positioning of the side walls of the villas and cottages that compose it can be defined and represented using the walkway and carriage lane measures identified in Chapter 2. The dimensions of these gaps between houses can either be imagined – a process which is described later in this chapter in the *Algebraic Siting Strategies* exercise – or measured, as has been the case illustrated here, using geomatic data drawn from applications such as Google Earth⁴³ or NearMap.⁴⁴ Once established, the side wall locations of individual houses are overlaid as dashed lines to represent their ‘partially known’ grid status, described as such due to the fact that whilst they can be quantified accurately, they differ from allotment to allotment. They operate as a grid system that is definable across the overall block, but is not a constant (Figure 3.27).

What this abstract patterning achieves is the ability to see walls not as delineators of the individual territories they currently represent, but as elements that belong to a much larger field spread across neighbouring allotments in order to form a suburban block. Read together as a kit of parts, one might turn layers of dashed lines on or off to achieve not a total erasure of extant material, but a blurring of property ownership lines across multiple houses and allotments. This establishes a new way of identifying property extents and limits in the drawing method, whereby the external gaps between existing houses become as hierarchically significant (or indeed, insignificant) as the internal spaces that currently exist between external walls.

As such, a gap between two buildings might be left as a gap or fashioned into a room in an experimental process akin to the isolated *Porous Room* studies, where suburban possibilities can be explored spatially without being tethered to traditional ownership boundaries or normative adaptive-reuse practice.

43 <https://www.google.com/earth/>.

44 <http://au.nearmap.com/>.

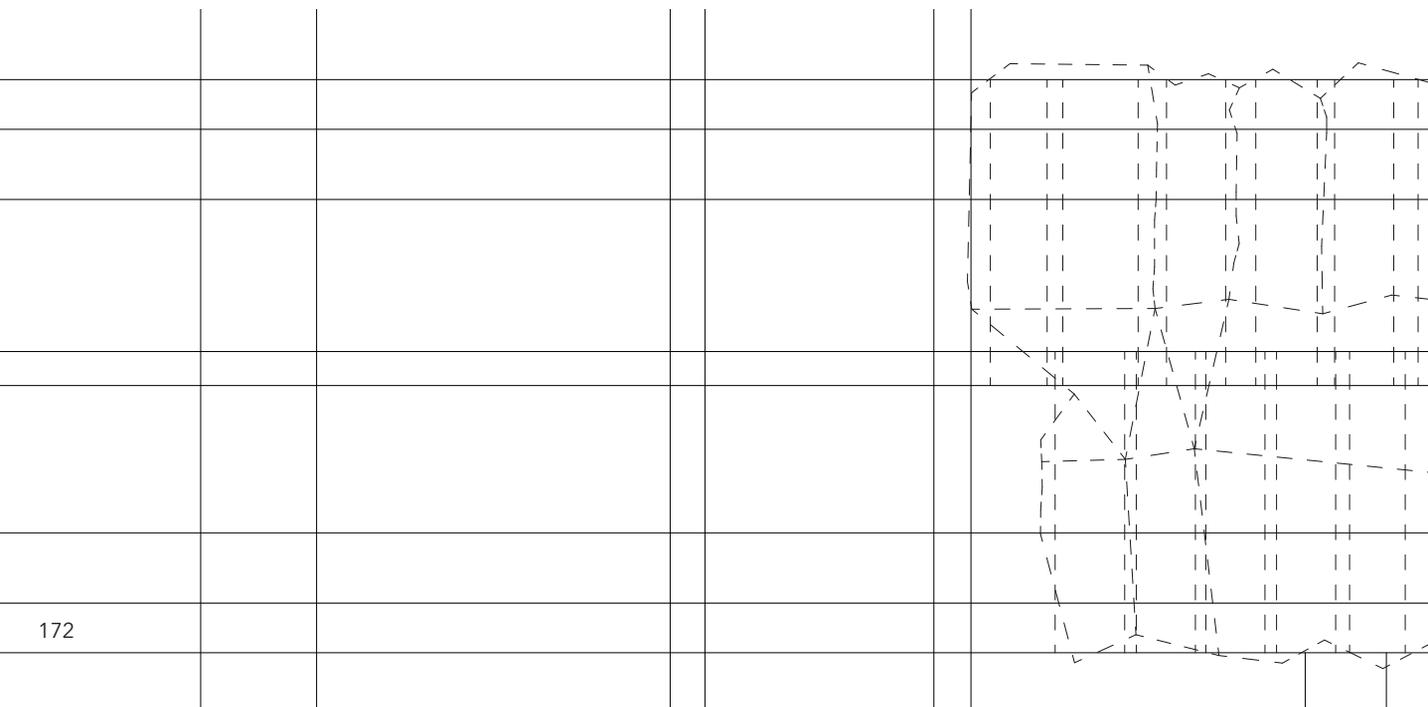
Mapped in this manner, built and unbuilt elements are rendered equivalent and space is conceptualised and defined in an alternative way to traditional representation methods. Devoid of architectural or occupational information, one is presented with gridlines on which to snap various layers of program, landscape, form and material. As with *Porous Rooms*, this allows design investigations that have the singular ambition of testing the logic of fit whilst minimising the limitations that customary aesthetic or programmatic biases can present.

Perhaps most significantly, the linear construct of the drawing means that either existing or new allotment titling can be reinstated without degrading the conceptual system that has been established. This is important if one assumes that the abstract drawing is to eventually return from an experimental realm to more normative architectural and suburban design results. Thought of in this way, certain existing walls sitting variously on the dashed grid might become party walls between occupancies based on an appropriate fit for an intended new outcome. As a physical strategy, the diagram ignores the existing property titles whilst simultaneously enabling their return, if desired. The drawing is in equal measures subversive yet stabilising.

Having established a new way of visually explaining the housing system that forms a suburban block, Figure 3.27 describes the arrangement of houses, allotments and streets in a new, yet visually familiar orthogonal manner. However, whilst the *Grid Block* exercise strategically reduces suburban elements into an abstracted lattice of raw site and building elements, it does not otherwise assume a *tabula rasa* as the drawing might mistakenly suggest. It has been argued in Chapter 2 that much of the character of an established suburb rests with its mature landscape and as such, this must be accommodated in the grid as a subset of the overall

system. Whilst in an overall sense the arrangement of mature trees and bushes across an entire block will be randomised, they can be seen to follow a grid pattern that I describe as 'unknown but understandable': unknown due to the fact that a single allotment may have no mature landscape or a lot, but ultimately understandable at a block scale as mature landscape elements will generally fill the voids between buildings. Again, using geomatic data, existing mature trees and bushes are plotted using the centre of their canopies, and where relationships can be drawn based on alignments or adjacencies between elements, these are provided a grid line that is dashed to represent the fact they are only somewhat knowable (Figure 3.28). As is the case with the locations of the external house walls, it is important to reiterate that the dashed lines of the diagram are indicators only of *predictability* within the grid system (or lack thereof), and not of *significance*. Having identified trees as an integral part of the system, they act spatially in order to suggest moments across the diagram where relationships might be established between built and unbuilt space.

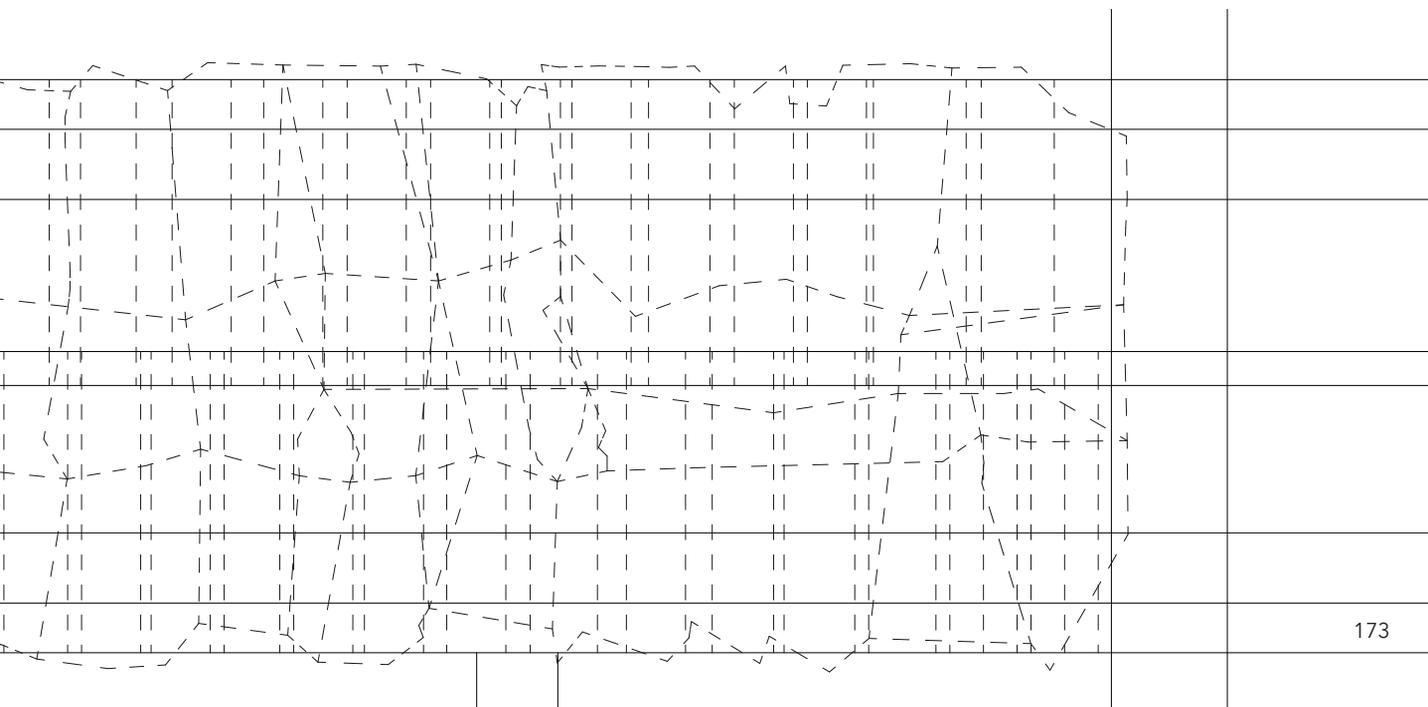
Figure 3.28 (below and overleaf)
Unknown but understandable
grid: trees.



With the diagram complete, it can be compared to the suburban block that informed it (Figure 3.29) and the two read as a complementary pair. Where the actual block can prove difficult to reconsider *en masse* as the individual nuances of each house and each block take hold, in abstracted diagrammatic grid form it becomes more supple as the relationships between key components become less congested and more elemental. What the diagram suggests is a mechanism by which current and future assemblage processes might operate, and whilst this exercise is specific to a particular location in Rose Park, its specificity is not its focus, nor even of significance. Because the morphological dimensioning explored is somewhat typical, or at least typical-enough, and the arrangement of elements is largely consistent across Adelaide's inner suburbs, the diagram becomes relevant to much of inner Adelaide. Furthermore, the methodology inherent in the drawing, whereby the complex established suburb is abstracted to its simplified elemental form means that the technique employed might be broadly applicable anywhere.

Figure 3.29 (overleaf)
Aerial view of the study area.

source: the City of Burnside







Backgrounding 3: The Block Apartment - Five Studies

While rooms can be made porous and traditional ownership delineations be erased where desired, titling divisions that were at first ignored might be reinstated to maintain some form of continuum with existing conditions. Yet abstract diagramming of the suburban block might just as easily suggest the potential for unanticipated but significant neighbourhood change when titles are modified. Shrinkage might be achieved via sub-division, where not just allotments but parts of houses become divisible. Similarly, expansion might be realised via the elimination of existing title lines where new occupancy patterns spread across allotments. In this manner the static block might become elastic, not in spite of the fact that existing houses and trees define the space, but because of it.

The Block Apartment combines the studies of *Porous Rooms* with that of *Grid Block* to reimagine a suburban block as a single entity with non-traditional divisions of space and ownership. The exercise contemplates potential outcomes should one assume that there is no difference between a group of houses and an apartment block. As the design exercise transitions from representational grid work into the more tangible realm of traditional architectural representation of program, it works to protect and continue the blurring of hierarchy established in *Grid Block* in order to understand what new settlement patterns might be achieved once grid lines become physical wall matter. Its starting point is the overlay of existing external walls and hallways onto the wall gridlines previously established (Figure 3.30). In this part of the exercise, no distinction is made between solid and void and the two states at this point are treated as interchangeable. The existing houses, liberated from drawing embellishments, read as a continuous bar code across the block, as the walls running perpendicular to the street frontage are emphasised

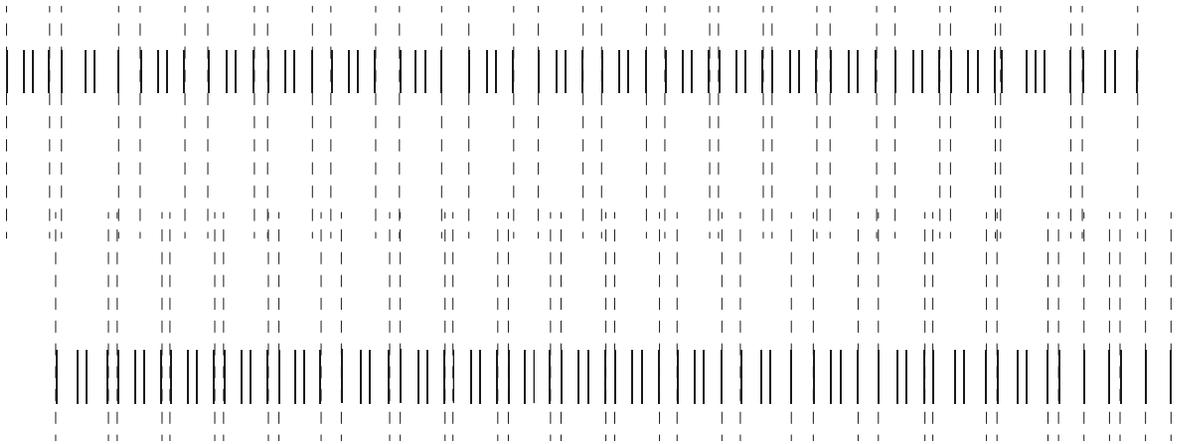


Figure 3.30
Existing side and hallway walls
mapped onto the villa/cottage
widths grid.

while all others are ignored. This creates a focus not just on the central hallways that are present in each of the houses and vital for movement through them as they are traditionally configured, but on the spaces between houses, and it treats both these built and unbuilt spaces uniformly; building and open space are rendered equivalent.

Having established the rhythm of rooms across the block, a further overlay of four urban housing projects is applied in the form of collaged case studies:

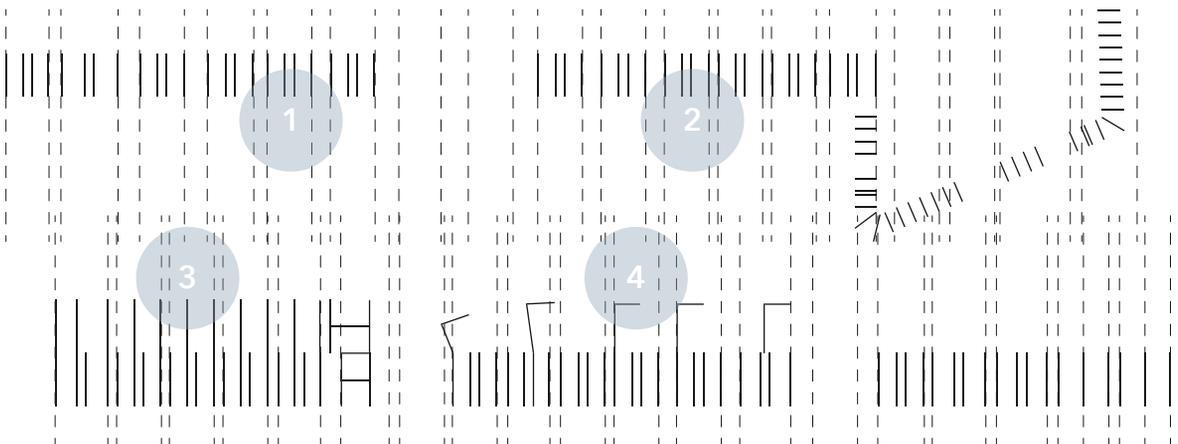
1. Housing for the elderly, Alcacer do Sal, Portugal, Aires Mateus and Associados, 2010
2. Kitagata apartment building, Gifu, Japan, Kazuyo Sejima and Associates, 1994-2000
3. 26 housing units, Amsterdam, The Netherlands, Mateo Arquitectura, 1996-2000
4. Void space / hinged space housing, Fukuoka, Japan, Steven Holl, 1989-91

The purpose of looking deliberately outside the Adelaidean context for international precedents is to reverse the order of development that would otherwise occur if one was to develop an apartment design using villas and cottages as the source. This collaging activity allows the borrowed apartment prototypes to become the source material. In this way, the emphasis of the investigation is shifted away from what might be a logical extension of traditional adaptive reuse principles towards exploring whether the existing settlement pattern might support alternative housing models that have been seen to work elsewhere, but not in suburban Adelaide. As an extension of *Grid Block*, this is an exercise in studying the capacity of the existing suburbs, again divorced from any pre-emptive restrictive logic to underpin *why* one might do so or *how* it might conceivably be achieved.

Figure 3.31

Four case studies mapped onto existing conditions; the fifth block shown is existing housing without a case study applied to it, but modified to provide reconfigured accommodation.

Reduced to their essential wall forms, each case study is mapped to scale over the existing infrastructure of villa and cottage walls in order to test fit, size and transferability (Figure 3.31). In doing so, it forces the apartment footprints of the case studies to be massaged to the wall arrangements of the existing houses.

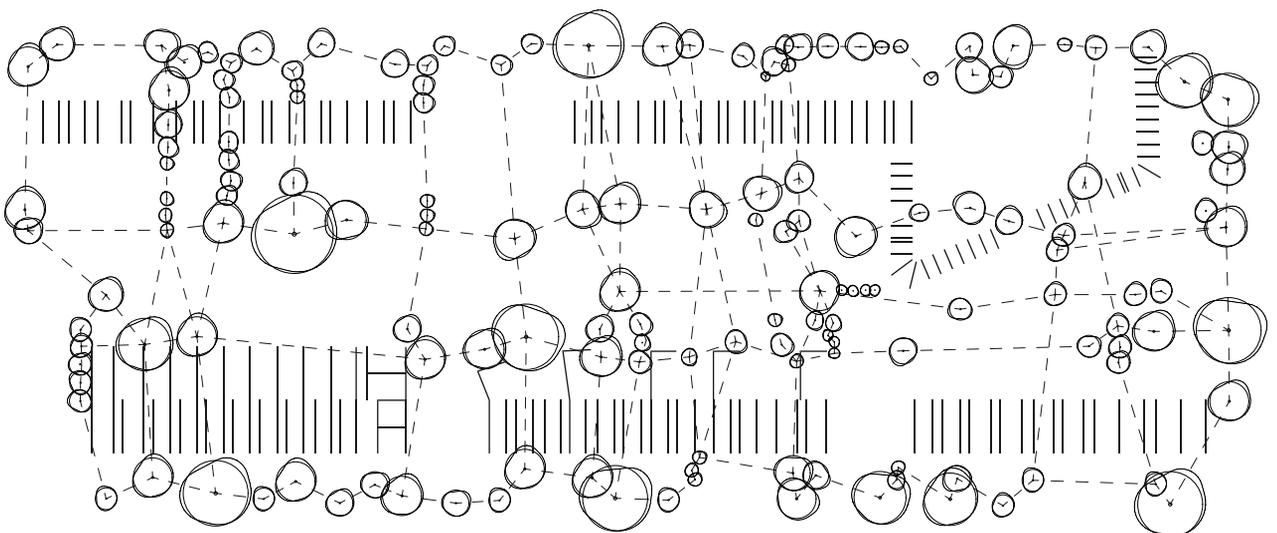


In the cases of the Gifu (scheme 2), Amsterdam (3) and Fukuoka (4) buildings, the existing houses form part of the overall apartment plan and the previously individual houses are subsumed by each new apartment configuration. With the Alcacer do Sol housing for the elderly (scheme 1), the collaging of the case study will be realised in the diagram by locating new dwelling units as insertions at the rear of the existing houses in what would originally have been the lean-to zone. The existing houses are used in this instance to form ancillary dwellings and service buildings at the front of the newly-inserted dwelling units.

When viewed in its entirety, and with the tree canopy overlaid on the tree grid, the established block reads as a housing hypothesis - an idea for a variety of potential housing types rather than a fully complete existing precinct (Figure 3.32). The task remains, then, to shift the abstraction study from a graphic exercise to one that attempts to describe this construct as programmed architectural space, and forming the armature for *The Block Apartment* is the *Porous Rooms* study.

Figure 3.32

A housing hypothesis located in and around the existing mature tree canopy.



The exercise begins with the assumption that the existing villas and cottages are in the most degraded (that is, porous) form described by the latter study (refer Figure 3.19). In being put to use, a set of design tactics is established in order to deploy *Porous Rooms* strategically across the block with some form of unifying logic:

1. All rooms must retain their corners, as doing so:
 - enables the opening of one room to another simply with a lintel, as described earlier in this chapter;
 - permits the reinstatement of walls by blocking these new openings later if required, thereby increasing flexibility;
 - retains ceilings where desired, further establishing the economic and cultural value of retention; and
 - spatially identifies the lineage of the existing room and house, thereby evoking memories of past use and the evolving character of the place.

2. The front wall of front rooms remains intact, as doing so:
 - retains the villa or cottage's identity and contribution to streetscape, deemed important in undertaking this early design testing of character-shaping;⁴⁵ and
 - maintains the local material palette and established fine grain of the area.

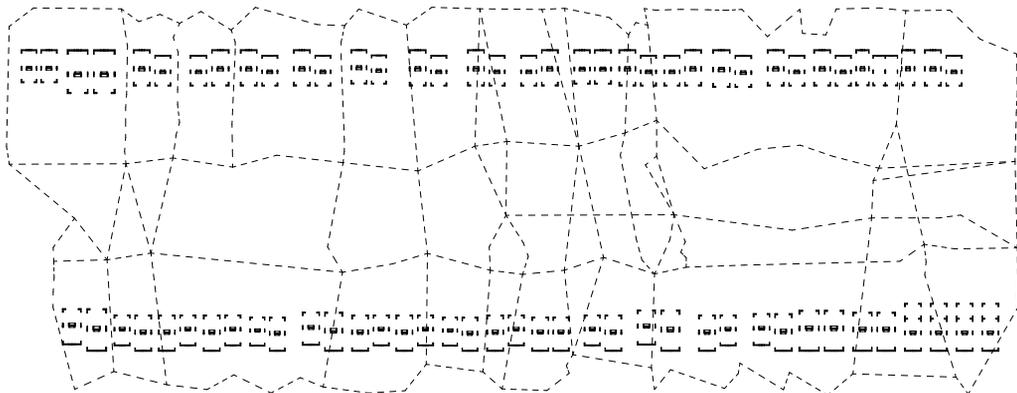
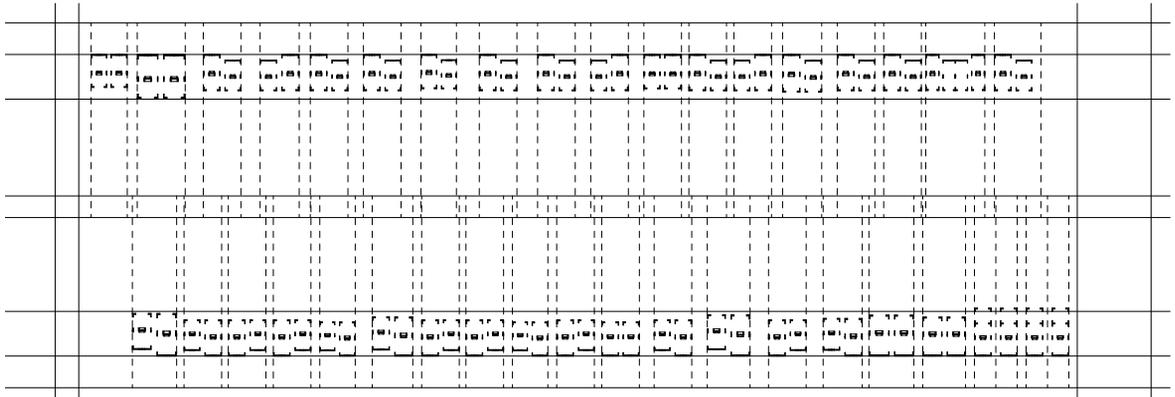
3. All walls of rear rooms are available for change, as this:
 - maximizes spatial opportunities.

4. Hallways are deliberately not drawn, but are formed of the spaces between left hand and right hand sided rooms, as doing so:
 - blurs the legibility of the traditional territorial boundaries of the individual house; and
 - renders the hallway spaces as hierarchically equivalent to the spaces between houses, thereby allowing them to be considered as undefined and potentially usable space.

45 The concept of 'character shaping' is discussed in Chapter 2.

Overlaid on the grid, the porous rooms read as remnants of the established settlement pattern of the individual houses (Figure 3.33), but viewed in isolation with the tree grid, they take on the generative framework of a larger unified housing system amongst a varied landscape field (Figure 3.34). Having dissected the study area down to the scale of rooms and understanding something of the programmatic of activity that those rooms can provide, the potential is established to work back out in scale across the block. This can be achieved by agglomerating a series of rooms into something that shares the underlying pattern and scale of a traditional suburb, into something that operates as non-traditional housing models might.

Figure 3.33 (top)
Figure 3.34 (bottom)
 An existing housing system forming a generative framework.



A note on dwelling density figures and nomenclature

In the examples that follow, 'existing housing/dwellings/buildings' refers to the villas and cottages, whilst 'architects' housing/dwellings/buildings' is used to describe the case studies that are being collaged.

'Existing make-up' refers to the current configuration of the study area and 'collaged make-up' to the arrangement created in the associated design experiment.

Dwelling densities are stated as *net* as opposed to *gross* densities. In using net densities, the areas factored into the calculations are limited to those within site boundaries and do not include all other areas outside the site that are required for access, such as footpaths and public roads. Dwelling densities are calculated by dividing one hectare (10,000m²) by the average site area per dwelling, including common areas, in order to arrive at the number of dwellings per hectare (dw/ha) that can be accommodated by the design typology described.

Net density has been selected for this work as that is the calculation method used by the South Australian Government across its policy framework, including Adelaide's *30 Year Plan*.⁴⁶ Direct comparisons can therefore be drawn between policy ambition and suburban capacity.⁴⁷

46 Government of South Australia, *The 30-Year Plan for Greater Adelaide: A Volume of the South Australian Planning Strategy*, (Adelaide: Government of South Australia, 2010), 72.

47 For a broader discussion on the State Government's definition, refer *Understanding Residential Densities: A Pictorial Handbook of Adelaide Examples*, (Adelaide: The Government of South Australia, 2006), 5-6.

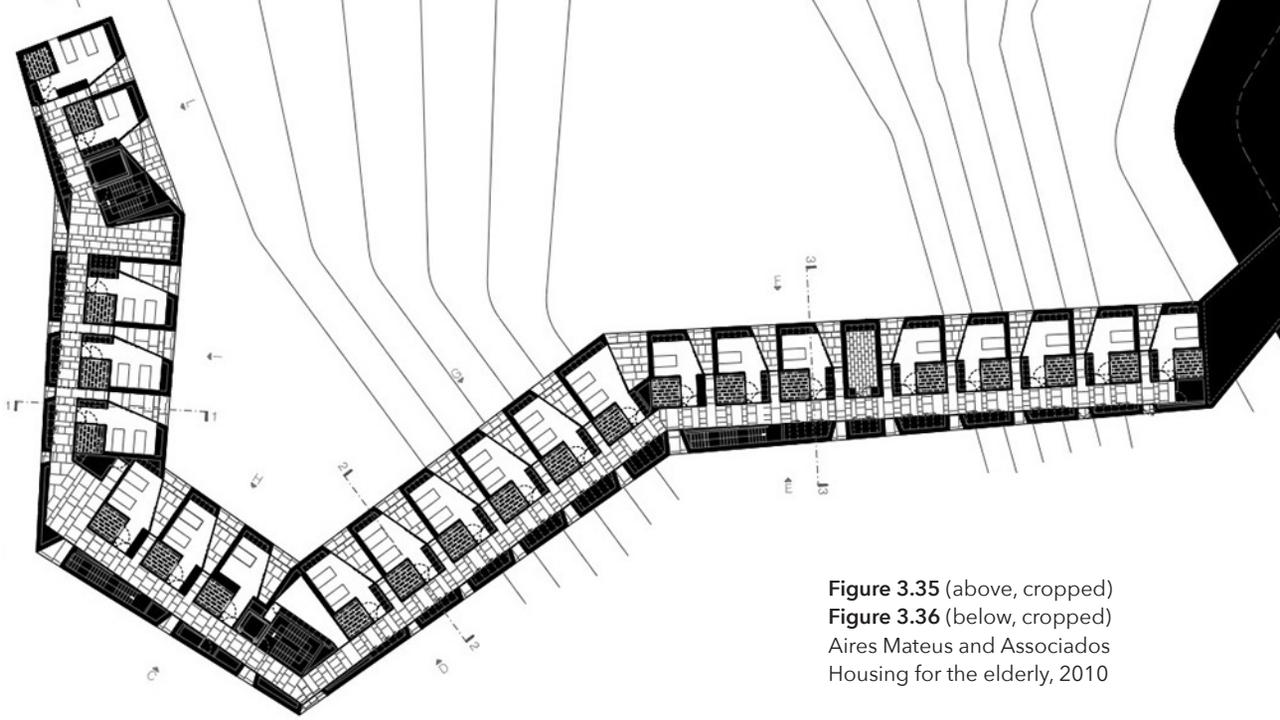


Figure 3.35 (above, cropped)
 Figure 3.36 (below, cropped)
 Aires Mateus and Associados
 Housing for the elderly, 2010

source: www.archdaily.com/328516/alcacer-do-sal-residences-aires-mateus/, accessed 9/9/14

Housing for the elderly, 2010

Location: Alcacer do Sal, Portugal
 Architect: Aires Mateus and Associados
 Typology: 3 storey linear strip building
 Existing make-up: 6 dwellings at 13.5 dw/ha
 Collaged make-up: 34 dwellings at 76 dw/ha

Described as being “somewhere between a hotel and a hospital, interpret[ing] the relationship between social and private, [and] responding both to the need to socialize and the need to be independent”,⁴⁸ the Alcacer do Sal project (Figure 3.35 and Figure 3.36) consolidates the communal gathering areas of living, dining and socialising on the ground level of the facility. The living quarters, arranged over the top two floors, use a generous corridor space to provide storage on one side, thereby freeing space in the apartments themselves. Arranged as a private hospital room would be, with one bedroom and a private bathroom, each unit has access to its own small balcony and is physically detached from its neighbouring units for acoustic privacy. The result is a housing facility that couples aged-care efficiency with sociable collective living.

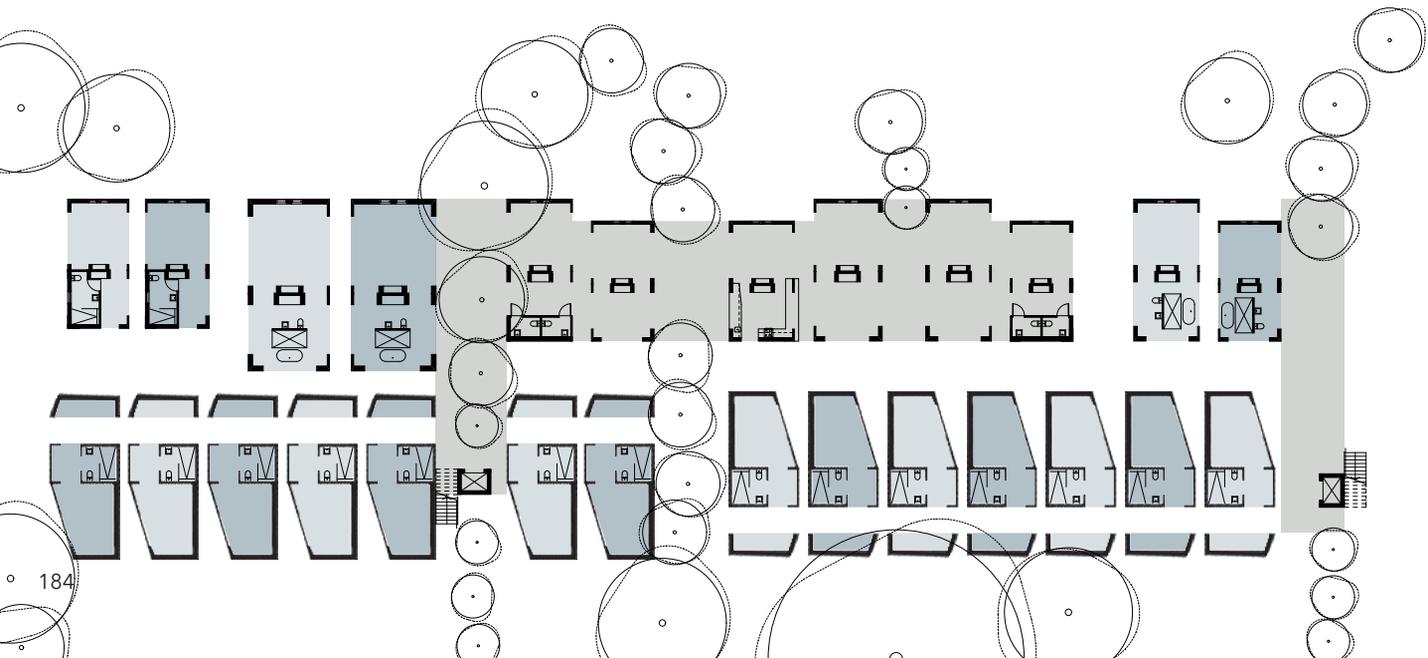


48 Fernández Per, Mozas, and Arpa, *Density is Home*, 130.

When translated to the study area (Figure 3.37), similar relationships are achieved by collaging the architects' dwelling units in mirrored and rotated plan arrangements at the rear of the existing housing. The existing housing is reconfigured as either complementary one bedroom / one bathroom discrete units or as agglomerated shared dining and living spaces. Existing hallways act in a similar manner to the interstitial spaces of the case study to provide acoustic separation between dwelling units, and the spaces between existing houses are colonised to link the common areas laterally across the site. The collaged housing units at the rear of the existing houses are imagined over two levels and are connected vertically by two lift towers at strategic locations amongst existing trees. The space between old and new buildings acts as a landscaped circulation buffer across the width of the project.

Figure 3.37
Collage study 1:
ageing in place at 76 dw/ha.

In collaging the architecture of two places it is tempting to focus on the considerable density increase attained - in this instance +560% to 76 dw/ha ('high density'). Of more interest and significance however, is the potential for the existing housing stock to serve a new housing purpose for an ageing population.



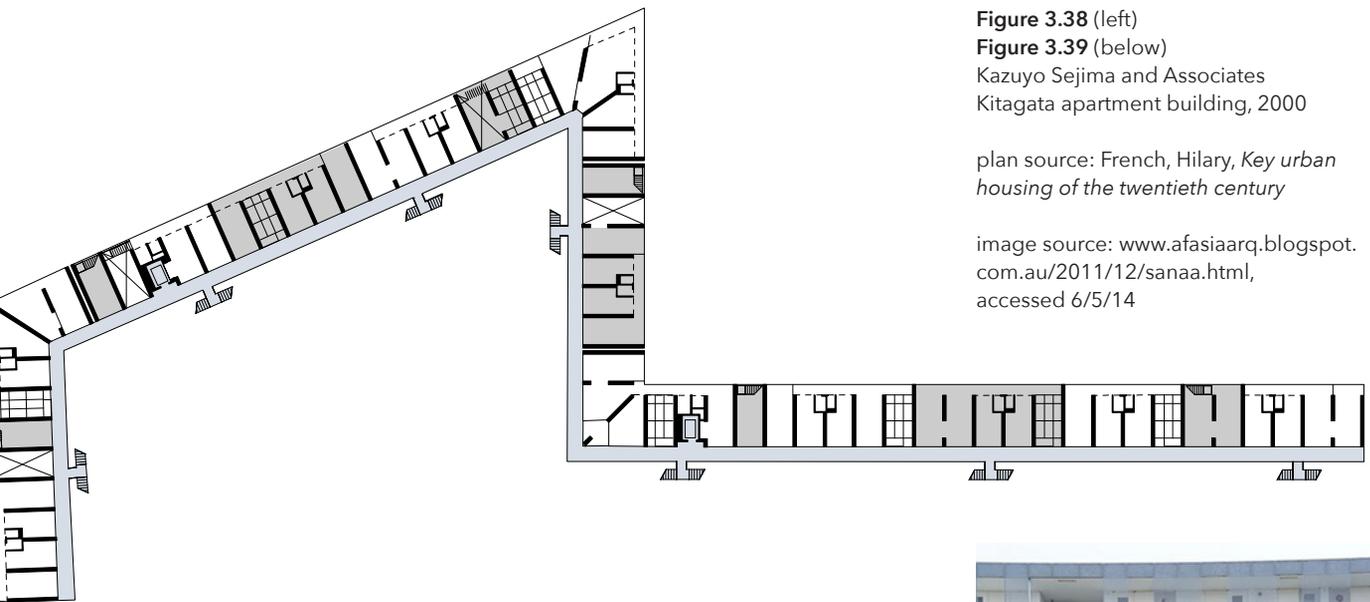


Figure 3.38 (left)
Figure 3.39 (below)
 Kazuyo Sejima and Associates
 Kitagata apartment building, 2000

plan source: French, Hilary, *Key urban housing of the twentieth century*

image source: www.afasiaarq.blogspot.com.au/2011/12/sanaa.html, accessed 6/5/14

Kitagata apartment building, 1994-2000

Location: Gifu, Japan
 Architect: Kazuyo Sejima and Associates
 Typology: 10 storey modular linear strip building
 Existing make-up: 10 dwellings at 14 dw/ha
 Collaged make-up: 11 dwellings at 15 dw/ha

One of four large apartment buildings that line the perimeter of a housing estate master planned by Japanese architect Arata Isozaki, Kazuyo Sejima's 7.2m deep ten storey tower is a collection 107 dwelling units over 10 storeys (Figure 3.38 and Figure 3.39). Arranged as a series of 2.4m wide rooms, together the spaces form 30 different apartment types ranging from 49-80m².⁴⁹ Connected by a 1m deep ablutions zone on one side and a 1.4m wide shared corridor on the other, each 4.8 x 2.4m room module is offered in two heights - 2.3 or 5.2m - which when combined, allow for housing types to be arrayed both horizontally and vertically. The result is a choice of housing configurations and spatial and formal variety as the building's height increases to provide double height spaces to approximately half of the dwellings.⁵⁰



49 Christian Schittich, ed. *In Detail: High-Density Housing: Concepts, Planning, Construction*, In Detail (Basel: Birkhäuser, Edition Detail, 2004), 82.

50 *ibid.*

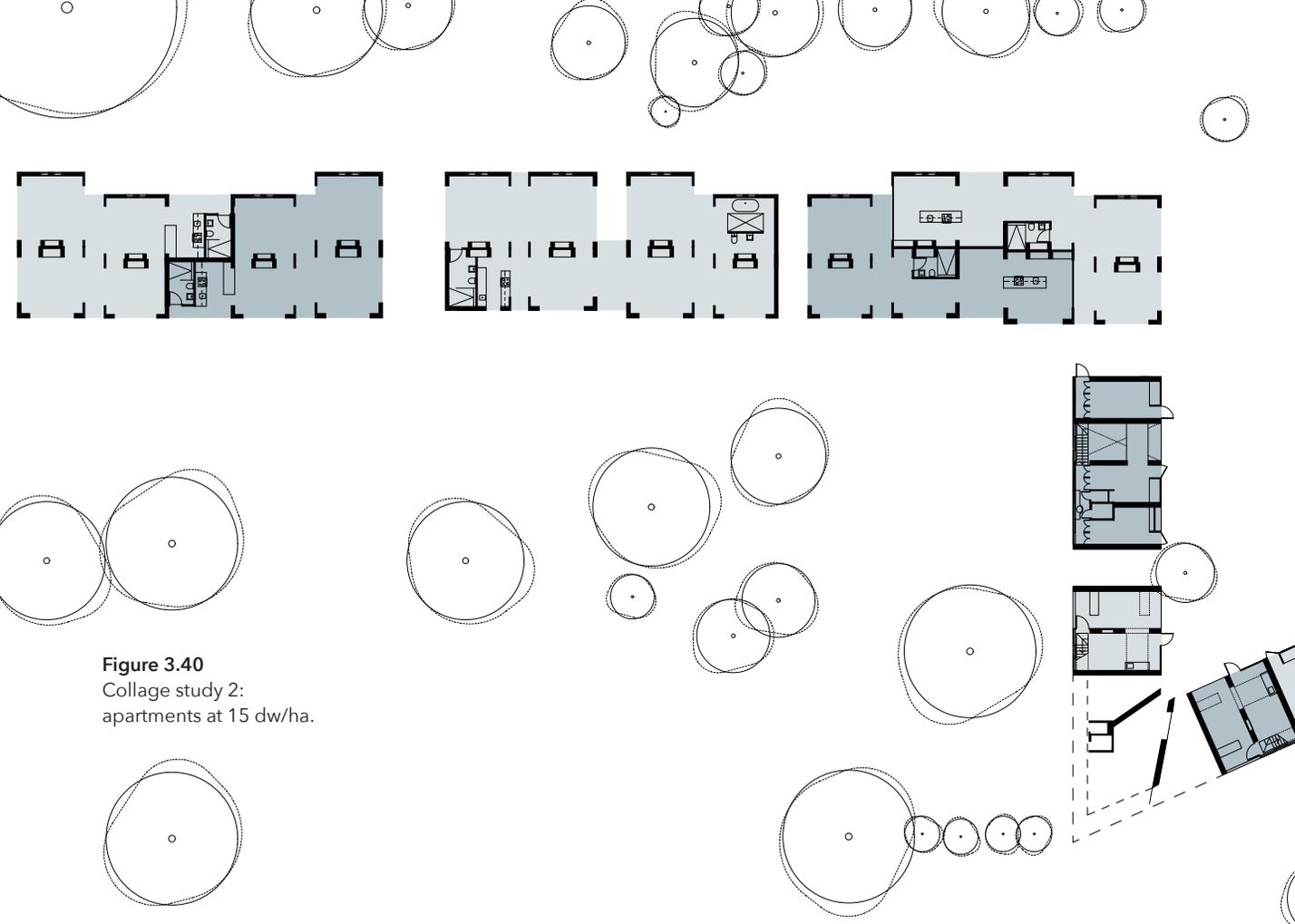
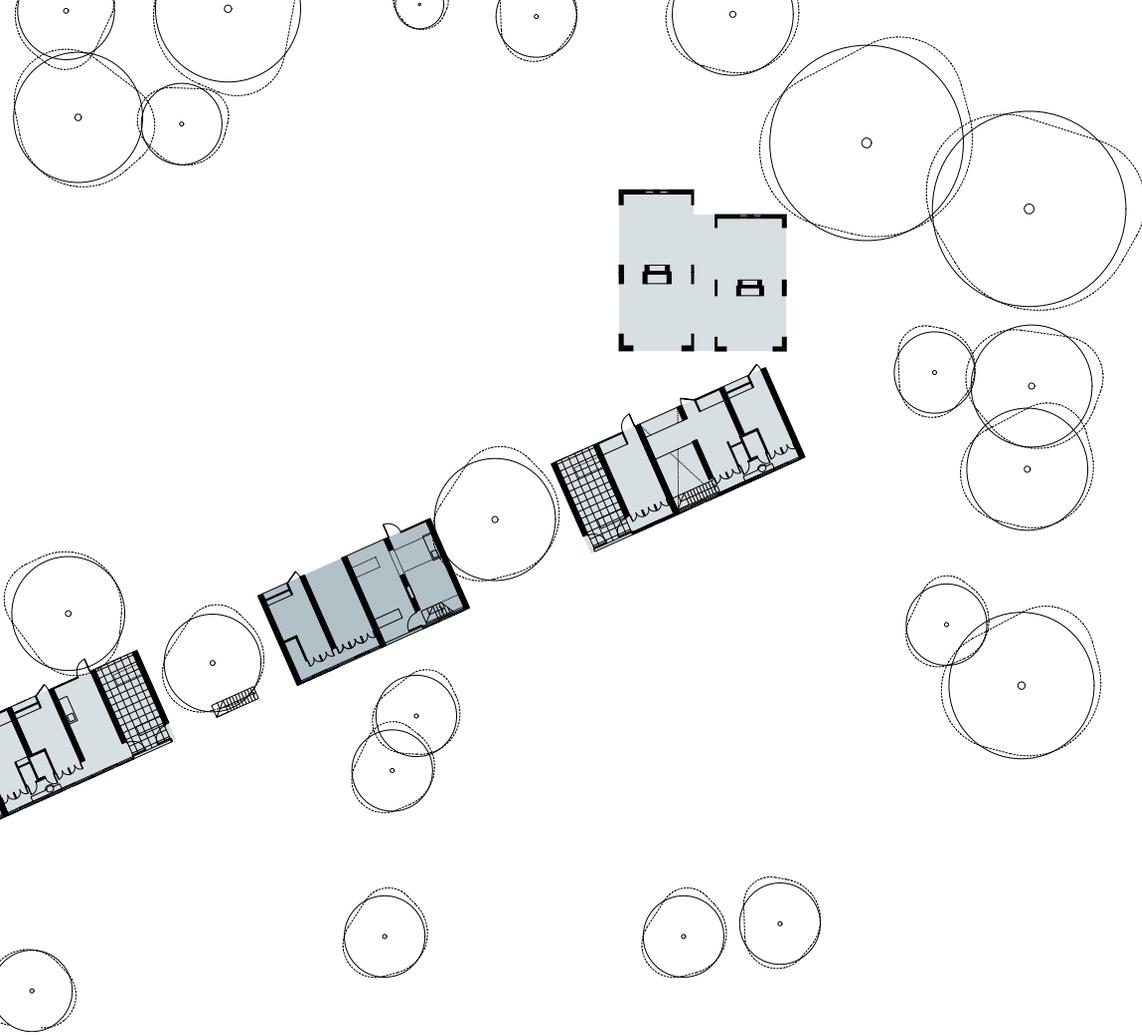


Figure 3.40
Collage study 2:
apartments at 15 dw/ha.

When thought of as a series of agglomerated rooms, rather than a singular apartment block, a resonance is struck with the *Porous Rooms* study. And the fact that the architecture of both the existing housing and that of the Gifu case study is room-based results in old and new spaces that are *room-like* in their makeup and therefore of a roughly equivalent size (Figure 3.40). Where the architect's room module is long and narrow, the existing housing can replicate this by combining two rooms using the porosity rules previously established. Existing open space at the front and rear of the existing houses replicates Sejima's linking corridors, which are removed from the collaging exercise in order to establish consistency across the scheme. Further lateral connections are achieved by establishing new infill elements between the existing housing and reconfiguring the tenancy divisions laterally across the traditional ownership lines.



The Gifu scheme, when reimagined in the Adelaide suburb, becomes a hybrid of old and new room elements but in the same configuration as Sejima's original scheme and of the same size in plan. Sejima's space-enclosing plan form is replicated in the pattern of the established housing and responds to the existing mature landscape mass, while the loss of three of the existing houses enables the large landscape area in the fold of the architect's scheme.

Thought of in the collaging exercise as a single storey strip house, the transferred apartment building becomes an exercise in maintaining current density but increasing housing diversity. Density increases, if desired, can be achieved by the inclusion of additional storeys.

Figure 3.41 (right)
 Figure 3.42 (below)
 Figure 3.43 (bottom)
 Mateo Arquitectura
 26 housing units, 2000

image source: www.mateo-arquitectura.com/projects/26-housing-units-in-amsterdam-the-netherlands/, accessed 20/3/15

plan sources: Heckmann, Oliver, and Friederike Schneider, eds. *Floor plan manual: housing.*



26 housing units, 1996-2000

Location: Amsterdam, The Netherlands
 Architect: Mateo Arquitectura
 Typology: 4 storey back-to-back row houses
 Existing make-up: 6 dwellings at 16 dw/ha
 Collaged make-up: 19 dwellings at 51.5 dw/ha

Sited at the end of the Borneo peninsula in West 8's master planned Borneo-Sporenburg housing development, Mateo Arquitectura's patio housing scheme maximises accommodation by playing to West 8's master plan's established design rules of building hard to the site edge in order to maximise density whilst taking advantage of the outward views of the surrounding water (Figure 3.41, Figure 3.42, Figure 3.43). Exterior space is replaced with internalised courtyards to provide light, ventilation and private open space. Creating housing of three varieties, "[t]he differing heights and recesses, introduced in the interest of lighting, are form-defining giving the complex an image of being simultaneously anonymous and animated".⁵¹ Raised above ground by one half-level and with a basement car park, almost all of the 26 townhouses have direct access from the street, with half of these presenting with a highly visible front entry deck. Providing individual entrances and street presences activates the street plane in a way that a traditional apartment building with a single entry foyer cannot. All dwellings are arranged over three storeys and are of 11 different housing types ranging from three to five rooms from 110-180m². Spatially, the complex is arranged as two strips of 11 back-to-back townhouses with street frontages, with a third shared-entry strip of four houses running perpendicular in order to bookend the peninsular.

51 Oliver Heckmann and Friederike Schneider, eds., *Floor Plan Manual: Housing*, 4th, rev. and exp. ed. (Basel: Birkhäuser, 2011), 324.

Such a pattern establishes a rhythm in plan that can be generally replicated in the rhythm of the existing houses (Figure 3.44). In the collaged exercise, the architects' housing is truncated into smaller part-plans to more closely resemble the depth of the existing housing stock and the additional space achieved is given over to a landscaped walkway between old and new buildings. The back-to-back relationship is therefore maintained, but given the spatial pressures of the original Borneo-Sporenburg are not in play, this is in a detached form to allow access to light, ventilation and landscape. The bookend relationship of the architects' scheme is replicated in minor form in the collaged exercise in order to reorientate the planning 90° to better relate to a newly formed major opening into the middle of the suburban block (Figure 3.49 on page 192 refers).

Whilst the existing housing stock has not been massaged into a fully attached townhouse scheme, this could be achieved by infilling the spaces between houses. Of more concern in this exercise has been the testing of fit when two disparate housing typologies are forcibly combined.

Figure 3.44
Collage study 3:
townhouses at 51.5 dw/ha.

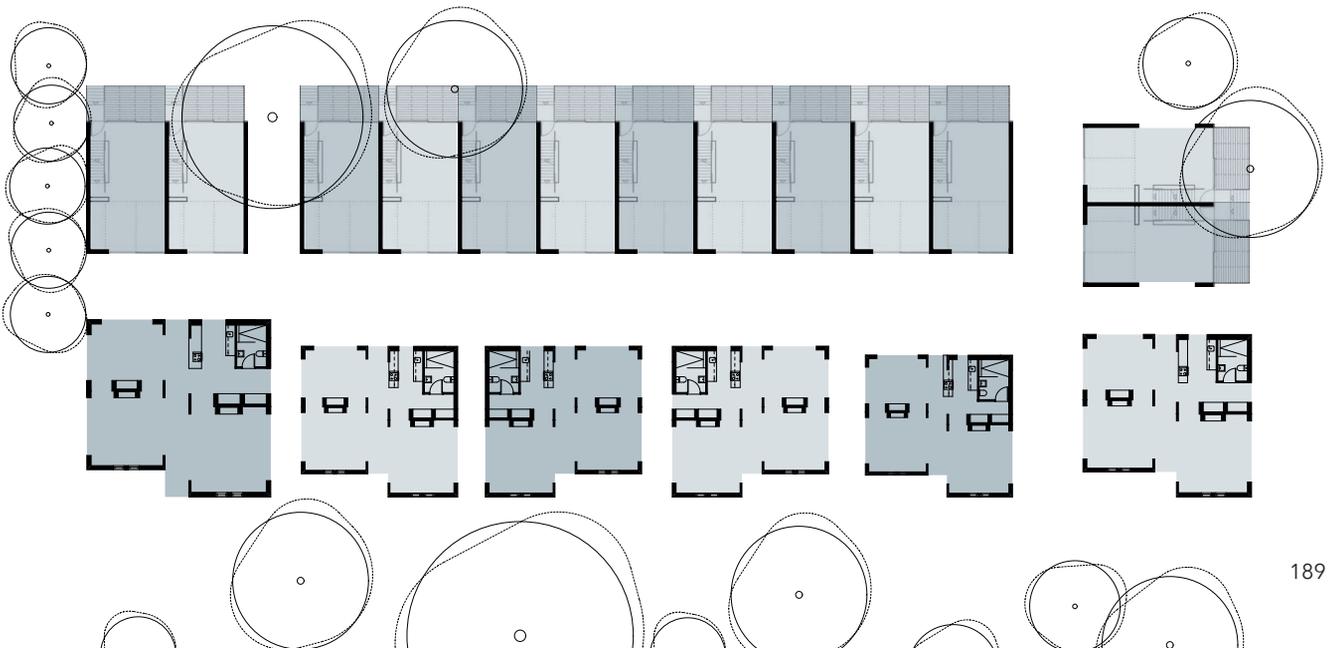




Figure 3.45 (above right)
Figure 3.46 (right)
 Steven Holl
 Void space, hinged space, 1991

sources: www.stevenholl.com/projects/fukuoka-housing,
 accessed 20/3/15

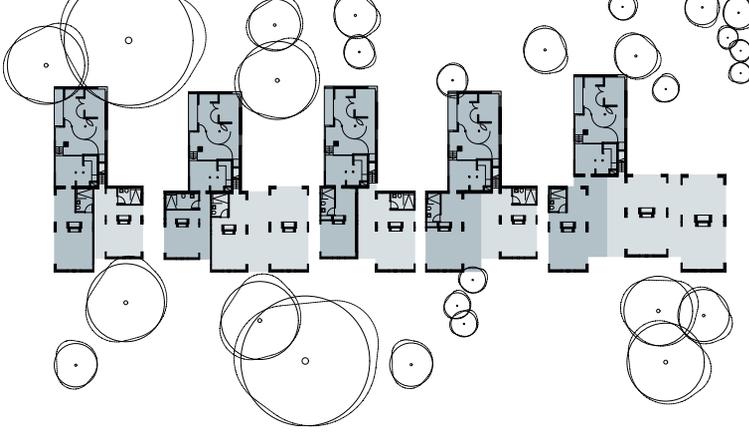


Void space / hinged space housing, 1989-91

Location: Fukuoka, Japan
 Architect: Steven Holl
 Typology: Linear finger-shaped block of crossover apartments arranged over four floors
 Existing make-up: 6 dwellings at 16 dw/ha
 Collaged make-up: 10 dwellings at 26 dw/ha

With an ambition to provide a variety of apartment choice, flexibility and divisibility via the incorporation of moveable internal partitions and joinery,⁵² the site of Steven Holl's void space / hinged space Nexus World housing was initially a limiting design factor (Figure 3.45 and Figure 3.46). Narrow in overall width for the size of the building required, access to natural sunlight to as many apartments as possible precluded a single massive building block. Holl's response was twofold: a finger shaped plan to allow light and ventilation laterally into the building across its width, and cross-over apartments so that at least part of each apartment had access to direct sunlight.

⁵² *ibid.*, 164.



The collaged design exercise replicates these two conditions, where the existing housing stock acts as the continuous spine off which the architects' jutting building elements can project (Figure 3.47). Imagined as a two storey development at the rear, the existing housing retains its single storey height but is bisected into half-buildings. One half links to an attached collaged addition at ground level whilst the other connects to it at a second level, with ownership of each pre-existing half being split. Similar to the 26 housing units study, the existing houses could be imagined as a connected strip by the provision of infill elements between them, if desired.

Evident in the collaging exercise is the complexity of planning that the existing four roomed housing type supports. It demonstrates that rethinking the relationship between the four rooms and the hallway and the traditional ownership divisions across houses, as shown in Figure 3.48, opens the housing choice and the nature of open space to new opportunities.

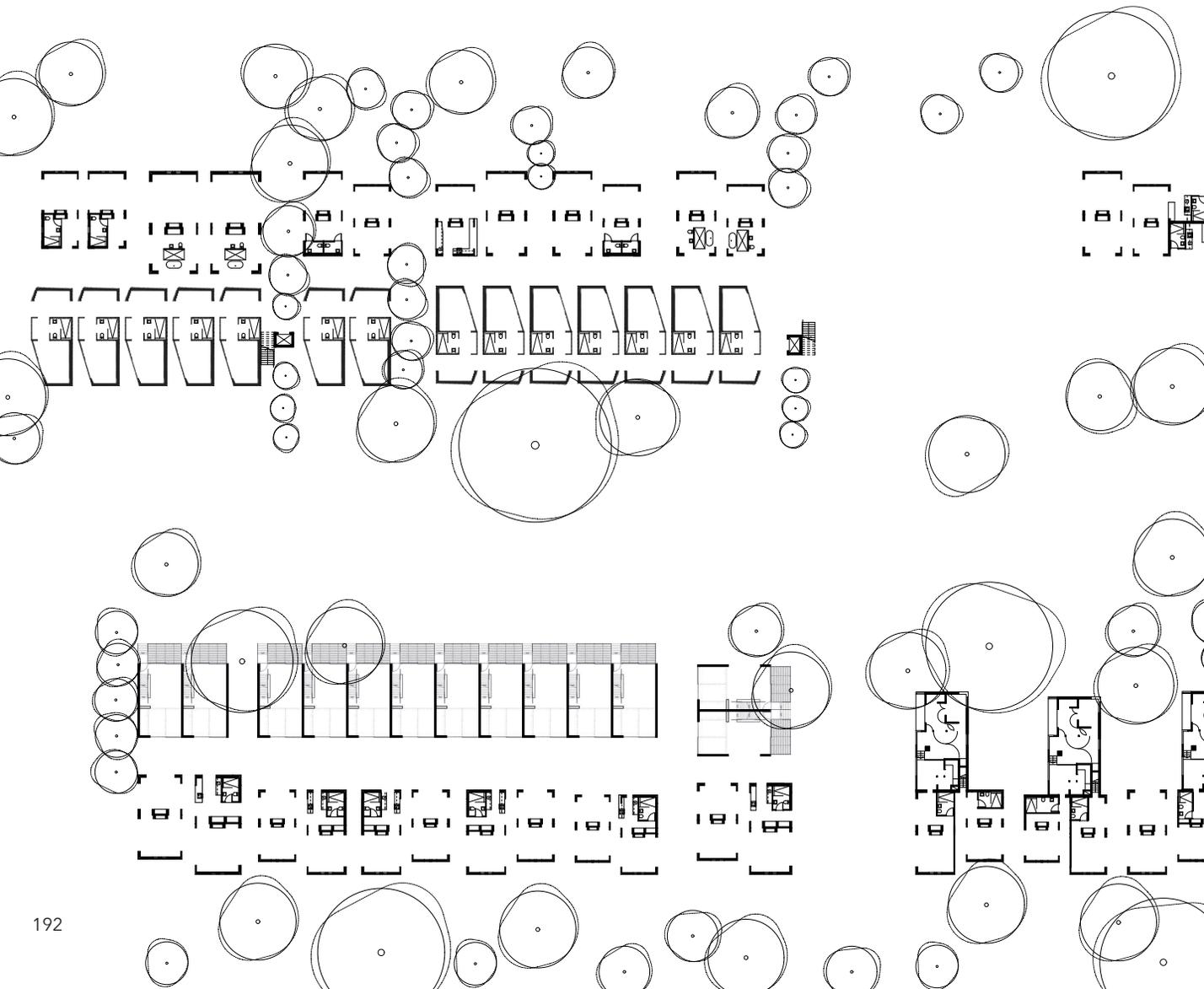


Figure 3.47 (above)
 Figure 3.48 (left)
 Collage study 4:
 cross-over apartments
 at 26 dw/ha.

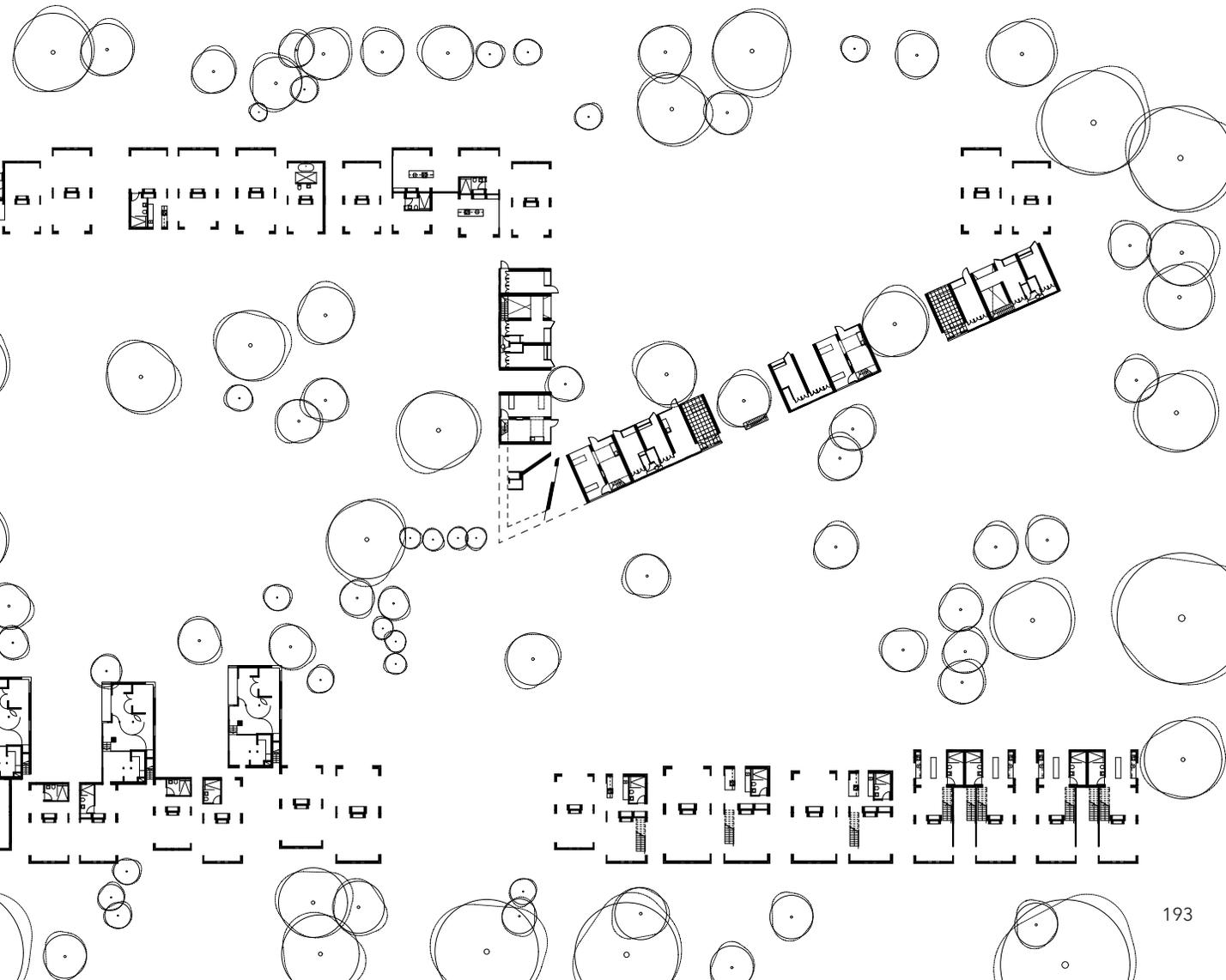
Figure 3.49 (below and facing page)
Collage study.

Diversity

Viewed across the entire block, what becomes apparent in the *Block Apartment* exercise is that density, the discussion of which in policy documents is based almost entirely on the ambitions of increasing housing numbers and is avoided altogether in discussion of the established suburbs, is only one component of what these suburbs might be able to support. A far more interesting and potentially useful outcome of the work is evidence of the vast capacity one inner Adelaide suburban block has to support accommodation of a variety of types, where diversity rather than density is the guiding principle (Figure 3.49).



Conceptually, the established Adelaidean settlement pattern adapts equally well to a space-enclosing strip building as it does crossover apartments, townhouses or units for ageing people. When observed in its current form, a traditional neighbourhood block reads as somewhat impenetrable, compact and tightly packed, despite the fact it is formed from multiple allotments each measuring around 700m². To illustrate the spatial capacity achieved when allotments are agglomerated into a single entity, a final piece of notable urban infrastructure is collaged into the scheme: New York's elevated Highline urban park.





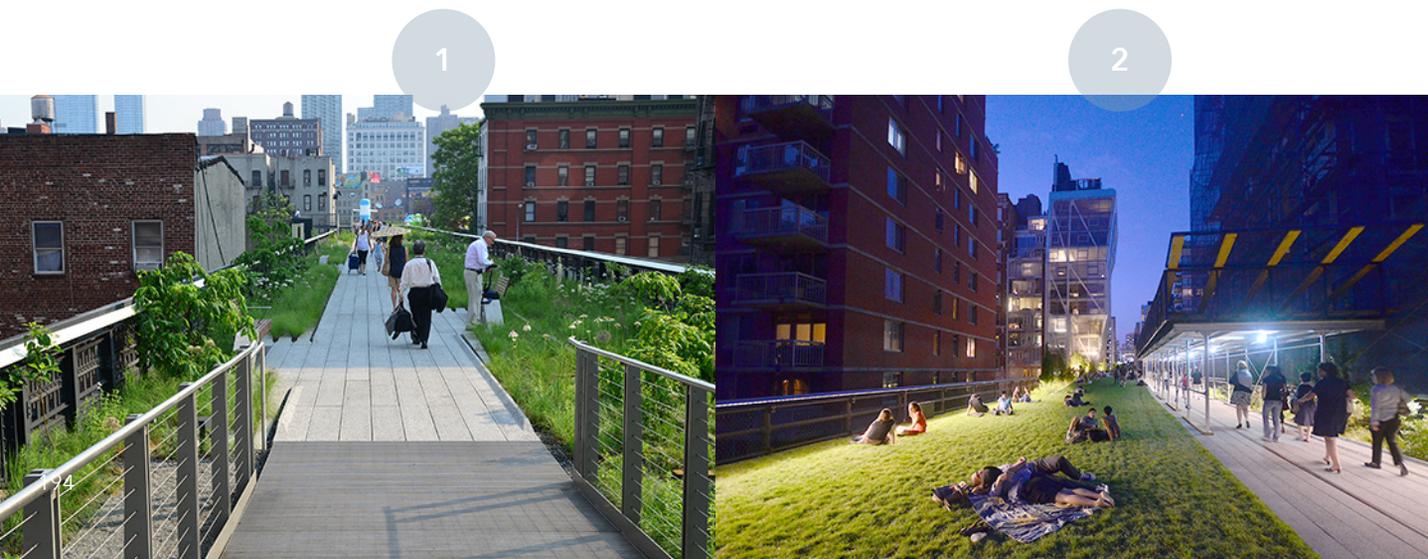
The High Line, 2003-14

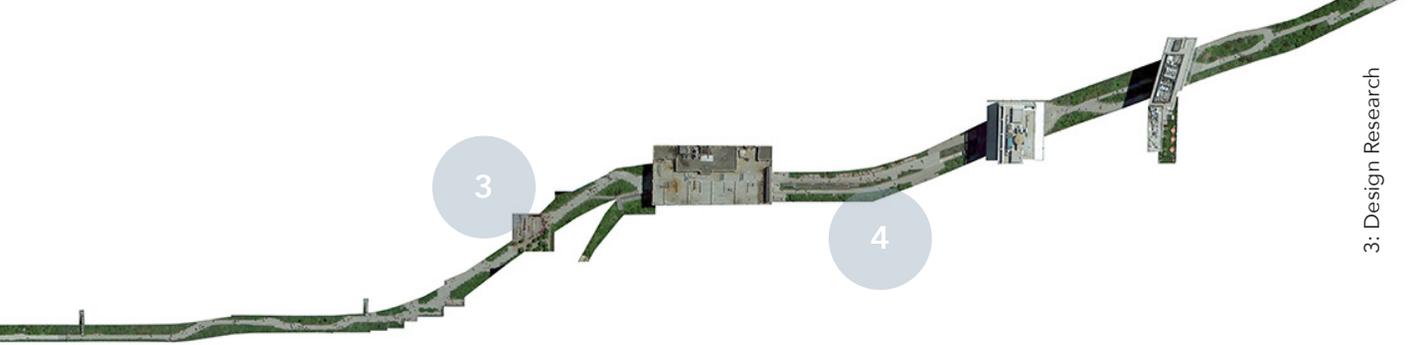
Location: New York City, USA
Designers: James Corner Field Operations, Diller Scofidio + Renfro, and Piet Oudolf
Typology: Urban park on disused elevated railway infrastructure

There are so many extraordinary stories surrounding the High Line: its history; the activism of the Friends of the High Line; the economic development strategy of the politicians who supported it; its influence within a broader cultural context.⁵³

So reads the introduction to the designers' 2015 monograph of the High Line project, a transformative urban park that has served not only as an additional valuable source of open green space in New York City, but has become an economic generator for the neighbourhoods through which it snakes along its 23 city blocks (Figure 3.50 to Figure 3.54).

53 James Corner Field Operations and Diller Scofidio and Renfro, *The High Line* (London: Phaidon Press, 2015), 9.





Its utility in this collaging activity however, has been its ability to serve as a benchmark for the types and sizes of landscape spaces that one inner-Adelaide suburban block might house.

Built over three stages to encompass 2.4 hectares in total, stages one and two of the High Line, accounting for approximately 1.6 hectares of landscape, have been collaged across the site in multiple configurations (Figure 3.55).

Such an exercise is a test not just of capacity or fit, but of the quality of spaces that might be achieved. In retaining only those building elements that constitute the original four roomed houses (as described in Figure 3.30 on page 177), a landscape depth of around 50-60m is released within which the Highline might be dissected and strategically arrayed.

Figure 3.50 (above + facing page)
Field Operations *et al*
The High Line Stages 1 + 2, 2014
source: Google Earth (modified)

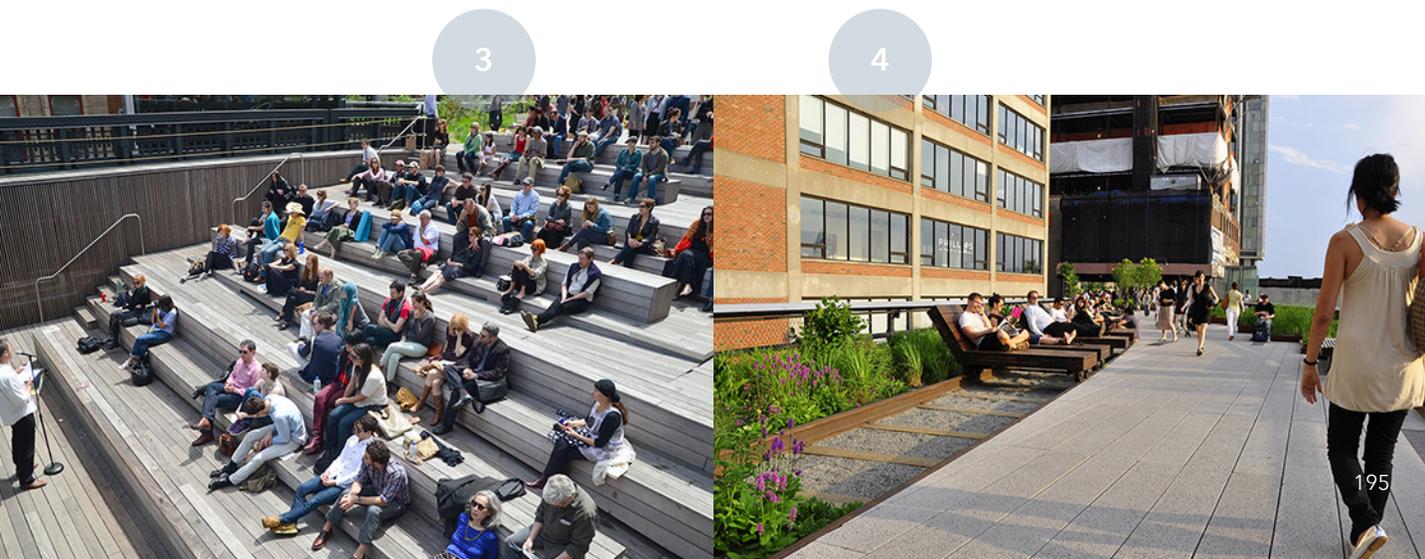
Figure 3.51 (facing page, left)
Stage 2 walkway

Figure 3.52 (facing page, right)
23rd Street Lawn

Figure 3.53 (below left)
10th Avenue Square

Figure 3.54 (below right)
Diller von Furstenberg Sun Deck

source: Karen Blumberg
Flickr (creative commons)
www.flickr.com/photos/specialkrb/5853694534/, [5812457750/](http://www.flickr.com/photos/specialkrb/5812457750/),
[5701520091/](http://www.flickr.com/photos/specialkrb/5701520091/), [3680318653/](http://www.flickr.com/photos/specialkrb/3680318653/),
accessed 21/1/16



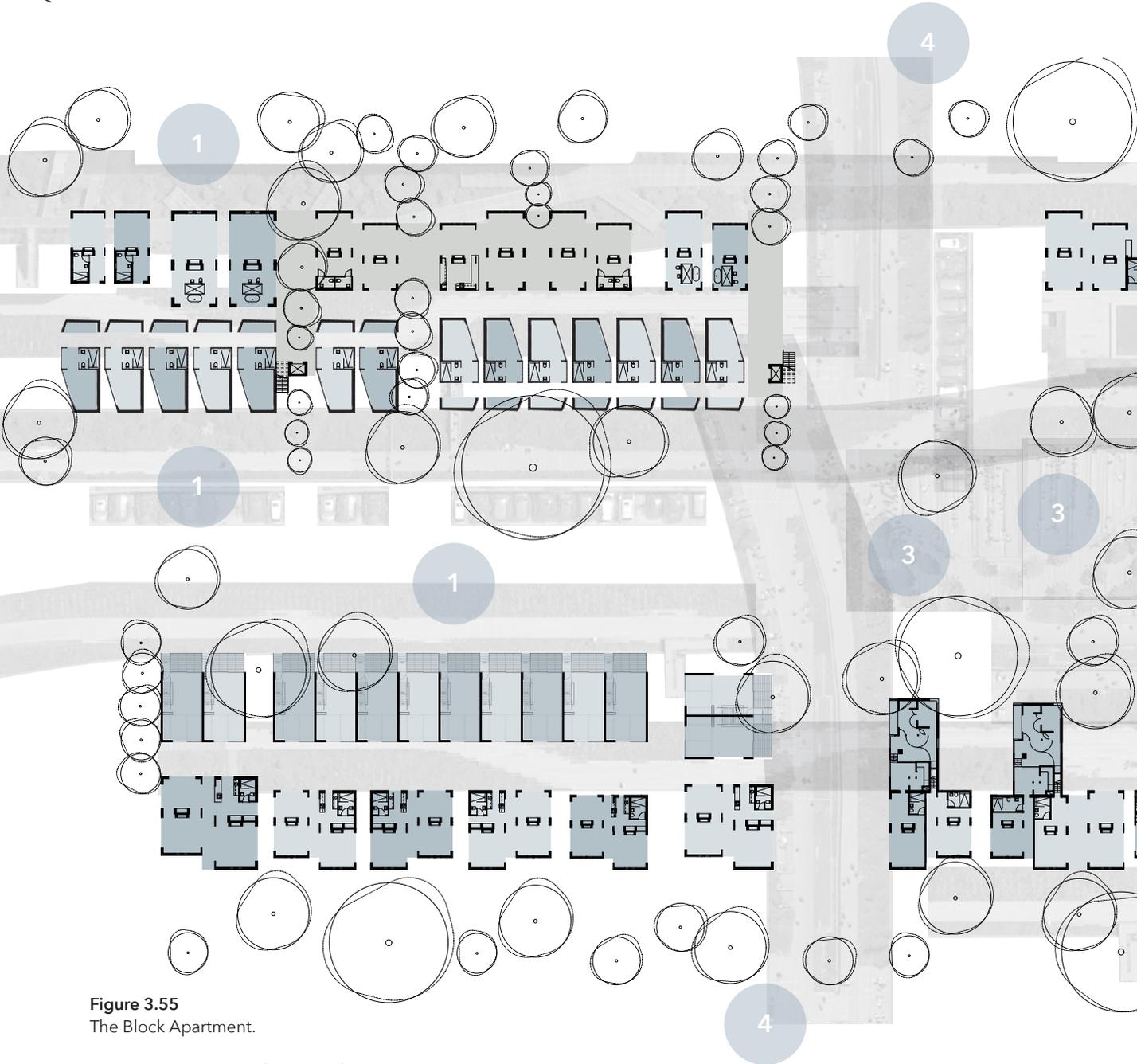
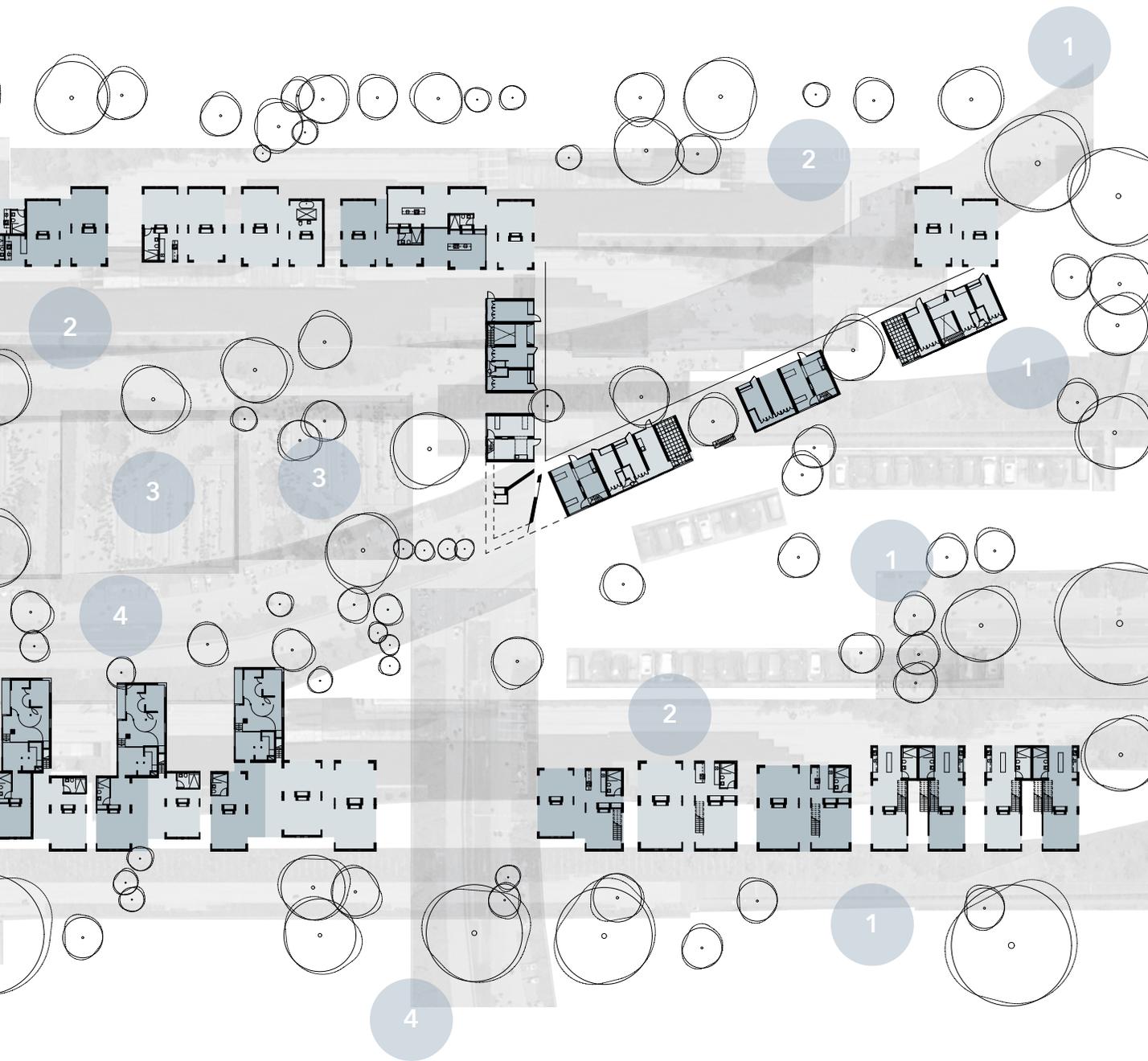


Figure 3.55
The Block Apartment.

- 1 = Stages 1 and 2 High Line walkways
- 2 = 23rd Street Lawn
- 3 = 10th Avenue Square
- 4 = Diller von Furstenberg Sun Deck



In the collaged scheme, this series of spaces might be reimagined as being formed of multiple High Line landscaped and urban forms:

- Stage 1 and 2 walkways and garden beds (identified as '1' in the diagram): generally measuring around 8m in width and providing a variety of landscape, seating, walking and viewing options, these have been collaged variously between and around buildings.
- The 23rd Street Lawn ('2'): measuring 8m wide by 80m long, used as a gathering space and supplemented with raised decking for seating, this is collaged into the study area three times.
- The Diller von Furstenberg sun deck ('3'): a 16m wide by 75m long strip consisting of an 8m wide band of sun lounges, path and a water element for feet cooling in spring and summer, plus an adjacent 8m wide walkway and garden bed; this is cut up and collaged into the study area four times.
- The 10th Avenue Square ('4'): the largest single space in the Highline at approximately 20x20m and a terraced gathering place, this is collaged into the study area four times.

Observed in the collaging of well-known pieces of urban infrastructure into an inner-Adelaide suburban setting, is the spatial capacity the suburbs have when existing building matter is pared back to the original housing structures and then accreted back to a more fully occupied proposition. Evident in these exercises is:

- the quite considerable size of the block relative to the sites of the collaged case studies;

- the potential malleability of the existing housing stock when it is used as the spatial basis for the borrowed housing types;
- the equivalence of size between an Adelaidean four roomed house and seemingly incompatible contemporary urban housing of other cultures;
- the transferability of alternative housing systems to that existing housing stock; and
- the resultant housing choice,⁵⁴ household diversity, and increase in housing numbers that might be realised through such an architectural and urban rethinking.

Significantly, both the quantity and potential quality of open space that might be sustained by our suburbs has become evident, and importantly this has occurred whilst mapping and retaining the existing mature landscape across the block.

As an architectural process, *The Block Apartment* began with the proposition that the differences between an internationally-recognised contemporary apartment block and the settlement pattern of Adelaide's Victorian housing might not be significant when viewed across a broader territory and comparisons might yield clues for new housing types. The consequence then of having achieved speculative territorial schemes as a result of room-scale tactics, is that one can then work back across scales reflectively, as a logical extension of the task.

This is the objective of the resulting outward communication studies.

54 I define housing 'choice' broadly, as described by Lewis, for whom "[c]hoice is about a lack of restriction, not compromising future options, a more democratic way of using the built environment. We all like to have a choice of how to get somewhere - to walk, cycle, take a bus, or even take a different route. And we all like to know that we are not 'stuck' somewhere and that our life choices will broaden rather than be restricted", in Sally Lewis, *Front to Back: A Design Agenda for Urban Housing* (Oxford: Architectural Press, 2005), 39.

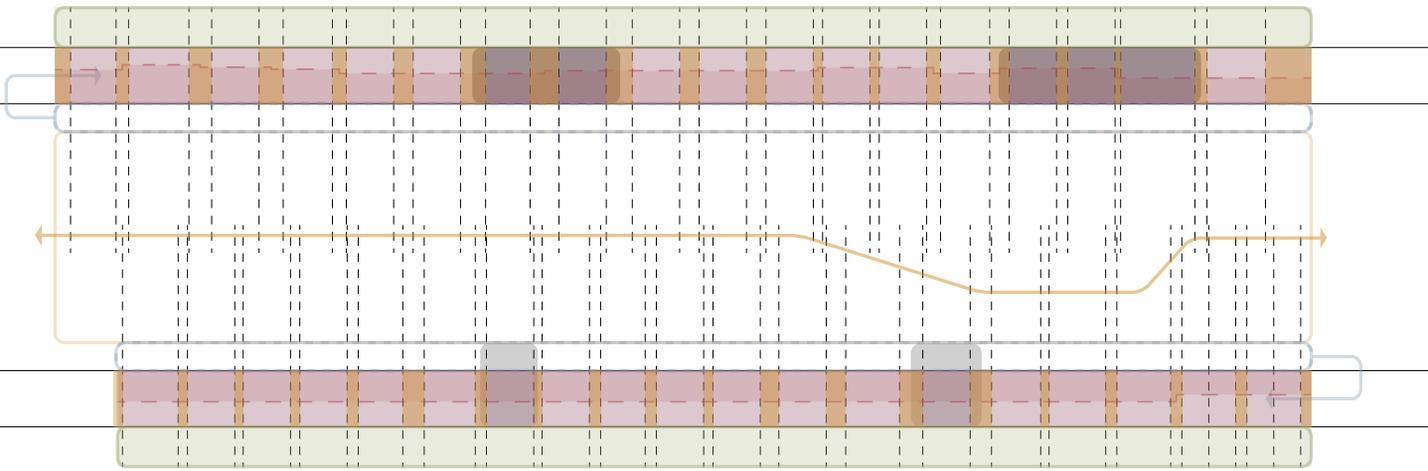


Figure 3.56
Seven Design Tactics.

3.3 Communication (outward) studies

Communicating 1: Seven Design Tactics

Witnessed in the three preceding internal and heuristic design experiments is a range of schematic options that suggest inner-Adelaide's established housing might support change by becoming smaller or larger and by either increasing or maintaining current density levels whilst enabling diversity of housing choice. Underlying these new models is an assumption that one might operate across traditional titles into broader territories. Under these conditions it becomes plausible that some dwellings could combine into bigger houses with multiple kitchens, bathrooms, utilities and circulation spaces - a scenario that might see members of the same family or friendship group purchase adjacent properties together and live semi- or wholly-collectively. As such, our suburbs might not only grow down in size but up, as suburbs accommodate not just smaller houses in greater numbers, but larger, more varied and more independent houses. Depending on the design devices employed, minor physical change such as spreading ownership laterally across houses, is a realistic outcome where major organisational change results from largely invisible physical change - refer for example, to Figure 3.37 on page 184, Figure 3.40 on page 186 and Figure 3.48 on page 191).

A mechanism is required, then, to take the observations found in the three internal studies and reconcile them in the form of usable strategies that might be deployed by others in order to consider individual sites as a singular precinct or apartment block so as to help unlock organisation change combined with physical change. This is the focus of the *Seven Design Tactics* exercise (Figure 3.56).

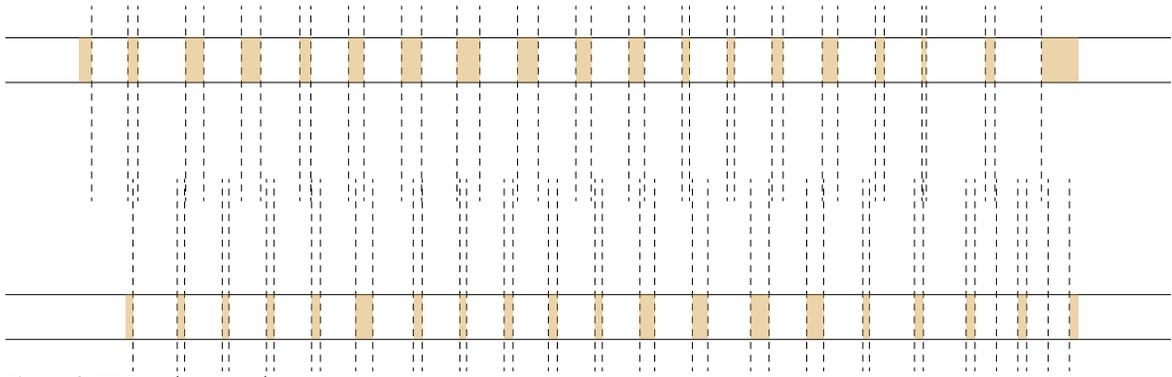


Figure 3.57 Lineal interstitial zones

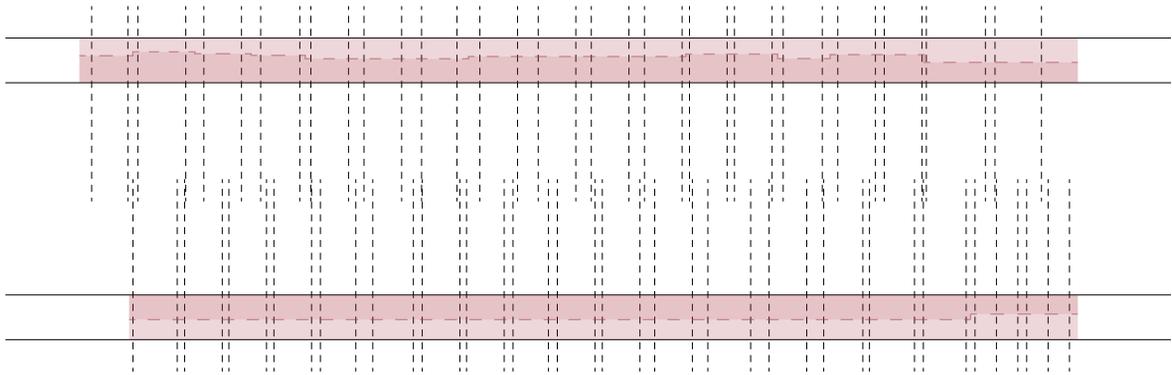


Figure 3.58 Lateral titling

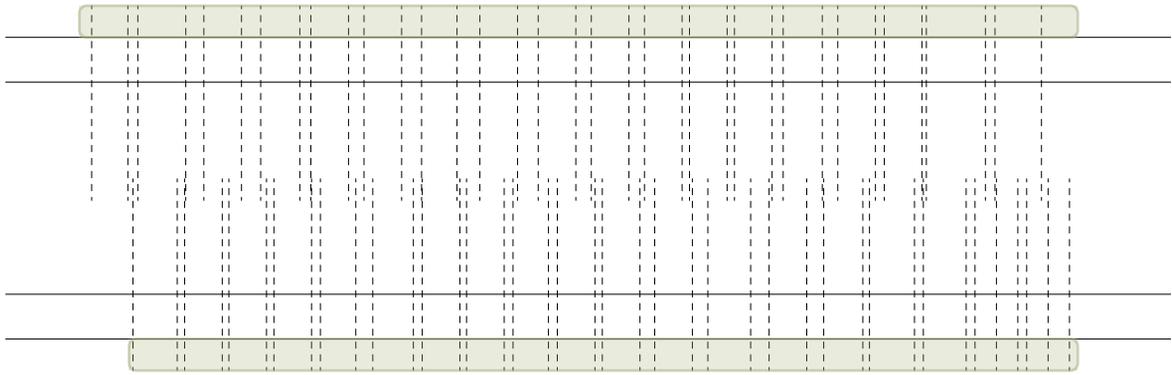


Figure 3.59 Active front yards

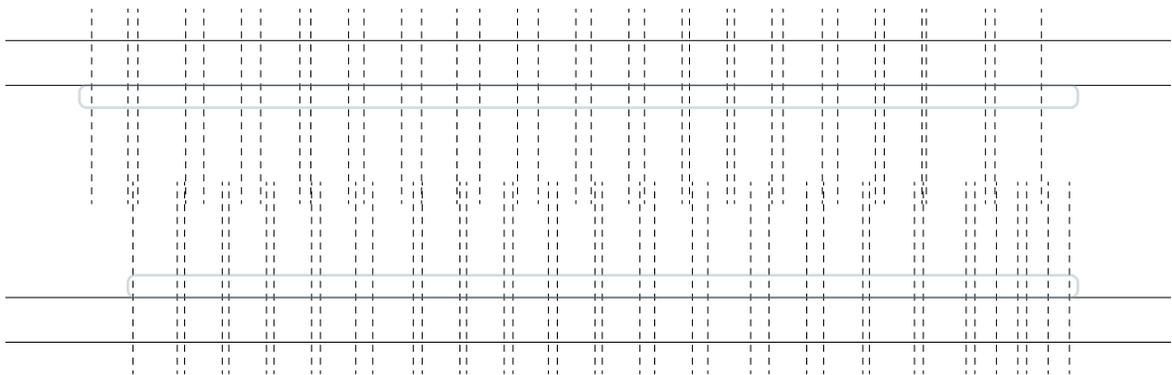


Figure 3.60 Malleable lean-to zone

In direct terms, the *Design Tactics* reflect on and marshal the abstract graphic overlay work of *Grid Block* and the more formal architectural design investigations of *The Block Apartment* in order to produce a set of seven generative strategies:

1. Lineal interstitial zones (Figure 3.57):
Occupying the space between the side walls of existing houses and presenting a dispersed series of small spaces laterally across the site, these are the areas that encourage spread across traditional title divisions. They are premised on the idea that dwelling might spread across collective space rather than existing ownership divisions.
2. Lateral titling (Figure 3.58):
An imaginary datum along the chimney lines of the existing houses to separate the front rooms from those at the rear, this lateral division line reconfigures titling parallel to the traditional street frontage in lieu of running perpendicular to it. This opens space behind dwellings for new use.
3. Active front yards (Figure 3.59):
Reconsidering titling arrangements parallel to the street requires front yards to return to their traditional more highly activated state. This assists in retaining mature landscape at the street edge of sites, aids in protecting the established streetscape and encourages a more active and social street presence.
4. Malleable lean-to zone (Figure 3.60):
The zone of land approximately 3m deep at the back of the existing houses. Gathered as a pair of linear strips across the width of the suburban block where the original lean-tos once existed, the space allows the opening of the back walls of the existing houses to light, ventilation and access and creates opportunities for internal lateral streets or walkways. The term 'malleable' refers to the fact that this zone may be landscaped, built on or a combination of the two: whilst most lean-tos have been demolished or absorbed into later building work beyond recognition, some still remain and their continued retention can form part of this reconfigured lean-to zone.

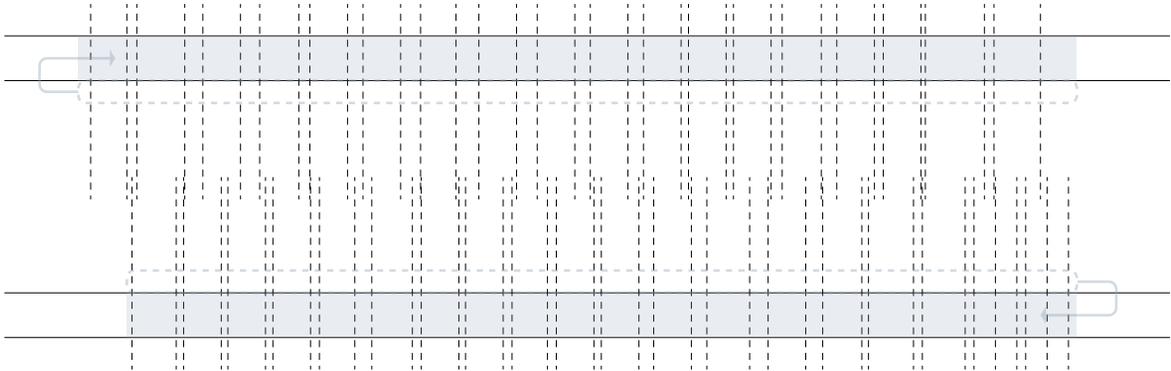


Figure 3.61 Strategic spatial exchange

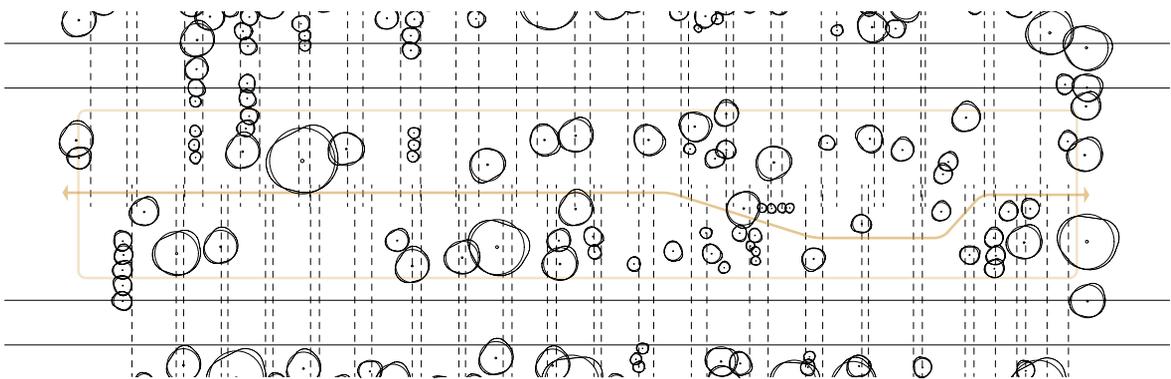


Figure 3.62 Binding lateral zone

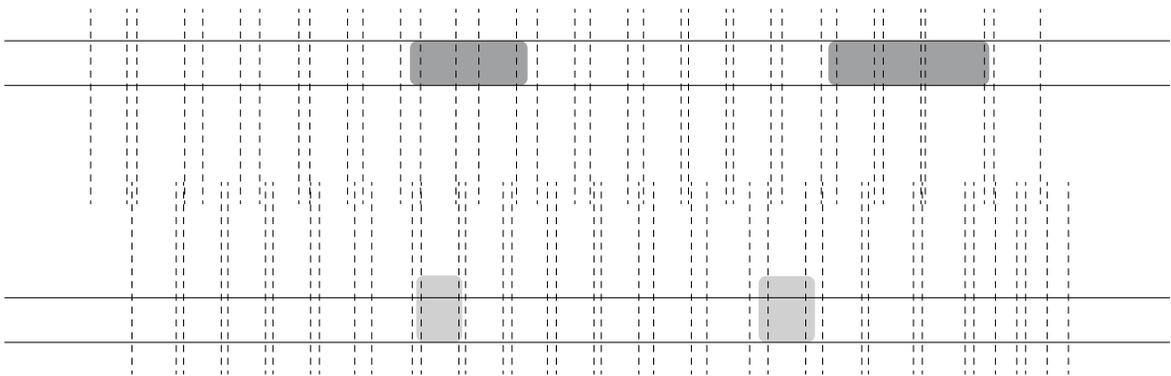


Figure 3.63 Strategic loss - a:minor (light); b:major (dark)

5. Strategic spatial exchange (Figure 3.61):
The two pairs of building zones across a suburban block formed by the band of building that is the existing houses and the band of lean-tos behind them. The loss of a lean-to, although individually small, creates an accommodation deficit when the house is reduced to only four rooms and a hallway. The tactic of exchange encourages the accommodation of one building element (the lean-to) to be folded into the other (the existing house) through building up or out or via internal division. The loss of building elements in the lean-to zone allows the gain of something else such as landscape or alternative accommodation models.
6. Binding lateral zone (Figure 3.62):
The area between the back walls of existing houses that most commonly measures between 50 to 60m. When considered as a single land mass it becomes a zone for the retention of mature landscape and for the strategic gain of building matter, landscape and inner streets, including parking and laneways. It is generous enough in size to accommodate insertions around existing trees that are considered desirable for retention.
7. Strategic loss (Figure 3.63):
 - a: minor - the deliberate loss of one dwelling in order to achieve other gains as part of a broader spatial strategy.
 - b: major - the deliberate loss of two or more dwellings that may or may not be immediately adjacent or behind each other in order to achieve other gains as part of a broader spatial strategy.

Seven Design Tactics is generative. The manner in which each tactic is expressed is deliberately open and abstract. One might imagine, for example, applying 'lateral titling' in combination with 'lineal interstitial zone' in order to create new outcomes. This thinking could be applied to any one tactic at any scale in order to design experimentally. Importantly, these tactics, borne of local research and presented logically, can be experimented with by others. Indeed, an argument can be made that for the tactics to be truly generative, they *must* be tested by others as a means of escaping the individual architect's tropes that might just as easily inhibit possibilities as enable them. Inasmuch as they set up principles and frameworks that are alternatives to current policy, which it has been argued in Chapter 1 are vague and generic, the tactics offer a way of speaking differently: of compelling us to find the suburban eccentricity that is already there and transforming what we think we already know.

When combined, as in Figure 3.64, the tactics and the manner of their abstract drawing imply a form of mat building readable as a graphic landscape. Enabling the conceptual detachment of lean-tos and all other accrued building extensions and reducing building matter to the original four roomed structures means that those structures can strategically be joined together sideways quite easily, as each room retains access to light. Insofar as the existing gaps between buildings currently operate as easements between buildings, they might become connective and filled with elements such as kitchens, bathrooms or entrances so as to form another way of doing a mat building. This thinking is a liberation of the villa and cottage, in that it reinvents the traditional mode of accretive growth to the rear and reimagines it laterally: backyard growth replaced by side yard growth where the newfound central land mass behind the existing housing stock becomes ground for new investigations.

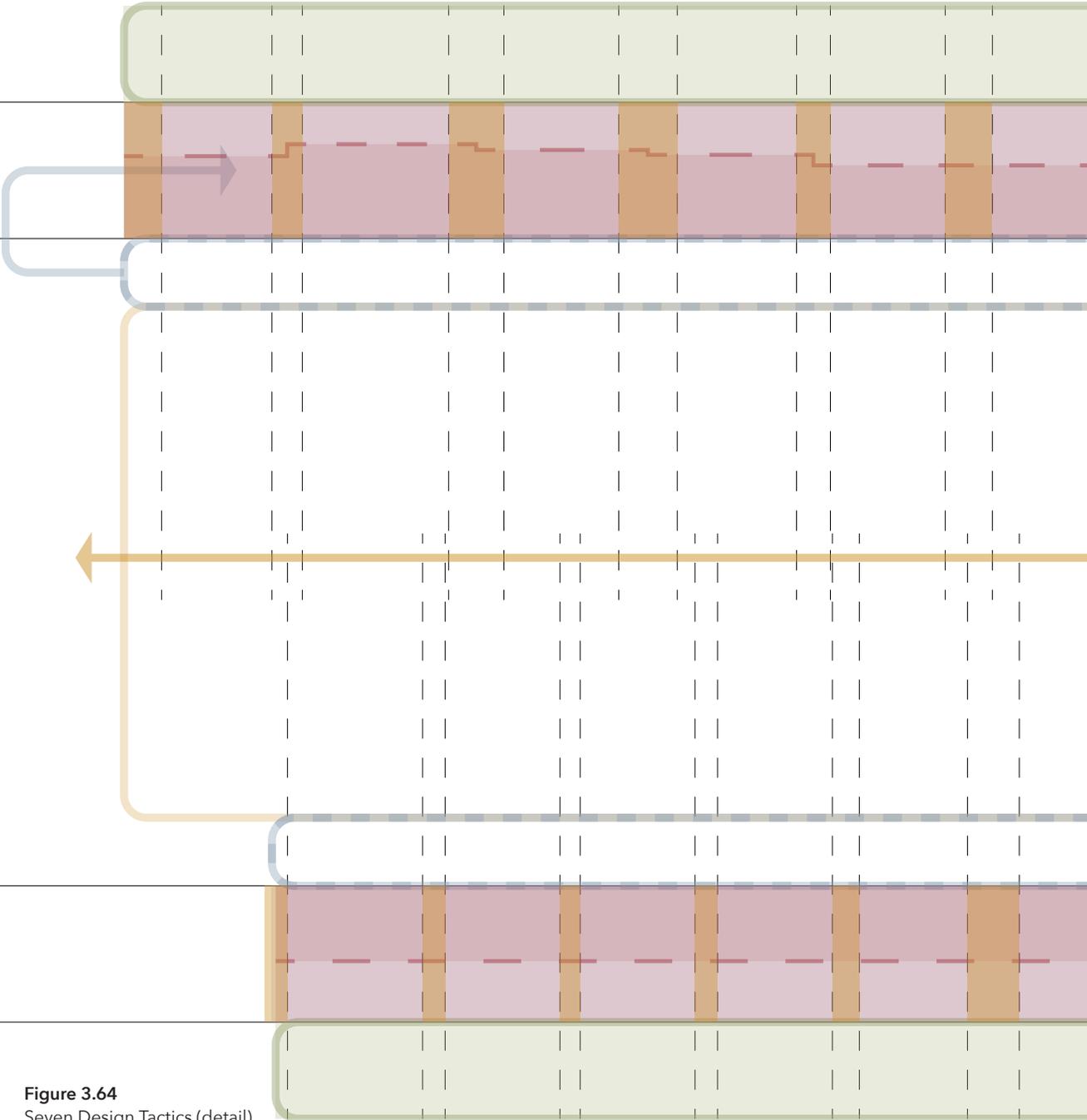


Figure 3.64
Seven Design Tactics (detail).

Communicating 2: Algebraic Siting Strategies (and the student design experiment)

Distilling the underlying structure of personal design exercises into a framework of *Seven Design Tactics* that can be used by others in their own studies provides a set of tools with which to approach a neighbourhood block. In the case of this work, those 'others' were a cohort of third year undergraduate architecture students at the University of South Australia (UniSA). As a group established to undertake design experiments on the suburbs, architecture students (particularly those in the early to mid stages of their degree) provide a desirable combination of qualities and are generally already receptive to the ambitions of localised design experimentation:

- studying locally, they have either an inherent understanding of the make-up of Adelaide's suburbs or are otherwise able to develop a localised understanding quickly;
- in the absence of any previous contextual investigation, this understanding is likely to be based largely on aesthetic grounds and the ability of the design tactics to broaden their thinking can therefore be witnessed;
- having only had two full years of architectural studies prior to commencing the design experiment, they present with foundational architectural and urban design skills but are yet to experience the need to yield to the societal and professional norms that practice-based work brings and experimentation therefore comes naturally to them; and
- with the majority of the group aged in their very early twenties, the cohort for the most part is architecturally and socially young and therefore generally presents as one already invested positively in the idea that providing

housing choice in the established suburbs is sound, is one that could have enormous effect on their own future housing needs and that there is no predominant reasoning for why the established suburbs should not form part of the city's broader housing needs conversation.

Having established the design tactics with which to experiment, but not the metrics of the block itself in order to commence, the question remains of how an area of investigation will be selected or otherwise established in order for design investigations to be undertaken. Whilst one could target a selection of actual suburban blocks to study (and this in itself is a useful comparative exercise as described in the design projects of Chapter 4), it has limited outward effect and is potentially restricted in its broader applicability. Of more utility is the ability to be specific-enough with a site selection in order for it to speak of its Adelaidean context, yet generic enough so as not to be restricted by the limitations of an actual suburban block. By 'limitations' I mean the particular aesthetic, historic, cultural, commercial or property value traits of an actual precinct. This deliberate distancing from the idiosyncratic matter of an actual place regardless of its location in inner-Adelaide reinforces the desire to stay at a critical arm's length from the initial Rose Park study area in order to move beyond it, as discussed at the beginning of this chapter.

Such abstraction of design tactics, if they are to be deployed in broad experimental terms, requires a similarly codified way of describing the Adelaidean suburban condition in order for those undertaking their own studies to commence the experiment and produce useful design data. Returning to the initial morphological analyses discussed in Chapter 2, one can create imaginary yet common established settlement patterns by presupposing the types of houses in play and the typical spaces that might occur between them.

Having provided the students with data for the typical villa and cottage discussed in Chapter 2 and described in Figure 3.65 and Figure 3.66, and the common carriage lane and walkway widths assumed for the study, the cohort was tasked in the studio project with undertaking a series of design interventions within an established suburban pattern of their imagining. The students were to use any combination of villas, cottages, walkways and carriage lanes at their discretion and work to given site setbacks of 8.5m at the front and 30m at the rear (that is, 60m in total between the back of one villa or cottage and the back wall of the villa or cottage sited directly behind it).⁵⁵ Overall site dimensions were not provided to the students, as they were not required: the overall sizes would be determined by students' choices and combinations of houses (H), carriage lanes (C) and walkways (W) in an exercise of what I call *Algebraic Siting Strategies*.

Using the morphological dimensions observed in the earlier analytical work, the students were asked to consider what might be possible, for example, if they imagined two houses with two adjacent walkways between them (in algebraic terms, $H + W + W + H$) or two houses where one had a walkway immediately adjacent the carriage lane of the other house ($H + W + C + H$).

55 The front setbacks and rear boundary distances given to the students were based on the Rose Park study area, but this siting was not disclosed to them in order for them to work speculatively and free of any nuances of the original study area that might unnecessarily divert their broader suburban focus. Anyone wishing to copy the methodology discussed here and adapt the study to a particular place either within Adelaide or beyond could freely change these distances to suit local conditions and the experiment method would still hold.

Furthermore, using the identified standard widths of the morphology study, the students were asked to consider the spatial effects (for example) of having two walkways of 1.8m each between houses, compared with one walkway of 0.9m and one of 1.2m. Under this logic, students could imagine various siting arrangements that positioned the houses as close together as 1.8m (two adjacent 0.9m walkways) or as far apart as 7.2m (two adjacent 3.6m carriage lanes), with a matrix of spatial options between these extremes based on any walkway /carriage lane combinations selected at random. By deliberately ignoring existing title boundaries, other than as

the means by which to consider how wide an existing walkway or carriage lane might be, students could instantly consider the suburban block as a system of housing parts rather than as a collection of individual properties.

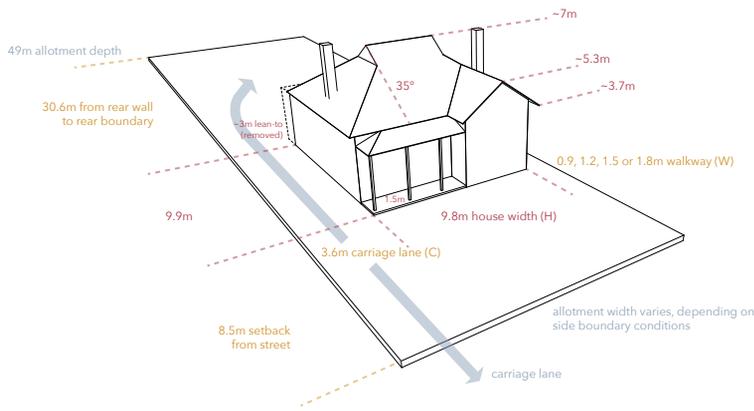


Figure 3.65
Villa

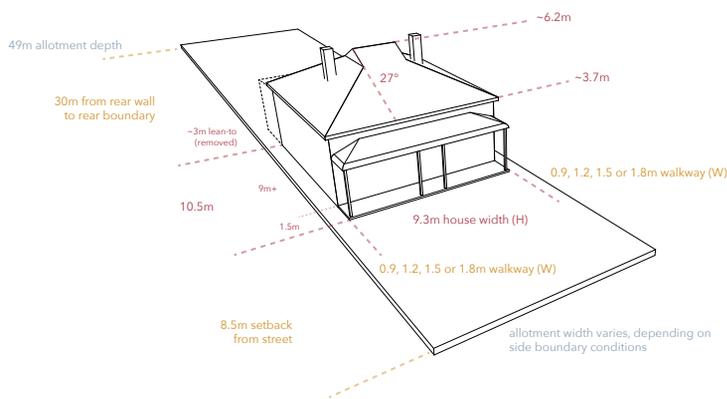


Figure 3.66
Cottage

Morphological design data. The villa's siting formula can be described as C+H+W and that of the cottage as W+H+W.

Using the *Algebraic Siting Strategies* method, a multitude of imagined yet plausible siting permutations could be established by the students as their suburban context with which to experiment, such as:

$$\begin{aligned}
 &(W + H + W) + (W + H + W) \\
 &(W + H + C) + (W + H + W) \\
 &(C + H + W) + (W + H + W) \\
 &(C + H + W) + (W + H + C) \\
 &(C + H + W) + (C + H + W) \\
 &(W + H + W) + (W + H + W) + (C + H + W) \\
 &(C + H + W) + (W + H + W) + (W + H + W) \\
 &(C + H + W) + (C + H + W) + (W + H + C) \dots \text{etc} \\
 &\text{and the less common, but still observable} \\
 &(W + H + C) + (C + H + W) \dots \text{etc}
 \end{aligned}$$

Once established and understood as a generative tool to create imaginary places that replicate the real conditions of the inner suburbs, *Algebraic Siting Strategies* could also be used as a descriptive tool to simplify and explain an existing local context to students. Figure 3.67, a cottage and villa pair in Rose Park, was provided in the students' briefing document with the explanation that its settlement morphology could be described using the formula $(W+H+C) + (W+H+x)$, with 'x' denoting the villa's far side being obscured in the photograph.



Figure 3.67
 $(W+H+C) + (W+H+x)$

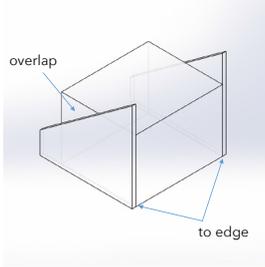
source: www.realestate.com.au/property-house-sa-rose+park-117058955 (cropped), accessed 24/6/14

In this way, the tangibility of the algebraic method was made visible as an abstractive device to not only conceive of imaginary suburban conditions for experimentation, but describe their real antecedents.⁵⁶

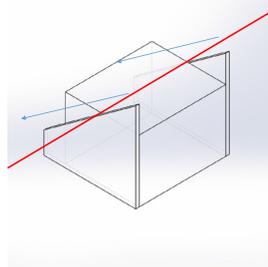
The students were encouraged to work with dexterity, being briefed that they would undertake a series of weekly design studies using different techniques, across multiple sites and at various scales before culminating with a focussed study of one site. Design agility was deemed important as it is aligned with the notion of experimenting in broad terms without getting subsumed into the nuances of heritage requirements or heavily-contextualised design. Shifting their modes of working throughout the design studio from the abstract to the particular, students would generate a series of small design projects along the way. The ambition of the design studio was to generate many small and fast mini projects, each of which would nonetheless be fully complete. The intended outcome was a series of design studies that could be seen as germane across inner Adelaide and have the potential to tell us things about the city that we did not previously know or may have only partially understood or thought possible.

Working quickly in order to generate a critical mass of design content necessitated finding a way for the students to commence and communicate their work rapidly, and in the first instance work was restricted only to designing through models in order to experiment intuitively with formal and scalar relationships. This in itself presented a practical and pedagogical problem of how to model villas and cottages quickly, yet represent them realistically enough for them not to lose their architectonic form. Modelling them as generic unarticulated blocks would deny their significant role in forming the fine grain pattern of a precinct and render the study too generic. Modelling them in too much detail would not only consume the students' important design exploration

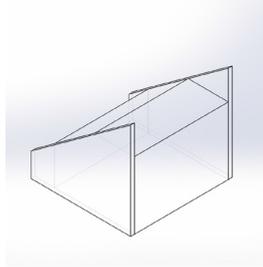
56 The method's descriptive use is further demonstrated in the discussion of the two-site design studies that follows in Chapter 4.



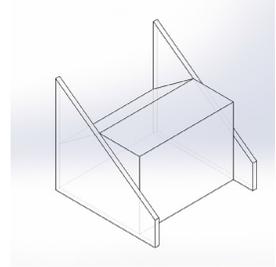
Place templates



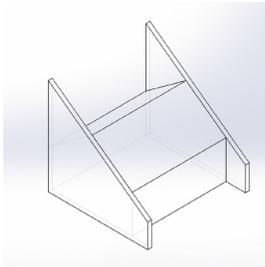
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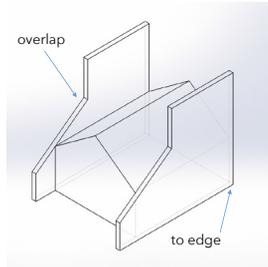
Finished cut



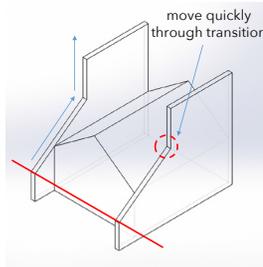
Flip template



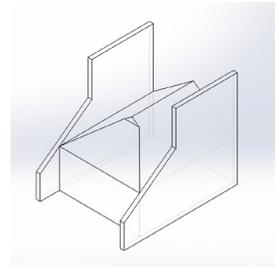
Second cut



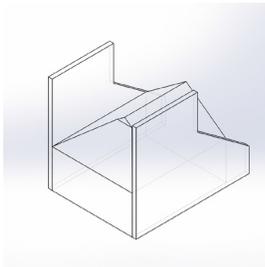
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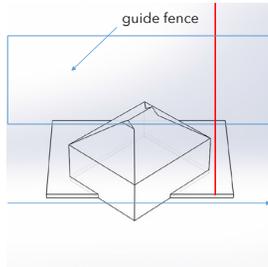
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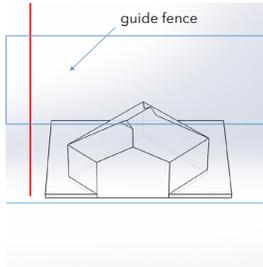
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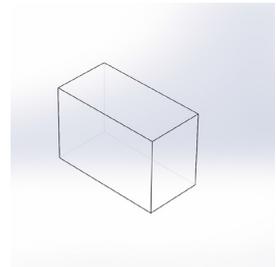
Flip template and cut



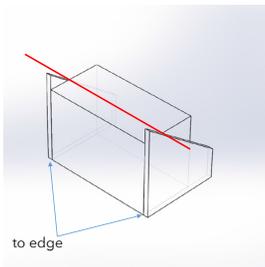
Use jig for angled cut



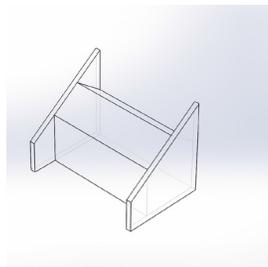
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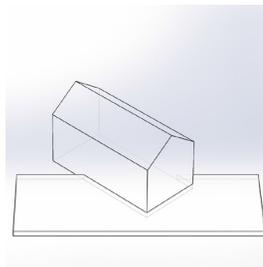
Use size guide to cut block



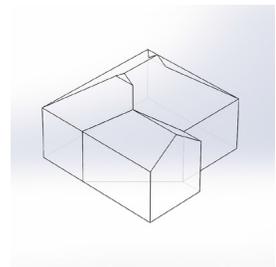
Run the wire against the template



Flip template and cut



Use jig for angled cut



Use a small strip of double sided tape to combine results

time but risked overstating the significance of the Victorian detailing evident in roof joinery, timber work, fenestration and quoins – levels of detail that whilst important to the establishment of architectural patterning, are not directly relevant to the primary focus of this study and risk derailing its larger scale urban ambitions.

What was required, then, was a means by which to abstract the production of three-dimensional villas and cottages both practically and theoretically whilst maintaining their utility, and the solution was found by teaming with industrial designer Shane Haddy. Working at the scale of the hand-held object as a toy designer and maker, Haddy is accustomed to finding ways in which to create complex forms from simple means and he was able to conceive of the villa and cottage computer models as elements that could be carved from solid blocks with the fewest number of cuts. In simple terms this is the opposite process to how an architect might traditionally conceive of the physical modelling of a building, where form is often given through an additive rather than subtractive process. Using my three-dimensional CAD models and two-dimensional orthogonal drawings, Haddy devised jigs with which to carve villas and cottages out of foam blocks and diagrammed accompanying staging drawings akin to flat pack furniture instructions (Figure 3.68).

Once trained in the process, students were able to work quickly in UniSA's soft model workshop, producing a single villa and cottage in around five minutes (Figure 3.69 and Figure 3.70).



Figure 3.68 (facing page)

Figure 3.69 (right, top)

Figure 3.70 (right, bottom)

Two important functions were served by this production technique. In the first instance, villas and cottages, abstracted and yet realistic-enough in their form, were produced extremely quickly and when coupled with the *Algebraic Siting Strategies*, immediately assembled what students recognised to be a very Adelaidean suburb.⁵⁷ Secondly, the process worked to demystify both the housing and the assemblage technique of a suburban fiction in order to demonstrate that an established suburb could in fact be described in urban terms and not be beholden to a particular set of precinct or site-specific traits. This systemic suburban patterning of villas and cottages is evident in the examples that follow.

Having established how to design the layout of an imaginary yet realistic suburban block, students worked in teams of three or four to explore new infill possibilities across either nine or twelve allotments respectively. This territorial scale was set strategically to work generally within the imaginary projective realm of *The Block Apartment* collage studies, and beyond the more realistically achievable scale of one, two or three sites – investigations that would come later. The logic to this was that working across multiple site scales (from twelve sites down to two) would enable the testing of which of the *Seven Design Tactics* would hold when applied to a certain number of sites.

57 After being introduced to the morphology studies, the *Algebraic Siting Strategies* and the villa and cottage model-making process, some students reported that the suburban fictions they were creating in model form resembled suburbs around Adelaide with which they were already familiar. Others commented that the suburban modelling process heightened their awareness of these Adelaidean patterns that they had until that time not noticed or recognised. These included suburbs not present in the study, such as Port Adelaide, an outer northwest suburb well outside Adelaide's Inner Metropolitan Growth Area (refer Chapter 1).

In this sense the studio became a somewhat typical experiment: the analytical design work had been done via morphology studies, a site of investigation had been established, a set of assumed principles had been written to suggest how that site might be worked with and a group of hitherto external designers was present in order to test what alternative housing patterns and types might be generated using the design tools provided. The method of investigation was weekly design tasks. This commenced with pure formal exploration, where students were encouraged to model in the spaces between existing houses, building forms they

instinctively felt were an appropriate fit. How they were to determine 'fit' was for them to argue. They were not to become caught up in concerns of function, the number of buildings on one site, the number of storeys, nor the materials such buildings might be formed of. Instead, they were encouraged to think in terms of massing across the field they were creating in terms of volume, form and scale.

The arrangement of the field of nine or twelve allotments to be created was also at the students' discretion. They were free to invent, for example, a back-to-back arrangement of five houses wide by two houses deep, with an empty allotment for a nine villa/cottage arrangement. Alternatively they might study a linear strip arrangement of nine or twelve allotments wide. Combinations of housing configurations were encouraged using any array of cottages and left- and right-handed villas (Figure 3.71).



Figure 3.71

An abstracted inner-Adelaide suburban field of twelve allotments as imagined by students. The notation is the students' undirected manner of recording their selection of cottages, left- or right-handed villas and walkway widths.

Design testing by
Jeremy Pearce, Michael Szumylo
and Craig Williams in
Architectural Design Studio 5 at
the University of South Australia.
Studio Leader Damian Madigan.

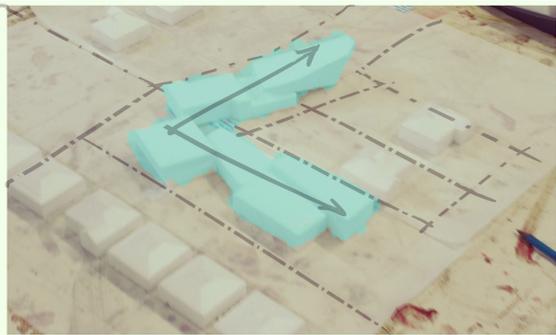
Students were advised that there was no right or wrong choice of how they configured their imagined suburbs or what functions each element might potentially serve. They were, however, encouraged to carefully consider open space between the villas, cottages and their new architectural insertions and how much open space they intuitively felt was appropriate. Specifically, they were charged with considering the *quality* of open space, whether large or small, taking into account that they were dealing with established suburbs with mature landscape and that these should be deemed a significant component of existing and future amenity. Apart from walking the streets and laneways of inner-Adelaide, Google Earth was suggested as a good resource for scanning an established suburb in order to get a sense of the type of mature landscape conditions one might expect to encounter in the students' imagined precincts.

Figure 3.72

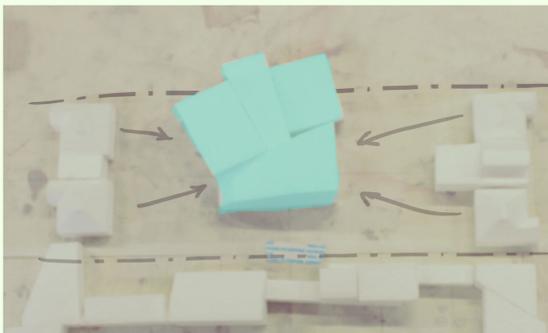
Design testing by Christopher Hill, Janai Lemar, Timothy Podobny and Claebon Sandell in Architectural Design Studio 5 at the University of South Australia. Studio Leader Damian Madigan.



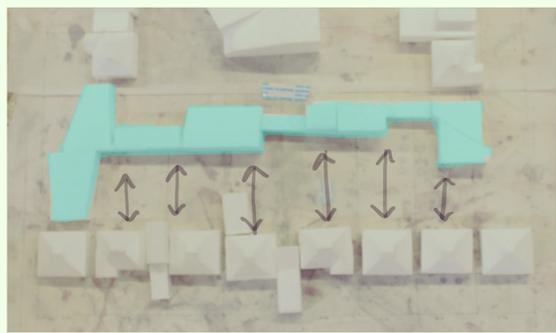
Formal + Spatial Exploration



Continuous building form from street front to behind existing villas/cottages



"Meteorite" form between multiple villas/cottages



Continuous street-to-street linear form. Connecting to existing buildings?

Emerging in these early massing studies was a somewhat conservative (and surprising) approach to mass and scale, where groups displayed a tendency for the most part to limit their building insertions to what might be considered a three-storey scale, albeit in the absence of a functioning program. Students reported unease with the idea of creating infill buildings that were any taller than this, particularly when their new elements were in close proximity to the existing houses, and this approach to scale is common across the illustrated examples (Figure 3.72 and Figure 3.73).

Figure 3.73
Design testing by
Jeremy Pearce, Michael Szumylo
and Craig Williams in
Architectural Design Studio 5 at
the University of South Australia.
Studio Leader Damian Madigan.

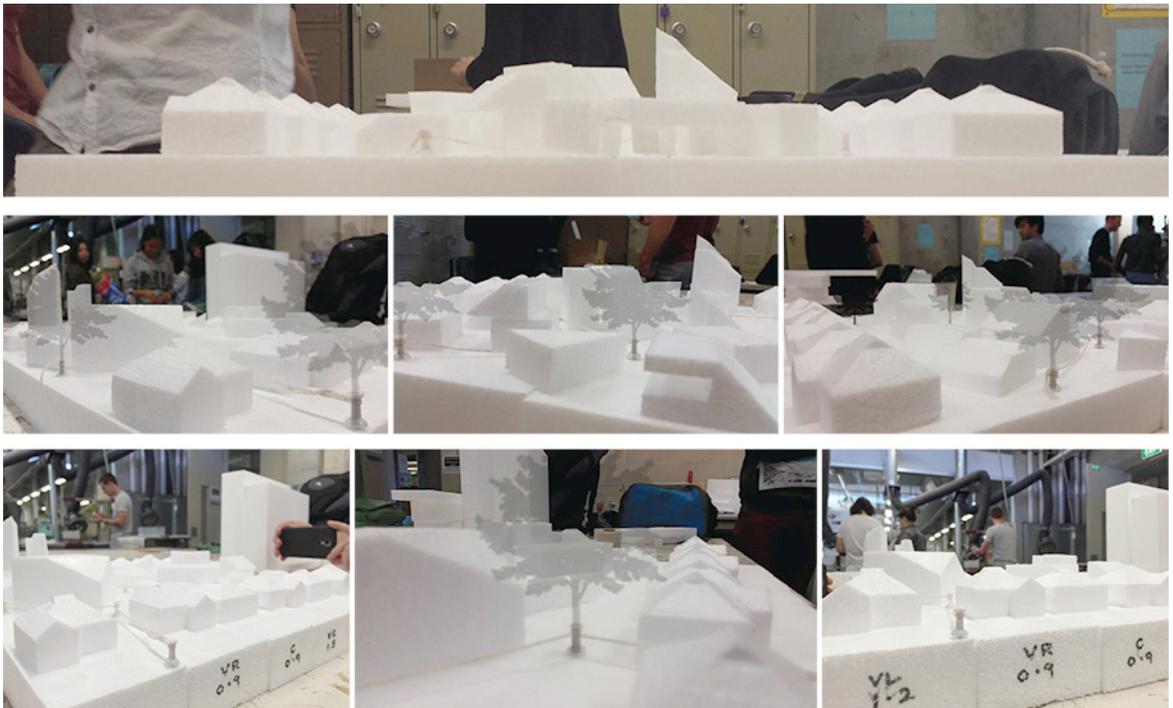
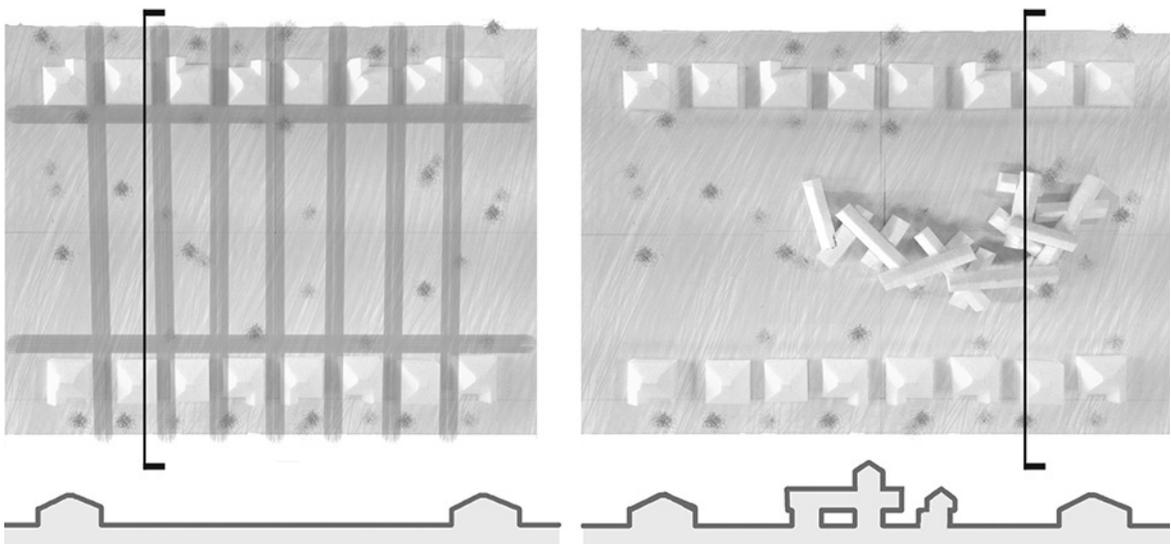


Figure 3.74 (below)
 Design testing by
 Imogen Hebart, Nicholas Kuchel,
 Claire-Marie McQuillan and
 Jemima Ninnies in
 Architectural Design Studio 5 at
 the University of South Australia.
 Studio Leader Damian Madigan.

Figure 3.75 (facing page, top)
Figure 3.76 (facing page, bottom)
 Design testing by
 Mark Frost, Michael Lamey and
 John Yu in
 Architectural Design Studio 5 at
 the University of South Australia.
 Studio Leader Damian Madigan.

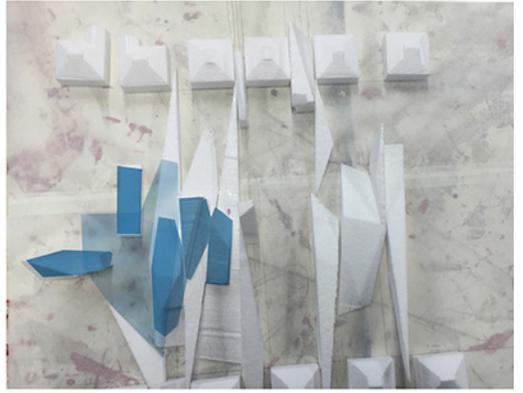
In many cases, students treated the existing houses as a threshold, using the 60m zone between them as a field in which to establish a more formally abstract mat of buildings amongst the landscape (Figure 3.74). Other predominant patterns saw this large middle zone occupied with distinctly different building forms coupled with insertions between the existing housing, as exemplified by the work in Figure 3.72 on page 218 and Figure 3.75 (facing page, top). When further developed, for some students these villa and cottage additions became important totems to announce the new housing models that were appearing behind the established houses: new building forms to speak of a new pattern of living (Figure 3.76). When worked in this manner, the static and rhythmic arrangement of existing houses formed a visual and physical constant that could support idiosyncratic building and plan forms behind them.



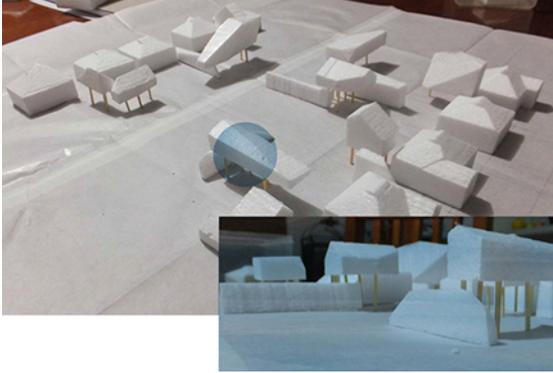
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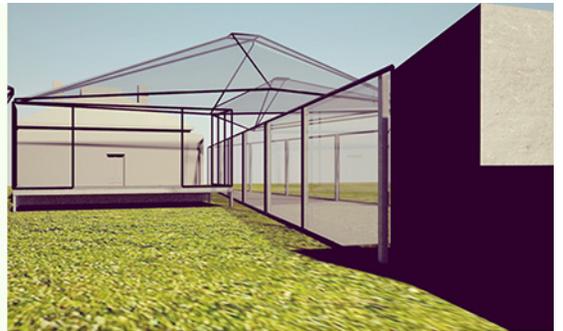
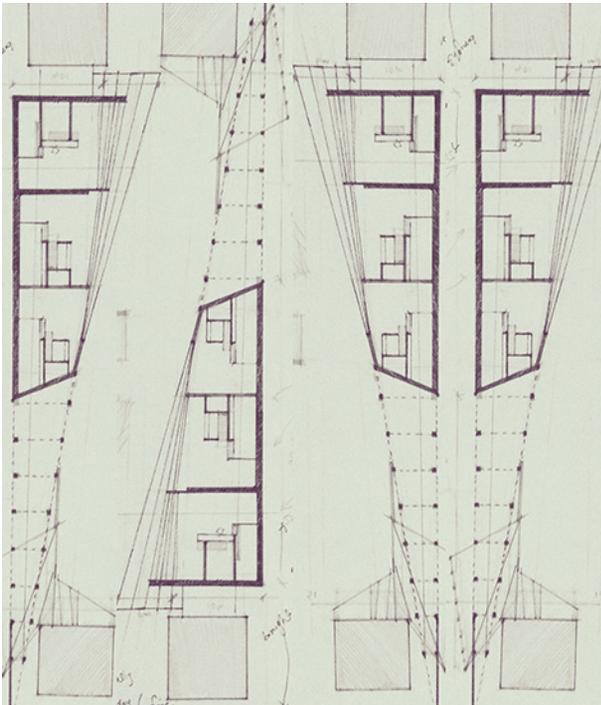
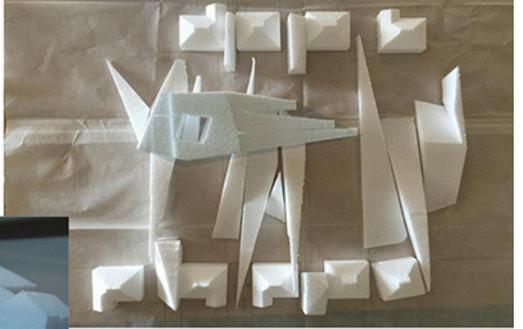
meteorite 1- cluster



connection



meteorite 2- splice



To move beyond these early formal experiments deftly and towards more fully realised architectural schemes, students were tasked in weekly exercises to work to a set density target. Density was initially discussed and explored not in terms of dwellings per hectare but as people per dwelling, where students were asked to design dwellings for one, four or six or more people who may or may not be related. As concepts of occupant diversity became better understood, metric targets were then set. Initially, a goal of ≥ 20 dw/ha (or at least three entities for every two sites) was targeted in order to incrementally increase the intensity of the existing settlement pattern. This then increased to studies at ≥ 34 dw/ha, or at least five entities for every two sites, to match the State Governments' definition of the metric trigger for "medium density",⁵⁸ thereby establishing a proposition for the project: to achieve the same density figures of the proposed transit corridor policy, but in alternative ways.

Furthermore, students were asked to consider mixed use development models. The term 'entities' was used in the stated density targets instead of 'houses' or 'dwellings', as students were simultaneously being asked to explore the possibilities of flexibility and mixed-use by designing for dwellings, businesses, civic functions and public space over multiple sites. This mixing of program was perhaps the most difficult aspect of the project for most students, as many of them found it difficult to imagine what types of civic or commercial functions might be suited both physically, programmatically and socially to small domestic-scale spaces, both new and existing. However, where this aspect of the exercise did succeed was the forcing of consideration around private and public space and the degrees of privacy that might be achieved (or lost) as densities and diversities increased.

Having established a mechanism by which to establish an imaginary Adelaidean suburban context and then set design

58 Government of South Australia, *Understanding Residential Densities*, 5. Refer to Chapter 4 for a examples of Adelaide's net dwelling density across three suburbs.

tasks exploring mixed uses, increased densities and housing choice for varying numbers of occupants, observable and meaningful patterns emerged in the students' work, examples of which can be viewed in Appendix B:

Three-storeyed development appeared as a generally agreed, although not directed, sense of comfortable fit. This sensibility was seen by students as a tacit middle ground between providing the requisite floor area required to provide additional living and working accommodation whilst not diverting too dramatically from the established scale of the neighbourhood. For some in the studio, three storeys represented a polemic reduction in scale from that proposed in the *30 Year Plan's* transit corridors (refer Chapter 1), whilst simultaneously speaking of a new intermediate scale respectful of but not obsequious to the prevailing single storey pattern of Adelaide's villas and cottages.

Half-level excavation was a device used by several students to mediate this change in scale. In some instances, a semi-basement level was incorporated into an existing villa or cottage in order to create a second storey in the lean-to zone without building up or to create a more spatially dynamic space through the incorporation of a mezzanine level, as demonstrated in the sectional studies in the Appendices. In other work, embedding a taller infill building in a half-level basement sought to minimise bulk and overshadowing whilst creating varied landscape spaces along the ground plane. For some students, excavating the entire site in order to create undercroft car parking, storage and servicing provided the benefit of a *tabula rasa* between existing housing on which new built and natural landscapes could be formed holistically, unencumbered by existing site limitations and established only by the presence of a villa or cottage. This approach was seen as a potentially attractive proposition for sites where the existing landscape might be immature or of a low quality.

Pilotis formed a counterpoint to this position. For some, elevating the new building mass became an important device to maintain movement and views at the ground plane behind the established houses, particularly in design experiments across a large number of sites (for example, Figure 3.75). When applied at a smaller scale and as a connective device between adjacent existing houses, the elevated building took the form of a mews, whereby additional building mass could be achieved without blocking access to the remainder of the site. This was considered particularly important for students who imagined one set of users at the front of the site and another at the rear, where site entry for all parties was necessarily from a single point at the front of the allotment.

Intensifying in and around villas and cottages at the front of the site continued this theme and was somewhat surprising given the generally deferential approaches to mass and scale evidenced in the students' early design experiments. Building hard up to the backs and sides of villas and cottages was seen by some students as an effective mechanism for freeing space at the rear of sites for larger areas of landscape than might otherwise have been achieved. For others, exemplified by intensified plan forms such as those shown in Appendix B, concentrating program in the interstitial spaces between villas and cottages served as a deliberate mechanism with which to introduce more socially diverse space.

Front additions further pushed the intensification of the front of sites by re-establishing an approach not commonly practiced in the suburbs since concepts of heritage preservation became more widely adopted in the 1970s-80s. However this is not altogether uncommon in Adelaide's suburbs today, as described in Chapter 2 and witnessed in examples such as Figure 3.78 on page 226. When verandahs are enclosed, such opportunistic modification has resonance (in reduced form) with the elevated Queenslander that has

a lingering tradition of infilling verandahs and undercrofts as accommodation needs arise (Figure 3.77). Subsuming of the existing villa and cottage by building additions on all four sides, was an artefact of the student design process where many of those undertaking the experiments did so unencumbered by suburban statutory norms that state such development is inappropriate or outright disallowed. This maximising of the existing houses and their front yards was also noted as common amongst the work of international students from high density cities, as their approach to housing and density is often more finely attuned to making the most of available space for habitation without the same level of heritage or streetscape retention statutes.

Lateral courtyards and sideways views were likewise deployed as alternative ways of increasing amenity through landscape. Often achieved by attaching new building work directly to the rear of an existing dwelling, these projects sought to take advantage of newly connected side-by-side allotments and rotate the direction of traditional landscaped open space laterally across allotments. This approach often looked to create visual and acoustic privacy through separation that might otherwise be difficult to achieve in more traditional front yard / back yard courtyard spaces between old and new development.



Figure 3.77
Infilled Queenslander, Gold Coast.



Figure 3.78
Front addition to symmetrical
cottage in suburban Norwood.

Emerging Patterns

The emerging patterns in the experimental design work of the student cohort might be explained by the simple fact that students of architecture rarely work in isolation. The studio environment actively encourages students to work collaboratively and iteratively and in the case of this studio the early work was done in groups of three to four students. Patterns amongst individual projects are therefore likely to emerge as ideas are tested together, but beyond this artefact of the studio environment were clear and significant resonances amongst the group as they sought means by which to increase housing density and diversity whilst forming new modes of amenity.

And whilst the initial intention of the studio was to test and refine the *Seven Design Tactics* across various territorial scales, the end result became a necessary rewrite of them in simplified form to reflect the patterns of development methods the *Design Tactics* enabled.

This results in a far more accessible yet still abstracted graphic style I describe as *Spatial Operations*.

Communicating 3: Spatial Operations

If the purpose of the *Seven Design Tactics* was to establish broad graphic mechanisms with which to generatively explore how an established suburb might adapt over time at a territorial (neighbourhood block) scale and furthermore, to put these in the hands of others, then the role of *Spatial Operations* is to take these tactics and the design patterns that emerged from their deployment and return to a more distinctly architectural mode of representation. While the *Seven Design Tactics* proved to be generative devices when tested by the student cohort, their use is ultimately limited to those with some form of architectural literacy. The ambition of the *Spatial Operations*' reconfigured graphic mode is to speak more descriptively of potential future conditions whilst working as a prompt for further design explorations, but in a manner far more accessible to non-architects. This visual language of the operations invokes the *Commonly Accepted Anomalies* of Chapter 2, which themselves are instructional and can be witnessed in the operations.

Importantly, the *Spatial Operations* work across a much smaller territorial field than the *Seven Design Tactics*, that being the scales of either a single allotment, or two adjacent allotments. The selection of these single or double site modes is strategic: explaining the tactics in a single site wherever possible makes clear the particular spatial manoeuvre being discussed as it relates to the existing house, while the addition of one adjacent site enables the benefits of extra space and/or another dwelling to be made evident. Once established for two sites, the moves that allow this agglomeration can be repeated in various combinations for three or more sites.

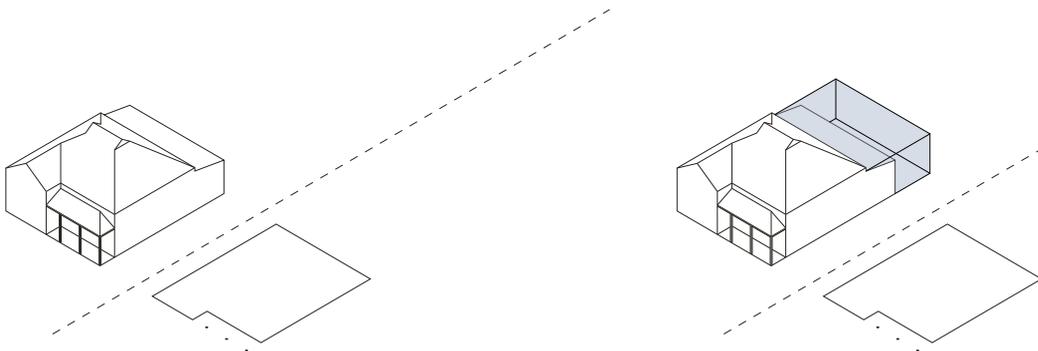
In referencing Di Mari and Yoo's *Operative Design* diagramming techniques,⁵⁹ a simpler method of describing infill opportunities is sought in order to make tactical spatial

59 Di Mari and Yoo, *Operative Design*.

moves more evident and therefore more translatable to individual design projects. Significantly, the thinking behind the *Spatial Operations* deliberately exploits the *commonly accepted anomalies* identified in the established suburbs as described in Chapter 2. Each operation reinforces the common addition typologies witnessed in the suburbs, at the same time extending them to potential alternative uses that unlock new living patterns whilst iteratively contributing to the evolving physical and social character of the established suburbs. This is explored in more detail in Chapter 4's two-site design studies.

The *Spatial Operations* represent a set of three dimensional development tactics which, when combined, offer a sequence of arrangement possibilities but presented in a limited kit of parts (Figure 3.91 on page 238). Accurate in their depiction of a villa (in white) and the positioning of infill and additive elements (in blue), as illustrated in Figure 3.79, they are abstract enough that one can imagine future scenarios and opportunities without that future having been designed by the operations themselves. The villas have strategically undisclosed sizes, heights, setbacks and separations yet are rendered specifically-enough such that they read as identifiable entities. This is in counterpoint to the massed additive and infill elements that are deliberately simple and suggest opportunity rather than declared architectural solution.

Figure 3.79
A Spatial Operation:
base conditions in white, with an
additive element in blue



Shadow-casting, access to light and ventilation, and the interfaces between new elements and existing rooflines, walls, windows and remnant lean-tos are intricacies that require project-specific decisions to be made. These issues would need to be resolved on a case-by-case basis, established by the physical nuances of the individual buildings and the functional design of their combined operation. As such, these smaller intricacies are excluded from the operations; crucial to resolve at a project-specific detailing scale, but not trump cards that beat the overall strategic ambitions at hand in the *Spatial Operations*.

Presented as an assessment of tactical possibilities, the utility of the operations might be imagined in several ways, depending on their audience:

- For local Councils, they might form part of a pre-approval strategy, particularly in combination with some type of context-specific explanatory text; a means by which to control formal morphologies that follow an established precinct's pattern.
- For architects, they may become a useful design manual; an alternative means by which to conceive of and describe a project and/or a means by which to discuss precedent and design lineage.
- For developers, they might be a tool with which to help establish financial arguments over the affordability (or otherwise) of residential amalgamation; no longer only a size, form and material exercise, but a means by which to discuss fiscal arrangements that are linked to site development strategies.
- For building owners, they may represent a way of visualising suggestions for what might be possible; a more immediate

means by which to reimagine how a particular house and site – similar enough to that diagrammed – might evolve individually or in concert with its neighbour(s) to meet changing needs.

Broken down into identifiable components to be combined at the user's discretion, the *Spatial Operations* are arranged as follows. In each case, the additive elements are suggestive only and might be made smaller, bigger, shorter or taller and might be conceived of as fully attached to the existing house, partially attached or detached. Whilst they are diagrammed notionally as single, double or triple storey, with heights set to match the ridgeline of the existing house, that is not to say that a user might not form design propositions that break this datum.

1. Rear Additions: a simple diagramming of current domestic alteration practice. Realised as either a single or multiple storey addition, this exercise might reinstate, replace, subsume or extend an original lean-to (Figure 3.80). Tactically, these two operations reinforce the prevailing adaptive reuse behaviour evidenced in the suburbs, simultaneously acknowledging the success of current practice and using it as a form of tacit infill approval or acceptance.

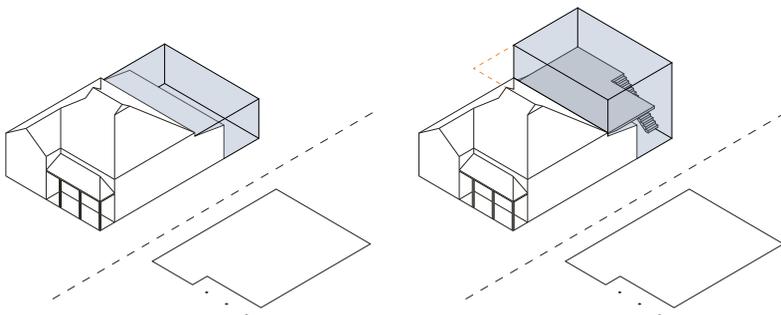


Figure 3.80
Rear addition Spatial Operations

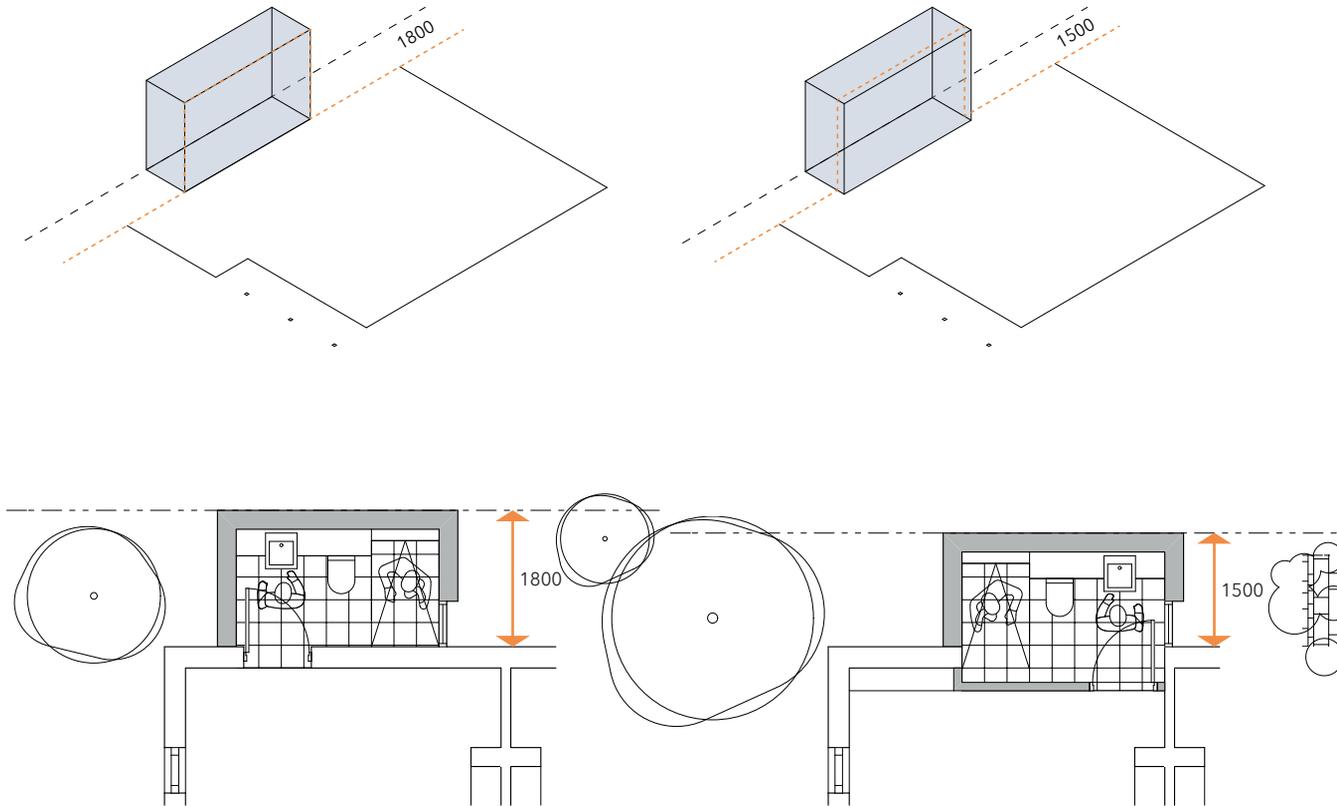
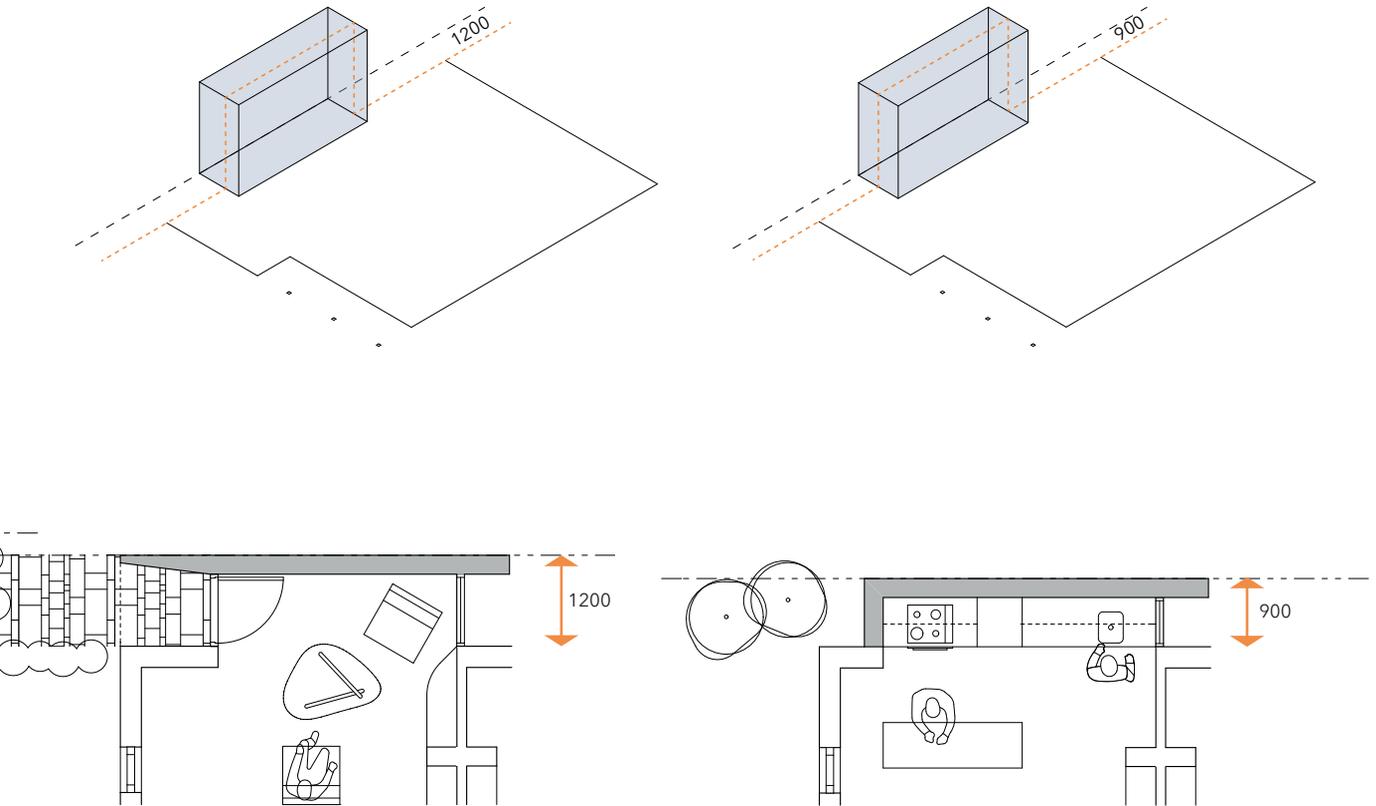


Figure 3.81 (top and facing page)
Figure 3.82 (bottom and facing page)
 A method of thinking about
 diminishing walkway conditions

2. Side Pods: a reinterpretation of the design tactic of ‘Lineal interstitial zones’ as a visualised pod grafted to the side of an existing villa or cottage in the walkway zone. This is a way of thinking about side conditions that works across different walkway widths from 0.9m to 1.8m (Figure 3.81). For the purposes of the exercise, 1.8m has been set as an optimum width for a small room or space addition in order to provide meaningful utility or amenity. When a 1.8m wide walkway is available at the side of a house, a bathroom or other small self-contained room might be added to an existing villa or cottage room(s) (Figure 3.82).



Where the walkway is narrowed to 1.5m, the same type of room can be achieved, but this requires the formation of an opening in the villa's/cottage's external wall akin to the *Porous Rooms* lintel exercise in order to gain the additional space required. A walkway of 1.2m can still offer an important gain in amenity when opened to an existing room and borrowing from its space, whilst even a narrow 0.9m walkway can offer substantial gains when put to utilitarian use as a kitchen. Significantly, this thinking exploits the ensuite pod anomaly previously identified in Chapter 2 and in doing so, leverages off what the established suburbs already support without argument.

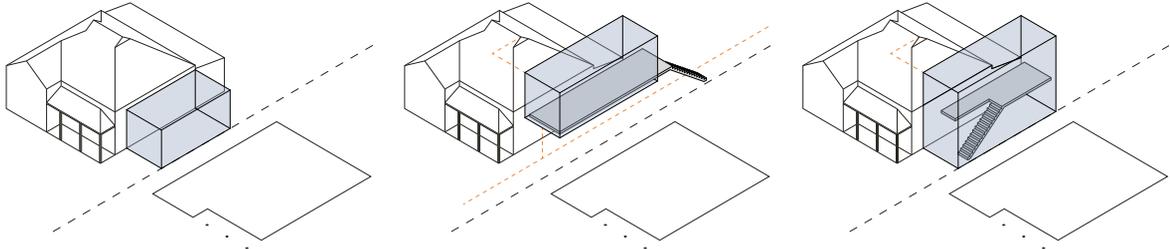
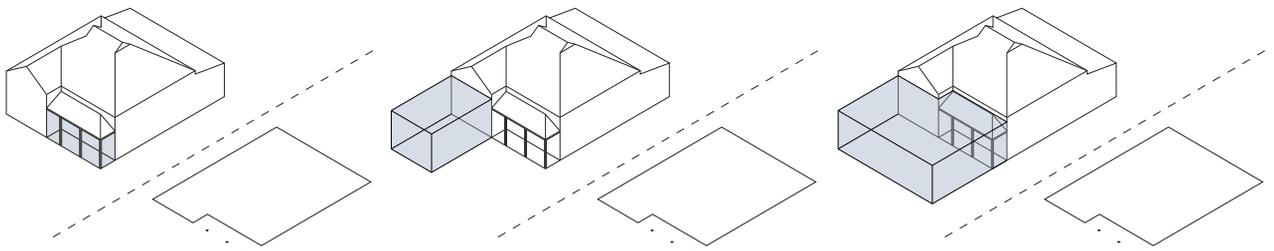


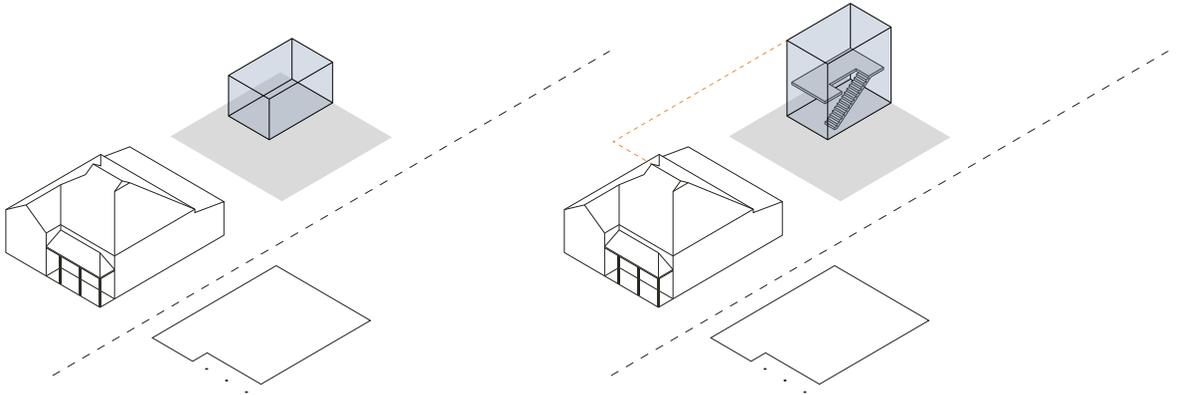
Figure 3.83
Carriage lane additions.

3. Side additions: more substantial in width than side pods in a walkway, these are additions in the carriage lane. Exploiting the common practice of building carports and garages where originally none existed, as evidenced by images such as those in Chapter 2, these might be realised as single storey at ground level, elevated or multi-storey (Figure 3.83).

4. Front additions: an artefact of the student design testing and a challenge to normative inner-suburban adaptation strategies in Adelaide, these are additions for either part or all of the width of the existing house in the front yard. This might be realised as an infill of a verandah, a wholesale addition to the projecting bay of a villa, or an extension across the entire width of an existing house (Figure 3.84). Worked across two adjacent sites, one might imagine an entirely new entity at the front of the existing houses. Although a challenge to current thinking in Adelaide, there is logic to the proposition, particularly where villas or cottages are kept for their building value and ongoing utility rather than for any specific heritage, character or cultural meaning.

Figure 3.84
Front additions.





5. Yard additions: evidenced as fully detached infill elements in back yard spaces, they are diagrammed with accompanying notional landscape or yard space. Diagrammed in single and double storey grounded forms in Figure 3.85, these may also be elevated off the ground plane. A three storey form utilising a half-level basement is diagrammed in Figure 3.86. In addition to mitigating potential height, mass and overshadowing effects, the accompanying sunken courtyard suggests potentially increased landscape amenity, achieved through manipulating the ground plane. Drawn as small-footprint objects, yard additions can either be located between and amongst mature landscape elements or made larger where space and context allow. Diagrammed as discrete elements to reflect their potential for use as additional dwellings or other new uses, they might be imagined as attached to each other and/or the existing housing.

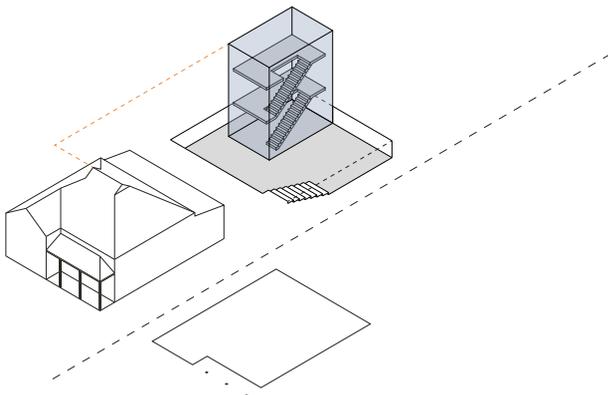


Figure 3.85 (top)
Figure 3.86 (left)
 Single, double and triple story yard additions.

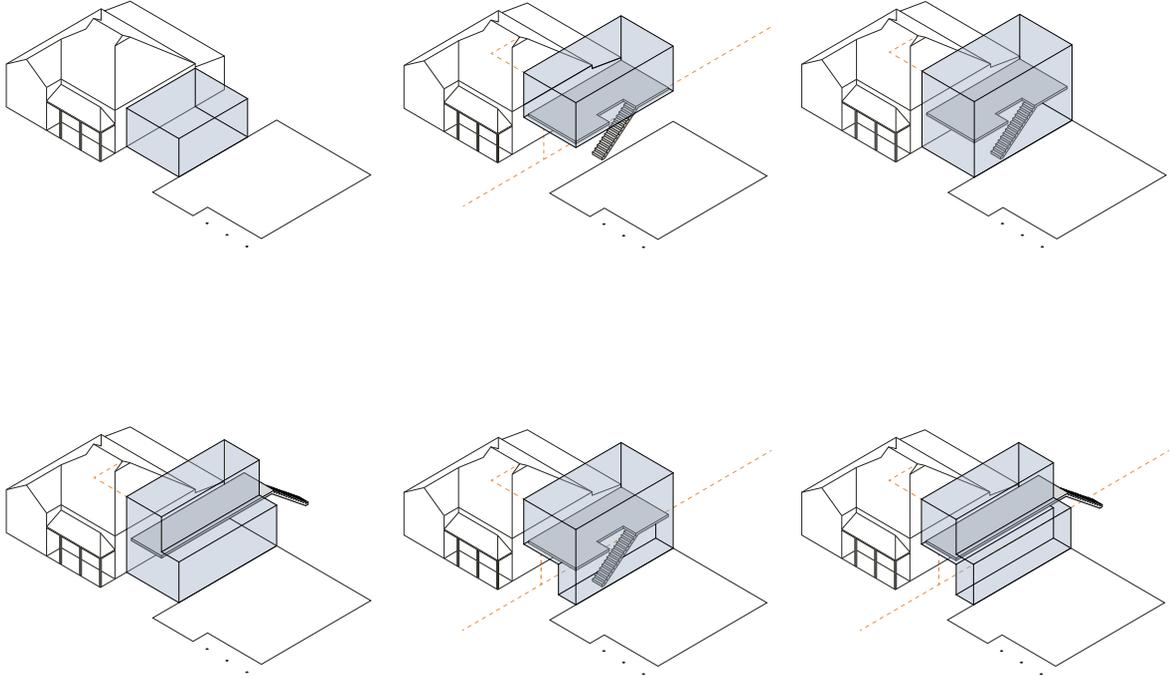


Figure 3.87 (top row)

Figure 3.88 (bottom row)

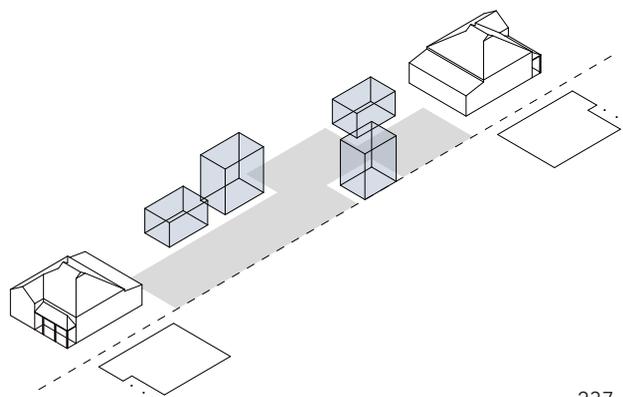
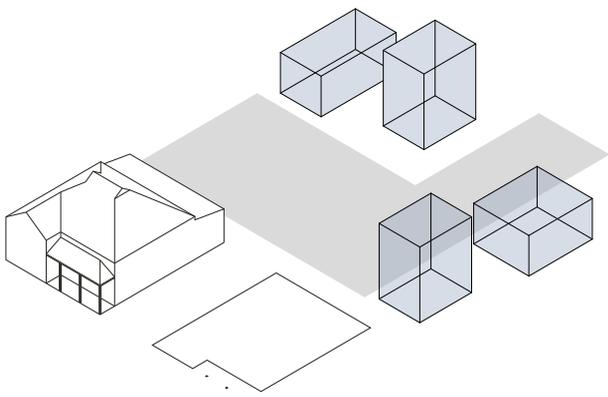
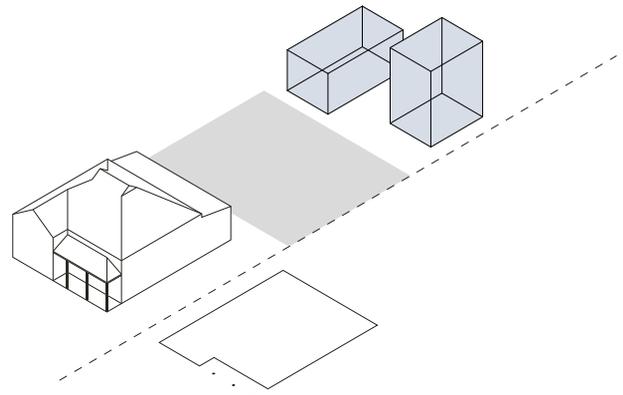
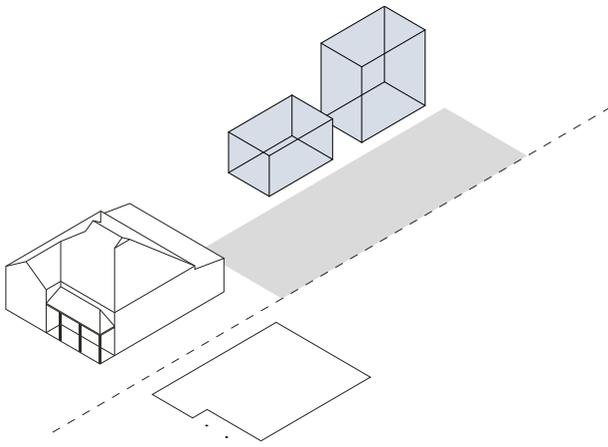
Double side additions over a carriage lane and walkway, two carriage lanes or two walkways

6. Side additions (double): matching the single allotment side additions, these infill elements take advantage of the extra space afforded new work when adjacent sites are made one (Figure 3.87). Diagrammed as an adjacent carriage lane and walkway combination, the user can extrude or compress the operations to suit two adjacent walkways or two carriage lanes. The addition of neighbouring space, even in the limited mode of a walkway, suggests hybrid forms such as those of Figure 3.88 where one might see full width ground elements with partial upper storey elements above, partial ground elements with full width upper storey elements or combinations of the two.

7 Yard arrangements: suggest siting strategies relative to how detached infill elements might be arrayed. Responding to aspect, solar orientation, prevailing winds, landscape retention or programmatic requirements, these might be designed longitudinally or laterally (Figure 3.89). Spread over two allotments, hybrid yard spaces might be achieved either side-by-side or back-to-back (Figure 3.90). As with the yard additions themselves, landscaped spaces might be extruded, combined or compressed to suit local conditions and project needs.

Figure 3.89 (top row)
Longitudinal and lateral single allotment yards.

Figure 3.90 (bottom row)
Hybrid double allotment yards.



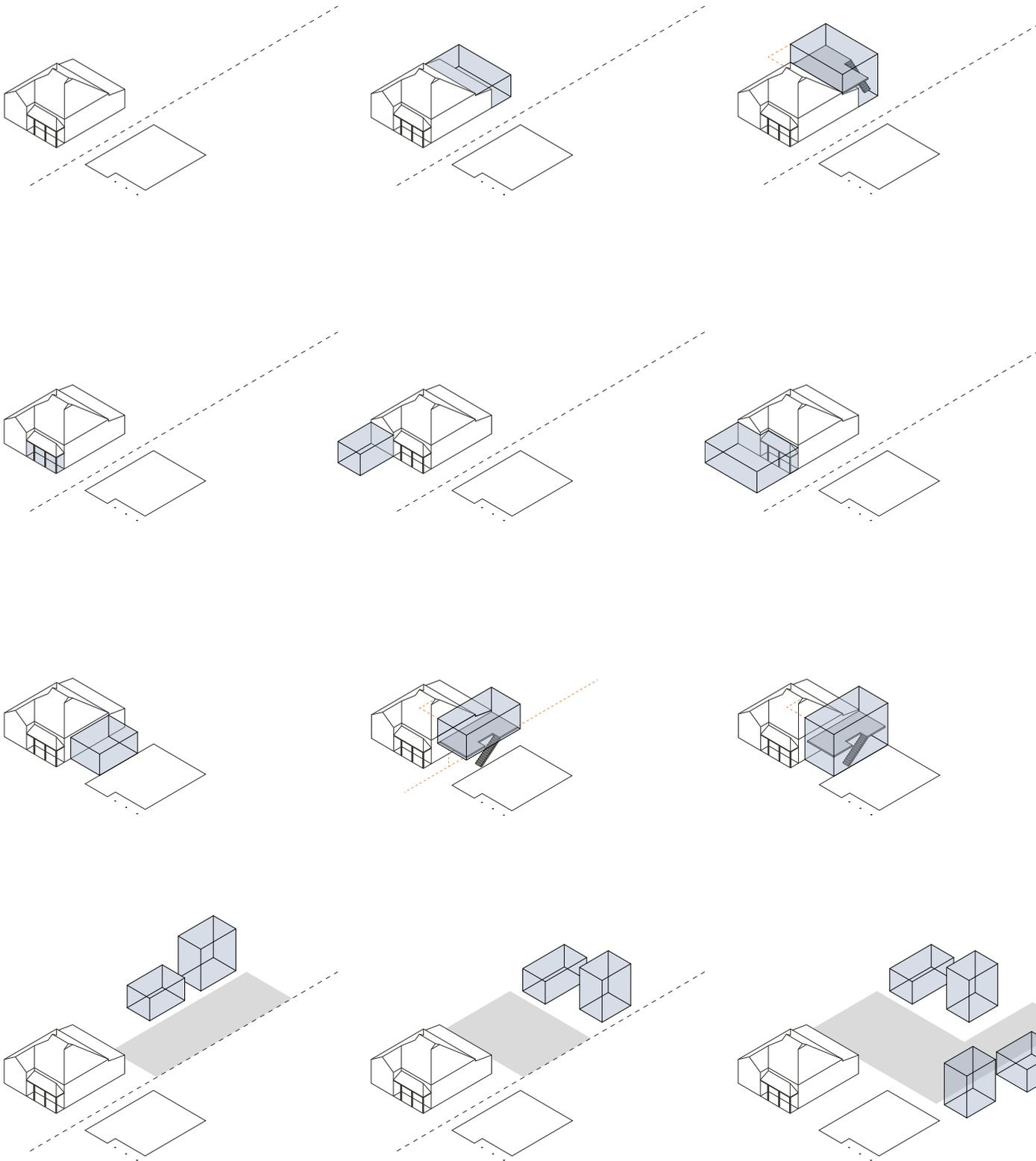
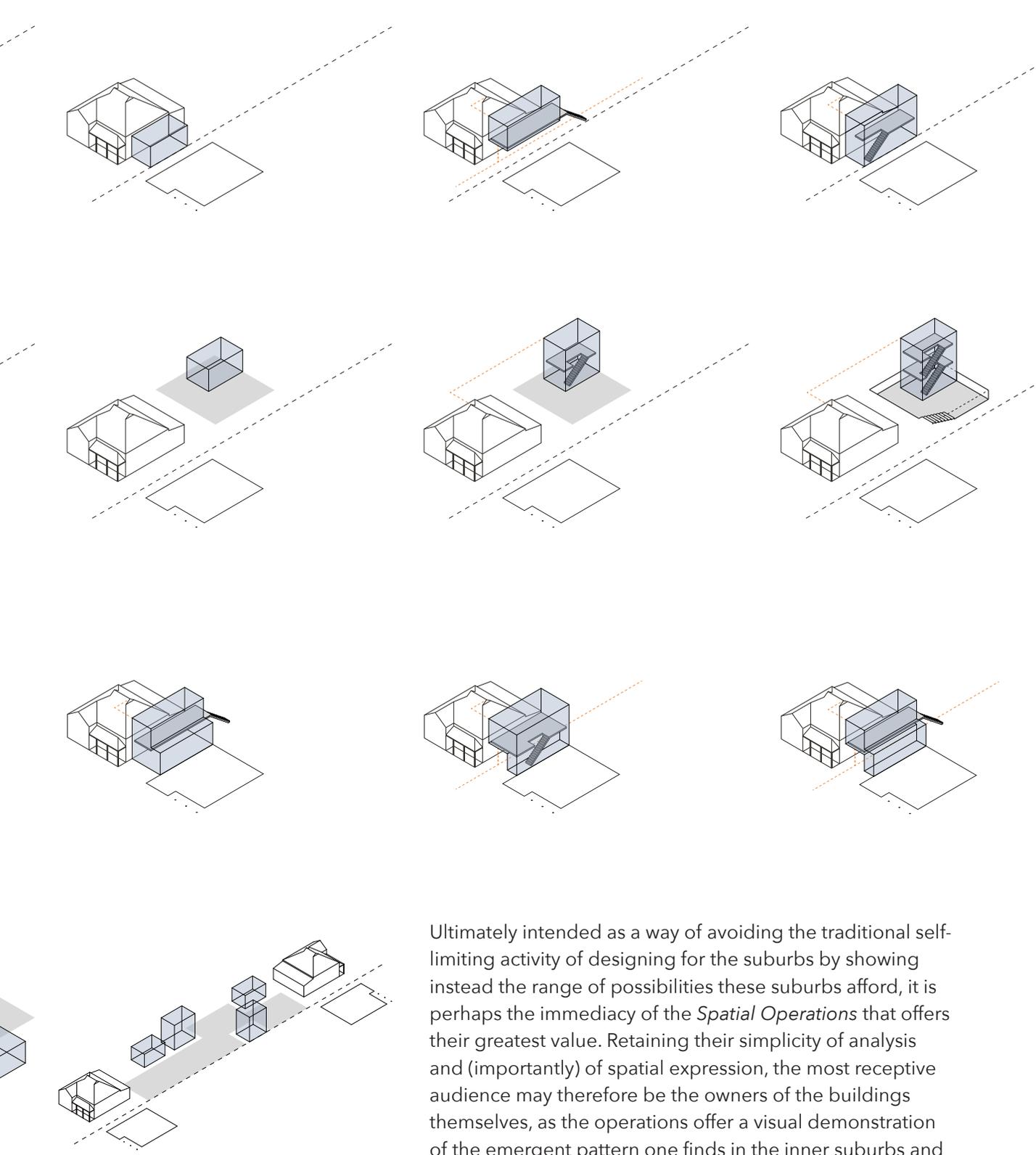


Figure 3.91 (this and facing page)
Spatial Operations.



Ultimately intended as a way of avoiding the traditional self-limiting activity of designing for the suburbs by showing instead the range of possibilities these suburbs afford, it is perhaps the immediacy of the *Spatial Operations* that offers their greatest value. Retaining their simplicity of analysis and (importantly) of spatial expression, the most receptive audience may therefore be the owners of the buildings themselves, as the operations offer a visual demonstration of the emergent pattern one finds in the inner suburbs and the means by which we might operate within this system to meet evolving needs.

3.4 Rosetta Stones

What the work of these six abstraction studies and the morphological analyses that preceded them have enabled is:

- the identification of two typical house types: the asymmetrical villa and the symmetrical or double fronted cottage;
- the typical sizes and arrangements of villa and cottage rooms;
- typical allotment morphology with common sizes of side setbacks;
- the ability to overlay project-specific front setbacks and block depths;
- a strategy for treating the existing house not as a single entity, but as an arrangement of potentially porous rooms;
- a strategy for regarding the suburban block as an abstract gridded plane;
- a set of tactics for working with a suburban block as a broad and singular suburban field;
- a method with which to combine allotments in order to establish imagined neighbourhoods that are nonetheless derived from real conditions; and
- a set of codified opportunities with which to reinvent the way we might work in established contexts.

Together, these offer a deeper way of seeing the familiar and modified means of design production.

Generating methods of abstraction and then using them in the design studies described here may not always result in direct and useful new architectural or urban tools for others to experiment with when reinventing the established suburbs – but it does not always need to. The purpose of undertaking the six abstraction studies discussed here has at first been to temporarily remove the encumbrances of an individual house's or street's identity and small-scale physical and activity character in order to systematise what has not previously been thought of as a system. Considering the established suburbs as a system has been deemed significant in order to temporarily un-identify the otherwise identifiable in order to release design potential and dwelling possibilities.

Perhaps the greatest strength of these abstraction studies has been their ability to work together in order to enable design testing. In thinking about villa and cottage rooms as porous, connective and flexible and established blocks as a series of simplified graphic grids, we can read a character-laden precinct as a mat of houses that are perhaps more primordially linked than they appear in their present-day evolved form. This realisation unlocks the potential for a new connectedness across traditional ownership titles, and these are discussed in the design exercises that follow in Chapter 4.

The abstract thinking and graphic exploration that has been described here has enabled an established house, site and neighbourhood block to be described in systematic terms, thereby allowing more detailed design testing to be undertaken on sites that are imaginary, yet borne of the intricacies of Adelaide's inner suburbs. Whilst not declaring an opinion on the desirability or otherwise of the architectural and civic relationships they might establish, the resulting *Spatial Operations* describe in simple graphic terms the range of physical manoeuvres that might be deployed throughout the suburbs. They do this as a set of

observations, and in this sense might be seen in relation to Michael Sorkin's *Local Code*, a set of written (as opposed to diagrammed) observations of what a suburb might be.⁶⁰ Where the Smithsons' concerns in *Ordinariness and Light* were around the types of outcomes that might be found through a diagramming of relationships in their work, urban opportunities for Sorkin's *Code* only become discoverable through written descriptions of desirable city traits. Indeed, Sorkin relies on the deliberate denial of the drawing and a total reliance on textual descriptions of the particular urban and civic quality each elemental component of the city might afford.

With both works however, there is a sense that the exercise of codifying the city is never an absolute, but rather the starting point for seeing how others might interpret the code and put it to work, as Sorkin describes:

Codes are Rosetta Stones, keys or prescriptions for acts of translation. Poised between fantasy and construction, codes – if they are both broad enough and precise enough – can be the channels of urban invention.⁶¹

In stating this, Sorkin invites the type of dialogue at play in the *Spatial Operations*. Resulting from the cumulative abstraction studies that preceded them, the operations are in equal measures descriptive-enough of the physical manifestation of Adelaide's inner suburbs as they currently present, yet projective-enough to suggest a settlement pattern that is yet to be.

Designed to be generative, they form the scaffold for the three detailed design exercises that conclude this design research.

60 Michael Sorkin, *Local Code: the Constitution of a City at 42° N Latitude* (New York, N.Y.: Princeton Architectural Press, 1993).

61 *ibid.*, 127.



A faded, grayscale background image of an interior room. On the left, a white door with a multi-paned window is visible. In the foreground, a bicycle is parked. To the right, a bed with a patterned blanket is partially visible. The overall scene is dimly lit, with a soft glow from a light fixture in the top left corner.

4. Design Application: On Diversity

In Lefebvre's idea that through use, through positive acts of appropriation, the functionalist domination of space can be broken, 'flexibility' acquires its political connotation . . . (for Constant) 'flexibility' is not a property of buildings but spaces; and it is a property which they acquire through the uses to which they are put. ¹

Adrian Forty

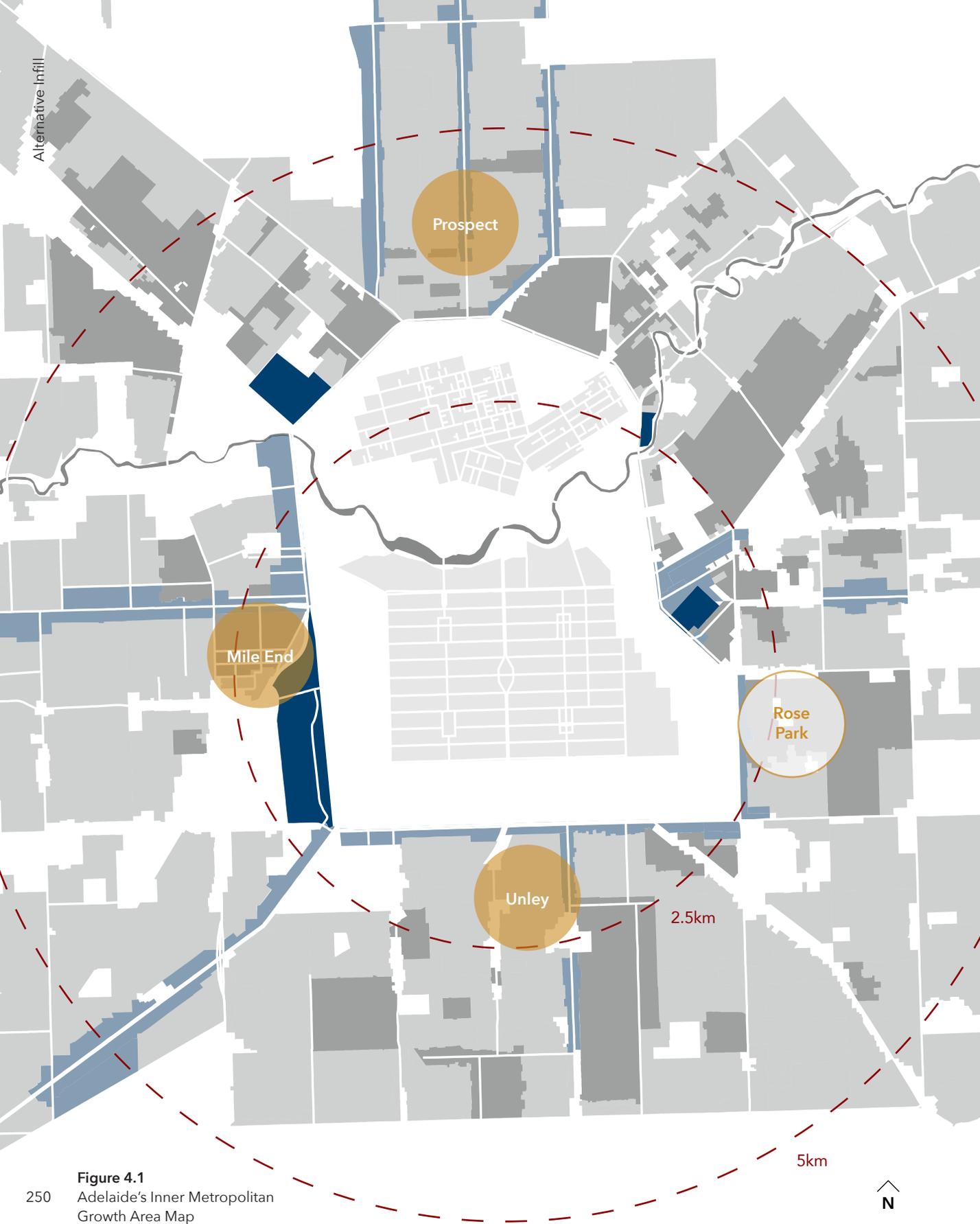
Words and Buildings: A Vocabulary of Modern Architecture

- 1 Adrian Forty, *Words and Buildings: a Vocabulary of Modern Architecture* (London: Thames & Hudson, 2000), 148.

4.1 Beyond Rose Park

I have argued in Chapter 2 that Adelaide's established inner suburbs have been formed by a raft of 'unintentional monuments' that are so consistent in their spatial deployment as to create ubiquitous suburbs - the very suburbs that form so much of the city's Inner Metropolitan Growth Area detailed in Chapter 1. Having stated in Chapter 3 that the process of design abstraction has been important when considering infill in these suburbs, so as to avoid simply designing more detailed and nuanced solutions for a selection of idiosyncratic sites, it is incumbent on me to apply these abstraction findings and do exactly that. This chapter applies detailed design experimentation to three specific suburban sites in order to trial their agility and flexibility and to demonstrate the assumptions held in the preceding observations. Deploying the *Spatial Operations* described in Chapter 3, the three schemes presented here offer demonstrable examples of how new housing supply and choice might be provided through a reinterpretation of normative domestic space.

Where the antecedent work has been generated in the inner eastern suburb of Rose Park, this chapter describes three detailed projects that apply these design findings elsewhere, specifically Unley, south of Adelaide's CBD, Mile End to the west and Prospect to the north (Figure 4.1 on page 250). All inner suburbs, they demonstrate the applicability of the preceding design strategies to different neighbourhoods and at the detailed scale of the house and allotment.



Alternative Infill

Prospect

Mile End

Rose Park

Unley

2.5km

5km



Figure 4.1
Adelaide's Inner Metropolitan
Growth Area Map

The sites of each project were selected strategically in order to provide limits to the design experiments.

Before searching, it was determined that sites with mature landscape must be used, as those without would present an undesirable *tabula rasa* that would deny the projects these landscape benefits whilst avoiding the architectural demands of working in and around existing landscape conditions. Most importantly, it was anticipated that this strategy would demonstrate that housing increases could be achieved whilst retaining the types of mature landscape that are so often lost to current infill practices. This is a method by which to recalibrate the assumption of suburban capacity, by perceiving existing suburban allotments not as a wholesale square meterage offering defined by its documented boundaries, but as a series of allotment 'moments' that have resulted from the previous layers of domestic activity and development. In simple terms, the site selection methodology preferred the retention of mature trees over their removal for their contribution to amenity, micro-climate, the character value of the area and the project-specific opportunities and constraints they present in real-world project conditions.

In addition, the three sites were deliberately selected quickly, as a measured testing strategy. Using Google Earth, thirty minutes was allocated to find three locations that together would provide a representative sampling of infill housing opportunities around the Inner Metropolitan Growth Area, under the assumption that the Rose Park investigations already represent the east. Speed of selection was considered important in order to demonstrate that the design findings and tactics of the earlier studies were truly applicable broadly in other suburbs and that one does not require a perfect mix of house and site conditions in order for these learnings to be deployable. Furthermore, three projects were necessary not just to provide general geographic representation, but to allow design investigation around the three suburban conditions

created when consolidating two adjacent allotments:

- back-to-back allotments;
- side-by-side allotments; and
- side-by-side allotments with a rear laneway.²

Two allotments were deemed optimal for both practical and strategic reasons. Pragmatically, the procurement of two adjacent sites is achievable under current market conditions, in terms of both the value attributed such properties and the limited time each spends on the market.³ In its most simple form, a property owner might purchase the house next door when it comes on the market or via private negotiation with a neighbour beforehand. This might be achieved in isolation if affordable, or collaboratively with others as a form of development or investment strategy. Alternatively, two adjacent owners might joint venture and consolidate their allotments, as described in the commentary that follows in Chapter 5. The procurement of a third site in the established suburbs is considered more difficult to realise based on current normative behaviour, where the addition of any allotment beyond two sites theoretically becomes exponentially more difficult to achieve as the number of allotments grows. Strategically, the amalgamation of two sites is preferred for the spatial gains this consolidation affords. When arranged back-to-back, the site depths of around 40 to 60m between the existing houses, as identified in the morphology studies of Chapter 2, provides significant territory in which to form both built and landscaped space (refer Figure 2.21 and Figure 2.22 on page 81 in Chapter 2). Arranged side-by-side, the lateral spatial gains of 20 to 35m allow for appreciably improved site amenity.

- 2 A fourth scenario of back-to-back allotments with a rear laneway between them was not considered a valuable test, as the laneway effectively keeps the two allotments separate, under the assumption that it still needs to service unrelated allotments on either side. Formative design work that is not presented in this thesis has investigated these relationships, however, and is a logical extension for future corollary work. A useful benefit discovered is in the ability for the laneway to act as a conduit between detached allotments where use can be shared between the two. Car parking is an example, where one allotment might host all or most of the car parking in order to free valuable landscape or built space in the other.
- 3 The metrics of these market conditions are discussed in the context of a speculative development scenario in Chapter 5.

In contrast, any detailed design investigation of single allotments for this study was considered unproductive for two reasons. In the first instance, the arrangement of the villa or

cottage on its site and the proportions of the sites themselves establish scenarios whereby the achievement of generous landscape spaces requires sufficient breadth in at least one direction if the predominance of small 'courtyard gardens' is to be avoided.⁴ Given the proportions of Adelaide's allotments, these desired broad landscapes ultimately need to be achieved by utilising the entire allotment width or at least the vast majority of it. This risks establishing a condition where the pattern of development on the allotment becomes a series of detached building elements stepping back progressively from the street towards the rear boundary, with discrete landscape spaces fitted in between. This gives rise to the second reason for not working with single allotments, being that it bears too strong a resemblance to current infill behaviours where the strategy of the hammerhead division is preferred.⁵ That is not to suggest, however, that single allotment design investigations should not be undertaken and indeed, applying the work of this thesis to single sites may ultimately provide its greatest utility, due simply to the fact that the vast majority of homes lie in single ownership. Such work is deemed beyond the scope of this project but is anticipated in the following chapter as future corollary work.

Having established site selection constraints, parameters for the design of the three schemes were also decided. As with the student design project described in Chapter 3, the density targets were set at a minimum of five dwellings across the two allotments, in order to achieve a medium density yield of at least 34 dw/ha and to again test if the State Government's transit corridor density targets could be met in an alternative manner. Determining that an absence of car parking could affect the credibility of the schemes but that the provision of car parking at the current rate of two off-street spaces per dwelling is unsustainable, a target of one car space per dwelling was decided upon. This is particularly important in the context of inner-Adelaide, where public transport

- 4 By 'courtyard garden', which is a real estate term, I mean the type of small outdoor space created between dwellings. Often paved and with a narrow perimeter garden bed, these spaces often conform to the minimum statutory dimensions and little more. In many local council areas, this requires spaces that are a minimum of ~6m in one direction, enabling the supply of outdoor space that meets quantitative but not necessarily qualitative measures.
- 5 A hammerhead site division sees the house at the front of an allotment accessed directly off the street and the dwelling(s) at the rear accessed via a driveway beside this. Front and rear dwellings are most often separated by a fence running laterally across the site, and another along the driveway where space permits, in order to separate the front house from its rear neighbour's access path.

infrastructure is limited, travel by car is preferred for its speed and where 70,000 car parking spaces provide ample and inexpensive parking and little disincentive to seek alternative means of transportation.⁶ All car parking shown in the following design speculations is to the Australian Standard,⁷ but arranged and dispersed in such a way as to allow the space to be used for additional outdoor activity should cars be temporarily removed or not required by particular occupants. Ground surfaces for car parking and driveways are conceived of as semi-permanent and permeable, allowing future extension of the landscape if desired.

Current planning controls such as minimum building set-backs, maximum building heights and envelopes, the length of boundary construction, and plot ratio⁸ were deliberately ignored, but the architectural effects of the spirit of these measures were not. Careful design attention was given to mass, bulk, boundary conditions and overlooking, but this was done intuitively without responding to planning code metrics. As such, whilst the three schemes set aside planning policy in order to explore what is otherwise possible, they are designed with local amenity in mind, from both within the site and without.

With the project parameters set, the three sites of investigation were identified and allocated a mix of housing types, coupled with imagined occupant scenarios. Each scheme offers some form of flexibility via use, divisibility or expandability, resulting in variable dwelling and density numbers depending on how occupants choose to utilise the spaces. In the project descriptions that follow, dwellings are at first not described in terms of bedrooms, but the simpler term 'room', which describes all spaces that are not fixed in their programming via servicing (such as a bathroom or kitchen) or are required to be used as access to another room. In this manner, 'room' means a space that can be dedicated as a bedroom or work space such that a one room dwelling, for example, may function as

6 Integrated Design Commission of South Australia, *Understanding Inner Adelaide: Context and Issues Report*, (Adelaide: The Department of the Premier and Cabinet, Government of South Australia, 2012), 138.

7 Standards Australia / Standards New Zealand, "AS/NZS 2890.1:2004 Parking Facilities - Part 1: Off-Street Car Parking," (Sydney: Standards Australia / Standards New Zealand, 2004).

8 Plot ratio is the planning statute that determines the maximum floor area permitted to be constructed relative to the allotment size.

a small one-bedroom house or as a work environment for someone who may or may not be living on the site.

Describing a house in terms of its number of rooms, as opposed to bedrooms, provides a simple mechanism for considering each scheme's flexibility and although the buildings and landscapes are fully furnished in order to test usability and amenity and are described in occupational detail relative to the uses shown, the reader can imagine alternative scenarios mapped on to the drawings. Thought of in this manner, beds, dining tables or sofas might be exchanged for example for desks, work benches, hairdressers' chairs or dentists' stations, triggering subtle yet meaningful occupational change. Accordingly, a living room, dining area or bedroom might each become a waiting area, office, consulting room or atelier.

Each of the three projects assumes a blurring of current ownership divisions and begins with the premise that each two-allotment site is now a single entity consisting of two existing houses stripped back to their original plan form. Where existing lean-tos are found, these are retained and worked with. Where they have been absorbed into new additions and have become illegible, it is assumed they have already been demolished or transformed beyond re-use.

All later additions including extensions, sheds and outbuildings are removed. As such, each of the three speculations presents not as a wholesale reuse of everything on site that currently exists, but as a design discussion of how the sites might have been developed differently in the first instance or how a strategic approach to redevelopment in the future might proffer alternative approaches to infill. In addition, the speculations provide a prompt as to the types of new development that might be achieved assuming the retention of only the original Victorian-era housing and mature landscape as foundation conditions.

4.2 Mile End

16 dw/ha



Figure 4.2
source: Google Earth (modified)





44%
exist. cover

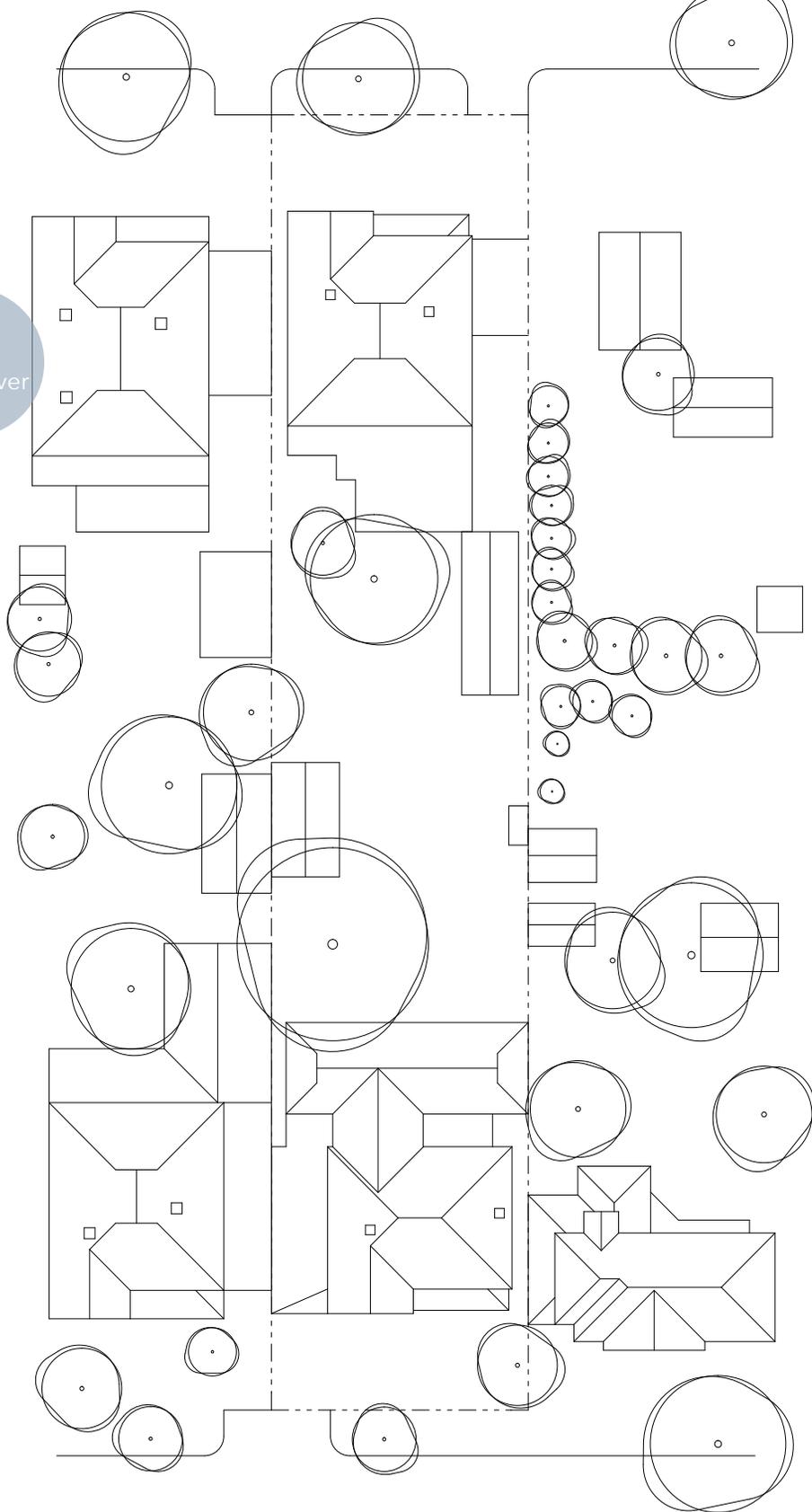


Figure 4.3
Mile End site plan - existing use

34%
new cover

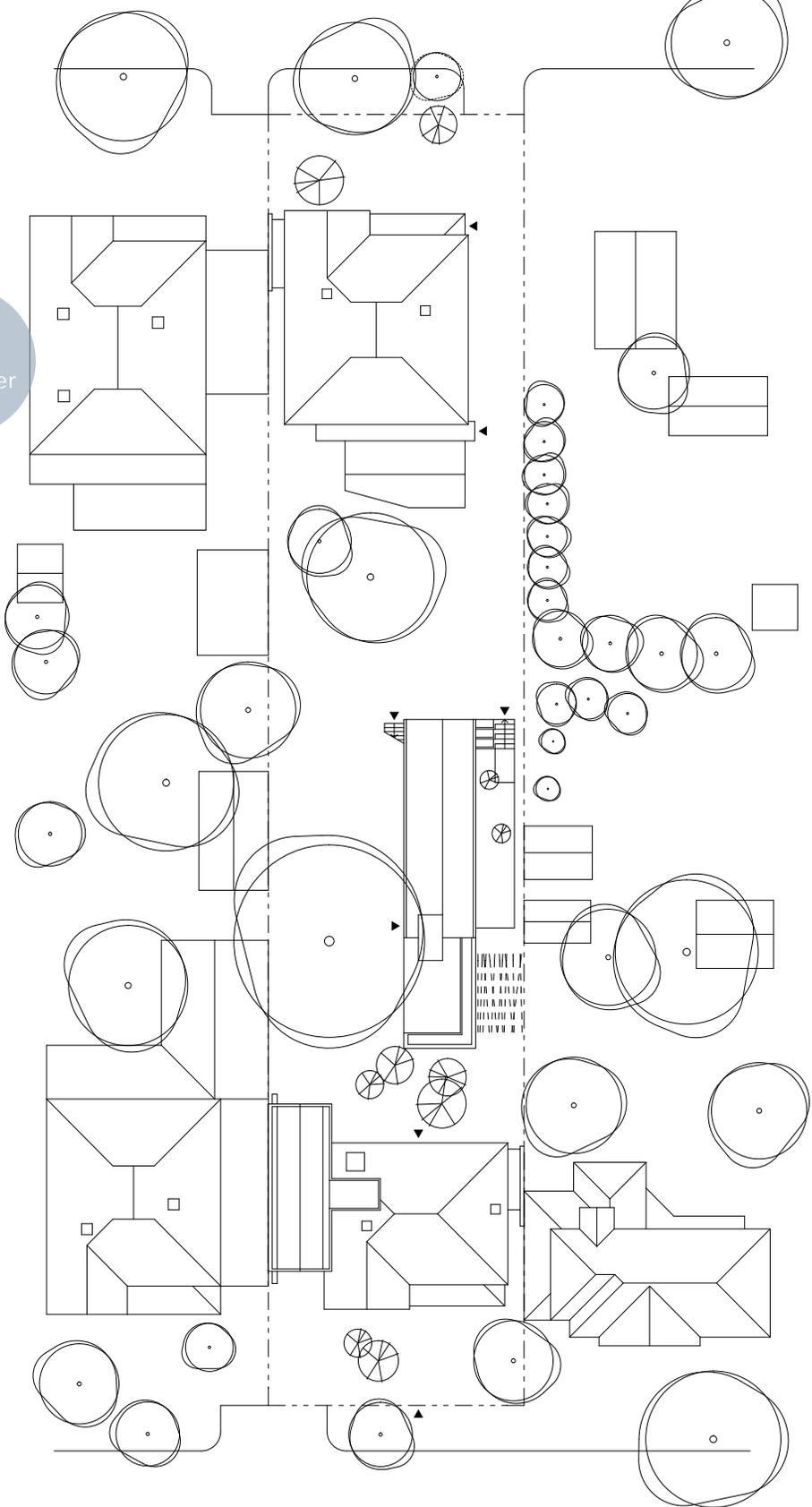


Figure 4.4
Mile End site plan - new use

The Mile End scheme is conceived of as a normative, if heavily intensified, additions and alterations project providing individual houses and gardens for five to six unrelated individual households.

Allotment type	back-to-back
Housing strategy	5 or 6 individual houses
Landscape strategy	individual garden or roof garden + communal garden
Car parking strategy	dedicated parking in two zones
Site area	1,256m ²
Existing site size/dw	628m ²
Existing density	16 dw/ha (2 dwellings)
Permitted min. site size	270m ² (37 dw/ha)
Permitted site density	32 dw/ha (4 dwellings)
Existing site cover	44%
New site cover	34%
New density A	40 dw/ha (5 dwellings)
Site size/dw	251m ²
Housing mix	2 x 2 rooms 2 x 2.5 rooms 1 x 3.5 rooms
New density B	48 dw/ha (6 dwellings)
Site size/dw	209m ²
Housing mix	2 x 1 room 2 x 2 rooms 1 x 2.5 rooms 1 x 3.5 rooms

Existing Conditions (Figure 4.2 and Figure 4.3)

The site for the Mile End design experiment is in a designated *Residential Character Policy Area* which, after a 2015 Development Plan Amendment in support of the City of West Torrens' Housing Diversity Plan Amendment, currently allows for minimum allotment sizes of 270m².⁹ This equates to four dwellings across the two consolidated allotments, or a two-for-one intensification for each individual existing allotment. Running north-south, the site consists of two villas: a left-handed villa to the south in a carriage lane / house / walkway (C+H+W) configuration when viewed from the street, and a right-handed villa to the north, also in a C+H+W street arrangement. This pattern presents offset carriage lanes and walkways, thereby denying the opportunity to create a driveway/walkway spine down one side of the allotment off which all other elements might be accessed. Whilst only the south villa has received major extensions, each has significant shedding and carport additions, resulting in 44% site coverage and this presents as a common development pattern for the precinct, where the foundation villas and cottages retain their legibility.

New Conditions (Figure 4.4)

The design speculation initially sees five self-contained dwellings dispersed over three buildings. Each is designed with its own outdoor space and dedicated car park, while a shared longitudinal communal garden links the three buildings and provides pedestrian access through the site from one street to another. Designed to retain the existing mature landscape, small additions to the villas are coupled with a detached central apartment building, with the combined small footprints occupying 34% of the site; a 23% reduction in site coverage, the balance of which is allocated to garden, pedestrian movement and vehicular access and parking.

9 City of West Torrens, *Fact Sheet, Character Policy Area 27: Residential Zone - Thebarton*, (Adelaide: City of West Torrens, 2015).

Spatial Operations Strategy (Figure 4.5)

The scheme employs seven Spatial Operations:

site:	longitudinal yard
south building:	side pod elevated carriage lane addition
central building:	yard addition - elevated single storey yard addition - three storeys in half-level basement/patio
north building:	side pod rear addition - single storey front addition - enclosed garden wall

Building and Landscape Strategies, Mass and Scale

(Figure 4.6 to Figure 4.10)

Dwelling 1 at the south end of the allotment is conceived of as a family or share home of up to three and a half rooms. The central apartment building is arranged as two cross-over dwellings, with Dwelling 2 containing two rooms and Dwelling 3 two and a half rooms. Dwelling 3 can be split into two one-bedroom apartments. Dwelling 4 is configured as two rooms and exists as a small single storey extension to Dwelling 5, being the existing villa at the north of the site which provides two and a half rooms. Utilising the semi-basement for the three storey apartment building keeps the building height to approximately 8m, with this mass positioned toward the centre of the site and away from side boundaries. Importantly, it creates a high-quality sunken patio space used to access and supplement the semi-basement spaces. All existing mature trees are retained and complemented with additional plantings of varying sizes and spatial arrangements, including a 6m x 29m communal productive garden running north-south along the allotment, parallel with the apartment building. Additional landscape elements are provided via planter boxes to the balconies and the patio.

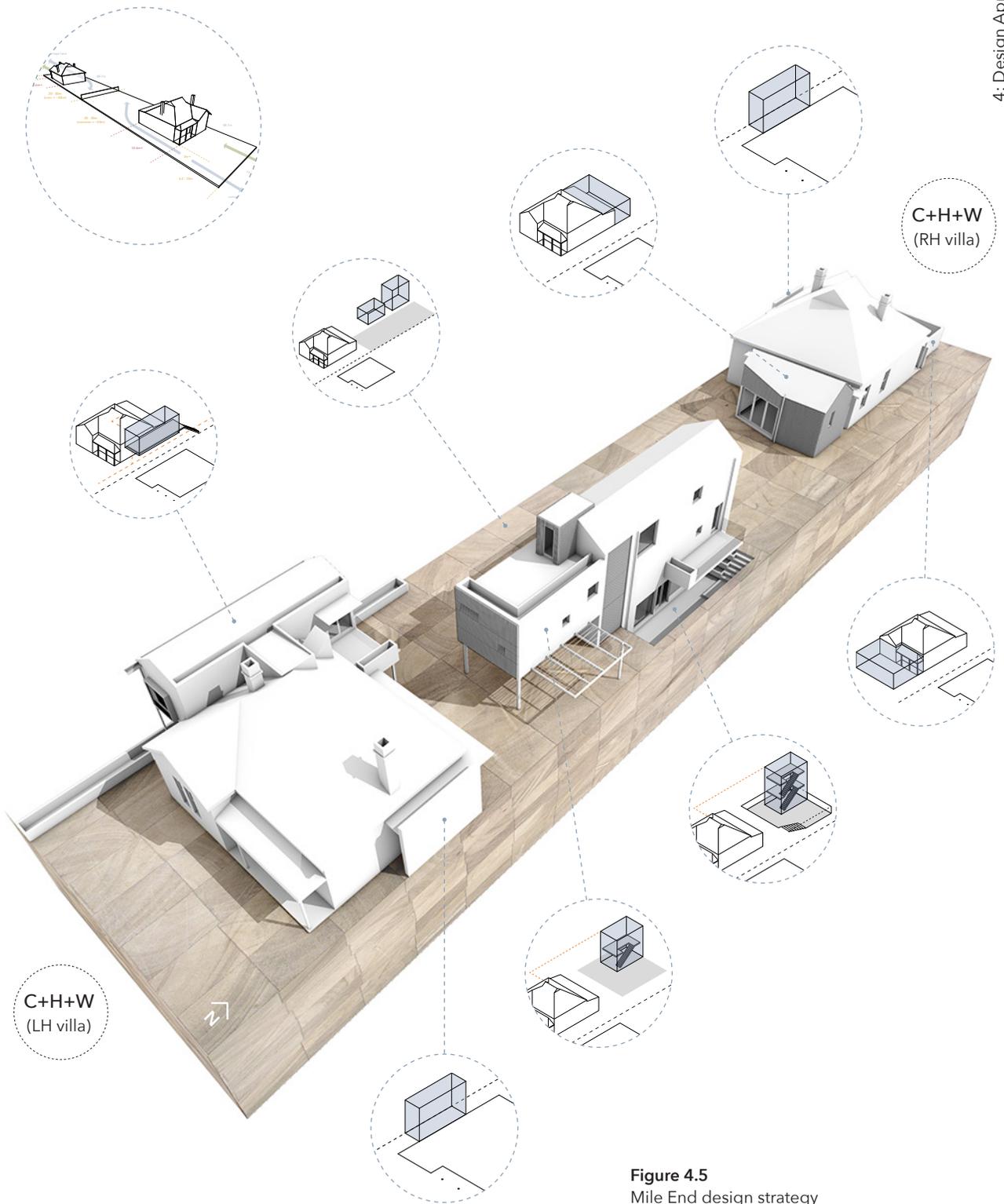


Figure 4.5
Mile End design strategy

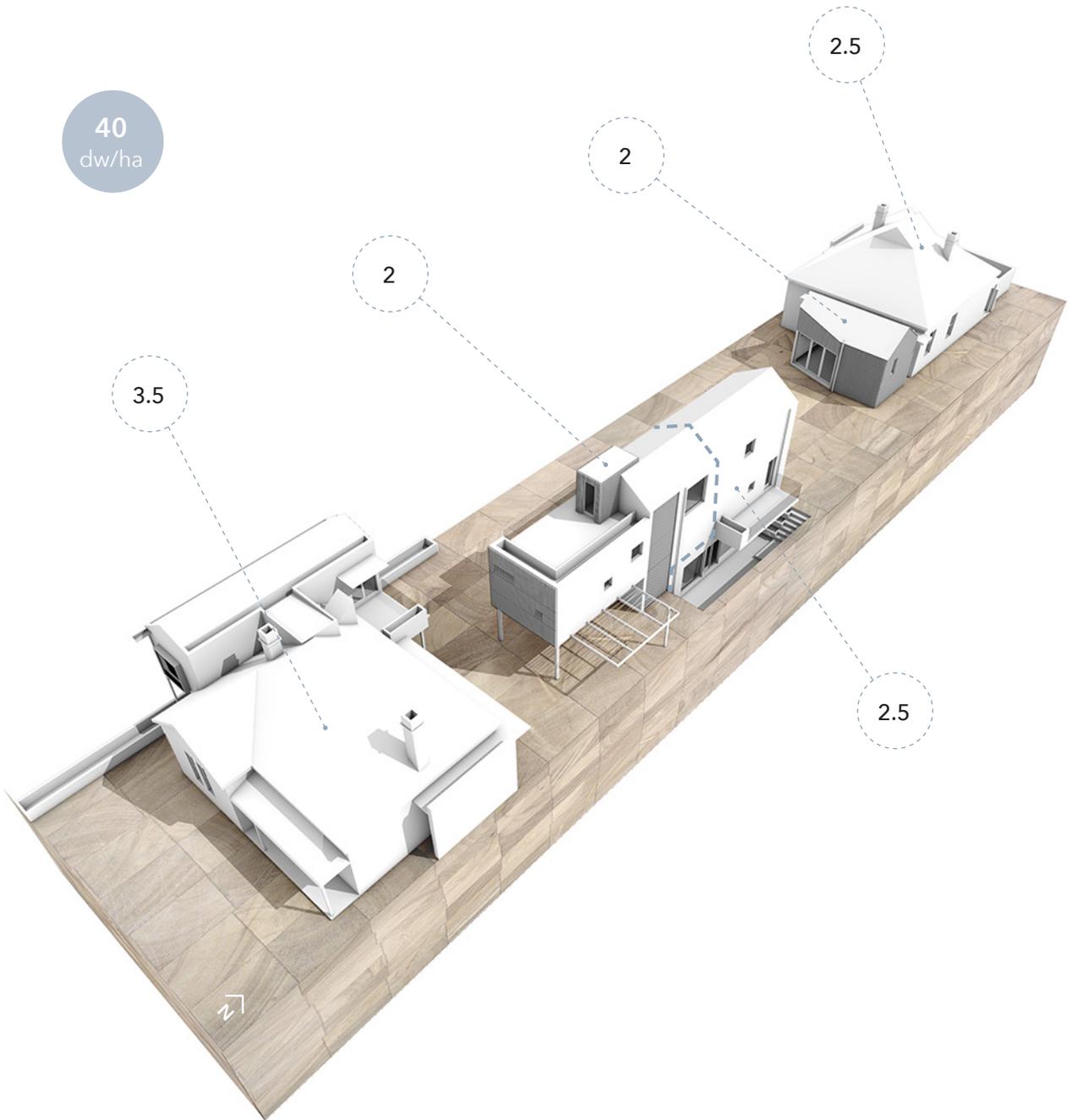


Figure 4.6
Mile End rooms strategy A: 5 dwellings

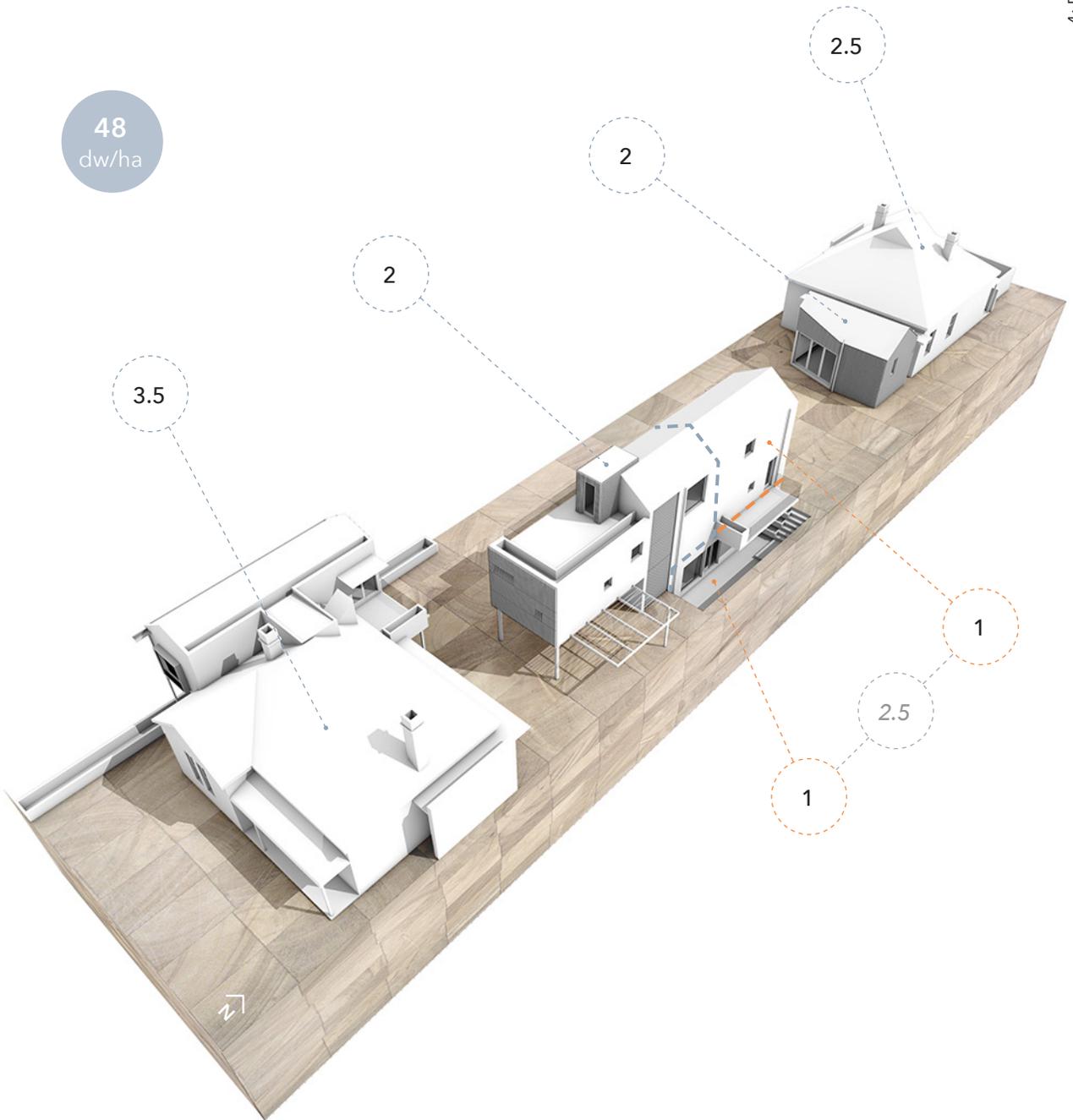


Figure 4.7
Mile End rooms strategy B: 6 dwellings

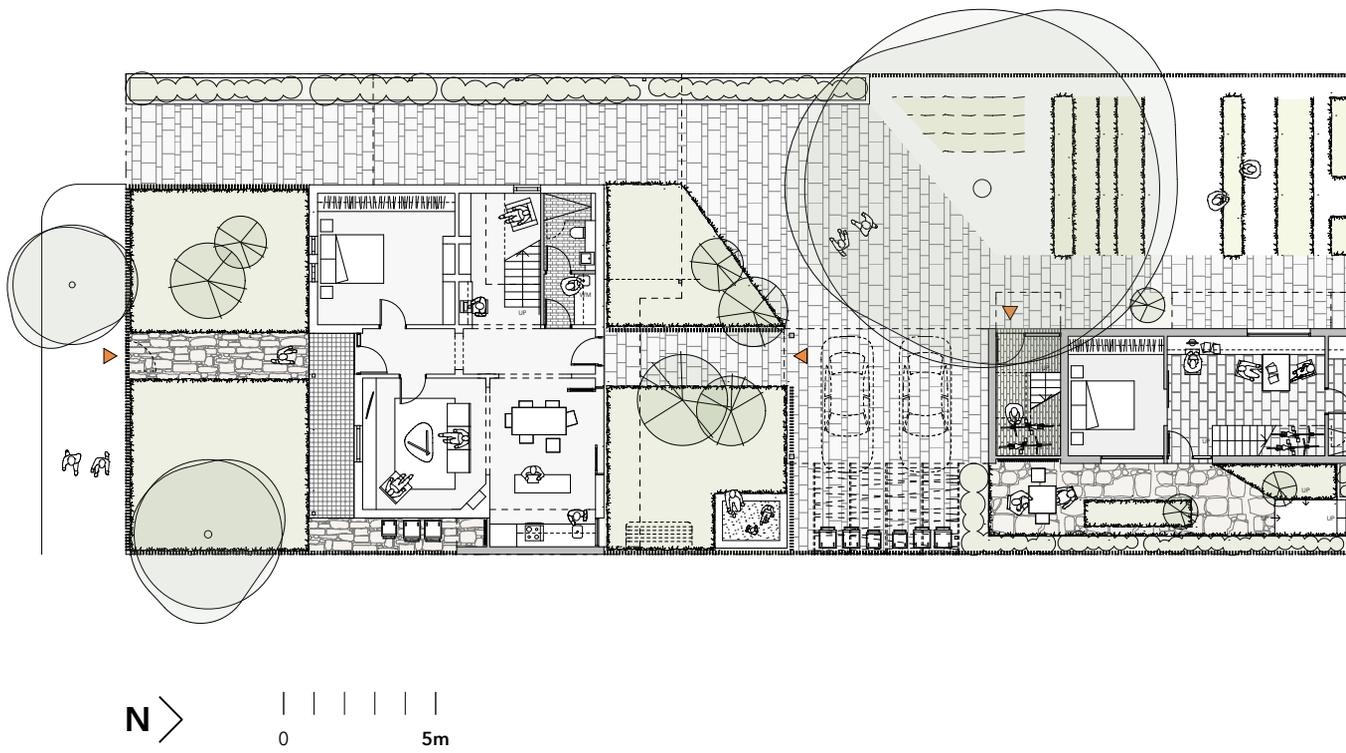


Figure 4.8 (above, and facing page)
Mile End full scheme: plan

Figure 4.9 (facing page)
Mile End street elevations

Figure 4.10 (below and facing page)
Mile End long elevation



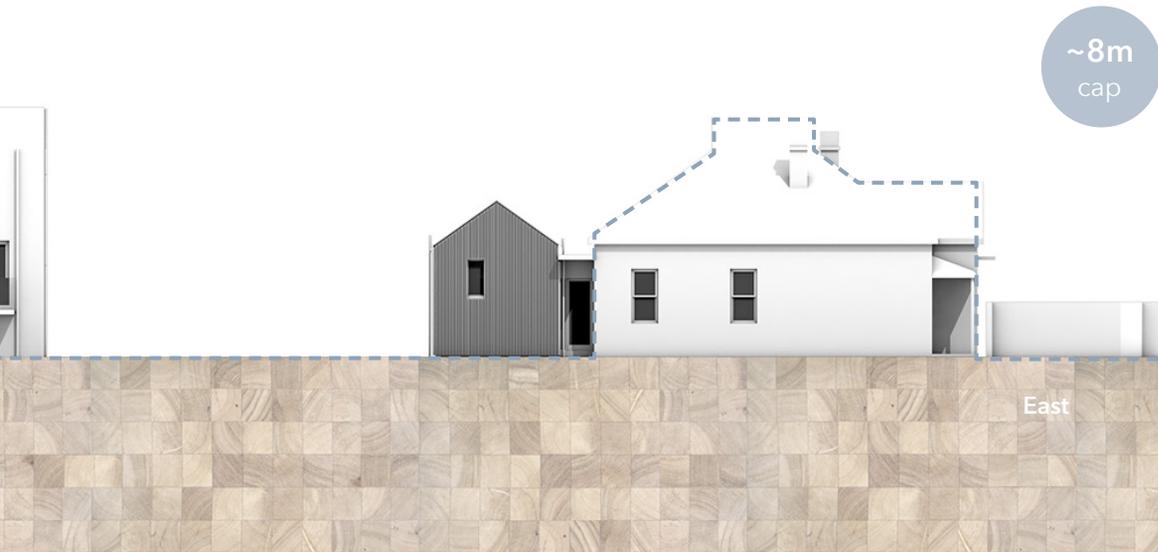
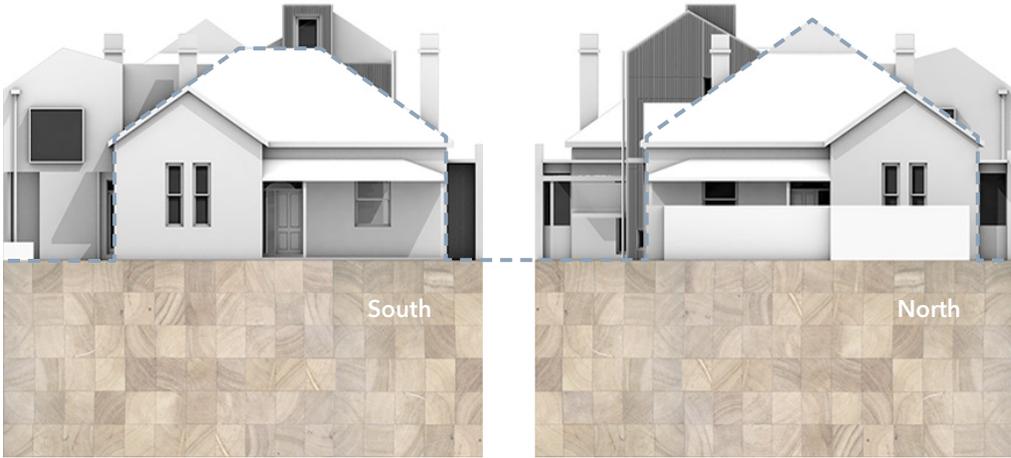
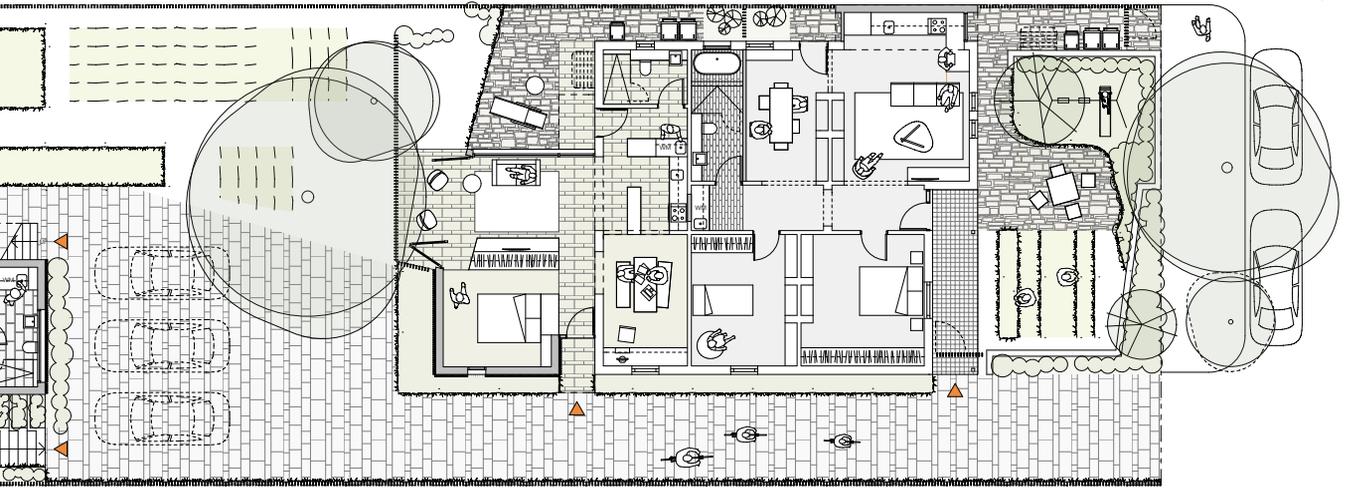
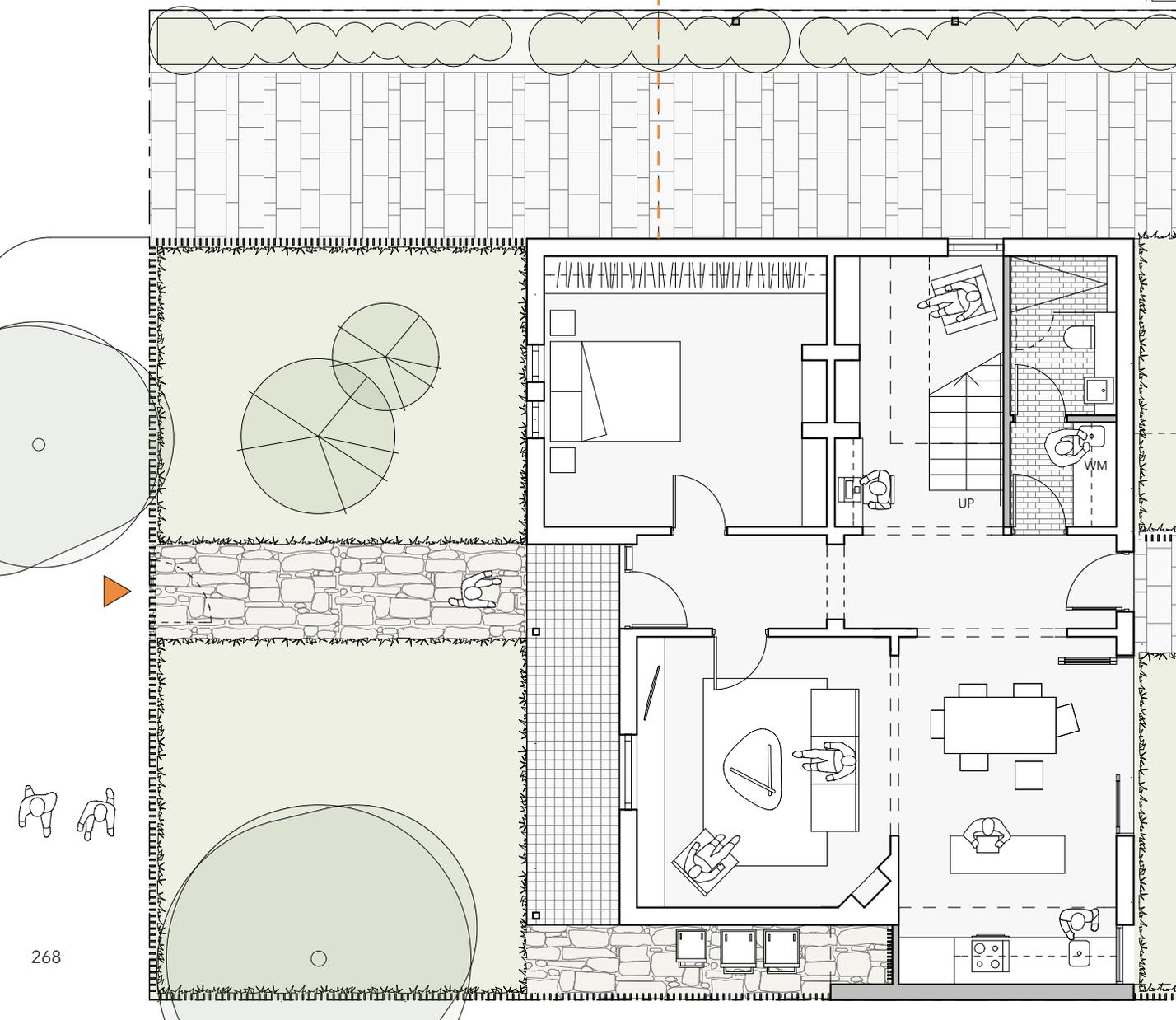
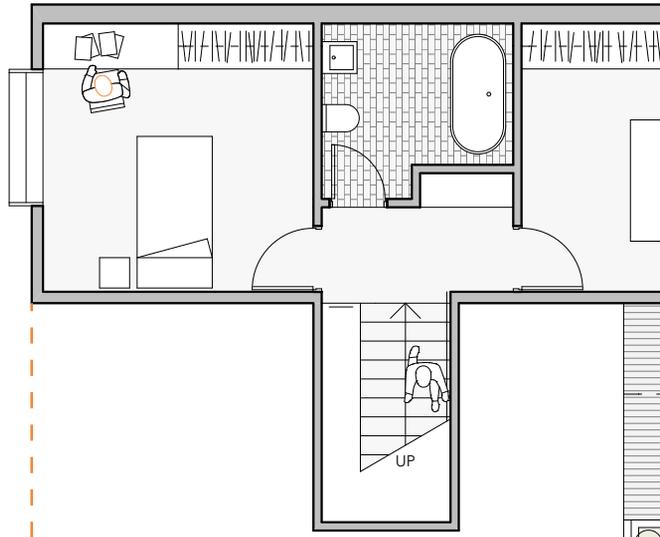
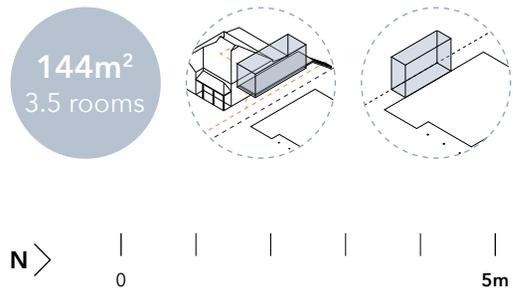
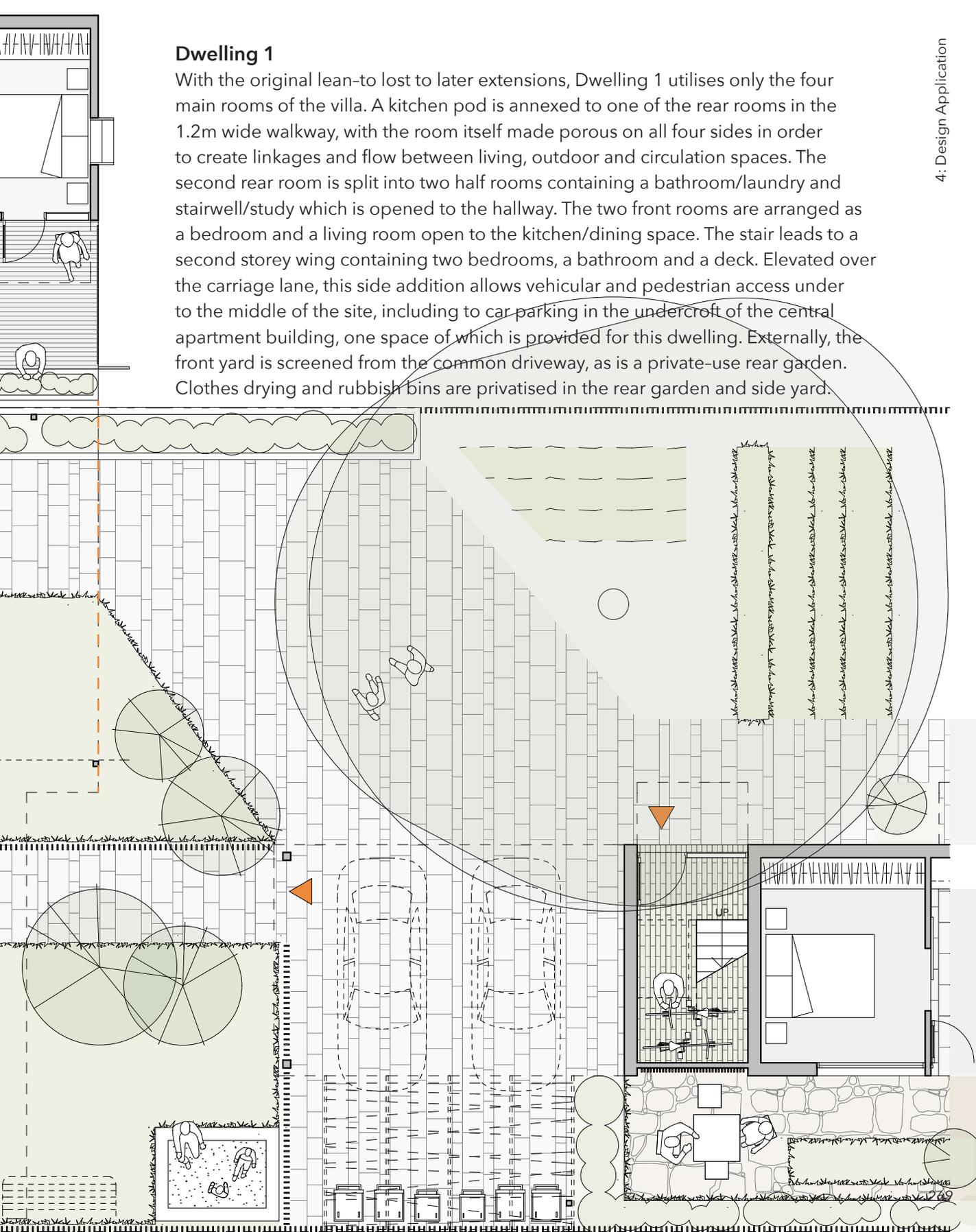


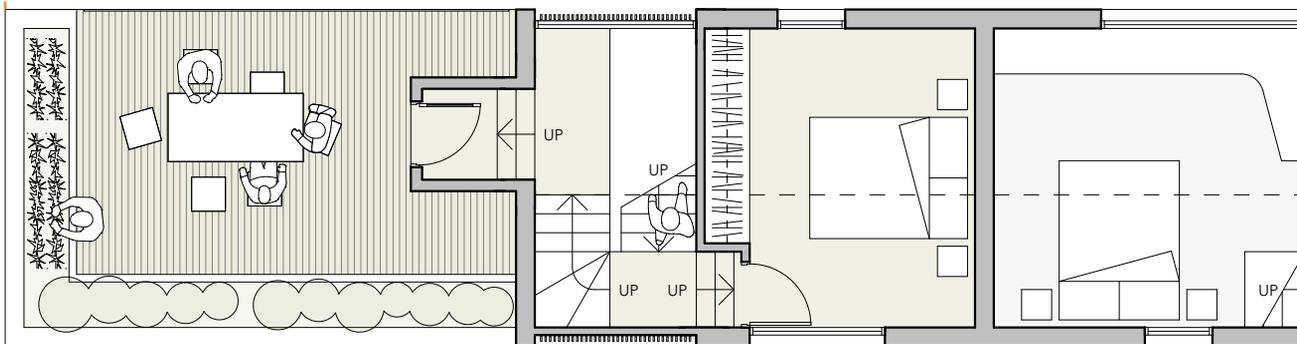
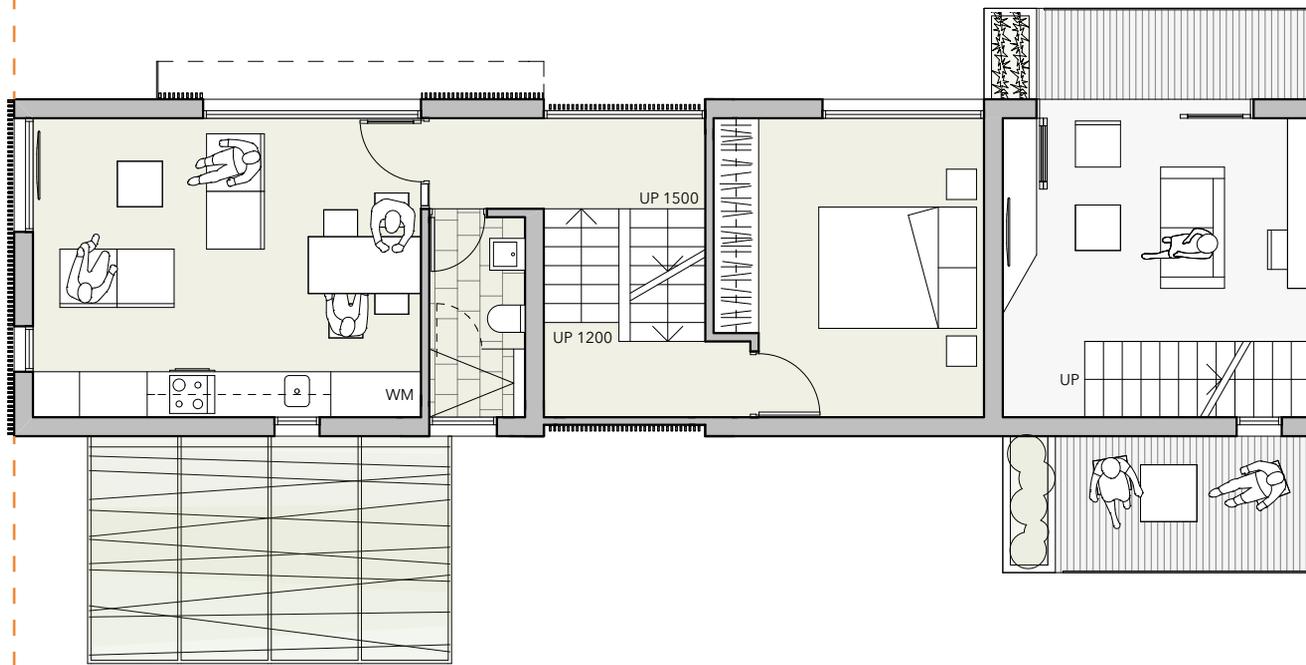
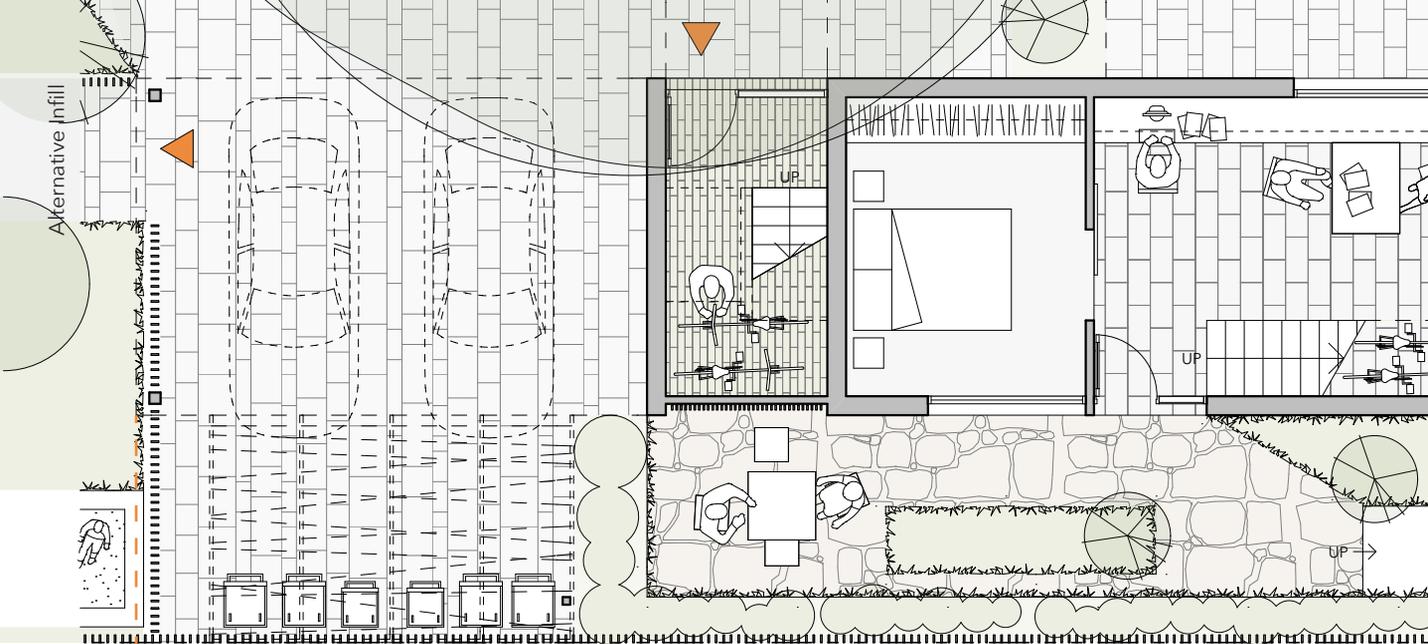
Figure 4.11 (this and facing page)
Dwelling 1, Mile End

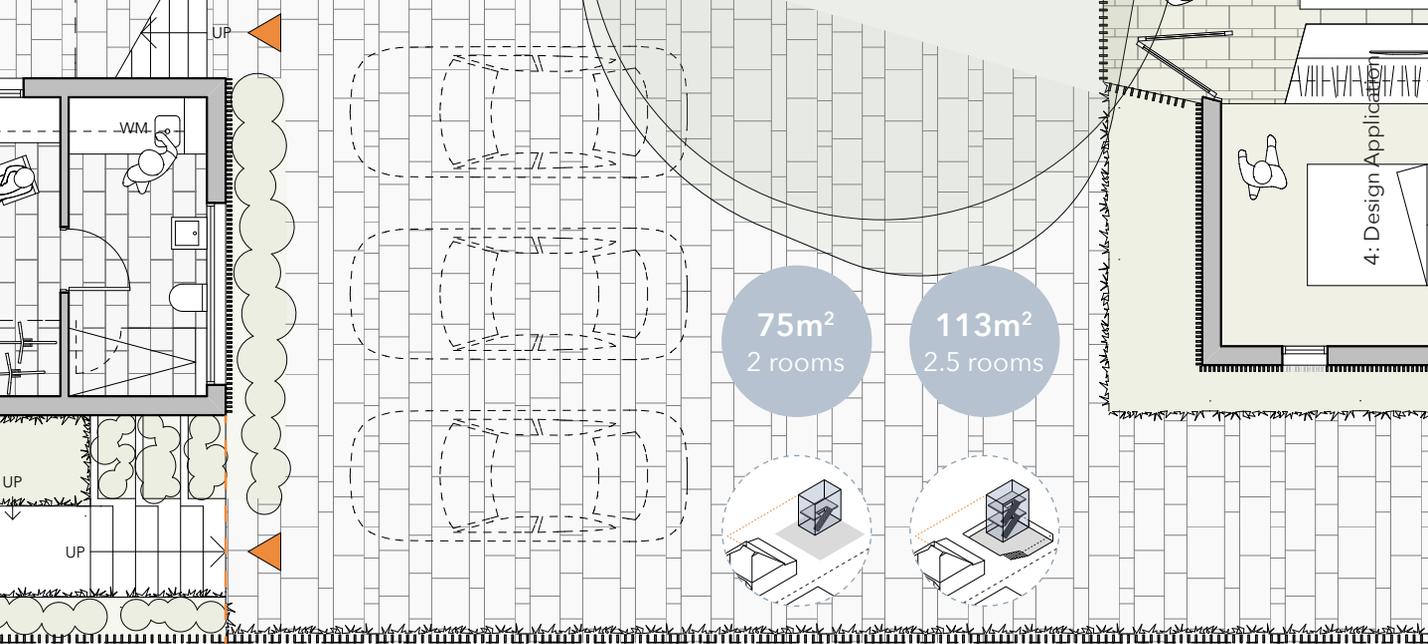


Dwelling 1

With the original lean-to lost to later extensions, Dwelling 1 utilises only the four main rooms of the villa. A kitchen pod is annexed to one of the rear rooms in the 1.2m wide walkway, with the room itself made porous on all four sides in order to create linkages and flow between living, outdoor and circulation spaces. The second rear room is split into two half rooms containing a bathroom/laundry and stairwell/study which is opened to the hallway. The two front rooms are arranged as a bedroom and a living room open to the kitchen/dining space. The stair leads to a second storey wing containing two bedrooms, a bathroom and a deck. Elevated over the carriage lane, this side addition allows vehicular and pedestrian access under to the middle of the site, including to car parking in the undercroft of the central apartment building, one space of which is provided for this dwelling. Externally, the front yard is screened from the common driveway, as is a private-use rear garden. Clothes drying and rubbish bins are privatised in the rear garden and side yard.







0

5m

Figure 4.12 (this and facing page)
Dwellings 2 and 3, Mile End

Dwellings 2 and 3

A detached small apartment building, Dwellings 2 and 3 are arranged as cross-over apartments over three storeys each. At ground level, car parking for Dwelling 1 and Dwelling 2 sits in the undercroft of the second storey, which is extended with a pergola to provide usable outdoor space when the cars are removed. Further car parking is located at the north end of the building, with one space dedicated to Dwelling 3. Clothes drying occurs in private-use outdoors spaces and rubbish bins for both dwellings are located under the pergola at the end of the car parking space.

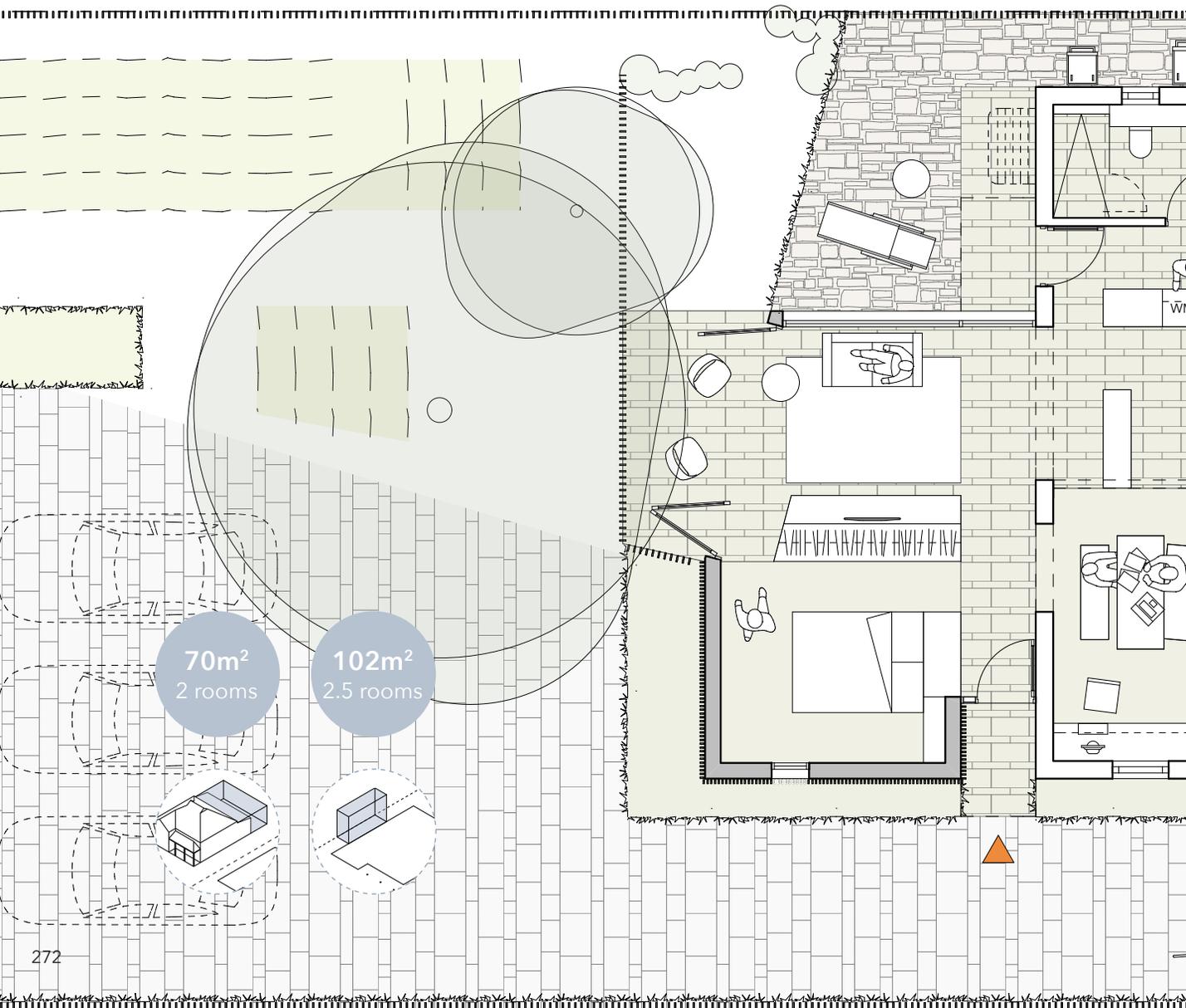
A private entry stairwell at ground level provides bicycle storage for Dwelling 2, which is arranged over half-levels with a bedroom off each half-landing. A private-use terrace and garden is provided at the roof level. Dwelling 3 is accessed either by going down one half-level and entering at ground level via a private-use patio on the building's east, or by going up one half-level and entering via a balcony on the west, into the living space. The ground level is arranged as a bedroom, work space and bathroom/laundry, with bicycle storage under the internal stair.

The two entries to Dwelling 3, combined with wet area servicing on all levels and outdoor space at the ground and middle storeys, enables the ground floor to be converted to a one-bedroom apartment via the removal of the stair at this level and conversion of the work space into a kitchen/dining/living space open to the sunken patio. The upper two floors thereby become another single bedroom apartment extended externally by the two balconies at the living level.

Dwellings 4 and 5

Conceived of as a conventional rear addition to a villa with an intact lean-to, Dwellings 4 and 5 are in themselves demonstrative of the type of divisibility achievable in the established suburbs when traditional notions of ownership divisions and site apportioning are challenged. Dwelling 4 presents as a small additive element consisting of an entry, bedroom and living space, each separated by joinery only, in order to maximise spatial flexibility. The lean-to previously associated with the villa is given over instead to Dwelling 4 via the blocking of the doorway from the central hall. The original lean-to configuration is left intact, but is made porous where necessary to improve spatial amenity. It houses the bathroom, kitchen/laundry and a second room configured as a work/meeting/dining space.

Figure 4.13 (this and facing page)
Dwellings 4 and 5, Mile End



Dwelling 5 occupies the same ground floor villa territory as Dwelling 1 at the other end of the allotment, but is configured differently to demonstrate adaptability. The tactics of a kitchen side pod, half-room division and room porosity are again employed, but in different proportions and arrangements, providing two bedrooms at ground level. Blocking the doorway to the lean-to enables the wet area servicing provided to the rear half-room to be extended to form a laundry behind joinery at the end of the hall.

Externally, private-use gardens with clothes drying and rubbish bin storage are provided, whilst the shared driveway provides pedestrian entry and vehicular access to two dedicated car parks at the north end of the central apartment building.

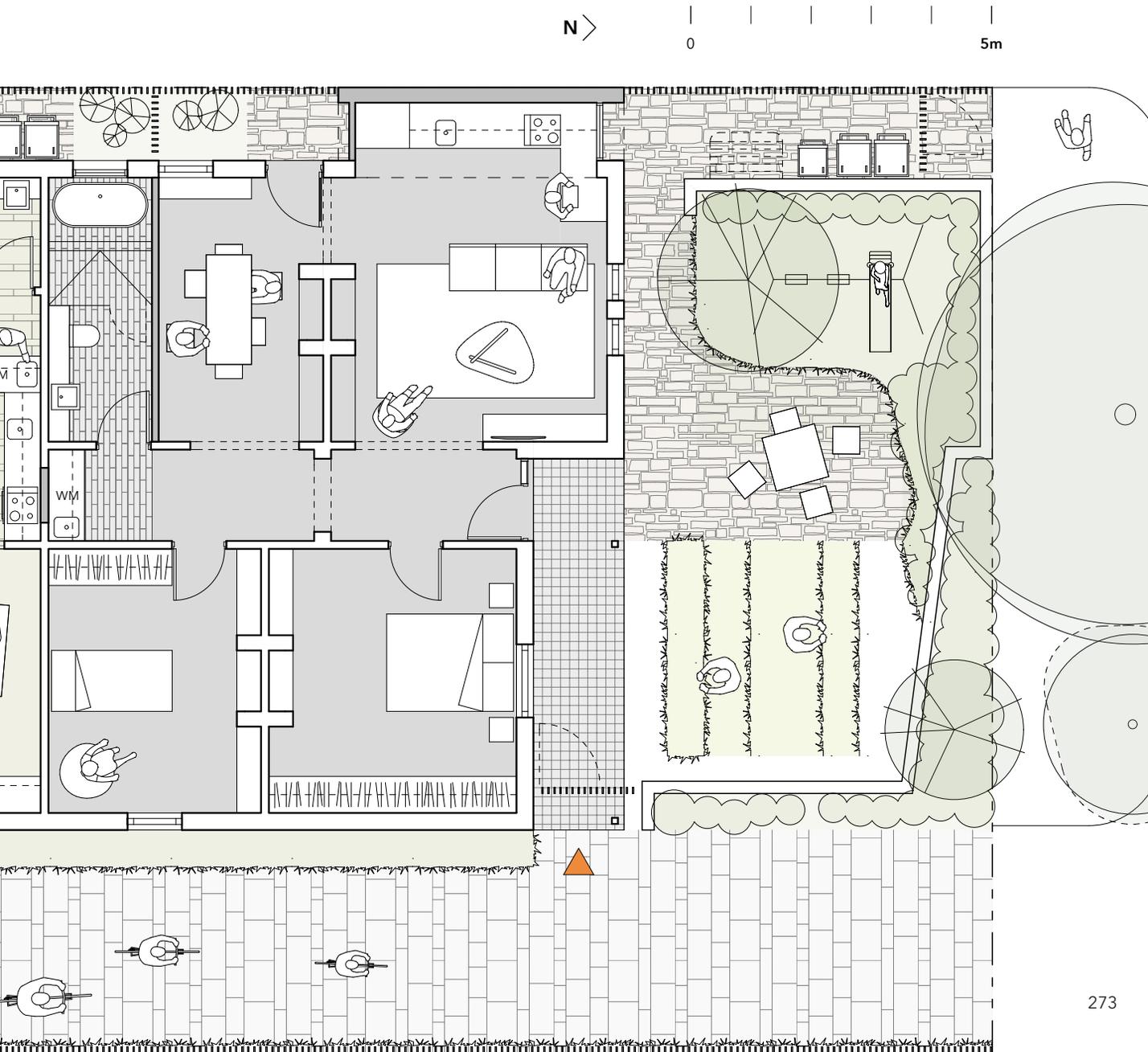




Figure 4.14

Mile End, looking down the carriage lane/driveway, which acts as a connective pedestrian path through the site from street to street. Whilst not deliberately deferential in scale to the prevailing pattern of single storey villas and cottages, occupying the zones of existing built space and providing small footprint dwellings results in a recognisable suburban scale, despite significantly increased density.



4.3 Prospect
15 dw/ha

Figure 4.15
source: Google Earth (modified)





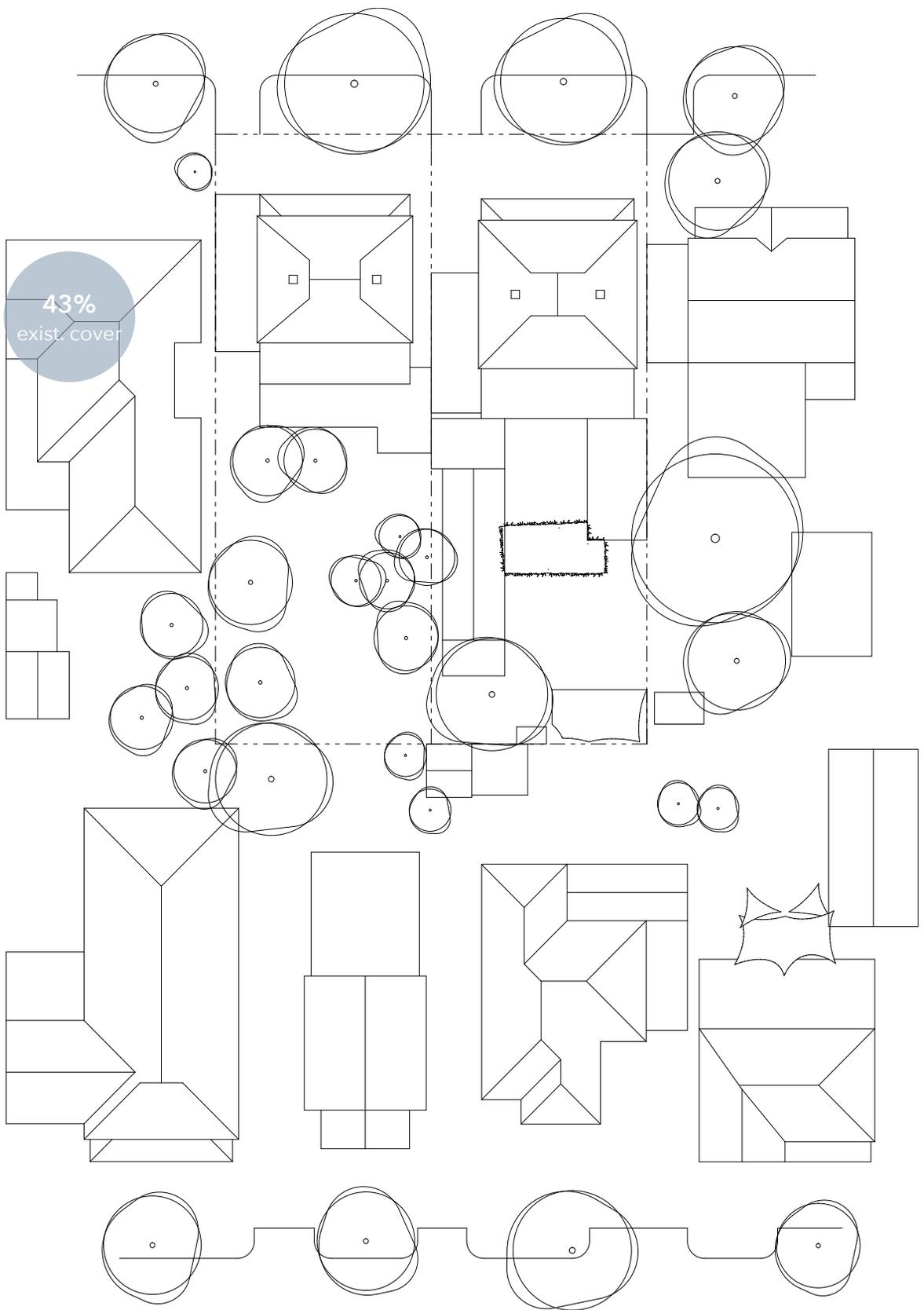


Figure 4.16
Prospect site plan - existing use

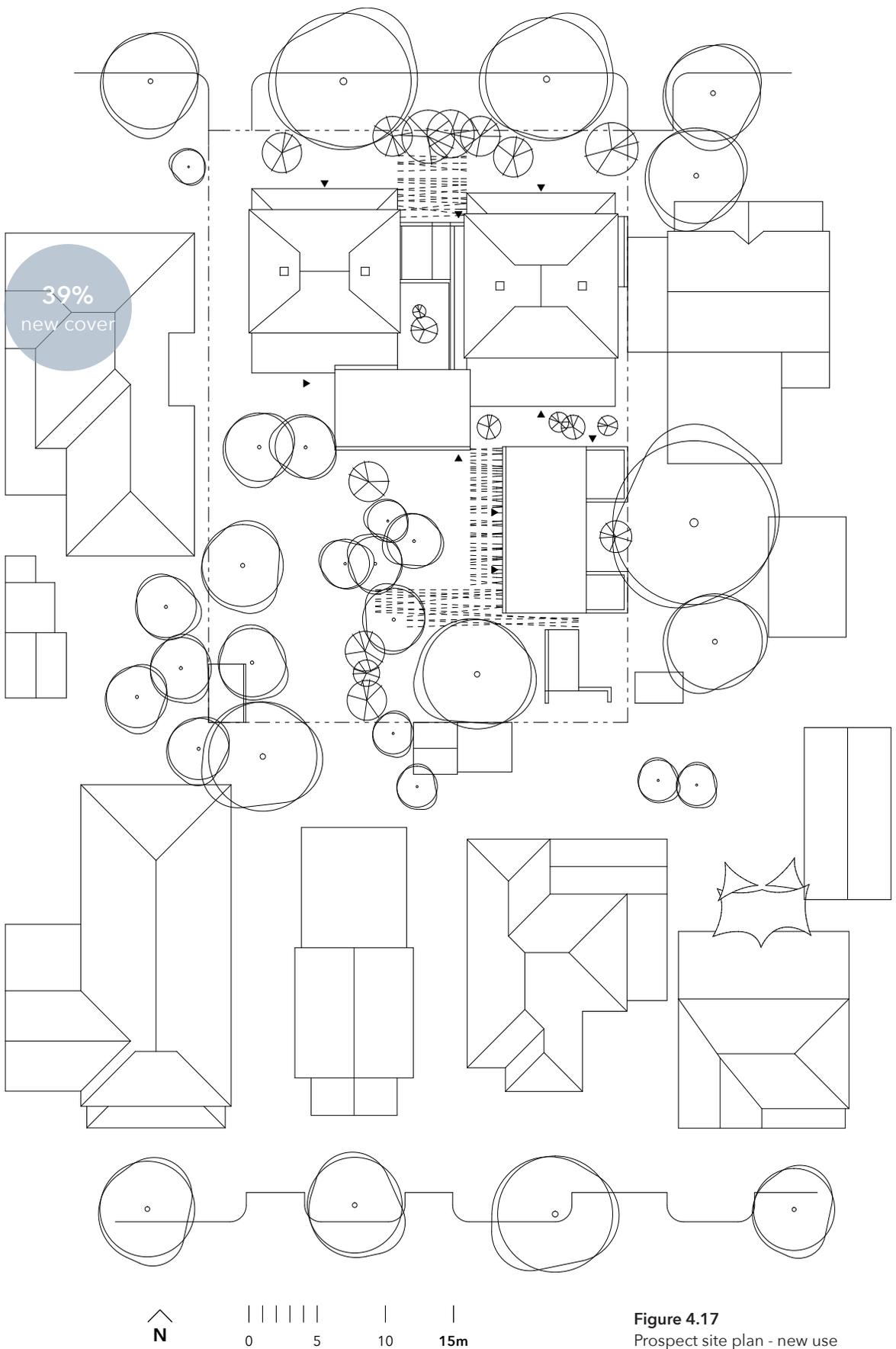


Figure 4.17
Prospect site plan - new use

The Prospect scheme is conceived of as either two multi-generational houses or six smaller houses for individual household groups. It utilises a combination of standard and non-standard alteration and addition strategies that focus on providing diversity of housing choice rather than increases in housing density.

Allotment type	side-by-side
Housing strategy	2 multi-generational houses or 6 houses for friends
Landscape strategy	communal gardens
Car parking strategy	communal parking in one zone
Site area	1,300m ²
Existing site size/dw	650m ²
Existing density	15 dw/ha (2 dwellings)
Permitted min. site size	350m ² (28.5 dw/ha for semi-detached) 450m ² (22 dw/ha for detached)
Permitted site density	23 dw/ha (3 dwellings)
Existing site cover	43%
New site cover	39%
New density A	15 dw/ha (2 dwellings)
Site size/dw	650m ²
Housing mix	1 x 8 rooms 1 x 4 rooms
New density B	46 dw/ha (6 dwellings)
Site size/dw	217m ²
Housing mix	1 x 1 room 4 x 2 rooms 1 x 3 rooms

Existing Conditions (Figure 4.15 and Figure 4.16)

The site for the Prospect design experiment is in a designated *Residential Zone Policy Area* which currently allows for minimum allotment sizes of 350m² for semi-detached houses and 450m² for detached houses.¹⁰ This equates to three dwellings across the two consolidated allotments, or a 1.5-for-one intensification for each individual existing allotment. Running east-west, the site consists of two cottages: each arranged in a walkway / house / carriage lane (W+H+C) configuration when viewed from the street. Neither cottage has received major extensions, however each has significant carport and rear verandah additions, with the east cottage displaying significant shedding. The overall site coverage is 43%. The various sheds of the east cottage result in it having only one mature tree in its back yard, whilst the west cottage with its undeveloped yard has many. Across the neighbourhood, the foundation conditions of cottages and villas, whilst still legible, have mostly been subsumed by large additions and in many instances have been replaced by newer detached and semi-detached houses, resulting in a hybrid neighbourhood pattern.

New Conditions (Figure 4.17)

The design speculation sees two self-contained dwellings occupying the existing constructed zones and linked by a pergola. Individual outdoor space is not provided, and instead large shared areas are provided in the newly consolidated front and rear yards. Car parking is shared in the rear southwest corner of the site and dispersed among the existing trees, which are supplemented with additional plantings. A communal shed, laundry, drying yard and rubbish bin yard occupy the far rear corners of the site. Whilst the carriage lane to the west is retained to provide access to the rear of the site, the carriage lane and walkway between the existing cottages is built over to connect the two. A further connective device is a two storey addition across both lean-tos, while a new two storey detached building occupies the space behind the east cottage. When combined, the new footprints occupy 39% of the site; a 9% reduction in site coverage.

10 City of Prospect, *Fact Sheet, Residential Zone Policy Area 450: Zone Information Sheet 03*, (Adelaide: City of Prospect, 2014).

Spatial Operations Strategy (Figure 4.18)

The scheme employs seven Spatial Operations:

site:	hybrid longitudinal/lateral yards
cottages:	side pod side addition – single storey side addition (double) – single storey rear addition – double storey
new building:	yard addition –single storey yard addition – double storey
outbuildings:	yard addition –single storey

Building and Landscape Strategies, Mass and Scale

(Figure 4.19 to Figure 4.23)

The cottages (Dwelling 1) are conceived of as a large connected house of up to eight rooms over two levels. The walkway and carriage lane spaces between the cottages provide a connective single storey addition that links to a double storey rear addition joining the two lean-tos. A central garden is framed in the centre of these additions. Dwelling 2 is a detached double storey building with single storey elements at its boundary edge. A small boundary garden is positioned between these. Pergolas link the two main buildings and the car parking area at the rear of the site and provide definition and partial cover to a shared yard space at the front. At a height of approximately 7m, the two storey elements, which are both positioned towards the centre of the site, sit at a comparable height to the Dutch gables of the existing cottages. The existing mature trees are retained and supplemented with additional multi-scaled plantings in three zones. Two communal gardens and an outdoor sitting space are combined at the rear of the site, measuring 12m x 20m excluding the car parking, and 21m x 20m when the car parking is amalgamated. The combined front garden measures 6m x 27m including the cottage verandahs but excluding the driveway.

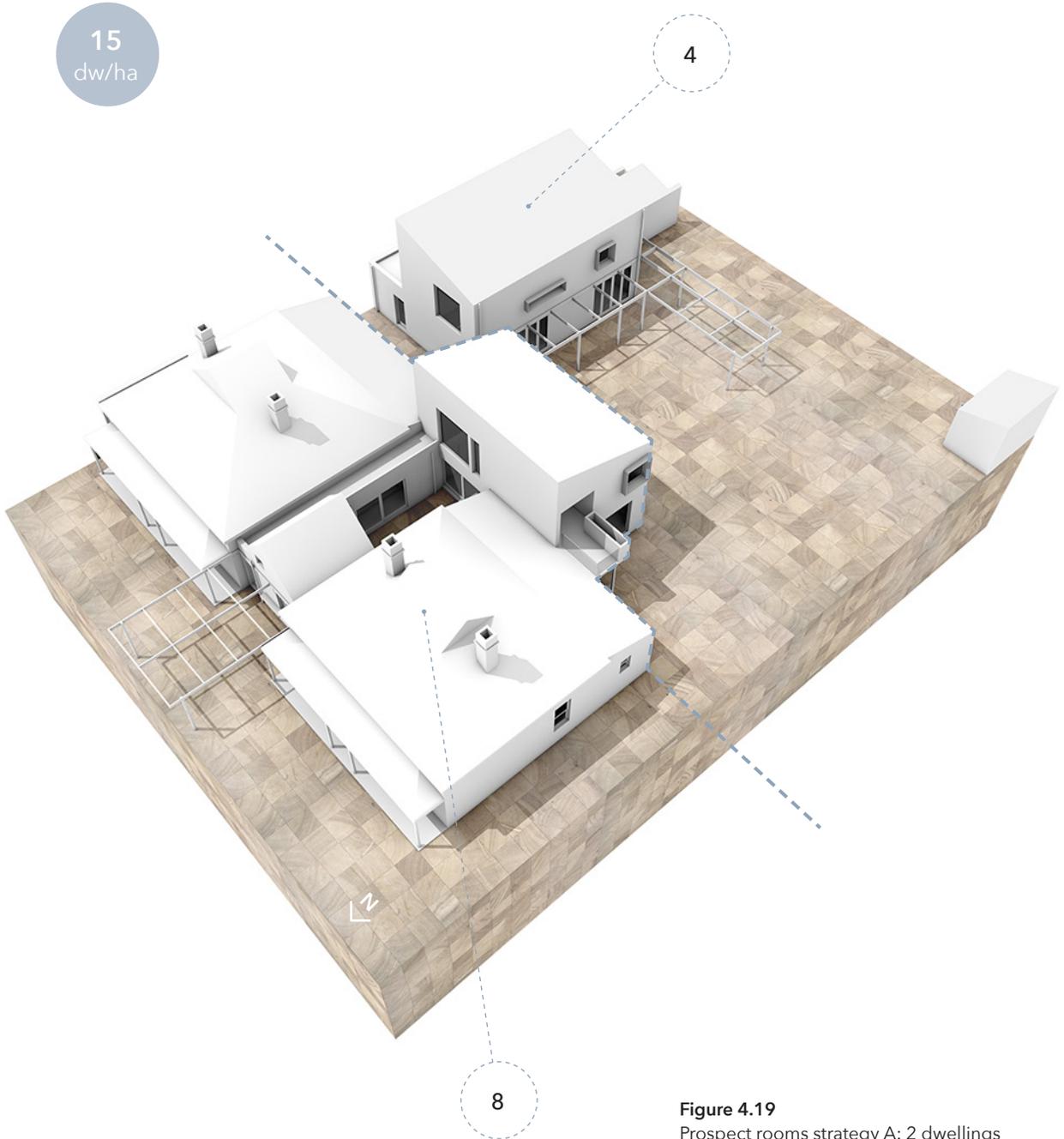


Figure 4.19
Prospect rooms strategy A: 2 dwellings

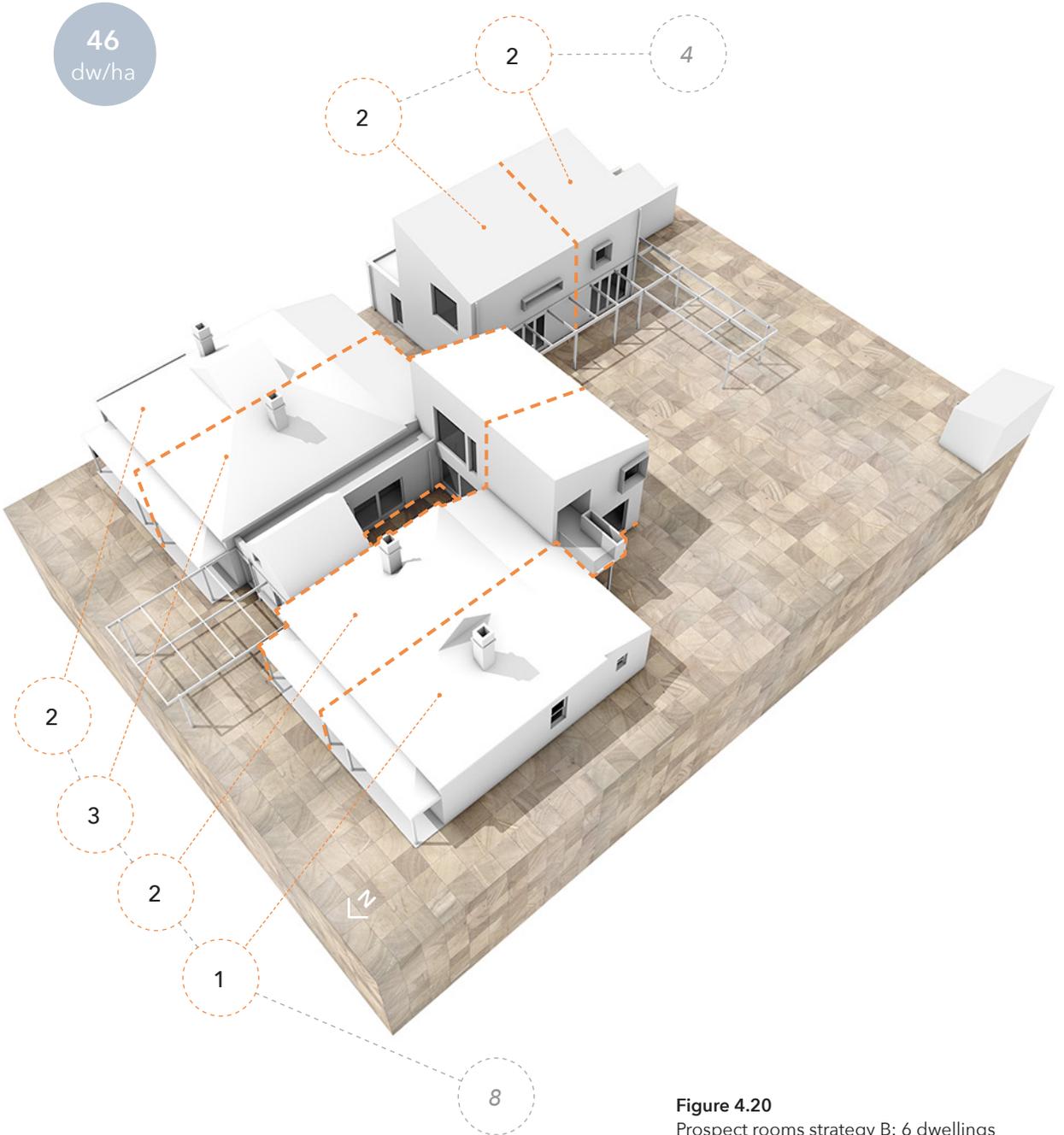
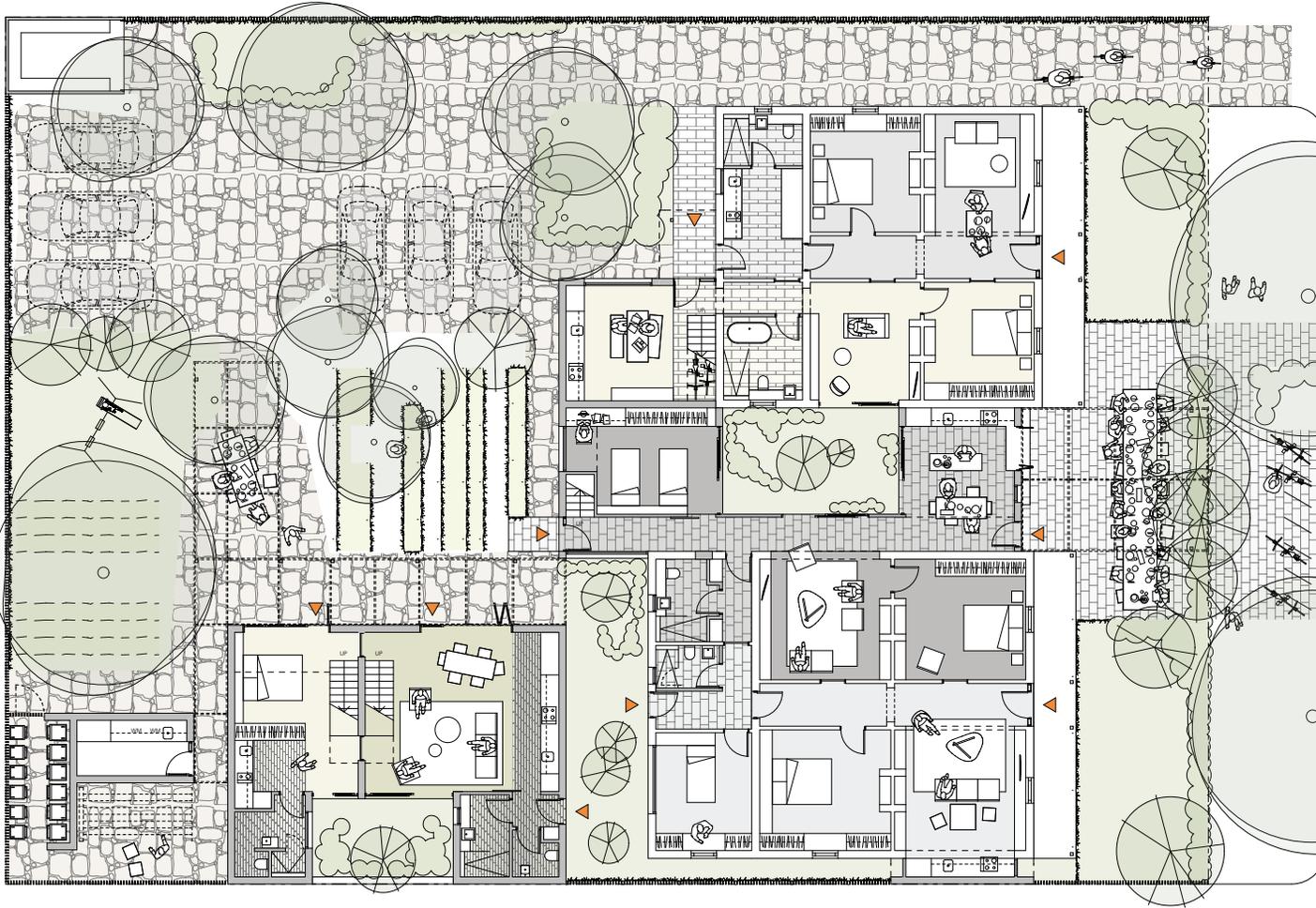


Figure 4.20
Prospect rooms strategy B: 6 dwellings

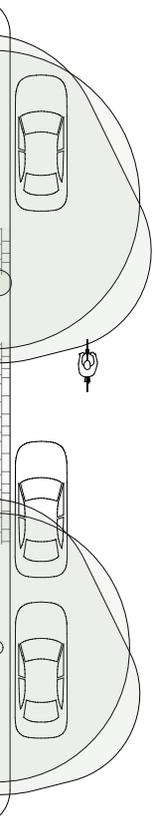


East

Figure 4.21 (facing page, top)
Prospect full scheme: plan

Figure 4.22 (facing page, bottom)
Prospect side elevation

Figure 4.23 (below)
Prospect street elevation



~7m
cap

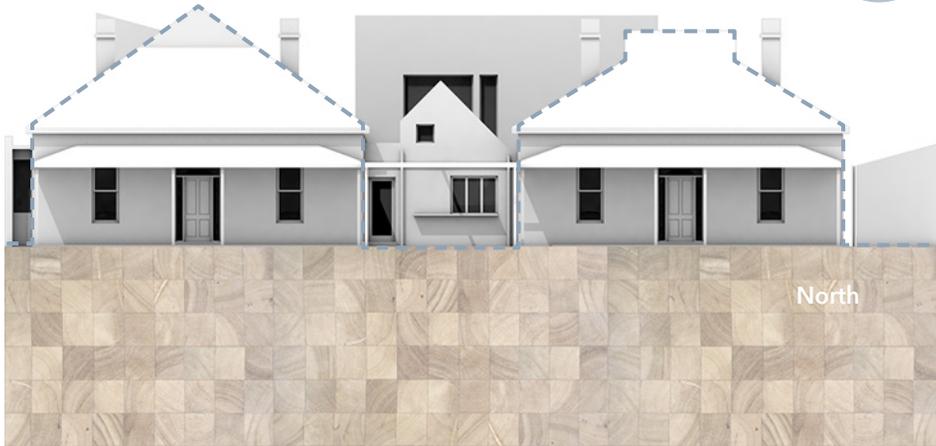
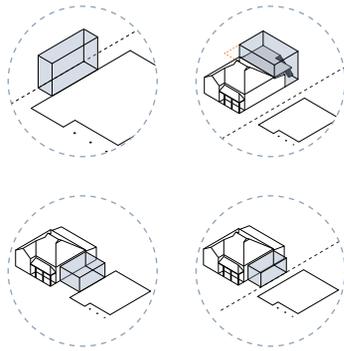
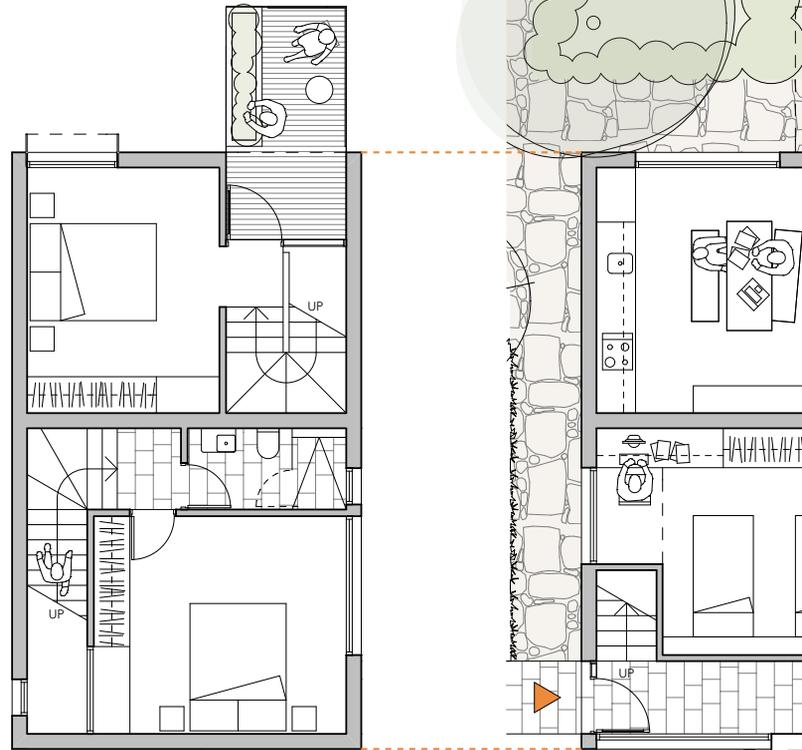


Figure 4.24 (this and facing page)
Dwelling 1, Prospect

413m²
8 rooms
5 baths
4 kitchens



N > 0 5m



Dwelling 1

Designed for up to four generations - a household structure that becomes increasingly possible as life expectancy increases - Dwelling 1 provides flexibility through the provision of multiple entry points and the over-provision of kitchens and bathrooms. In total it has eight rooms, four kitchens and five bathrooms. When conceived of as a single house as shown here, it presents as a series of connected spaces where the public rooms are made porous. The inclusion of built space around a central garden between the existing cottages reinterprets the existing carriage lane conditions present on the site, but instead of housing cars provides additional living space whilst connecting the two cottages not only physically, but programmatically.

As such, one can (for example) move through the public spaces from the far northwest living room in the first cottage (top right in the floor plan) down the hallway, into an adjacent living room, through the central garden into the new connective hallway, into the adjacent living space in the second cottage, into the hallway and on to the northeast living space (bottom right in the drawing). Using the existing and new hallways, access can be gained to the rear and front of the building with external access granted at six locations. Diagrammed as a simple arrangement of closed (as opposed to permanently blocked) doors, the large house can be used as four smaller houses when read from west to east (top to bottom in the drawing), as shown next in Figure 4.25.



Figure 4.25 (this and facing page)
Dwellings 1A to 1D, Prospect

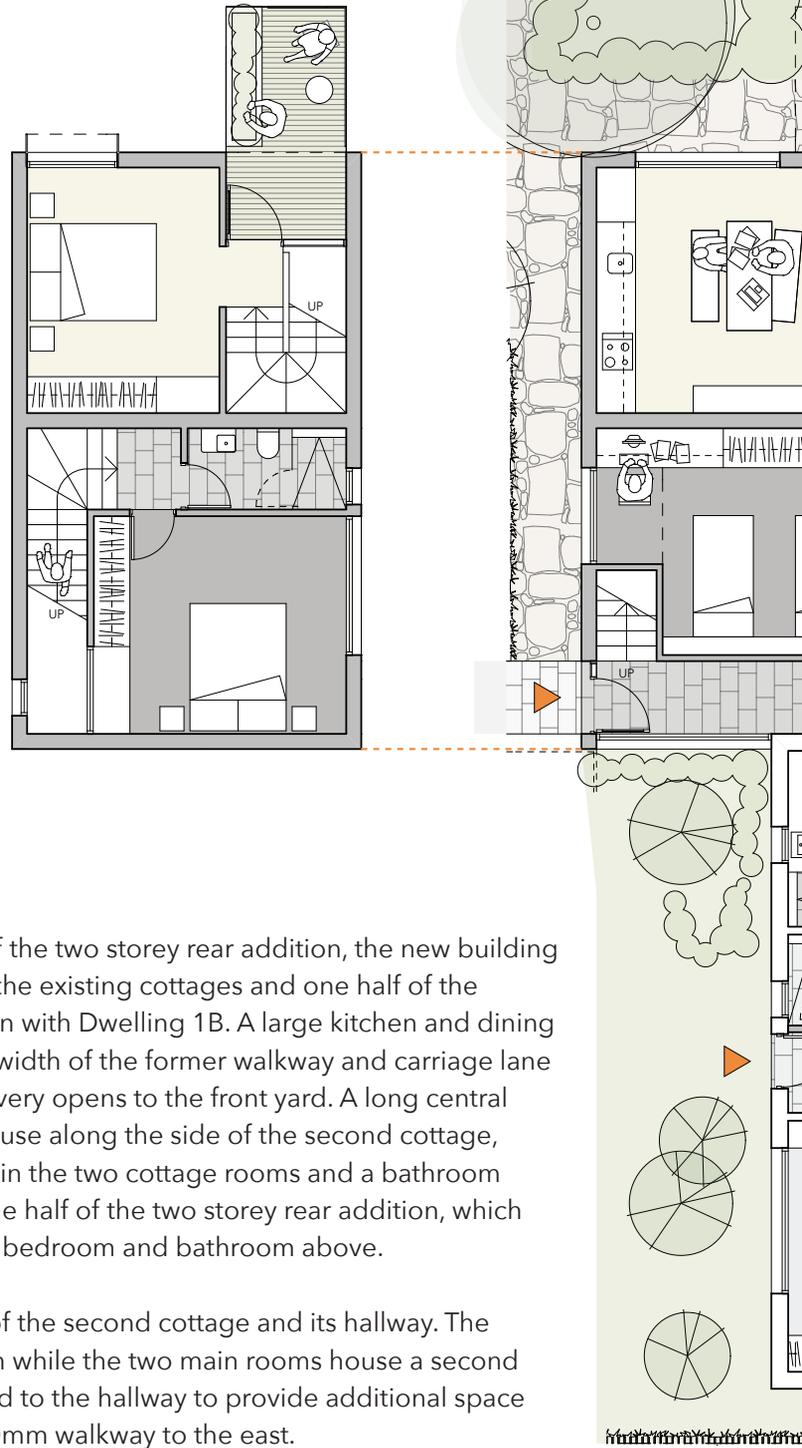


Dwelling 1A at the top of the plan (west) is formed when the first cottage is divided on one side of the hallway, creating a one-bedroom apartment with a bathroom and small kitchen in the existing lean-to. The living room is located in the front room looking onto the shared front yard.

Dwelling 1B occupies the remainder of this cottage plus half of the two storey rear addition. One bedroom is located in the front room of the cottage while a living space occupies the second room and opens to the central garden. The bathroom is located in the lean-to while the rear addition houses an upstairs bedroom and balcony and a kitchen/dining area downstairs. Bicycle storage is provided under the stairs.

Dwelling 1C is formed by the remainder of the two storey rear addition, the new building elements in the interstitial space between the existing cottages and one half of the second cottage. It shares the central garden with Dwelling 1B. A large kitchen and dining area opens off the garden and fills the full width of the former walkway and carriage lane space between the cottages. A kitchen servery opens to the front yard. A long central corridor runs through the middle of the house along the side of the second cottage, which houses a bedroom and living space in the two cottage rooms and a bathroom in the lean-to. The hallway terminates in one half of the two storey rear addition, which contains a bedroom at ground level with a bedroom and bathroom above.

Dwelling 1D occupies the remaining half of the second cottage and its hallway. The lean-to provides a bathroom and bedroom while the two main rooms house a second bedroom and living space, which is opened to the hallway to provide additional space and is serviced by a kitchen pod in the 900mm walkway to the east.





Dwelling 2

A detached two storey back yard house, Dwelling 2 is configured as a house for two generations of the one family or as two small houses for friends. The provision of two kitchens, two bathrooms and two internal stairs creates divisibility. At ground level, two single storey wet areas abut the boundary, with a small garden shared between the two. These are accessed off the main two storey element which at ground level accommodates a large kitchen/dining/living space and a smaller bedroom and kitchenette, which are separated with joinery to maximise spatial flexibility. On the upper level this primary division of spaces continues to provide a mezzanine space over the ground floor bedroom/kitchenette and two bedrooms over the combined kitchen/dining/living space. A firewall separates the two zones over both levels whilst the provision of two stairs enables the house to be formally divided into two dwellings if required. Connectivity and informal separation is achieved by the provision of doors between the zones at both levels.

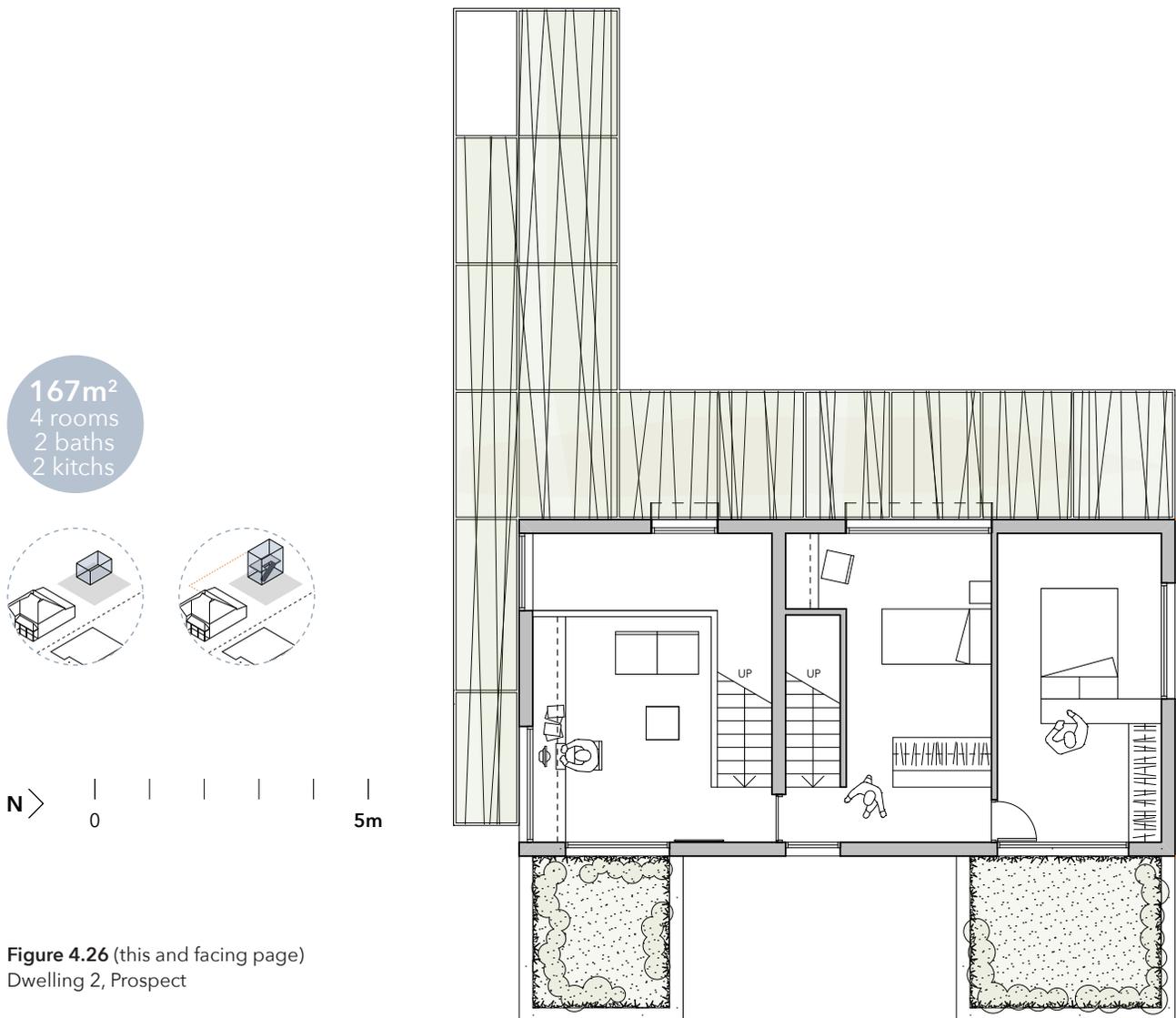
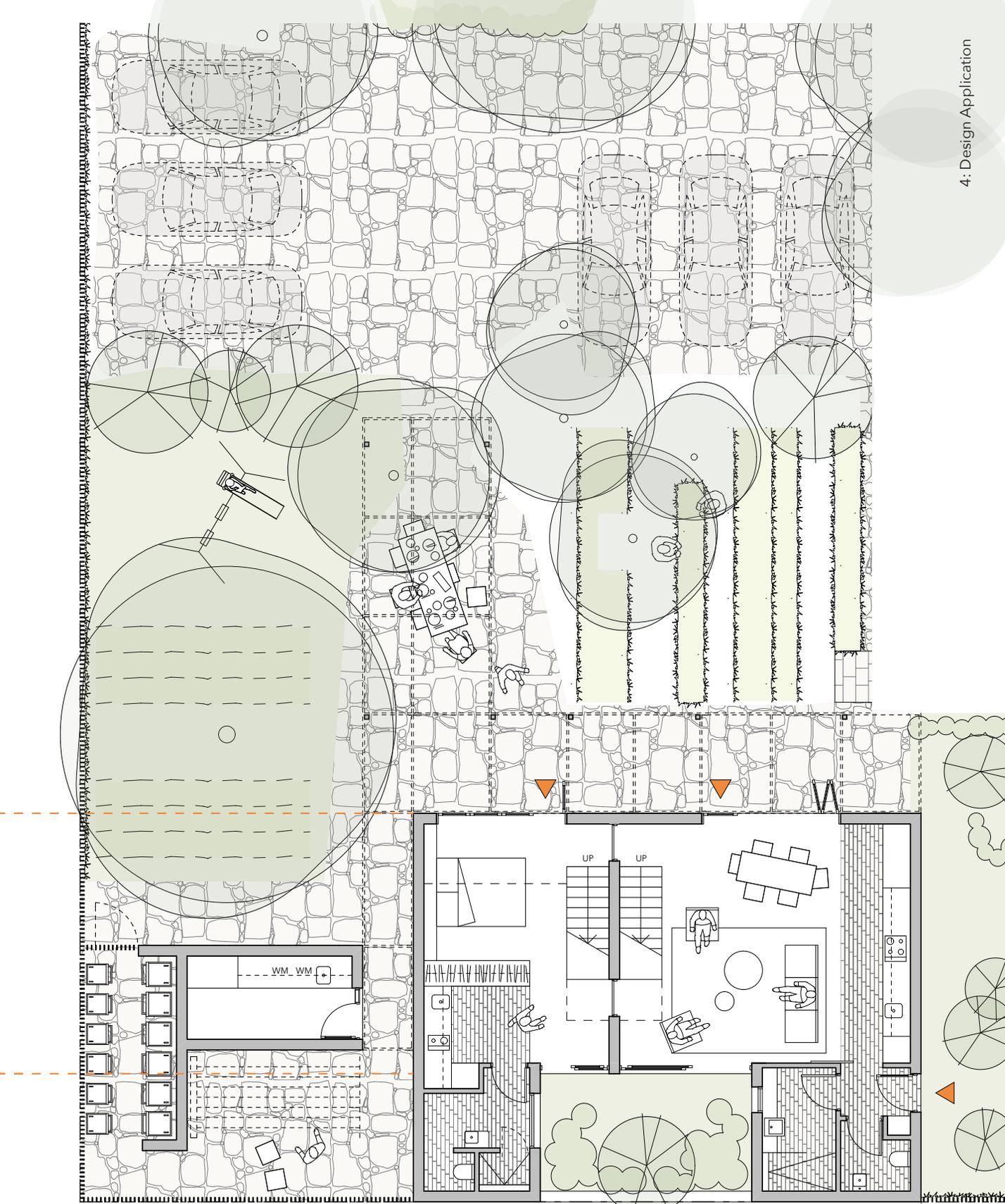


Figure 4.26 (this and facing page)
Dwelling 2, Prospect



Dwelling 2A occupies the northern two thirds of the building and provides two bedrooms, both at the upper level, with the living room on the ground level.

Dwelling 2B occupies the southern third and provides one bedroom which can be configured as shown on the ground level and with a living room in the mezzanine, or swapped so that the bedroom is upstairs and the living room is located at ground level adjacent the kitchenette and open to the garden. An alternative configuration is for Dwelling 2B to be used as an office or other work space, with the ground floor kitchenette and bathroom accommodating employees and visitors to the site without relying on access to Dwelling 2A.

Designed to be either individual self-contained houses, a larger combined single house or a mixed residential/commercial use, neither Dwelling 1 or 2 preferences one form of occupation over another. The smaller divided dwellings have less space allocated to them for cooking, eating and living and the larger dwellings are provided with more generous communal areas. However, beyond making these design decisions based on spatial relationships alone, the strategy recognises that in household structures formed of familial or friendship relationships, there will be times when occupants come together and times when they do not. Providing a mix of scales allows these behaviours to occur and for formal separation of one or more entities to be achieved, if desired. The inclusion of wet areas of various scales, whilst potentially over-supplied under some occupational scenarios not only provides additional self-contained living, but importantly unlocks the additional potential for parts of the scheme to be given over to small-scale commercial use with public interfaces.

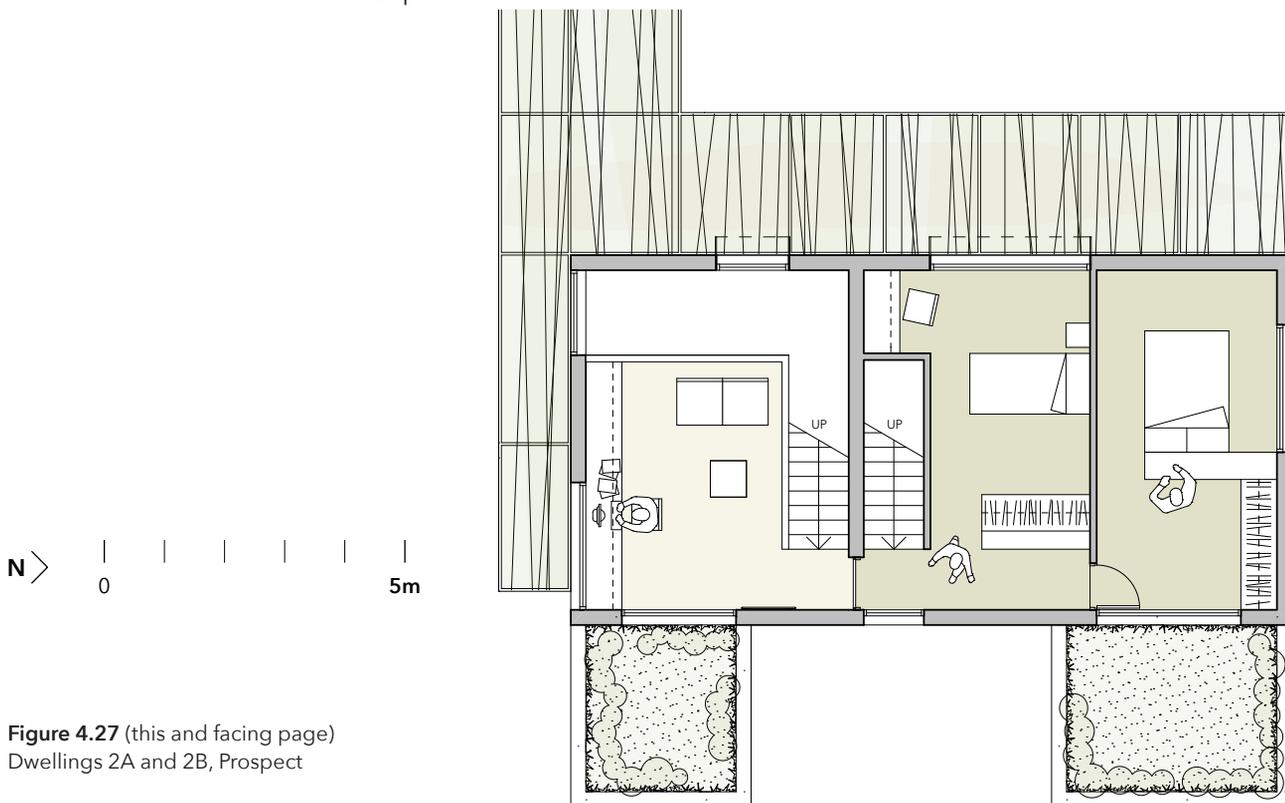


Figure 4.27 (this and facing page)
Dwellings 2A and 2B, Prospect

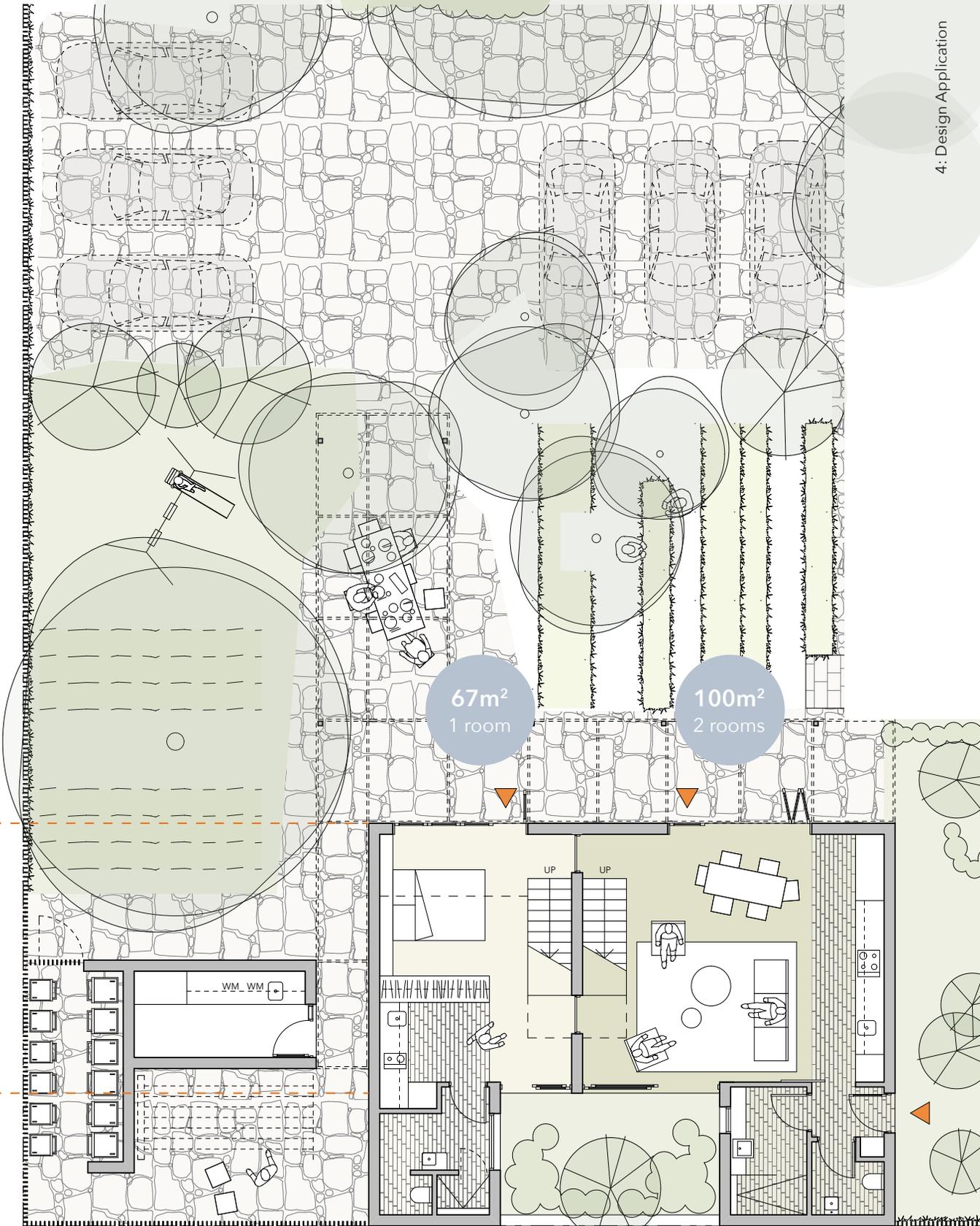






Figure 4.28
Prospect, looking towards the kitchen and dining infill element, where ensuite bathrooms and garages commonly occupy the interstitial walkways and carriage lanes between Federation housing. In a similar manner, alternative domestic uses might appropriate this space and trigger additional dwellings coupled with increased social connectivity.

4.4 Unley
14 dw/ha

Figure 4.29
source: Google Earth (modified)





41%
exist. cover

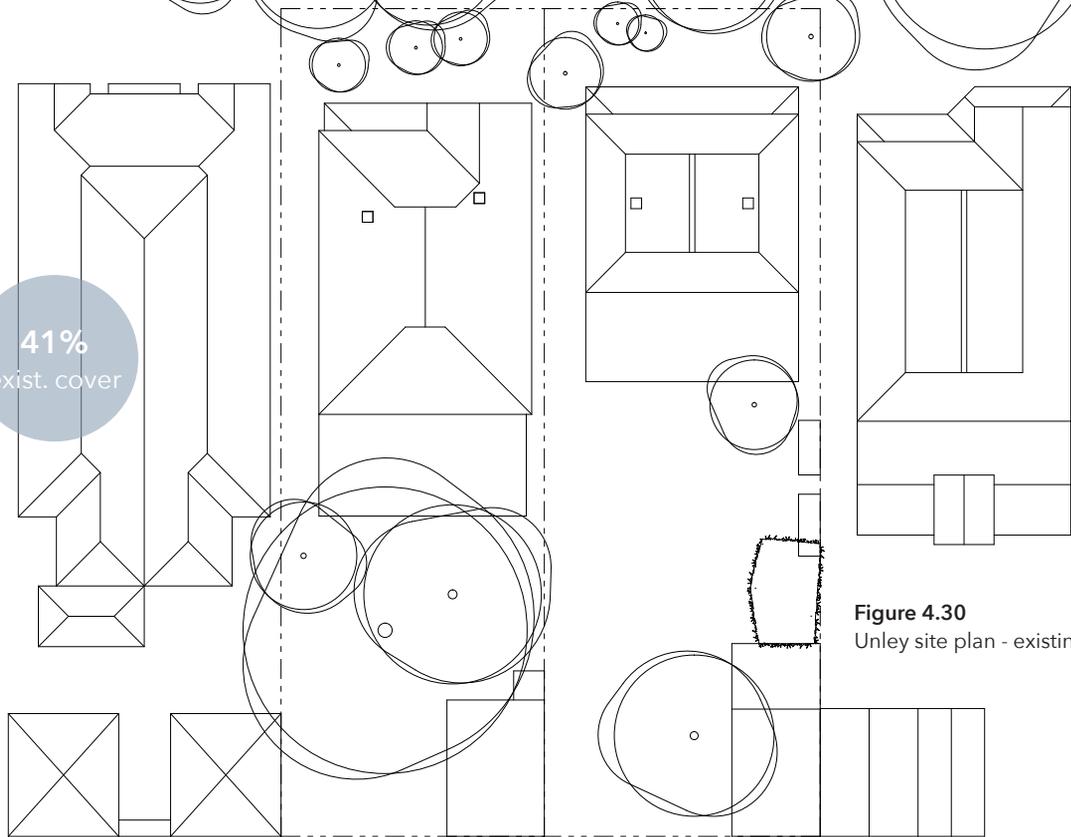
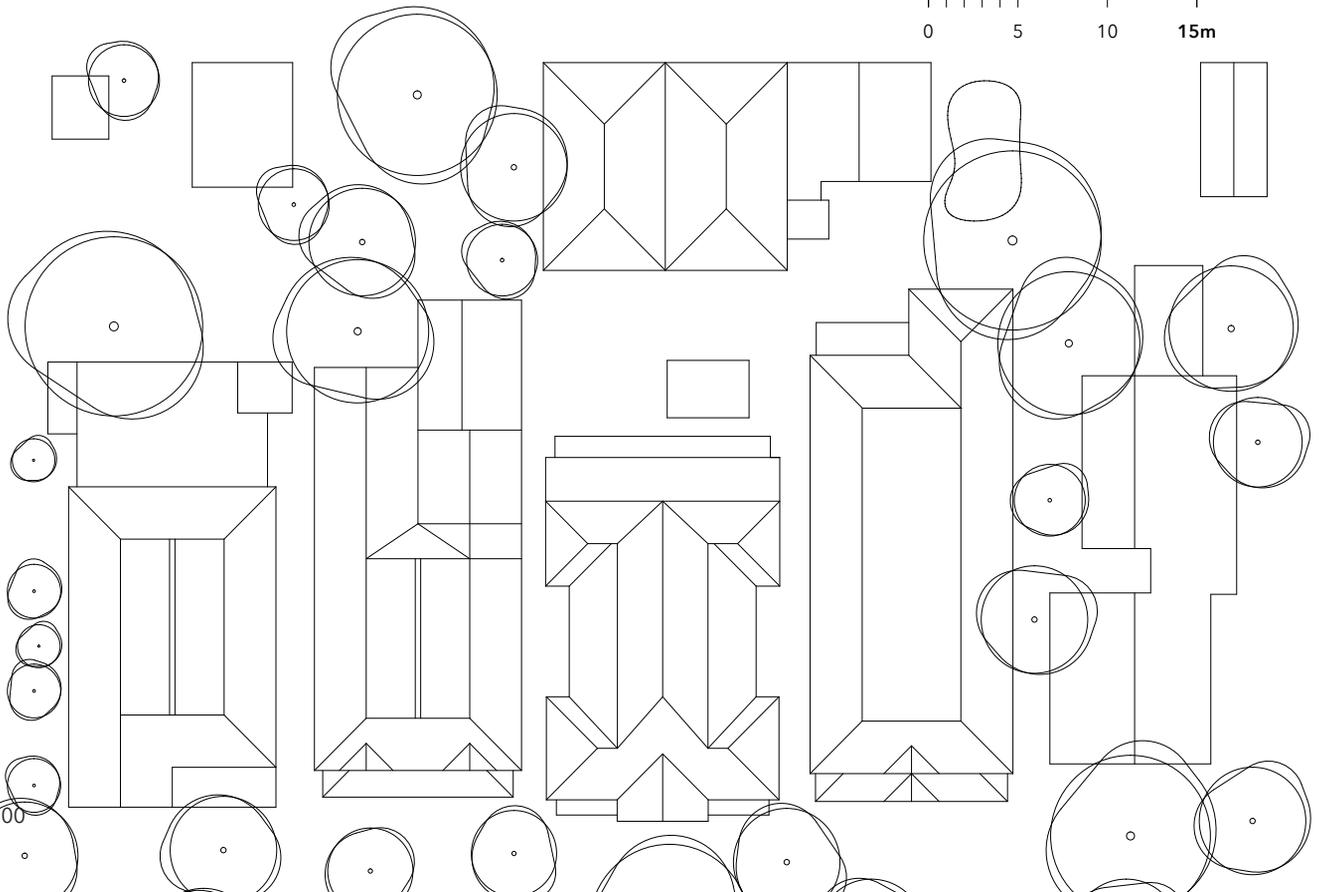
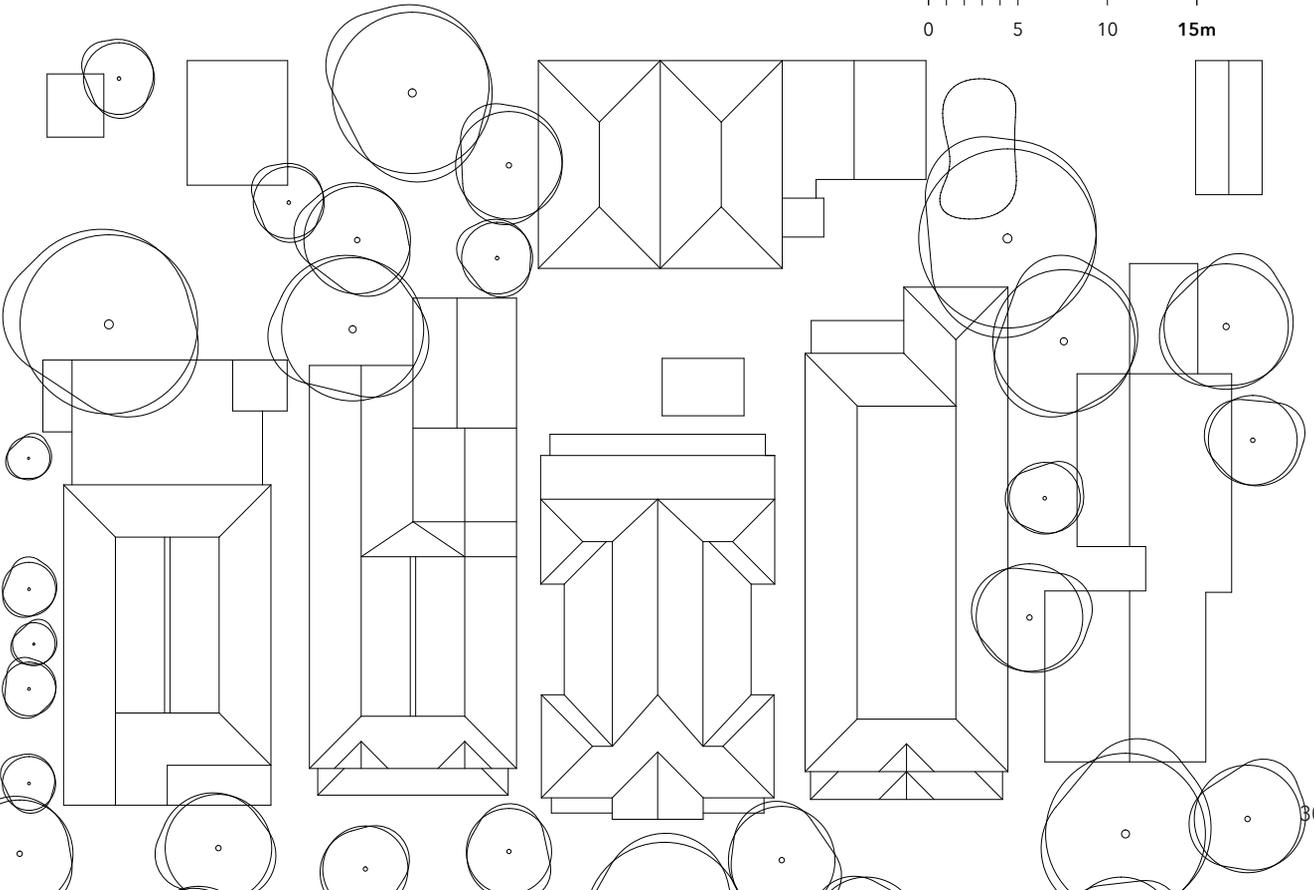
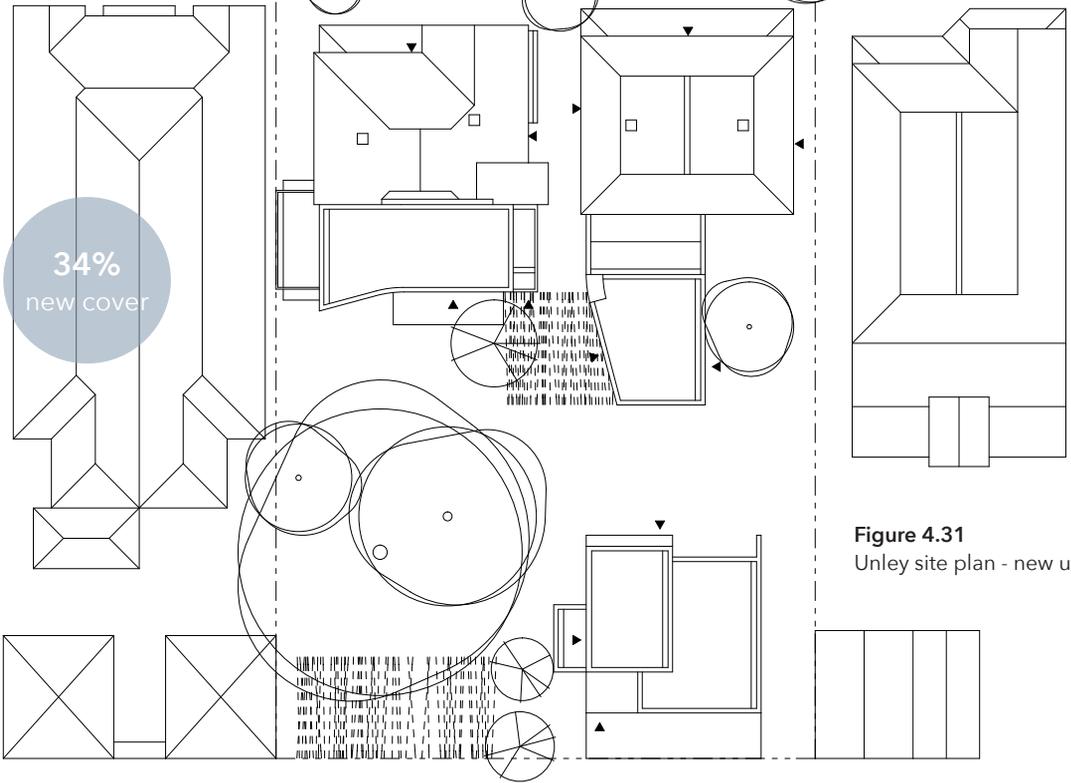


Figure 4.30
Unley site plan - existing use

< N



300



The Unley scheme is conceived of as cohousing that takes leverage off a rear lane and relegates car parking to the site's periphery. This frees space internally around a large existing tree,¹¹ creating communal space around back yard additions.

Allotment type side-by-side with a rear laneway

Housing strategy cohousing

Landscape strategy communal gardens

Car parking strategy communal parking in one zone

Site area 1,360m²

Existing site size/dw 680m²

Existing density 15 dw/ha (2 dwellings)

Permitted min. site size 600m² (16.5 dw/ha)

Permitted site density 15 dw/ha (2 dwellings)

Existing site cover 41%

New site cover 34%

11 For the purposes of this study I define small trees as those with a canopy less than 6m in diameter, medium trees as those of between 6m and 12m and large trees as those with canopies at least 12m in diameter. Canopy size is considered more relevant than tree height, as it translates more directly to a perceived understanding of a tree's capacity to contribute to the amenity of a place. This can be read directly in the plan form of a drawing, which best describes the occupational and spatial qualities of the site.

New density A 37 dw/ha (5 dwellings + Common House)

Site size/dw 272m²

Housing mix
 1 x 1 room
 1 x 1.5 rooms
 2 x 2 rooms
 1 x 2.5 rooms

New density B 45 dw/ha (6 dwellings inc. Common House)

Site size/dw 227m²

Housing mix
 1 x 1 room
 1 x 1.5 rooms
 3 x 2 rooms
 1 x 2.5 rooms

Existing Conditions (Figure 4.29 and Figure 4.30)

The site for the Unley design experiment is in a designated *Residential Street Scape (Built Form) 'Spacious' Policy Area* that emphasises street presence as an indicator of character¹² and requires dwellings to be of a "street-front dwelling format".¹³ The minimum allotment size is 600m² which thereby maintains the current density pattern. Running north-south, the site consists of a left-handed villa to the north and well-roofed cottage to the south. Due to the presence of the rear lane, neither house has a carriage lane and each is laid out in a walkway / house / walkway (W+H+W) configuration. This pattern presents a walkway of 1.5m to the south, adjacent the cottage, and a large 2.4m walkway adjacent the larger villa to the north. The two combined walkways between the two houses totals 3.6m. The villa has received extensions and its rear yard is heavily canopied by three medium to large trees. The cottage has received only a small rear extension and its yard remains undeveloped, which is uncommon for the area. It has one medium size tree towards the rear of the site. Like most houses in the area, each has detached garaging at the rear, adjacent the laneway. In total, the houses cover 41% of the site. The neighbourhood has retained the majority of its foundation villas and cottages, however the vast majority have received major additions. In some instances, the original housing has been replaced by duplex development, as has occurred with the property immediately to the north.

New Conditions (Figure 4.31)

Whilst retention of the existing streetscape pattern is a current statutory preference, it has not been the determining mechanism in what are minimal interventions to the existing two dwellings, their combined front yards and their relationships with the street. Rather, the existence of the rear lane and mature backyard landscape, coupled with the programmatic overlay of a co-housing model has shifted the emphasis to the rear of the houses. The existing villa

12 Government of South Australia, *Development Plan: Unley (City)*, ed. Transport and Infrastructure Department of Planning (Adelaide: Government of South Australia, 2014), 153.

13 *ibid.*, 160.

and cottage therefore become the background foundation conditions that establish the pattern of development across the site whilst providing functional existing rooms.

The occupational overlay of co-housing, after the work of Charles Durrett *et al*,¹⁴ sees each of the existing houses receive rear additions: the villa to the north and its addition operating as three small houses and a walk-through shed for common use, and the cottage to the south as a common house with guest bedroom. A new small two storey building at the rear of the site addresses the laneway and provides two apartments. A new pedestrian walkway separates this building from the adjacent shared car parking space, which is accessed directly off the lane. Un-garaged, it is separated by a small garden and fence, allowing extension of the large shared garden if desired. A pergola over the car parking extends as a covered way to the common house. The new combined site coverage of 34% presents a 17% reduction of existing conditions.

Spatial Operations Strategy (Figure 4.32)

The scheme employs six Spatial Operations:

site:	hybrid longitudinal/lateral yards
north villa:	side pod rear addition - double storey side addition - single storey
south cottage:	rear addition - single storey
new building:	yard addition - double storey

14 See, for example, Kathryn McCamant, Charles Durrett, and Ellen Hertzman, *Cohousing: A Contemporary Approach to Housing Ourselves*, 2nd ed. (Berkeley, California: Ten Speed Press, 1994).

15 Charles Durrett, *The Senior Cohousing Handbook: A Community Approach to Independent Living*, 2nd ed. (Gabriola Island: New Society Publishers, 2009), 55.

Building and Landscape Strategies, Mass and Scale (Figure 4.33 to Figure 4.36)

Following cohousing principles, the scheme sees a common house with a large communal dining area at the heart of the site.¹⁵ A productive garden separates this from the small

apartment building at the rear of the site, which provides Dwellings 4 and 5, each of two rooms. The villa in the northeast corner is arranged as Dwelling 1 (two and a half rooms), whilst its double storey rear addition makes up Dwelling 2 on the ground floor (one room) and Dwelling 3 above (one and a half room). The common house, part-formed by the cottage, not only effectively forms a sixth dwelling, but with each of the five true dwellings being self-contained, it can formally become an additional detached larger house if required, increasing the density to 45 dw/ha. If made divisible into a sixth and seventh house as per the other villa/cottage adaptations shown in this chapter, a density of 51.5 dw/ha is achieved.

In keeping with cohousing principles, each dwelling offers either a balcony or some form of patio to connect with communal areas and encourage incidental contact amongst residents. Another cohousing strategy, car parking is limited to the perimeter of the property in order to provide a pedestrian-dominated environment for the remainder of the site.¹⁶ This allows for a landscaped area of 17m wide x 18.5m long around a large existing Golden Elm tree, extendable to 24.5m long if the car parking space is consolidated. The productive garden and walkway adjacent this main garden and between the dining room and apartment building is 6m x 12.5m, with the full width of garden across the site being 30m. All existing mature trees are retained, with the exception of the mid-scale tree originally belonging to the cottage at the rear of the site. This has been removed in order to push the new apartment building hard up to the laneway, which is deemed important in order to give the laneway an active presence and to encourage movement through the site from front to back. Whilst a smaller, narrower apartment building could be attached to the common house in order to retain this tree, the overall amenity would be compromised by comparison with the scheme as designed, and a direct relationship with the laneway denied. Additional trees are planted to mitigate the loss.

¹⁶ *ibid.*

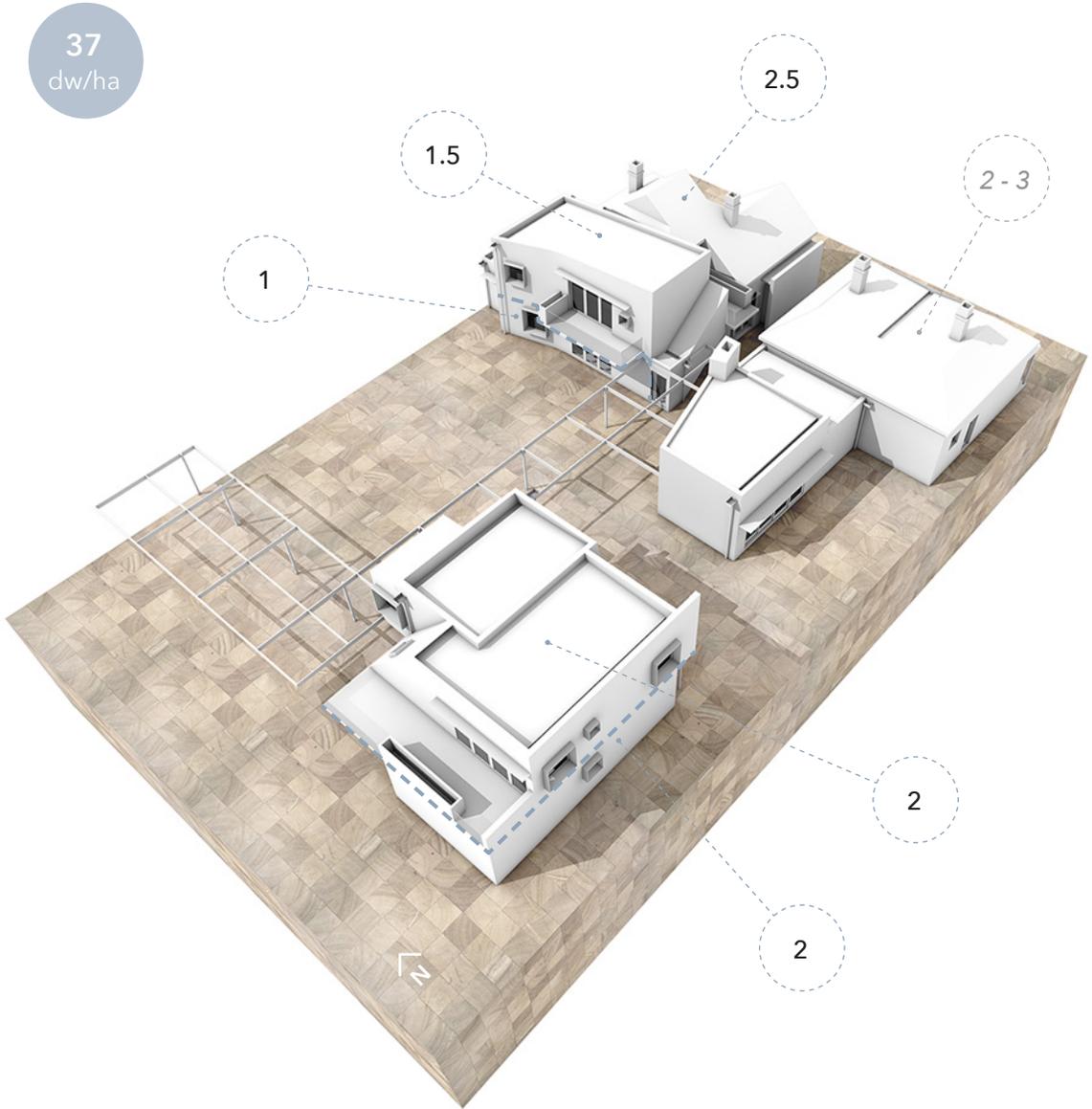
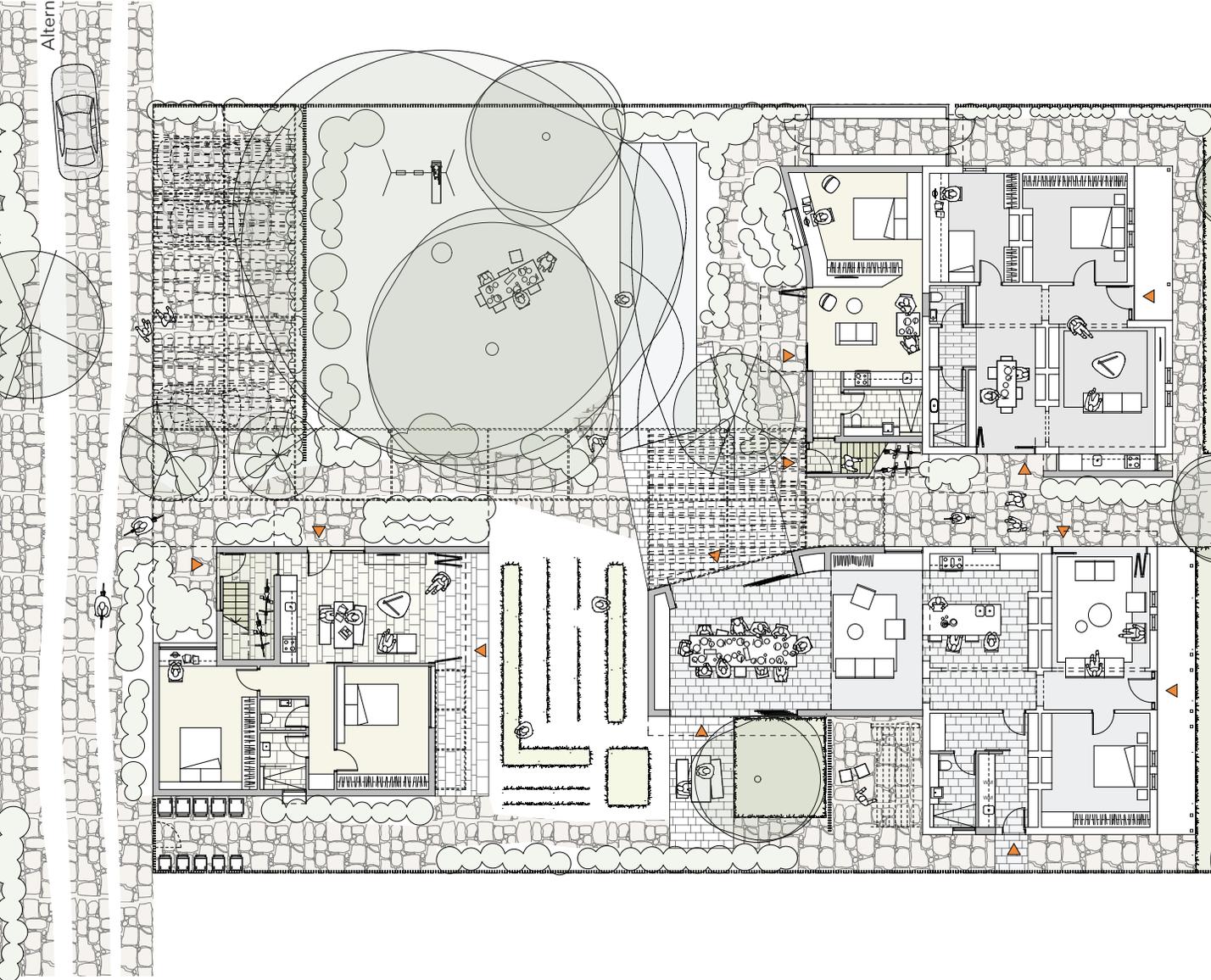


Figure 4.33
Unley rooms strategy: 5 dwellings



South

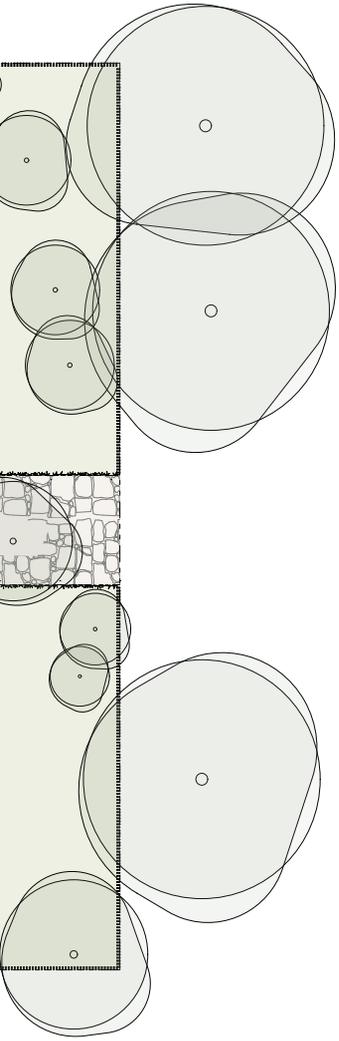


Figure 4.34 (facing page, top)
Unley full scheme: plan

Figure 4.35 (facing page, bottom)
Unley side elevation

Figure 4.36 (below)
Unley street elevation



East

Figure 4.37 (facing page)
the Common House, Unley



The Common House

The Common House is formed of a domestic-scale rear addition to the cottage in the southeast corner of the site. Supplemented with a sitting area and hearth, the main gathering area of the common dining space is serviced by a shared kitchen in one of the two rear rooms of the cottage. The other rear room is given over to a common laundry and bathroom. The two front rooms of the cottage are arranged as a guest bedroom and a second communal sitting room, which opens on the side to a shared central walkway that cuts through the site from the street to the rear lane. The guest bedroom, which benefits from access to the common bathroom, provides visitor accommodation for rotational use by guests of those permanently living on the site or for temporary use by a live-in carer in a seniors' cohousing model. The common laundry opens to the cottage's walkway, which provides access to a screened drying area and is extended to the rear of the site to a service courtyard for rubbish bins. The dining room, which is projected into the middle of the site, forms a central entrance point to the common spaces and a connective mechanism for the dwellings. Transparent on its sides, it opens to a small yard and existing tree to its south and to the larger garden with mature trees to the northwest.

169m²
2-3 rooms

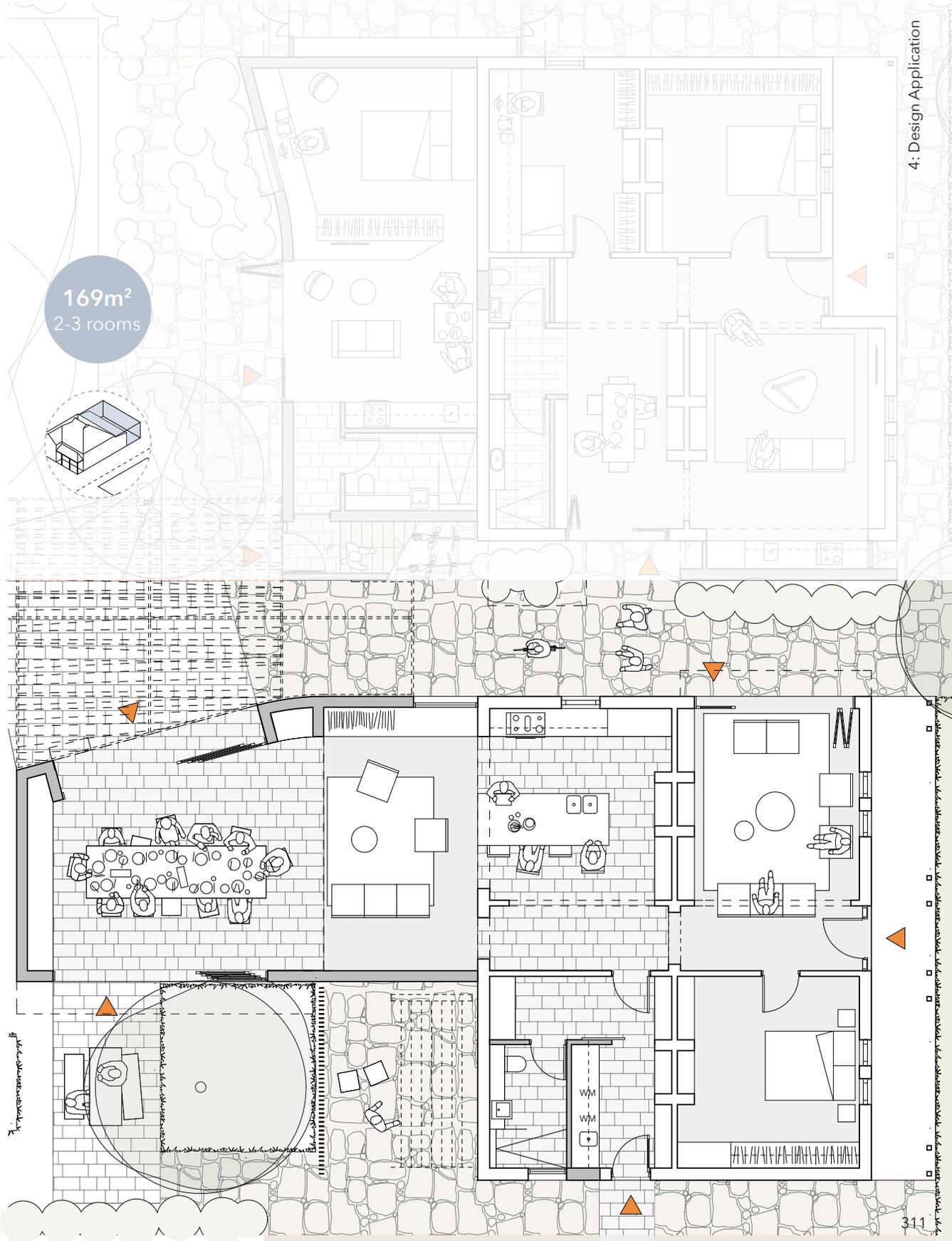
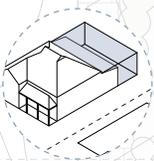
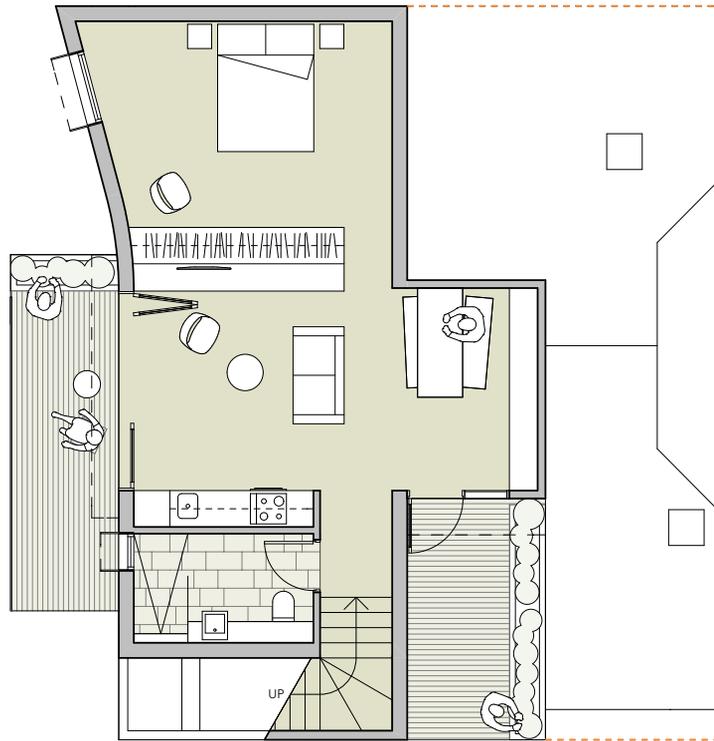
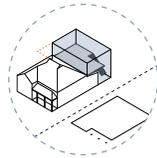


Figure 4.38 (this and facing page)
Dwellings 1, 2 and 3, Unley

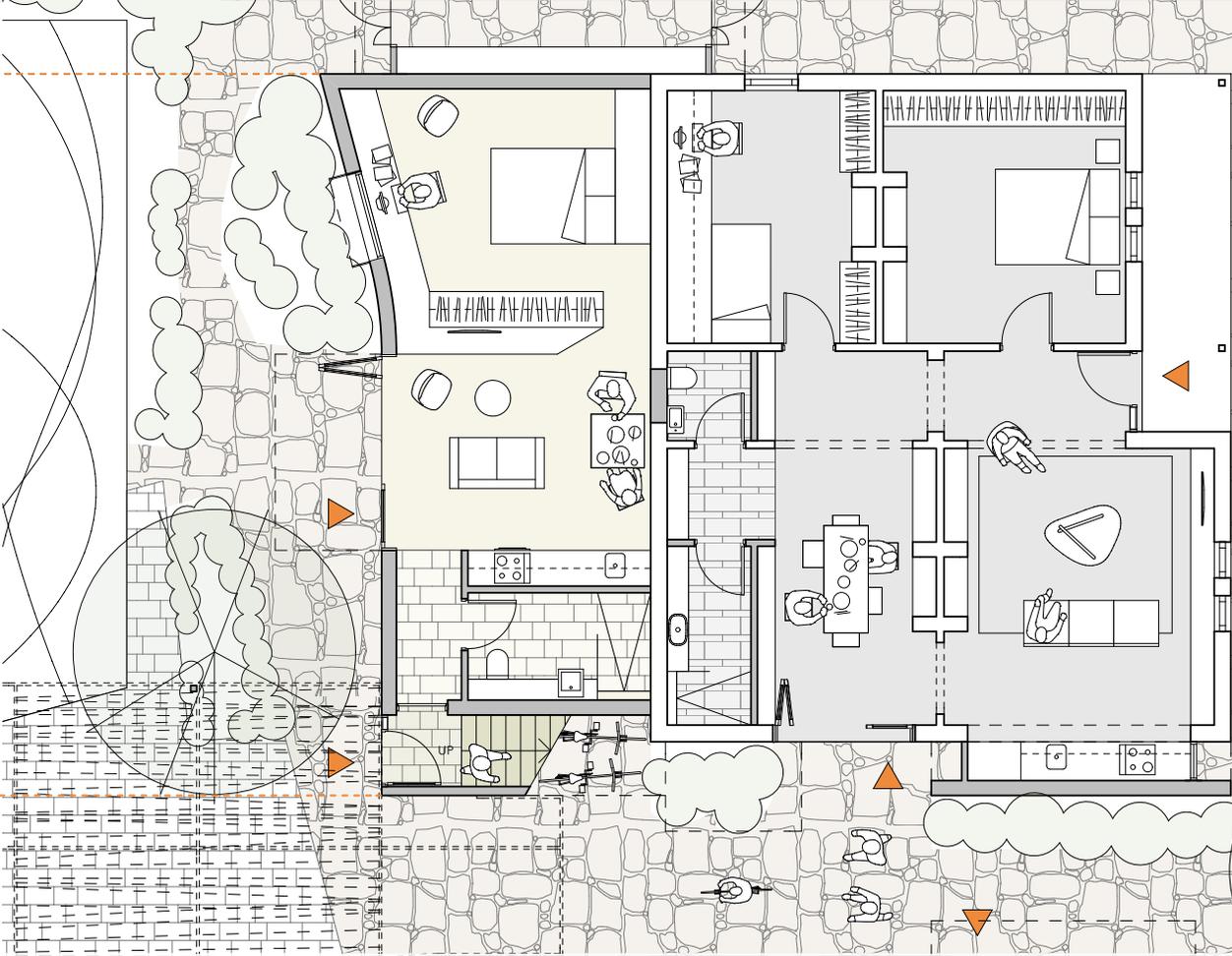


Dwelling 1

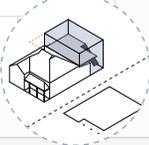
Formed of the original four rooms of the villa, Dwelling 1 presents as a two-bedroom house oriented towards the street and the central pedestrian spine cutting through the site from front to back. The main front room is opened on three sides to increase space and circulation and to provide a kitchen in a side pod that projects into this spine. A window to this pod and a large opening from the half-room dining/work space address this zone.

Dwellings 2 and 3

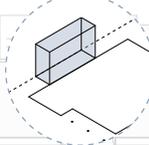
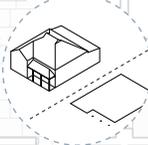
Attached to the rear of the villa in what was once the lean-to zone, a double height addition houses Dwelling 2 at ground level and Dwelling 3 above. Dwelling 2 provides a living space open to the main communal garden and accessed by a small patio. Diagrammed as a single bedroom residence, this space is separated from the living area by central joinery that wraps to provide a working space overlooking the garden. Accessed by an enclosed stair off the central walkway spine that provides bicycle storage in its undercroft, Dwelling 3 provides similar accommodation, which is extended back into the roof space of the villa to provide an additional half room dining/working space. A balcony is accessed off this and overlooks the walkway. Continuing the flexibility investigations of the Prospect scheme, a doorway from the stairwell into Dwelling 1 enables the two apartments to be either formally or informally combined into one larger house of up to three and a half rooms.



51m²
1 room



105m²
2.5 rooms



Dwellings 4 and 5

Using a deliberate tactic of engaging with the laneway in order to extend views beyond the site boundaries, a small two storey building provides two two-bedroom apartments. Dwelling 4 at ground level is accessed off the central walkway, with its living space open to and extended by the productive garden between it and the common house. The bedroom adjacent the laneway provides a working space overlooking a small garden and with a long view north over the laneway entrance to the site and up the laneway itself. The laneway has the potential to offer significantly increased amenity to all allotments it serves if it is redesigned as an extension of domestic outdoor space rather than as a separate minor road. Off the laneway garden, a stairwell provides access to Dwelling 5 on the upper floor, where a large balcony off the kitchen addresses the laneway and provides significant outdoor space. A smaller balcony off the living space overlooks the central garden. Again, the inclusion of a door between Dwelling 4 and the stairwell links the two levels. Upstairs, the separation of the living room from the kitchen and dining space allows this to be an additional enclosed room, thereby creating a combined five roomed dwelling over two levels if desired.

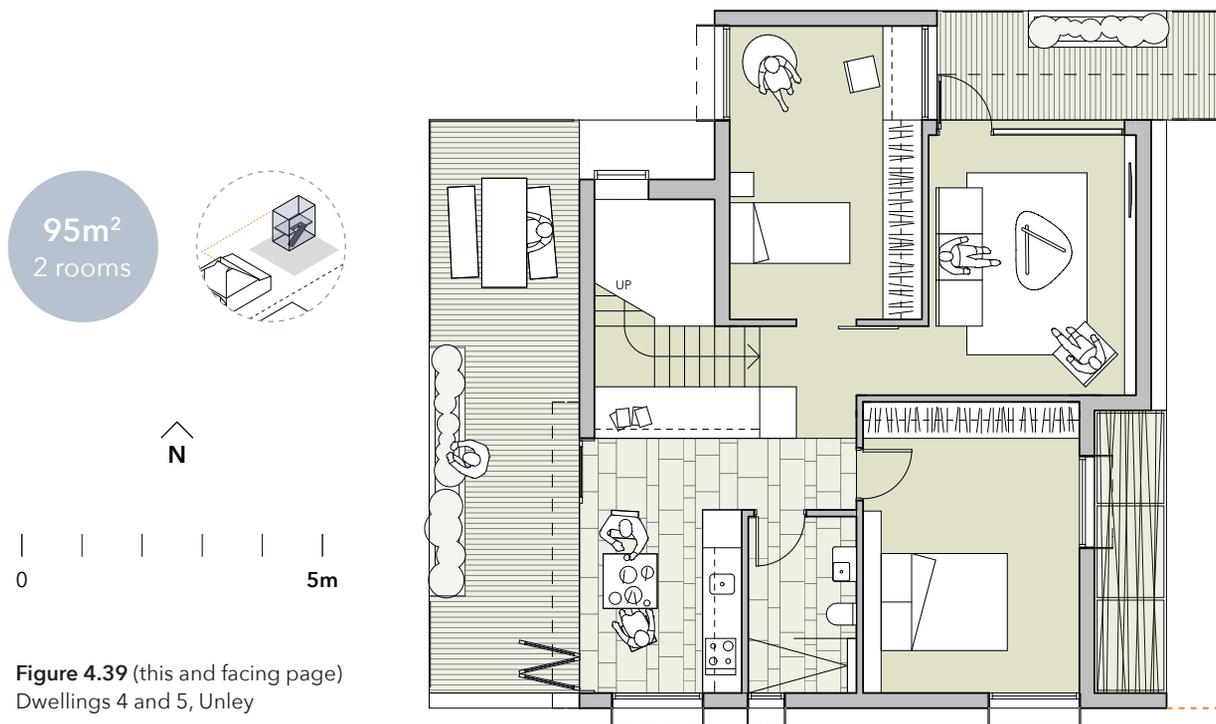
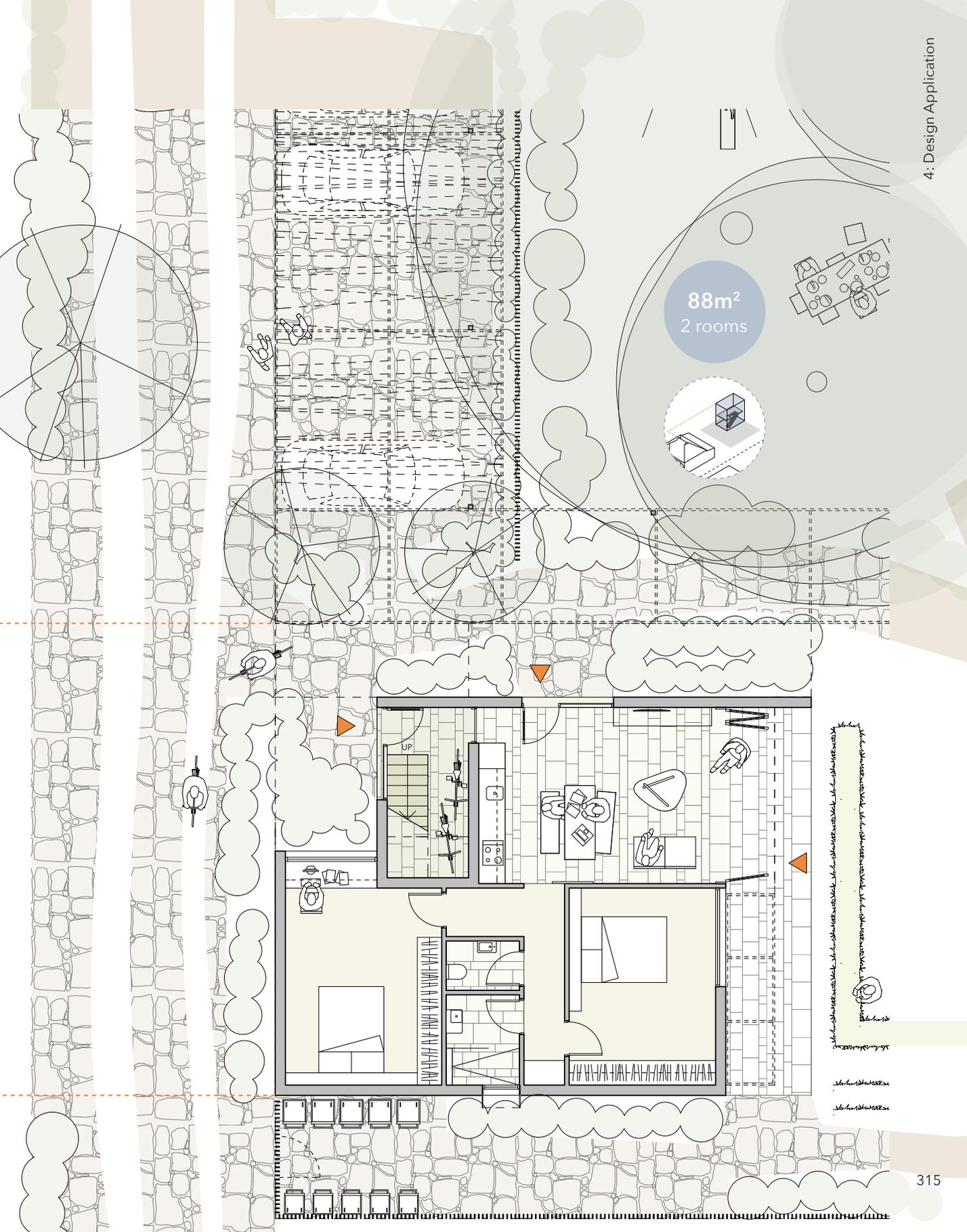
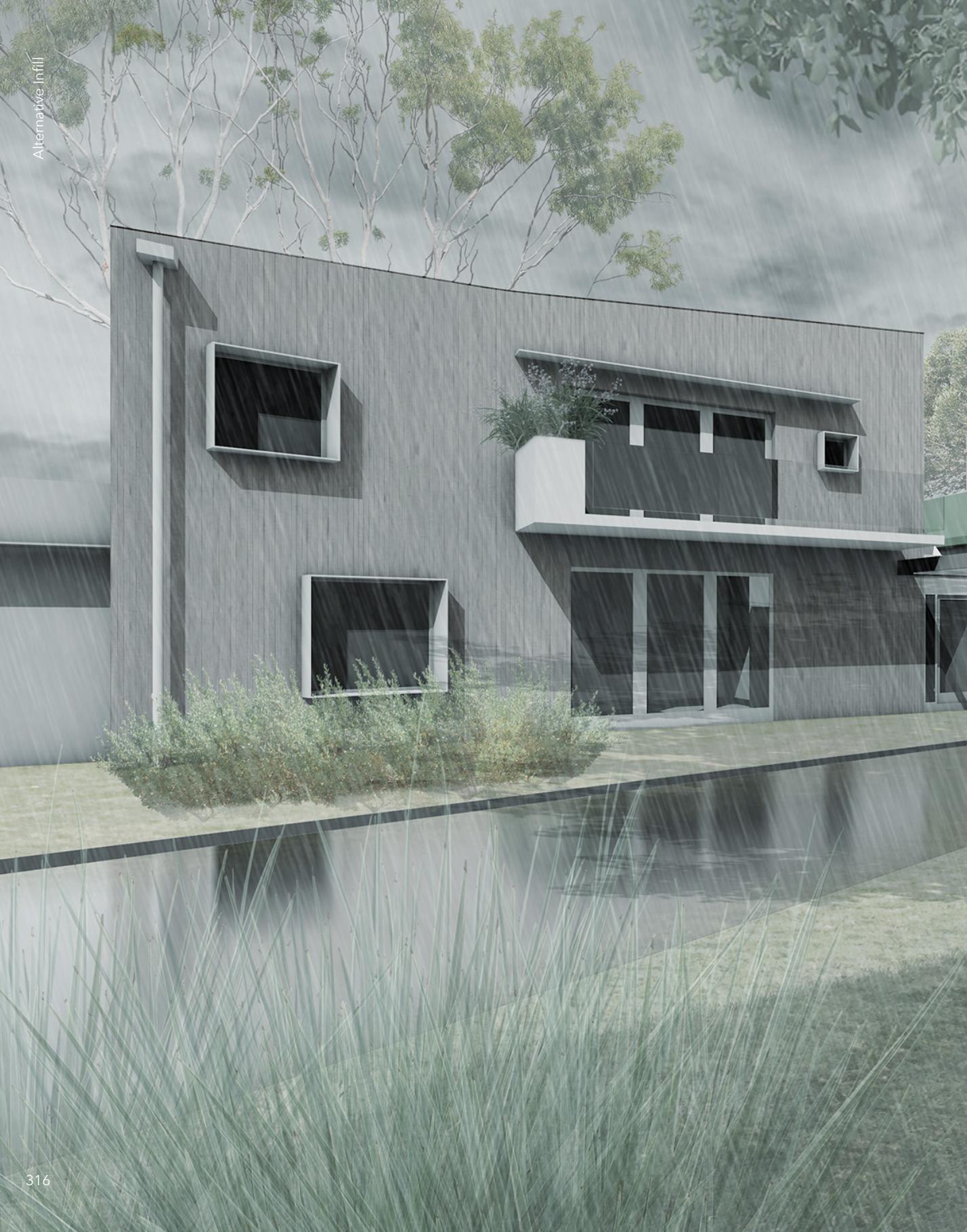


Figure 4.39 (this and facing page)
Dwellings 4 and 5, Unley



88m²
2 rooms



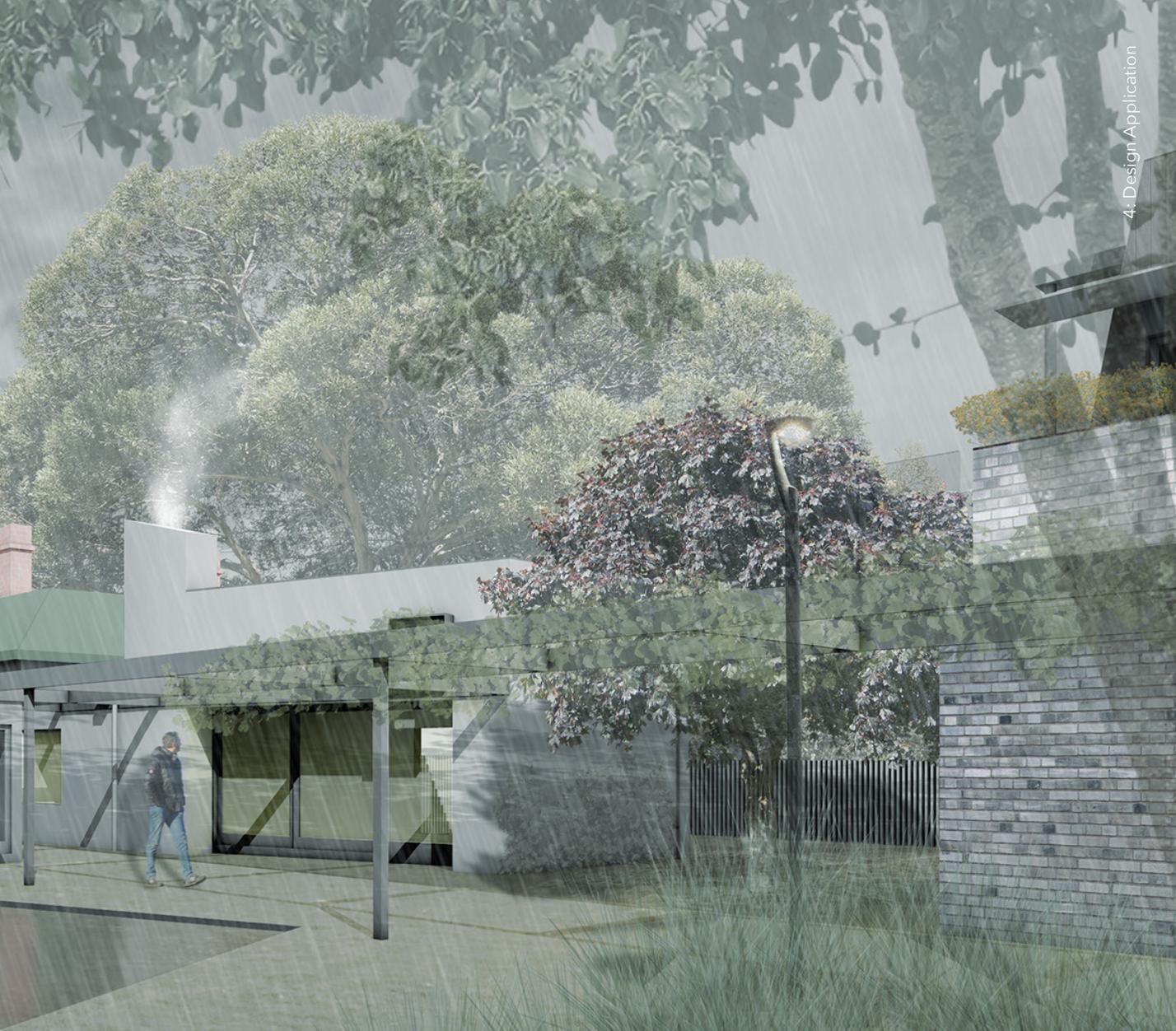


Figure 4.40

The shared Unley backyard, under a cohousing model. The centre of activity is the centre of the site, created by the villa and cottage additions and established by the large common kitchen, dining and sitting room, which is housed in an otherwise normative residential addition. The villa and cottage establish the disposition of the built elements on the site, but are otherwise backgrounded in the overall design strategy of the scheme. The proportions of the double allotment and mature landscape provide generous shared space and amenity.

4.5 Infill Observations: On Capacity and Diversity

When viewed in the context of Adelaide's established suburbs, there is a degree of normalcy in the projects presented here and a sense that the propositions could be happening now but are not. The work presupposes a greater diversity of household size but does not assume that infill development only ever triggers a shrinkage of housing, with the work demonstrating that in some instances the definition of a dwelling's size can be the result of simple occupational and behavioural decisions as opposed to strict ownership delineations. Thought of in this manner, density is merely a number and a measure which can be manipulated with relative ease. Arguably, the real challenges are found in the attitudinal approaches to use and privacy that are required with the potentially significant shifts in occupant make-up.

What the projects demonstrate is that residential intensification such as three-for-one development has the potential to look very different when spread across two adjacent allotments that are already defined by foundation housing and mature landscape. The fact that the overall site coverage in each project has been reduced in favour of providing increased landscaped surface is indicative of the fact that most houses in these types of suburbs have continually grown over time and offer substantial territory for reconfiguration without taking over remnant landscape space. And whilst this work shows that the provision of significant density increases comes without an increase in building footprint or the loss of landscape, this is not a deliberate tactic of stealth as if infill in the established suburbs must somehow be hidden or made subordinate to the prevailing streetscape pattern.

Offered by these projects is the possibility of large organisational change delivered via small physical change.

A variety of housing types can be achieved and in this process villas and cottages can be foregrounded, as in the case of the Mile End and Prospect projects, or backgrounded as with the Unley example, where the existing houses establish the pattern and originating structure for the reconfigured site, but not the focus of activity. Whilst villas and cottages *can* be kept for their heritage, character and streetscape value, in these design speculations the true value of these originating houses is found in their continued utility and demonstrated robustness.

Stripped of subjective analysis, their merit is evidenced in the manner in which they form part of an overall site and housing strategy. Similarly, whilst the new infill building elements generally sit within the volume of the existing built form, this is not a result of an obsequious or deferential architectural approach to the Victorian-era housing, but rather an effect of the existing space and building mass being adequate to support the schemes' medium density targets. Similarly, the overall reduction in site coverage demonstrated in each scheme is not a polemic statement, but more simply a by-product of preferencing the retention of mature landscape and the provision of new small footprint houses, whilst creating separation with additional yard space where possible.

However, given that these projects both keep and transform the existing housing, and in doing so identify opportunities for strategic infill in the spaces between villas, cottages and their mature landscape, it is reasonable to assume that remnant and newly created gaps in these three design speculations will themselves be likewise exploited in the future. This would see a continuum of suburban development, of which the design speculations presented here form only a temporal part.

17 'Slack space' is a flexibility device described by Till *et al* whereby unprogrammed redundant space is factored into a scheme for later, often unanticipated appropriation. Refer, Nishat Awan, Tatjana Schneider, and Jeremy Till, *Spatial Agency: Other Ways of Doing Architecture* (Abingdon, Oxon [England]: Routledge, 2011).

Figure 4.41

Mile End, viewed from the street: current speculation

Furthermore, it may be that over time the prevailing value of villas and cottages we favour for retention now will be held in the architecture of their utility as opposed to their visual character. Not an end-game in themselves, one can speculate further that gaps in these speculative schemes will follow the same lead and be eventually filled; that landscape will mature or be replaced and that new forms of intensification will occur that subsume the pattern we once observed. Such further intensification might take the forms shown in Figure 4.41 to Figure 4.44, where so-called 'slack space' is taken up with opportunistic new uses.¹⁷



Regardless, in any intensified housing form, privacy will always be an essential measure. In the Mile End, Prospect and Unley schemes balconies are provided to extend living areas, provide access to additional outdoor space and extend the landscape above the ground plane and closer to elevated living spaces via the inclusion of planter boxes. In turn, the maintenance of these planters force, at a minimum, the occasional use of what can often be underutilised balcony spaces, thereby encouraging incidental communication between site users and the support of passive surveillance across the sites.

Figure 4.42

Mile End, viewed from the street:
future speculation



In a statutory environment where any potential overlooking between properties is to be mitigated by the inclusion of screens and obscure glazing to 1.7m above the floor levels of upper storeys, the speculations presented here, by contrast, actively allow overlooking. A challenge is therefore to be found in how notions of privacy are reconsidered and how occupants and visitors operate in a more collaborative manner of living that does not accommodate the same degree of privacy once afforded sites such as these. However, it is not the intention of these schemes to replicate the existing privacy and amenity traits of the single family house.

Figure 4.43
Mile End, viewed from within the site: current speculation



Rather, these speculations exist to provide deliberate alternatives to this and to that of traditional apartment developments. In this sense, occupants of these schemes would be those not just willing to accept traditional privacy compromises but actively seeking them out for the increased neighbourly interaction they afford. The speculations are offered, then, on the premise that they are not a replacement of the single family house but are merely an alternative offering for a small percentage of them in order to supplement the housing the established suburbs will continue to provide.

Figure 4.44

Mile End, viewed from within the site: future speculation



- 18 These figures are based on the Government's analysis of land supply via major infill and broadhectare developments (those large-site projects yielding ten or more dwellings), minor infill (those yielding ten dwellings or less but most commonly only one or two) and future growth areas that are rezoned for housing and rely on requisite infrastructure eventually coming online. Refer Government of South Australia, *Housing and Employment Land Supply Program*, ed. Transport and Infrastructure Department of Planning (Adelaide: Government of South Australia, 2012), 29.
- 19 Australian Bureau of Statistics, *2011 Census of Population and Housing: Basic Community Profile*, (2012). This figure includes all detached single house allotments, including those without heritage and character overlays.

The average maximum density of 46 dw/ha demonstrated by the three schemes presented here suggests that Adelaide does not need wholesale change in order to realise medium density opportunities and provide the 258,000 additional dwellings it needs by 2040. The South Australian State Government has identified that by 2027 it will have fallen short of its housing supply targets by 14,000 dwellings.¹⁸

Under the development pattern scenario presented by these design speculations, only 7,000 individual allotments (that is, 3,500 consolidated two-site allotments) would be required to meet this shortfall. To contextualise the ability for this to be achieved within Adelaide's current capacity, the local council areas represented by the three preceding design studies alone currently provide 30,000 single house allotments.¹⁹

Demonstrating that six dwellings can be achieved over two adjacent allotments without dramatically increasing building mass or reducing landscape, indicates that housing yields of two additional dwellings per allotment are not unrealistic in either an architectural or occupational sense. Challenges exist however, in the types of financial models and strategic thinking required to make these new housing forms happen. These are discussed in the following concluding chapter.



Rose Park

5. Observations and Projections



What once appeared foreign and alienating now appears familiar and homely. This is, of course, a principle that operates . . . in all forms of habitable space, from apartments to palaces, and in all urban conditions, from villages to cities. Indeed, it extends to regions and entire countries. Environments which were once unfamiliar become appropriated within our symbolic horizons, so that with time they come to appear deeply familiar. Nothing is alienating forever. Eventually any space will become familiar.¹

Neil Leach
Camouflage

- 1 Neil Leach, *Camouflage* (Cambridge, Mass.: MIT Press, 2006), 4.

5.1 Positioning the Work

What is it to consider reconfigured suburban scenarios, their current and future custodians and a delivery rationale behind the realisation of the projects presented here? This thesis has argued that the history of heritage listed or character-laden neighbourhoods such as those of Adelaide's Victorian-era inner suburbs can and should be read beyond the surface level aesthetic measures of character and nostalgia, and understood more deeply in the character of the behaviours of both construction activity and of occupation. Furthermore, the work has demonstrated that these forces operate as a continuum over time, and when codified as a set of *Spatial Operations*, describe in a new and usable manner the established and future patterns of change that can be used to a neighbourhood's strategic advantage. What has been demonstrated is that the malleability of suburbs such as Rose Park, Mile End, Prospect and Unley indicates that different dwelling densities and choices can be achieved with multiple audiences in mind and that this can be done at both formal and informal strategic levels relative to mannerisms of use. Whilst not a polemic reaction to Adelaide's proposed transit corridor intensification policy, the study provides an architectural record of the fact that supplementary housing models can exist that respond to and extend the prevailing normative development pattern of the city's suburbs.

Whilst detailed examination of these infill design speculations' procurement implications are deemed outside the scope of this thesis, the social and economic motivators that might champion these architectural possibilities are likely to be the foci of the future research this work encourages. This chapter introduces these possibilities.

The evidence of an ageing population discussed in Chapter 1 suggests the custodians of these new housing models could logically be (for example) a group of unrelated people aged over 65 who mobilise to form a self-managed housing collective. As a pre-emptive measure, those approaching this demographic benchmark could anticipate their future housing needs and undertake the same exercise proactively, ahead of its actual requirement. An alternative might see an aged-care or community housing provider undertake a formal development to supplement their other housing offerings. Further demographic trends indicate another group of users could be extended families neither wishing nor needing to access formal aged care. Others could be those preferencing extended familial living for social, care or financial needs, including those from cultural backgrounds with an established history of this. Increasing concerns over housing unaffordability means that such new small housing models might provide an alternative entry into the housing market and greater suburb choice for purchasers or renters. Alternatively, and perhaps most likely (at least in the first iteration of such suburban change), so-called empty nesters whose housing has shifted from a comfortable fit to one of over-provision in the absence of children or older relatives living with them, might take advantage of the design mechanisms displayed in this work in order to remain in their home but with a new sense of fit and neighbourhood community.

The various commercial triggers within the projects, such as the ability to rent out parts of dwellings or entire dwellings or to use the spaces for either domestic or small-scale commercial use provide flexibility and adaptability, but also make it difficult to quantify how the development might be procured and financed in the first instance. A further limitation is presented by two factors: that available land in the established suburbs can be more difficult for a developer

to identify and acquire and that the requirement to work with existing building and landscape fabric presents potential barriers to traditional development methods. Faced with a choice between infill development in a potentially contested residential neighbourhood and development of what can ostensibly be treated as a *tabula rasa* site in a predominantly commercial or retail precinct, the commercial and practical feasibility of the latter is more likely to win out.

As such, a developer is more likely to target a transit-corridor opportunity over the models demonstrated here. Beyond convenient access to public transport, the premise of the transit corridor strategy has traditionally been argued around viability and the ability to leverage off the amenity of leafy low-rise suburban neighbours. This thereby solidifies the status of the established suburbs as a low scale, low density alternative.² Further, because of their strategic positioning and (generally) narrow linear footprints in commercial and retail precincts, transit corridor sites operate in a vast reduction of available territory compared with a city's suburbs and fringe, which theoretically limits their impacts on the lower scale parts of the city and increases their potential for success in being realised. This is particularly the case in a statutory environment where planning policy is amended to encourage apartment development of a scale that delivers an appropriate yield to developers.

5.2 Ascribing Value

What then, of the viability of the three infill design projects of this thesis? The properties discussed in this work are of the type that are for the most part in private ownership and the design interventions shown are of a scale that offers too little return for a commercial developer to undertake. It is most likely that to be achieved, the projects would have to be self-driven developments by interested owners.

2 See for example, Rob Adams, "Transforming Australian Cities for a More Financially Viable and Sustainable Future: Transportation and Urban Design," *Australian Economic Review* 42, no. 2 (2009): 214.

Figure 5.1 (facing page)

Two-site design: hypothetical development metrics assuming each dwelling is constructed for \$1800/m² and valued at the current median price of a unit +20% of the current median house and median unit price differential for a suburb

Figure 5.1 attributes values to the three schemes described in Chapter 4 and indicative figures for a similarly sized hypothetical scheme in Rose Park. Its intention is not to price the three projects as designed, but to attribute rule-of-thumb values to the strategy of each development in order to test general feasibility and read potential economic patterns. The figures speak as much to the effects of the locations of the projects as much as they do to the projects themselves. The data presents the current median house and unit prices for each of the four suburbs and uses the house price to attribute an overall value for the combined two allotments for each scheme before redevelopment occurs. Taking the overall construction size for each project, and an assumed development size of 500m² for Rose Park, it applies a hypothecated construction cost of \$1,800/m². This is an extrapolated figure that acknowledges a medium level of finish for a non-standard residential building constructed in Adelaide at current market rates.³ For the sake of simplicity, no differentiation is made between the new building elements and the existing. Added to the calculated construction cost for each project is an allowance of \$200,000 for landscape and other common elements. Stamp duty at current South Australian government rates is added to arrive at an overall development cost, which represents the cost of redevelopment of each site including the value held in the original properties themselves. Professional and other fees are not included.

3 Rawlinsons Group, *Rawlinsons Construction Cost Guide for Housing, Small Commercial & Industrial Buildings*, 24 ed. (Riverdale, Western Australia: Rawlinsons Publishing, 2016).

	ROSE PARK*	MILE END	PROSPECT	UNLEY
current median house price ¹	1,290,000	552,000	590,000	865,000
two-allotment combined median value	\$ 2,580,000	\$ 1,104,000	\$ 1,180,000	\$ 1,730,000
development size (m²)	500	504	580	575
<i>allotment size (m²)</i>	1,200	1,256	1,300	1,360
<i>dev size as % of site size</i>	42%	40%	45%	42%
construction costs @ \$1,800/m²²	900,000	907,200	1,044,000	1,035,000
allowance for common costs + fees	200,000	200,000	200,000	200,000
stamp duty on second allotment acquisition ³	65,800	24,200	26,300	41,400
development cost	\$ 1,165,800	\$ 1,131,400	\$ 1,270,300	\$ 1,276,400
total project cost	\$ 3,745,800	\$ 2,235,400	\$ 2,450,300	\$ 3,006,400
project cost per 5 dwellings	749,160	447,080	490,060	601,280
cost per dwelling relative to current houses	- 540,840	- 104,920	- 99,940	- 263,720
cost per dwelling relative to current units	+ 219,660	+ 32,080	+ 157,060	+ 119,280
project cost per 6 dwellings	624,300	372,567	408,383	511,067
cost per dwelling relative to current houses	- 665,700	- 179,433	- 181,617	- 363,933
cost per dwelling relative to current units	+ 94,800	- 42,433	+ 75,383	+ 19,067
current median unit price ¹	529,500	415,000	333,000	482,000
<i>unit price as % of house price</i>	41%	75%	56%	56%
<i>house/unit price differential</i>	760,500	137,000	257,000	383,000
<i>20% of house/unit differential</i>	152,100	27,400	51,400	76,600
new dwelling value (unit + 20% of differential) ⁴	681,600	442,400	384,400	558,600
completed value: 5 dw x current unit price only	\$ 2,647,500	\$ 2,075,000	\$ 1,665,000	\$ 2,410,000
+/- capitalisation ⁵	\$ - 1,098,300	\$ - 160,400	\$ - 785,300	\$ - 596,400
<i>+/- capitalisation per dw</i>	- 219,660	- 32,080	- 157,060	- 119,280
completed value: 6 dw x current unit price only	\$ 3,177,000	\$ 2,490,000	\$ 1,998,000	\$ 2,892,000
+/- capitalisation	\$ - 568,800	\$ + 254,600	\$ - 452,300	\$ - 114,400
<i>+/- capitalisation per dw</i>	- 94,800	+ 42,433	- 75,383	- 19,067
completed value: 5 dw x unit +20% of differential	\$ 3,408,000	\$ 2,212,000	\$ 1,922,000	\$ 2,793,000
+/- capitalisation	\$ - 337,800	\$ - 23,400	\$ - 528,300	\$ - 213,400
<i>+/- capitalisation per dw</i>	- 67,560	- 4,680	- 105,660	- 42,680
completed value: 6 dw x unit +20% of differential	\$ 4,089,600	\$ 2,654,400	\$ 2,306,400	\$ 3,351,600
+/- capitalisation	\$ + 343,800	\$ + 419,000	\$ - 143,900	\$ + 345,200
<i>+/- capitalisation per dw</i>	+ 57,300	+ 69,833	- 23,983	+ 57,533

* Rose Park development size is assumed at 500m² due to smaller typical allotment sizes

¹ data source for suburbs: www.realestate.com.au/neighbourhoods/

² extrapolated house, townhouse and unit \$/m² rate based on new dwellings as a hybrid form with a medium level of finish; source: 2016 Rawlinsons construction cost guide

³ data source for stamp duty: www.revenue.sa.gov.au/taxes-and-duties/stamp-duties/calculators/stamp-duty-on-conveyances-calculator-new

⁴ the new dwelling value is assumed to be placed between existing offerings and is based on the existing median unit cost + 20% of the current house/unit differential

⁵ capitalisation = potential completed value – potential project cost, assuming no developer/profit ambition; a negative figure indicates over-capitalisation

For each project, the potential completed value is calculated using an assumed sale price for each of the new dwellings. This value is hypothecated as higher than the current median unit price for each area but lower than the median cost of a detached house, reflecting the new hybrid dwellings created. The price positioning is hypothecated as the price of an existing unit plus 20% of the current price differential between a unit and a house. In the calculations, for the sake of simplicity, no allowance is made for price differences between the new dwellings, with each being valued neutrally. Staged development, which could potentially affect overall pricing negatively or positively, is not considered.

Four value scenarios are then played out for each project, assuming each development yields either five or six dwellings:

- five dwellings realised at the current median price for a unit;
- six dwellings realised at the current median price for a unit;
- five dwellings realised at the current unit price +20% of the house/unit differential; and
- six dwellings realised at the current unit price +20% of the house/unit differential.

These four values each then have the total project cost subtracted from them in order to calculate whether the scheme is overcapitalised, which would result in a loss for the owners if the entire scheme was to be sold at completion. The figures suggest the following patterns:

- The Rose Park scheme is overcapitalised in every value scenario except for if six dwellings can be achieved and valued at the +20% unit rate. Whilst the median unit price for the area is the highest of the four at \$529,500 which

results in a high end value, the commensurate price for a house is \$1.29m, creating significant value in the project before any form of redevelopment is undertaken.

- Having the least expensive housing at \$552,000 the Mile End project upon completion achieves gains of between \$250,000 and \$400,000 when six dwellings are realised. Five-dwelling scenarios are either overcapitalised or nominally break-even. Mile End has the smallest price differential between houses and units of the four suburbs, with the median unit price sitting at 75% of the cost of a house. The high unit price of \$415,000 coupled with the lowest house price of the four goes closer to offsetting the construction costs than in the scenarios of the other suburbs.
- At no point does the Prospect scheme avoid overcapitalisation. Whilst the current median house price for the suburb is the second lowest of the four at \$590,000 the size of the development is the largest at 580m², resulting in the highest construction price of \$1.044m and the equal highest overall development cost. This high figure is exacerbated by the fact that the median unit price for Prospect is significantly lower than the other four suburbs at \$330,000 which limits the end value of the development.
- Like Rose Park, the Unley scheme is overcapitalised in all scenarios other than if six dwellings are achieved and valued at the +20% unit price. Whilst the current median house price is substantially lower than that of Rose Park, the overall development size of 575m² creates a significant construction cost that struggles to be off-set by the project's value at completion.

What these patterns suggest is that there may be a feasibility tipping point related to construction size of around 500m² and that the differential between a suburb's house and unit prices may be a significant overcapitalisation factor. Clearer perhaps, is that given the apparently limited returns should the finished projects have to be liquidated on completion, there is little incentive for a profit-driven commercial developer to be involved in the project.

The three design projects have, in the first instance, been designed around a sense of comfortable architectural fit based on a response to the prevailing patterns of scale, mass and site usage, the number of people accommodated and the sense of neighbourliness this scale establishes. Another two dwellings could be achieved in each of the schemes through the addition of an extra storey or a reduction in landscape. Similarly, less dwellings could be achieved to either reduce construction cost and increase landscape or to distribute construction cost more broadly across larger houses with less kitchens and bathrooms; often the most costly items in any redevelopment project.

Rather than present accurate costings of the actual design projects of this thesis, the figures suggest patterns that can affect whether or not such redevelopment is financially risky. From a financial perspective, where property values are high, a do-nothing approach makes sense. Where property values are lower, other factors may dictate the same approach due to the fact that unit prices in the area are proportionally low. In other schemes, a reduction in overall size may affect the level of risk. Suburb choice will also play its part. The locations of the suburbs used for this study have been selected strategically for their inner suburban positioning in order to test the capacity for alternative models of infill housing in Adelaide's established suburbs. As such, their very close proximity to the city centre provide difficult price points at which to deliver a

profit and suburbs further out may prove less of a financial risk.

But perhaps, as suggested by Alves and London, profit does not need to be the instigating ambition for redevelopment in a co-operative owner-driven development model.⁴ It may be that the long term social capital achieved by such schemes may mitigate some concerns over shorter term financial gains. This can be demonstrated by speculative example.

5.3 A Development Scenario

As with the figures just described, in the simplified development scenario that follows, it is assumed for the sake of clarity that values and costs are each divided equally amongst users of the newly created dwellings. In reality of course, costs are likely to be different for the construction of new stand-alone elements than they would for additions or for internal alterations. As such, those who choose to occupy a newly configured villa or cottage would likely pay less than those occupying a new building, due simply to the fact that the majority of their share of the site and buildings is already there. The metrics would be further influenced, in some cases heavily, by factors such as commercialisation, where not all dwellings may be owner-occupied. One or more dwellings provided as a rental property or used for owner-occupier commercial use will immediately affect an income for the project upon completion, providing greater returns and/or reduced costs. Similarly, it should not be assumed that existing owners of target properties will always be involved in the project as in this scenario, and when they are they will of course have the opportunity to choose which aspect of the housing – new or reconfigured – they wish to occupy. Finally, the most expensive suburb is speculated upon as an alternative to a do-nothing approach and significantly, the scenario assumes the occupants are their own developer.

4 Tom Alves and Geoffrey London, “New Housing for a Shifting Urban Paradigm: Housing Development Co-Operatives as a More Affordable and Sustainable Alternative for Housing Provision in Australian Cities,” in *Proceedings of the 6th Australasian Housing Researchers’ Conference* (The University of Adelaide, Adelaide, South Australia 2012).

Scenario

Two existing Rose Park neighbours each own a property worth \$1.3m that they have lived in for long enough to have paid off their mortgages. The houses no longer fully meet the needs of either of them but neither can afford to renovate nor have they been able to find an alternative house they prefer in an area of their choosing. Neither wishes to move to a less valuable home unit in their area, although this would provide a sensible financial return that would offer more financial security than they currently have. They each have friends who seem to be in similar positions; all could be described as asset rich, but cash poor by comparison. The metrics of Figure 5.1 suggest that if the two owners were to pool their resources and partner with three others, conversion of their two properties into five smaller dwellings across both sites will cost in the order of \$750,000 per dwelling to realise on average. This figure would include paying the two existing owners for their properties at market rate, paying title consolidation fees and allocating \$250,000 for landscaping, other common work across the site and fees.

This per-dwelling figure is \$220,000 more expensive than for a unit in the area but \$550,000 cheaper than a house, which is clearly significant. Given the new dwellings will provide accommodation and garden amenity that sits between current unit and detached house offerings in the area, this price point appears reasonable.

The two parties agree to self-develop a five dwelling scheme with their friends. The three 'newcomers' each pay \$750,000 into the project, creating start-up capital of \$2.25m. Given the two existing property owners already hold \$1.3m each in project equity, rather than paying in to the project, they are each paid out \$550,000 in recognition of their property's original value minus their own \$750,000 contribution to a dwelling in the scheme. This leaves a balance for the collective of \$1.15m. After allocating \$250,000 to common work and fees, this provides a project budget of \$900,000, or \$1,800

per square metre with which to build a total of 500m² of accommodation with a medium level of finish. At the end of the project, the five new dwellings are established with a mix of households ranging from one to four occupants each, each of whom have been able to either enter or remain in the neighbourhood at a market rate that recognises their new dwelling's hybrid unit/house form. In addition, the original two owners have each realised over half a million dollars in cash that was previously locked in the original property and otherwise inaccessible. On balance, whilst on paper the group has overcapitalised, they see this as a reasonable cost of doing business in order to achieve the new housing and community structure they desire.

Such a scenario suggests, at least in a broad sense, that there is merit in pursuing alternative development models to accompany the design thinking of this work, which concludes with projections for future related research.

5.4 Corollary Research

Procurement and Development Frameworks

In the absence of a professional developer driving projects such as these and taking not only a financial reward but the accompanying risk and initial bank loan burden, how might owner-developers realise such projects? Unit trusts exist in Australia to provide a financial structure to safeguard the collective asset of a group of property owners, but a trust still assumes these parties have the means to raise the funds for a development project themselves in the first instance: a trust creates a legal framework, but not the development solution. Sharam *et al* have found that in Australia significant barriers exist to realising self-developed housing projects (otherwise known as 'deliberative development'), as without the usual

developer model of pre-sales commitments with non-refundable deposits from purchasers, self-build developers face having to provide equity in their projects of up to 40% before a bank will finance a loan.⁵ The authors note, however, that banks are interested in a potentially restructured lending system if such developments could be under guarantee from either the government or a community housing organisation.⁶

Such a lending system once existed in Australia in the form of terminating co-operative building societies which, fully backed by a government guarantee should the borrower default, would not only lend owner-builders up to 90% of a project's cost but would liberate construction cash flow by providing a progress payment up to 75% of the value of the house and its land once the building frame was complete.⁷ Beyond financial guarantees however, other forms of state support can significantly reduce the financial burden of self-build developers and increase the numbers of housing opportunities for cities, as demonstrated in Germany with *Baugruppen*.

The Baugruppen Model. Co-operative building groups in mainstream operation since the 1990s, *Baugruppen* developments continue the German tradition of *Genossenschaften* cooperative housing,⁸ where residents undertake self-funded developments without the involvement of a developer. Responding to issues of housing affordability and a desire for increased social interaction amongst residents, they provide a greater housing fit for occupants based on their direct involvement with the project's architect from its inception.⁹ Furthermore, *Baugruppen* can provide savings for their owner-developers in the order of 30% over speculative developer-driven schemes.¹⁰ Important for their success is the backing of government, where some German municipalities provide support via subsidised land provision

5 Andrea Sharam, Lyndall Bryant, and Tom Alves, *Making Apartments Affordable: Moving from Speculative to Deliberative Development*, (Melbourne: Swinburne Institute for Social Research, 2015), 23.

6 *ibid.*, 24.

7 Tony Dingle, "Necessity the Mother of Invention, or Do-It-Yourself," in *A History of European Housing in Australia*, ed. Patrick N. Troy (New York: Cambridge University Press, 2000), 71.

8 Iqbal Hamiduddin and Nick Gallent, "Self-Build Communities: The Rationale and Experiences of Group-Build (*Baugruppen*) Housing Development in Germany," *Housing Studies* (2015): 366.

9 *ibid.*

10 Alves and London, "New Housing for a Shifting Urban Paradigm," 16.

and in some instances through guidance and administrative assistance for the duration of the project up until occupation.¹¹ And while a direct translation of the *Baugruppen* model to Australia would appear to be of logical benefit if coupled with similar government backing, it is limited by the fact that it is not recognised as a risk-acceptable development model by financial institutions in Australia.¹²

The Nightingale (Ethical Investors) Model. An alternative functioning example exists in Australia however, in Melbourne’s Nightingale model, which sees the traditional role of the developer taken over by around 20 to 25 so-called “ethical investors”.¹³ These investors are associates, clients and other interested parties sourced by the project’s architect who are mobilised through professional networking and may have previously never invested in construction development work before. ‘Unsophisticated’ developers, each typically invests \$100,000 for the early stages of the project’s development, which is typically two to three years. This provides up to \$2.5m for the project’s initial funding stages. Land is purchased at market rates and architects and other consultants are paid at commercial rates. The investors are not the purchasers, who are sourced off a waiting list established by word of mouth. The resultant absence of a marketing team, advertising program, real estate agent and a display suite combine to provide substantial savings that are put back into the project.

Further savings are achieved by minimising the numbers of bathrooms, providing a single shared laundry for the group, using moderately priced finishes and securing price reductions where possible through bulk purchasing. Once the project is procured to the point of land purchase and 100% apartments sale, the project feasibility is demonstrated and construction finance is obtained from a bank, enabling the return of the original investors’ money with interest.

- 11 Taylor Dotson, “Trial-and-Error Urbanism: Addressing Obduracy, Uncertainty and Complexity in Urban Planning and Design,” *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 9, no. 2 (2016).
- 12 James Legge, “Future Housing: James Legge of Six Degrees and The Nightingale Model,” (Adelaide: Lecture at The Australian Institute of Architects for the AIA and The Association of Consulting Architects, 2016).
- 13 Breathe Architecture, “The Nightingale Model: Procurement of Architects by Architects,” *Architect Victoria*, no. 5, Spring (2015). See also <http://nightingalehousing.org/>.

This process removes a commercial developer from the project along with commercial profits, and replaces the traditional developer role with a team of short term investors gathered by the project architect. In this sense, the project becomes one more akin to a traditional client-architect engagement, but with the commissioning client in the first instance working as a collective and not being the end-user. However, end-user engagement is still achieved. By maintaining the involvement of the architect through the project and sourcing engaged and psychologically invested purchasers off a waiting list via a ballot, the purchaser has the ability to confirm or change their apartment configuration preferences and maintain the ambitions and effects of the deliberative development model up to occupation.¹⁴

If one assumes there is an inherent logic in local and new residents looking for alternative architectural and consumer/cost models to the established apartment or house offerings, then governmental support may be fundamental and new financial and statutory models required to achieve such change. For Alves and London:

14 Legge, "Future Housing" lecture.

15 Alves and London, "New Housing for a Shifting Urban Paradigm," 17. The authors go on to write: "Housing development co-operatives have the potential to play a part in addressing many of the dilemmas associated with housing provision and urban growth . . . Purchasers still use mortgage finance to fund construction of their new homes but, by aggregating demand for housing and cutting out the 'middle man', housing development co-operatives could open up a new range of choices to households currently experiencing difficulty gaining access to the housing market or finding housing that is appropriate to their needs", 18.

. . . a crucial element to the flourishing of housing development co-operatives is the designation of a central agency that can help broker their formation and facilitate their engagement with the development process. This agency would also promote the development of standard legal processes and agreements and financial products and services tailored specifically to housing development co-operatives, to simplify procedures, make households' choices and obligations clear, and remove any existing impediments.¹⁵

Additionally, and of great importance, existing planning statutes will require challenging and re-evaluation.

Statutory Priorities

Current planning policy sees local Development Plans understandably follow rules designed to protect privacy and enhance amenity. However, they do so through preferencing metric measures over qualitative processes. This is not surprising; it is far easier to assess a building's 'height' or 'boundary length', than it is its 'quality', 'character' or 'liveability'. When related to density, planning measures determine appropriate fit by stating a minimum allotment size. This provides a simple mechanism for all to understand: if an existing allotment is at least twice the minimum allotment size dictated for that planning zone, then it may be subdivided under the assumption that the mandated minimum site size has pre-determined an acceptable quality of living. The logical corollary argument is that allowing smaller sites than the stated minimum presents a diminished quality.

But what of housing propositions that do not fit this model and instead see allotment size as a single entity to be shared rather than something divisible into smaller qualitative units? Currently, planning policy in Adelaide does not accommodate the types of housing demonstrated by the three two-allotment studies of Chapter 4, where the smallest average site size per dwelling for the Unley proposition, for example, is 227m², some 38% below the current minimum for that policy area. Future demonstrative research is required, coupled with discrete design projects in the framework of Development Plan review, to investigate how current planning policy might reconsider attitudes to and assessment tools for:

- private open space definitions and measures that recognise the quality of space over the more simplistic quantity;
- permitted overlooking and degrees of private and semi-private space;

- the maximum numbers of dwellings on a site and minimum allotment size relative to performance measures;
- new definitions of minimum allotment size based on allotment share; and
- new models of quality-based assessment for the suburbs, including investigation of the potential efficacy of dedicated suburban housing design review panels for projects where a planning-by-numbers system cannot be applied.

Detailed Feasibility Studies and Design Projects

Where the work of this thesis has been concerned with identifying the capacity of Adelaide's established suburbs to accommodate housing diversity and supply, detailed analyses of the financial and procurement models are required. This will test whether the perceived architectural and social fit displayed in the work can be realised via existing procurement means and at costs that are viable. Such work will also help identify gaps in the conceptual thinking and potential avenues for remedying them. Furthermore, ancillary extension projects can be undertaken around:

- The potential for government backing and support for interested unsophisticated developers looking to undertake a project akin to the *Baugruppen* model. In Adelaide a state-backed lending system exists under the government's subsidiary HomeStart financial institution, where borrowers avoid lender's mortgage insurance charges and can co-invest with HomeStart to access shared-equity loans, enabling greater sums to be borrowed but without increasing loan repayments. However, a trade-off in this model is that HomeStart charges higher than average interest rates.¹⁶ A study of an altered HomeStart model for

16 Farrin Foster, "Paying for It: In Hock to the Greatly Outdated Australian Dream," *CityMag*, August 26, 2016, accessed August 29, 2016. <http://citymag.indaily.com.au/commerce/paying-for-it/>.

owner-driven development may unlock alternative project procurement methods.

- New forms of titling consolidation, particularly when original title boundaries might be retained but have services and amenities shared across adjacent allotments. This will require the roles of title easements to be investigated but may unlock the potential for staged developments to be explored. This may also see development that begins the project on one self-contained site, but in anticipation of the integration of the neighbouring house when available.
- The investigation of single allotment alternatives, both as siloed allotments and in collaboration with neighbours, whilst maintaining existing property ownership divisions.
- The investigation of back-to-back allotments separated by laneways. Such work would examine and describe ways of sharing function and amenity across allotments not physically connected, thereby testing the legal and planning measures that are needed to facilitate such change.
- The development of formalised allotment consolidation models using aged care or other established housing providers as hypothetical developers. This would provide further feasibility tests while extending the future reach of existing providers and diversifying their offerings to clients.
- The investigation of new Council-led housing models that act as test cases to assist residents in transitioning to new housing forms within their existing neighbourhoods.
- A study of existing residential market conditions and where the housing models of this study are situated within that. This would require a suburb-by-suburb analysis to determine suitable locations metrically, in lieu of only architecturally.

- The undertaking of detailed cost exercises relative to optimum building sizes and configurations. Where the work to date has been designed around architectural and neighbourhood fit, this would enable a deeper understanding of appropriate fit based on development cost and end-value. Such a study would ideally investigate what forms of standardisation would allow flexibility and choice whilst improving efficiency, affordability, viability and price predictability.
- The undertaking of cost modelling relating to the use and tenure of the dwellings. This would enable an understanding of the economic effects of owning vs renting, living vs working and the financial implications for various mixes of use. Such modelling could also assess affordability (or lack thereof) for first home buyers and renters in order to understand the demographic potential of the model.
- A study of how the Nightingale model, proven as a deliberative development model for self-developers in Australia but geared towards apartments, might be adapted to work for small houses in the suburbs. Such a study is important to determine if a Nightingale approach can be adapted where economies of scale and savings through construction repetition are more elusive.
- The further development of the *Spatial Operations* of Chapters 3 and 4 into a set of visually descriptive Development Plan principles or design guide tools to assist Councils and home owners in identifying alternative spatial patterns and opportunities. Such work could be done in tandem with or in addition to design communication work around the methods with which building owners might adapt villas and cottages using the principles of this thesis. In the first instance, these alteration studies might be realised as Council-supplied fact sheets to assist residents in understanding additional methods for adapting or future-proofing their Victorian-era houses.¹⁷

17 This future villa and cottage fact sheet work has already been the subject of discussions between the author and the City of Unley.



5.5 Coda

Beyond the issues and metrics of housing need, demographic shifts, changing household structure and current political responses and targets, this thesis has been concerned with providing an alternative mechanism with which to understand Adelaide's existing inner suburbs. Its ambition has been to offer design studies of a greater variety of housing than our suburbs currently afford us, coupled with approaches to landscape that leverage off the mass and scale of vegetation that is so often at risk during redevelopment, despite the significant amenity it provides.

Furthermore, the work has articulated a way of seeing and describing Adelaide's established housing in a manner that others could find useful to deploy in neighbourhoods and cities that present similar-enough conditions that the work may be translatable. In neighbourhoods where this is not possible, the work joins a body of housing research precedents that may prove broadly or directly useful to other housing studies.

Specifically, the forms of infill development presented by the three detailed design schemes for Mile End, Prospect and Unley sit comfortably within the accreted development patterns of their suburban contexts. Together they suggest that a new form of multi-house living in the established suburbs can co-exist with the predominant large single family homes that currently define these neighbourhoods. And whilst a test of the realisation of such new forms of development can be found in the types of financial models required to fund them and the statutory changes necessary to permit them, perhaps a bigger and more immediate challenge lies in current preconceptions of housing intensification and the ability for residents of low density cities to adapt to the types of behavioural concessions required of a new form of medium density suburban living.

But these are concerns that exist with the current infill development models of transit corridor apartments and suburban knock-down-rebuild; they are not the sole domain of the design speculations of this thesis.

What this design research has achieved is a temporary removal of current behavioural, statutory and financial limitations in order to explore new housing options.

What it suggests is that more research is needed into the current statutory, legislative and market systems we have in place that influence whether such design speculation is deliverable.

What it demonstrates is that housing intensification in the established suburbs does not have to be an either/or debate of existing vs new housing patterns. A subtly radical alternative housing form exists that allows infill elements to take their cues from the fluid character of prevailing conditions: memetic architectural behaviour borne of suburban operations already in play.

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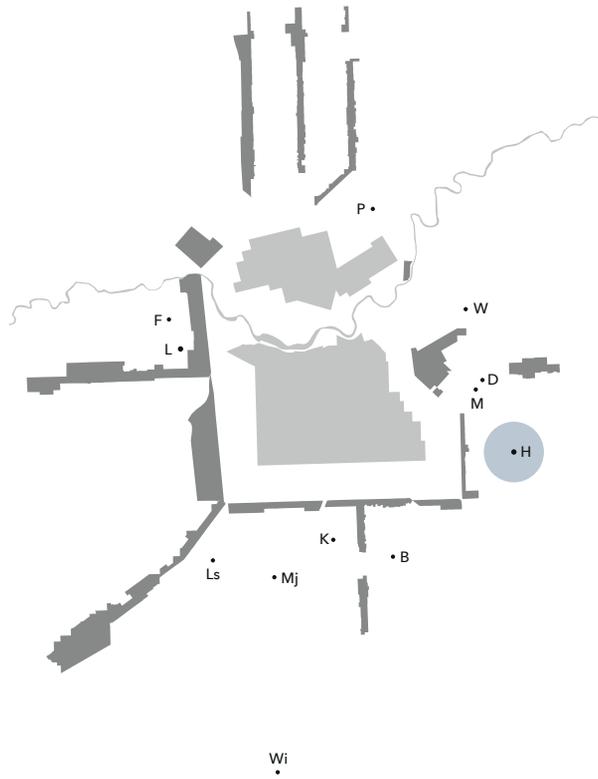
Thomas Peirce:
Adelaide 1875 (detail)

source: sahistoryhub.com.au/map-and-plans

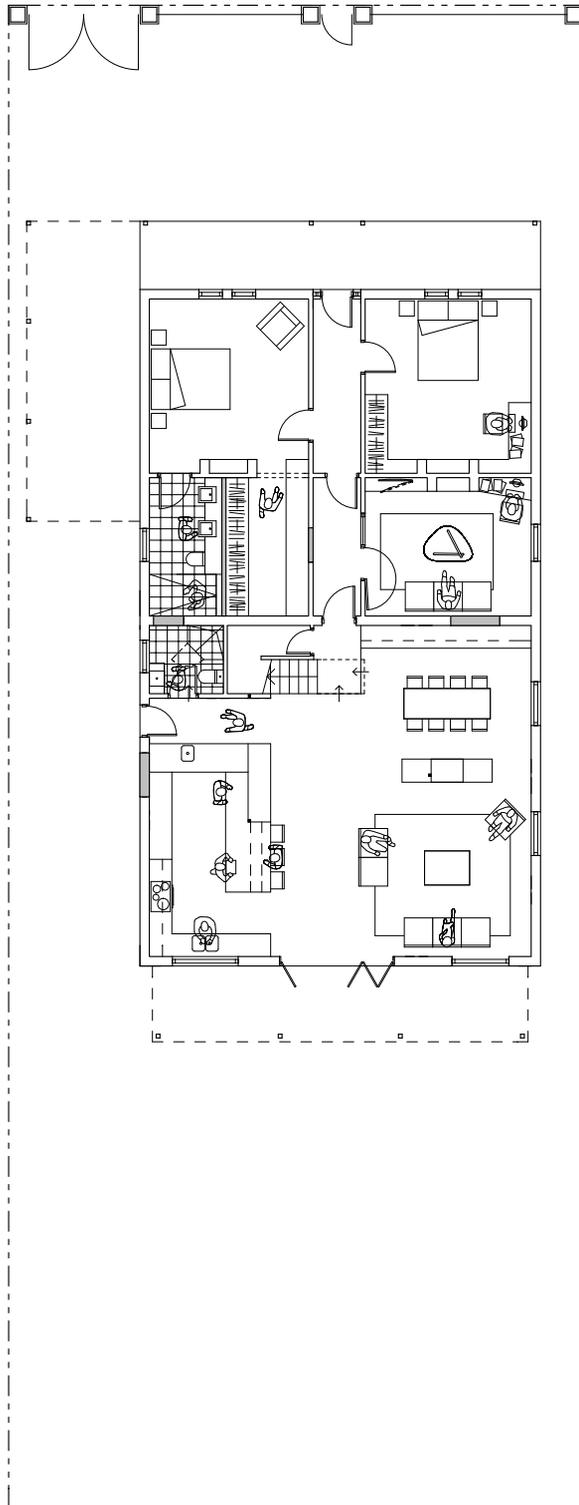


Appendix A: Representative Villa/Cottage Projects

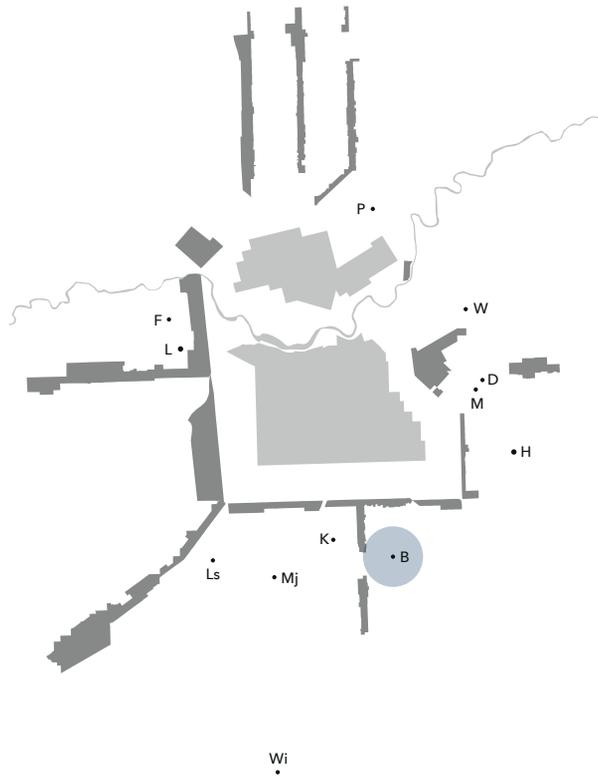
A representative selection of Madigan Architecture projects incorporating the four-roomed typology and demonstrating some of the variety of adaptation modes that occur within Adelaide's Inner Metropolitan Growth Area.

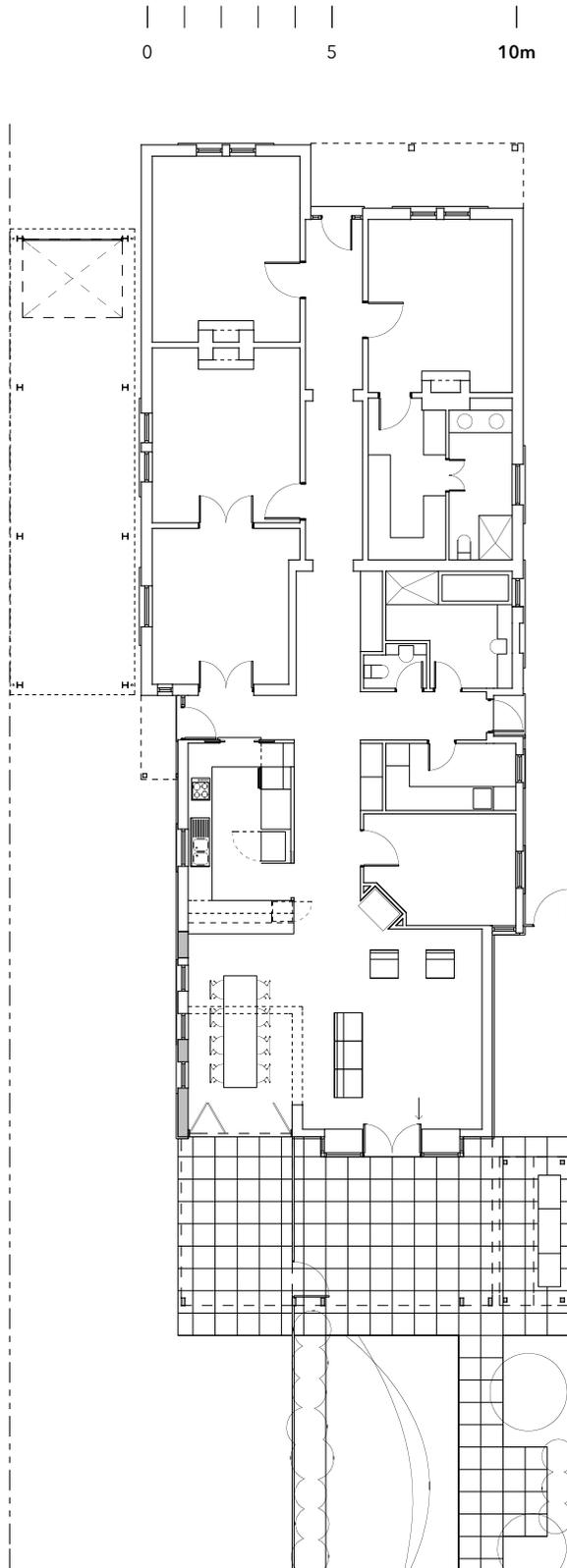


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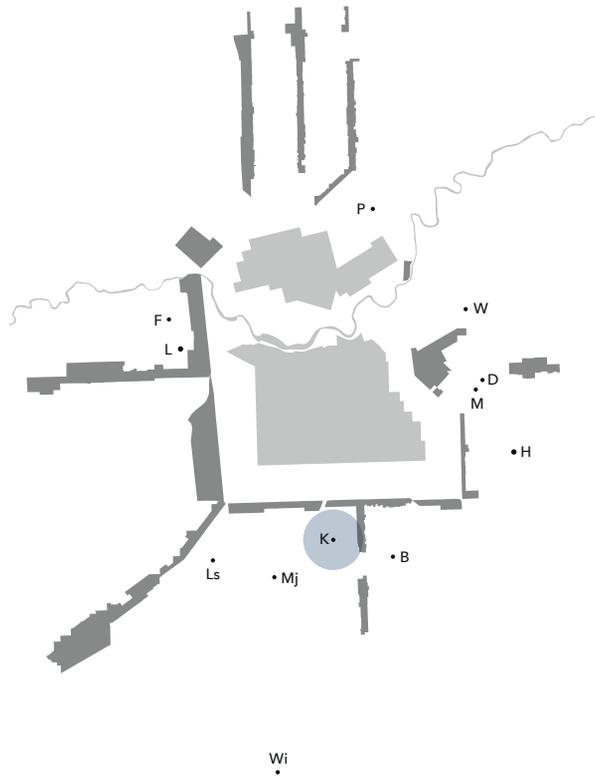


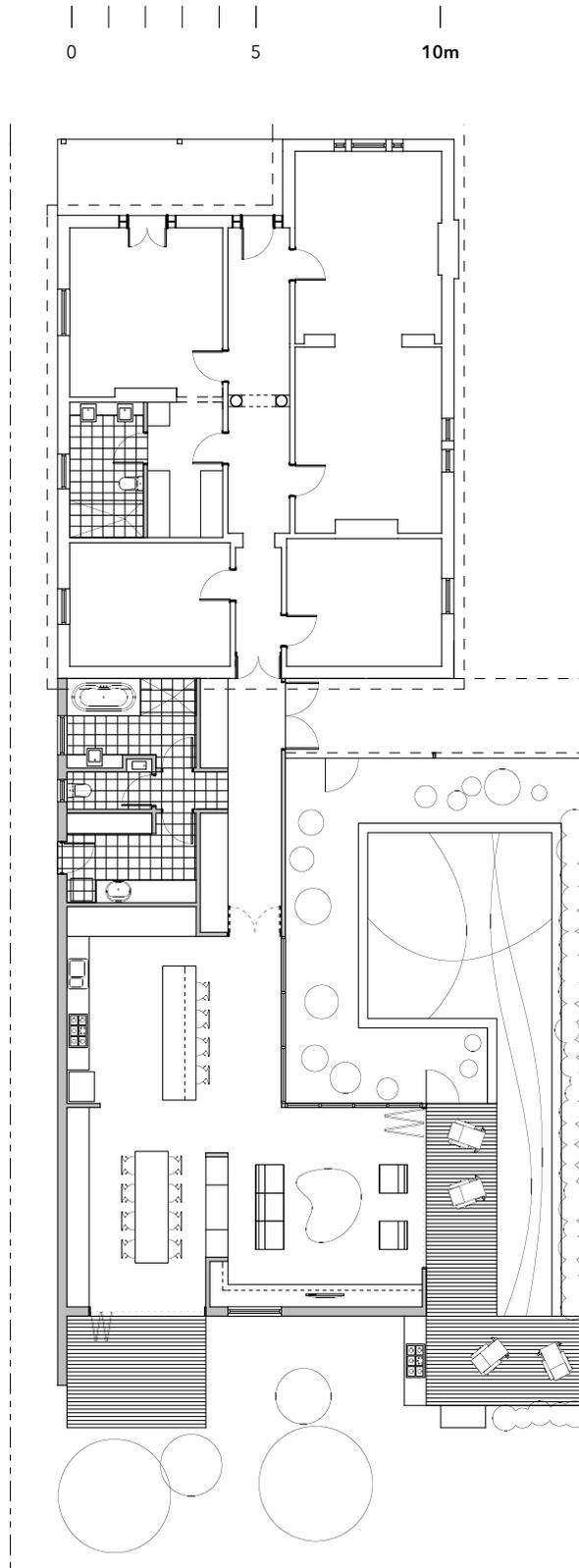
House H
Rose Park



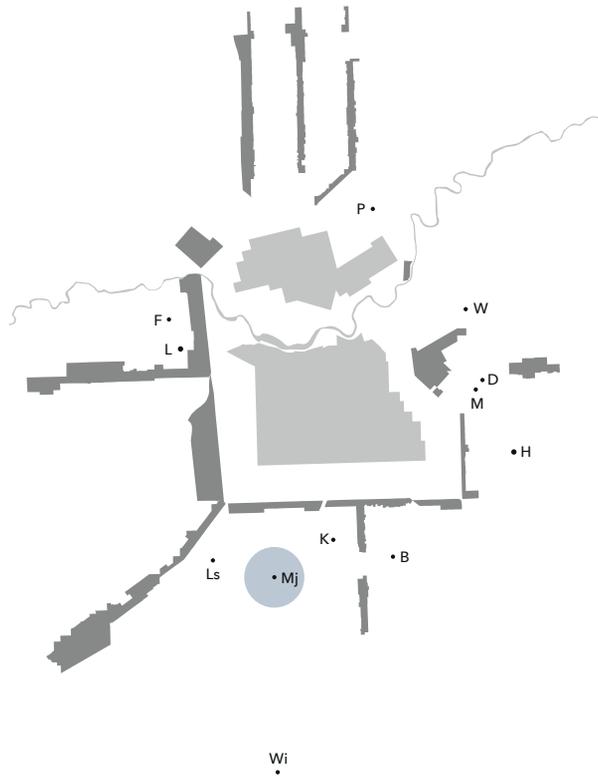


House B
Unley

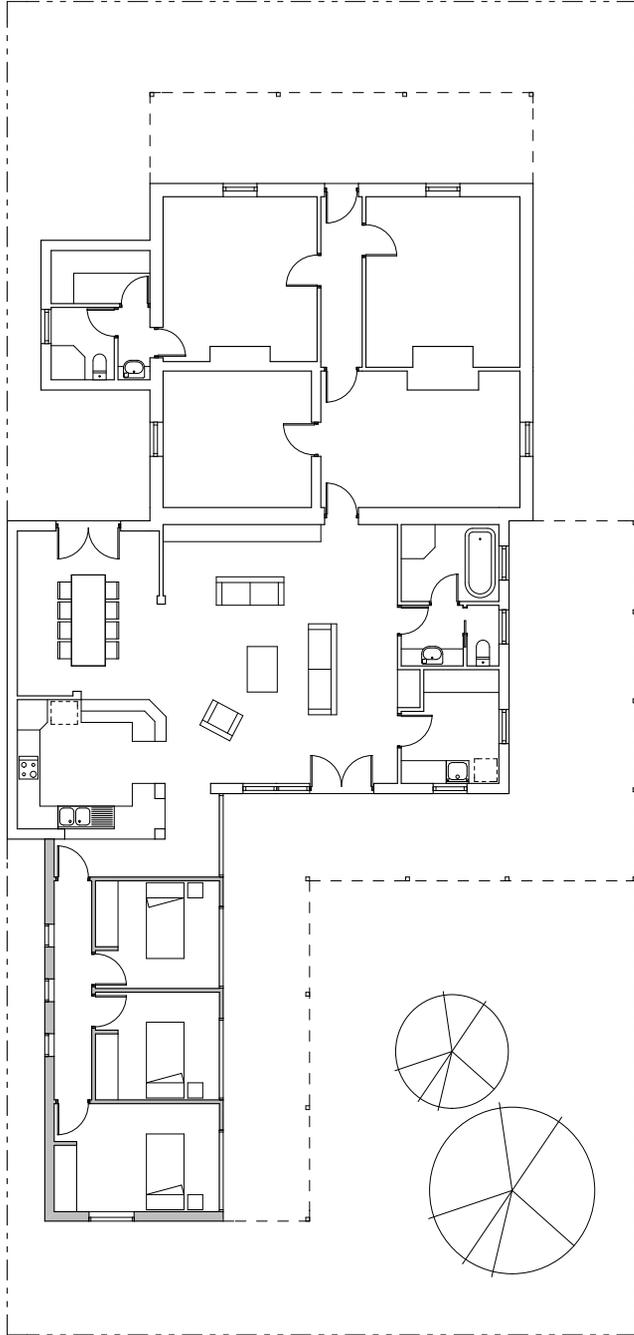




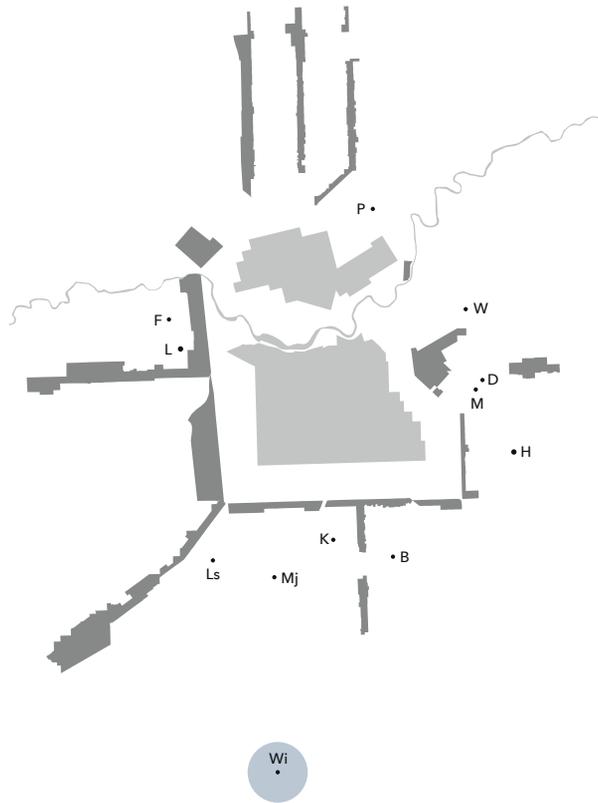
House K
Hyde Park

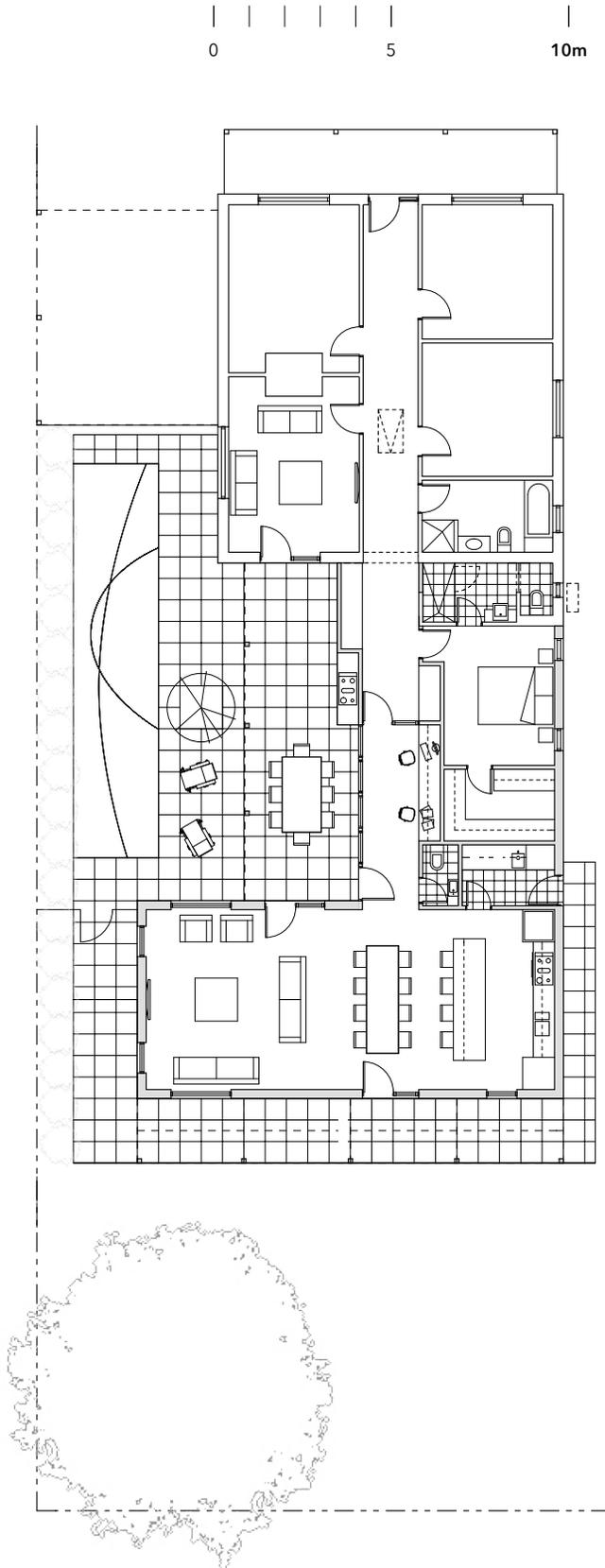


0 5 10m

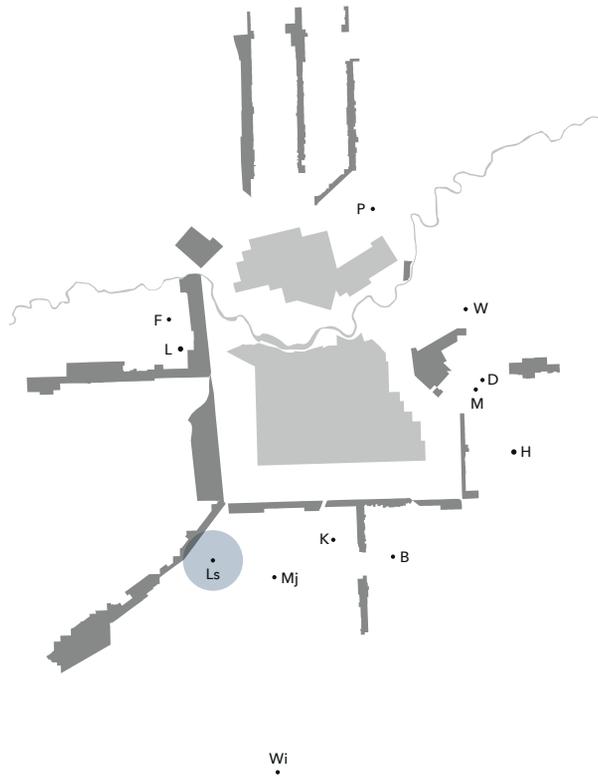


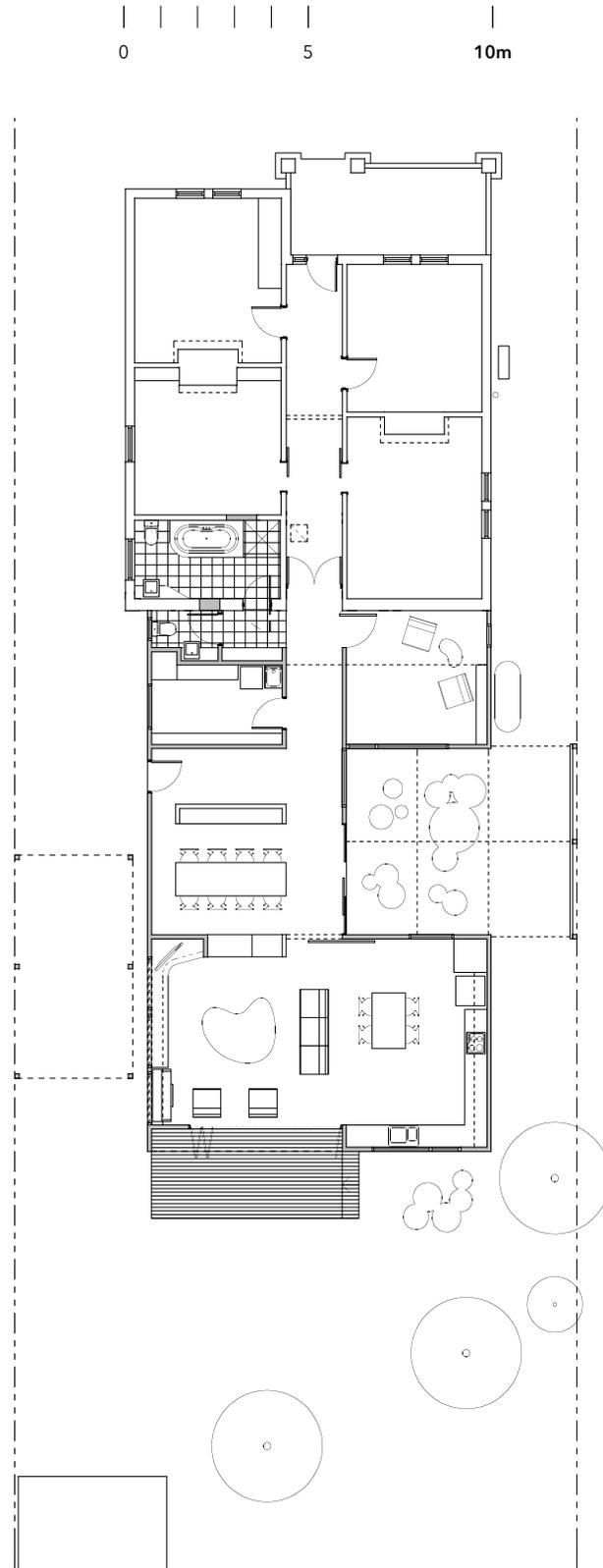
House Mj
Goodwood



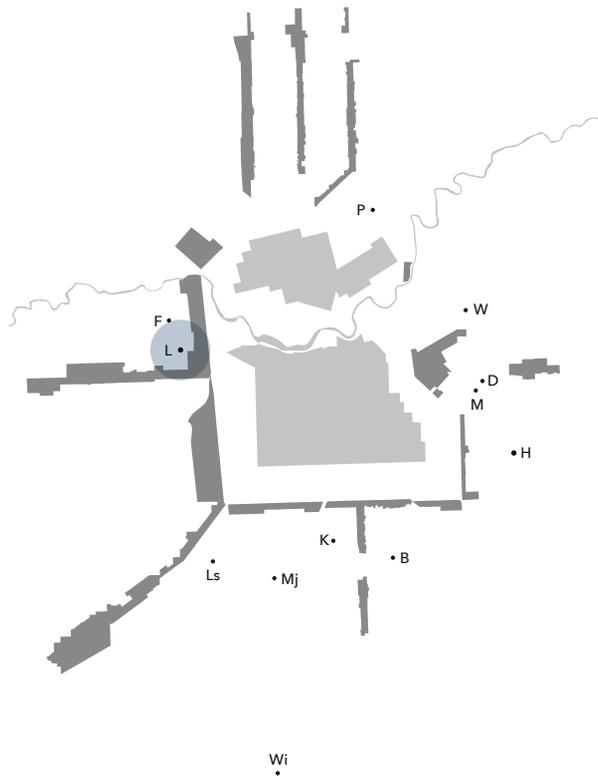


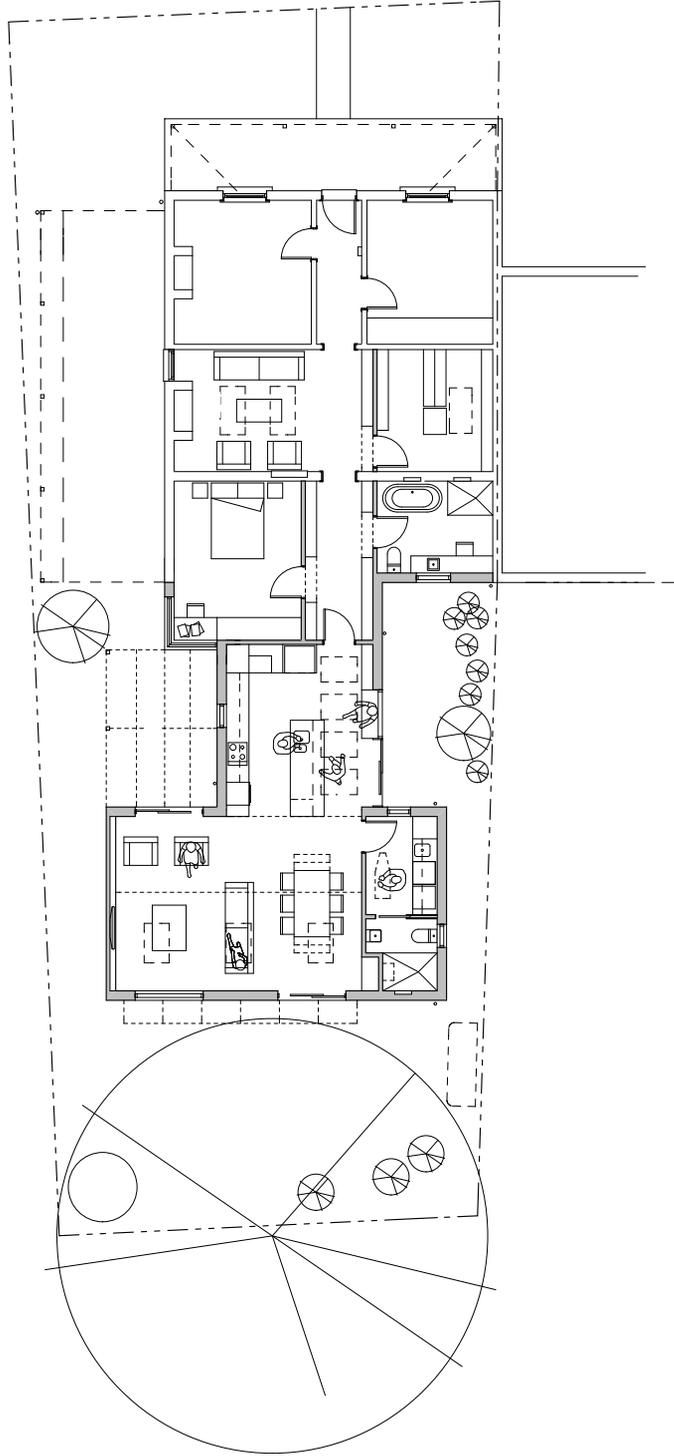
House Wi
Colonel Light Gardens



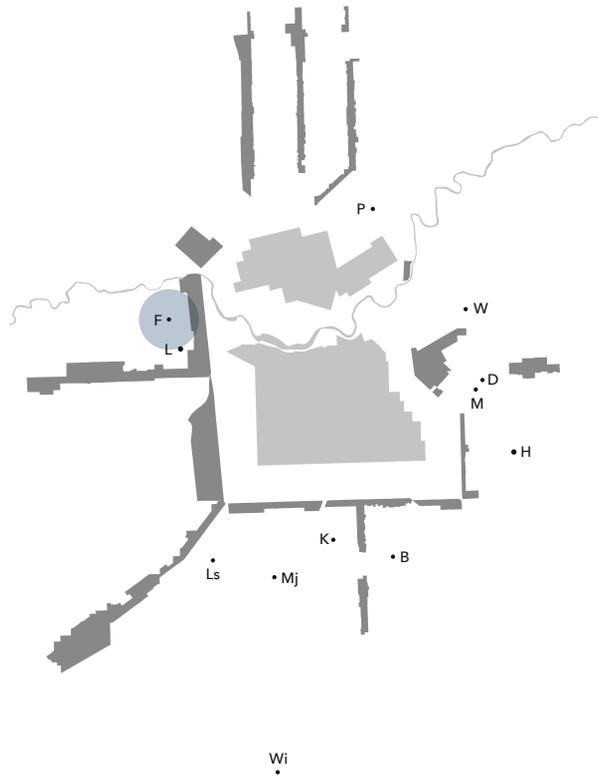


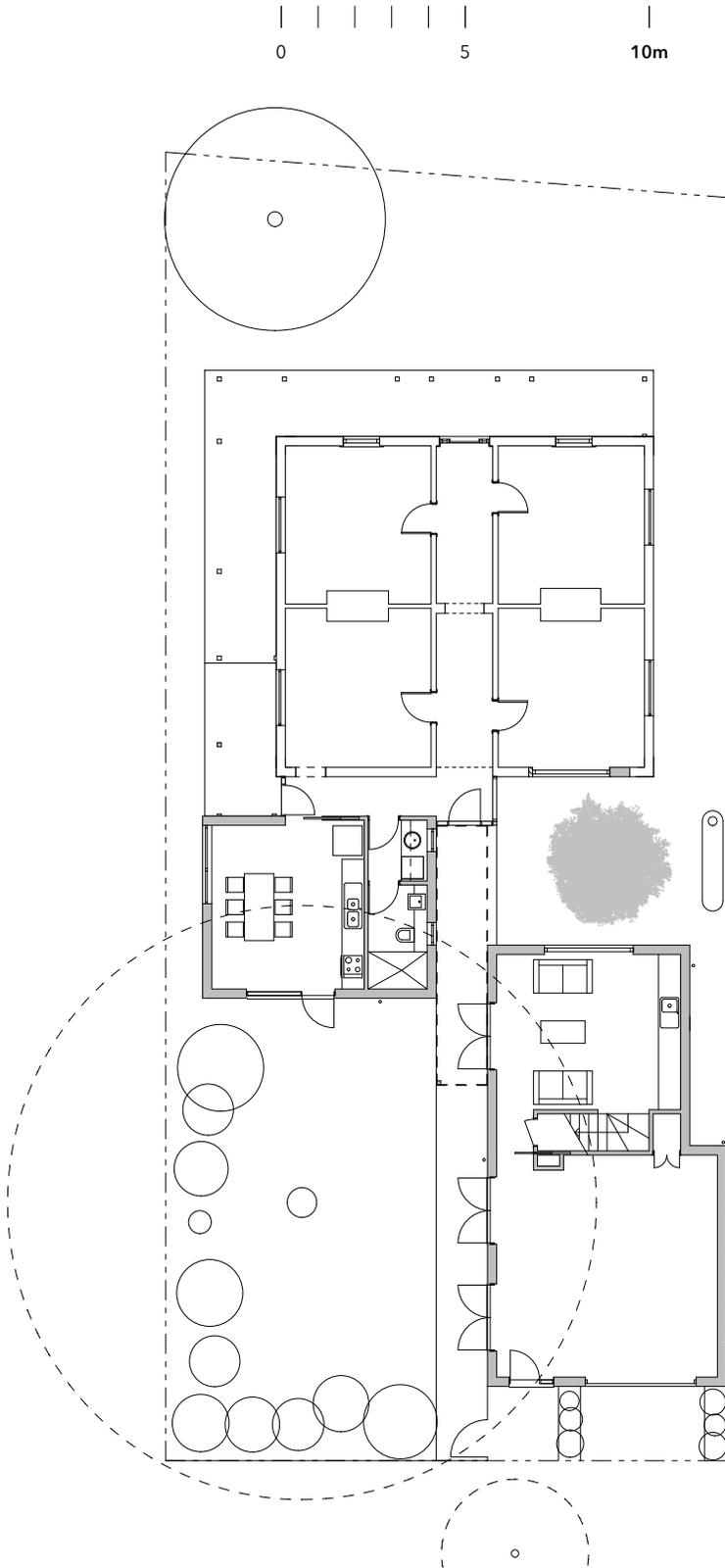
House Ls
Forestville



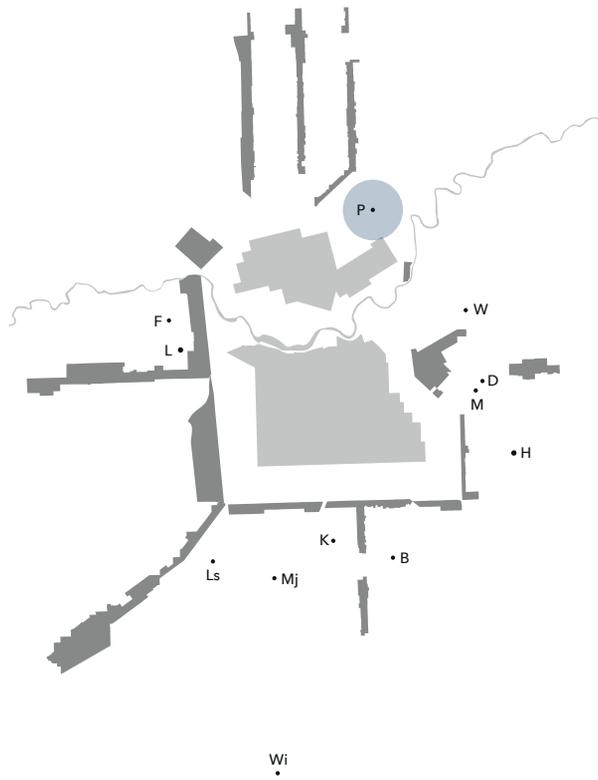


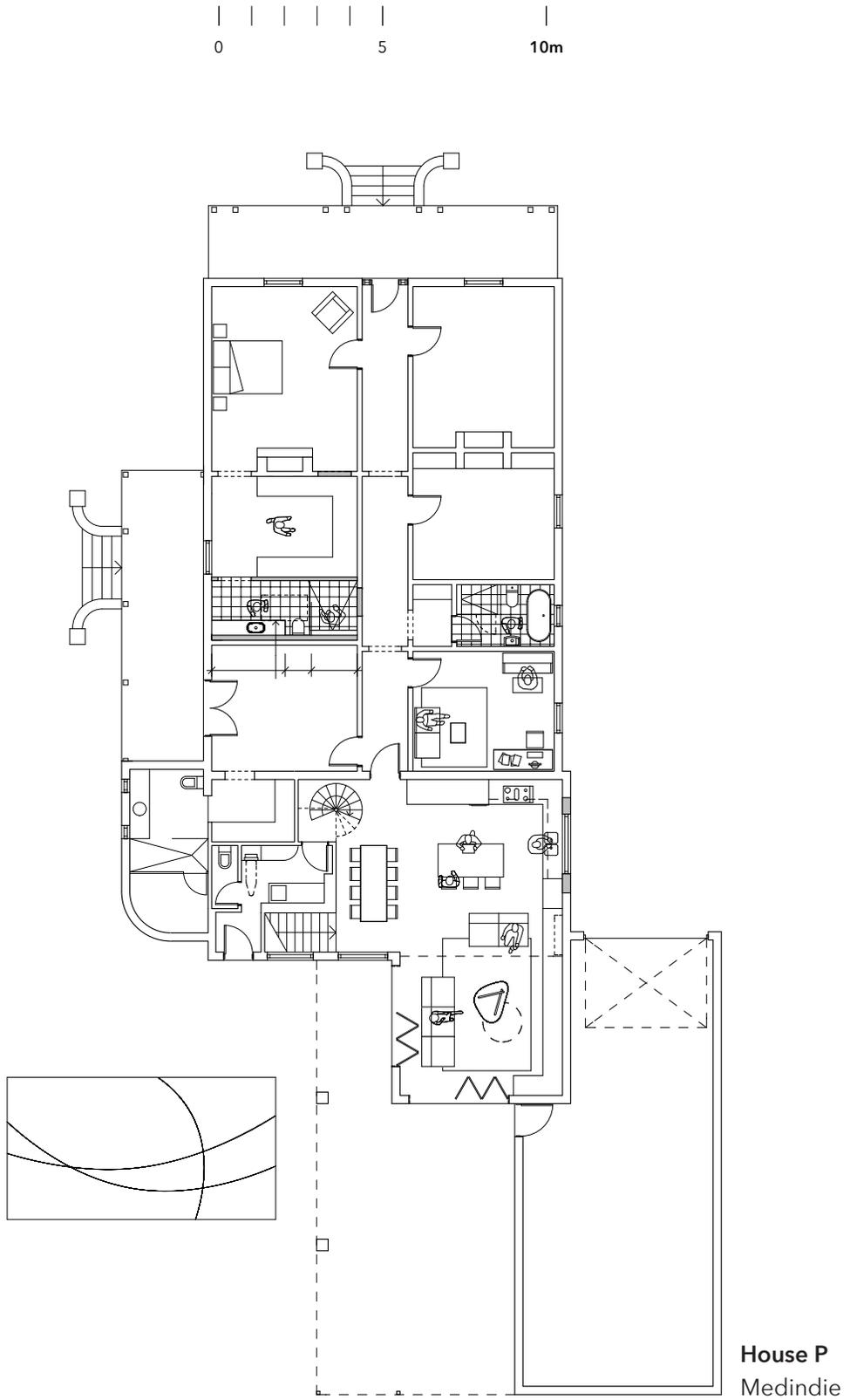
House L
Thebarton

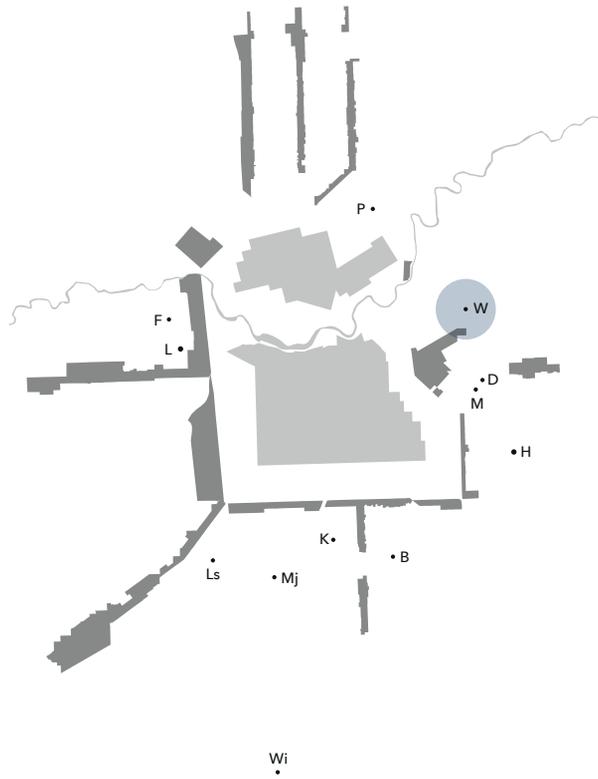


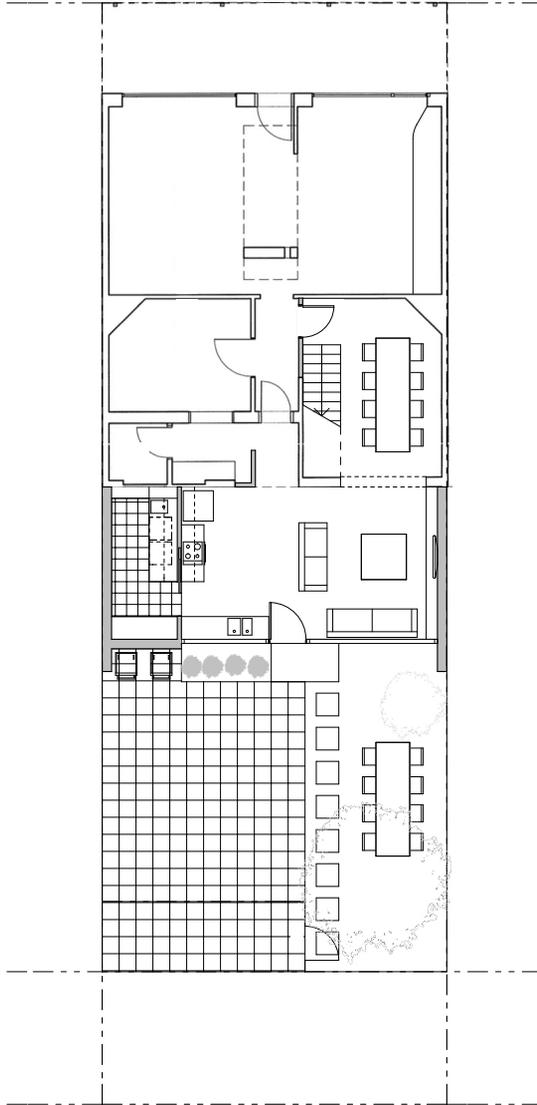


House F
Thebarton

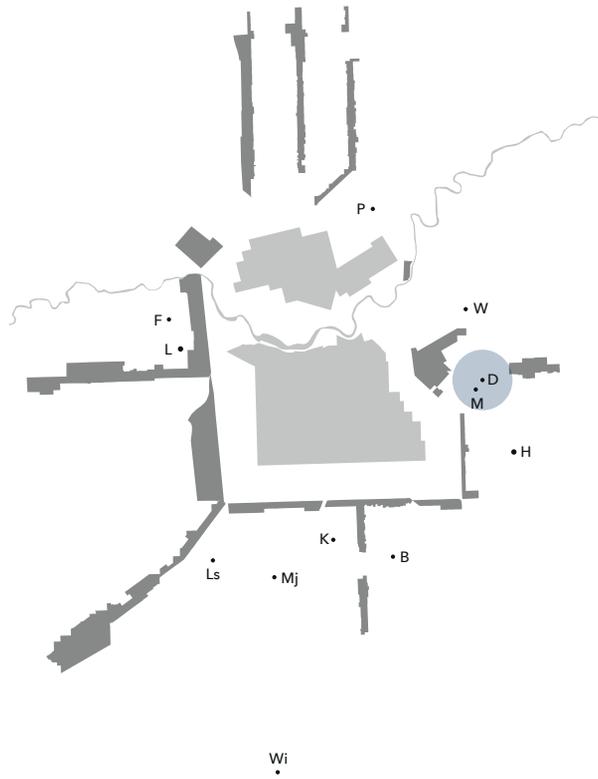


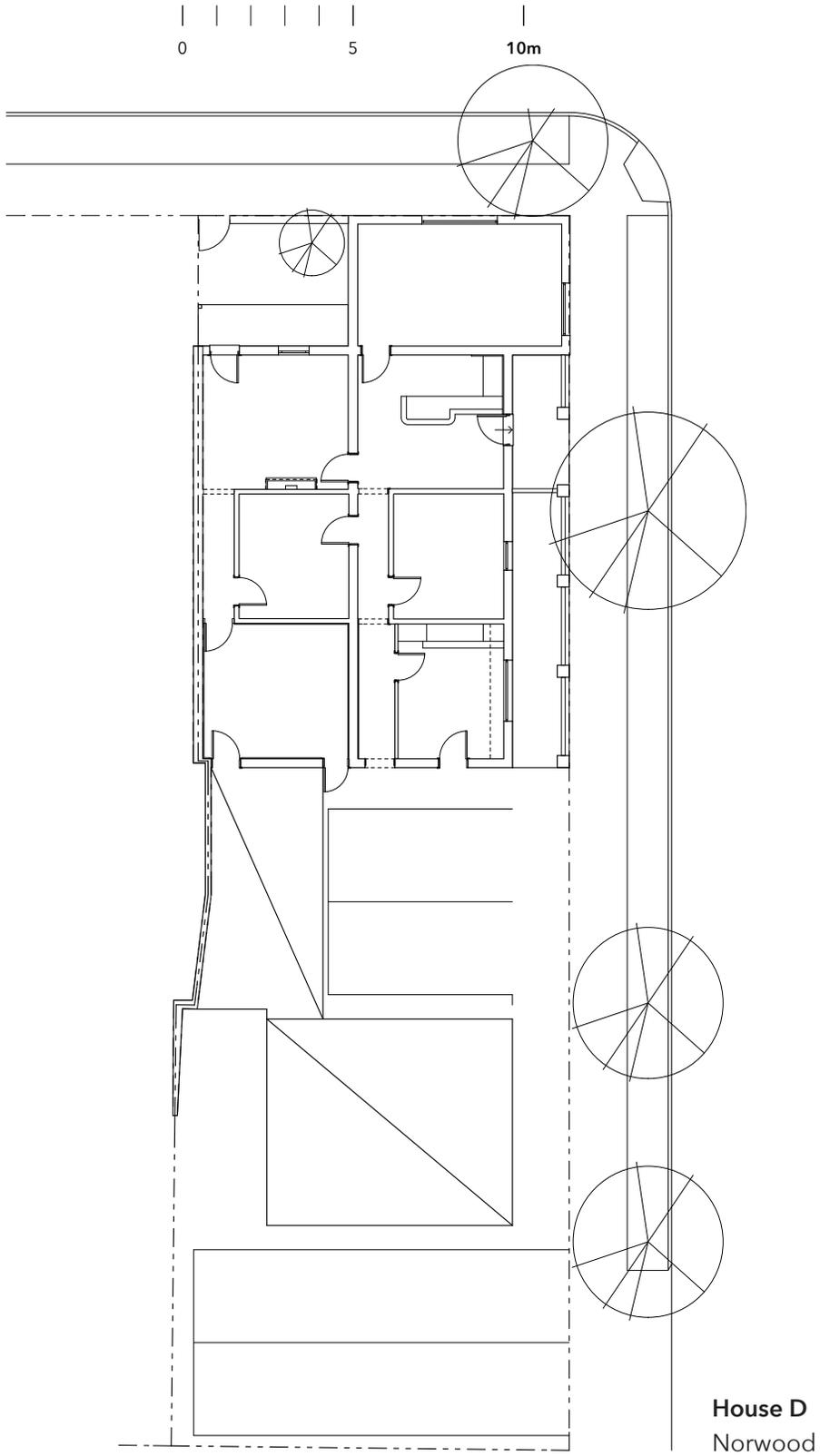




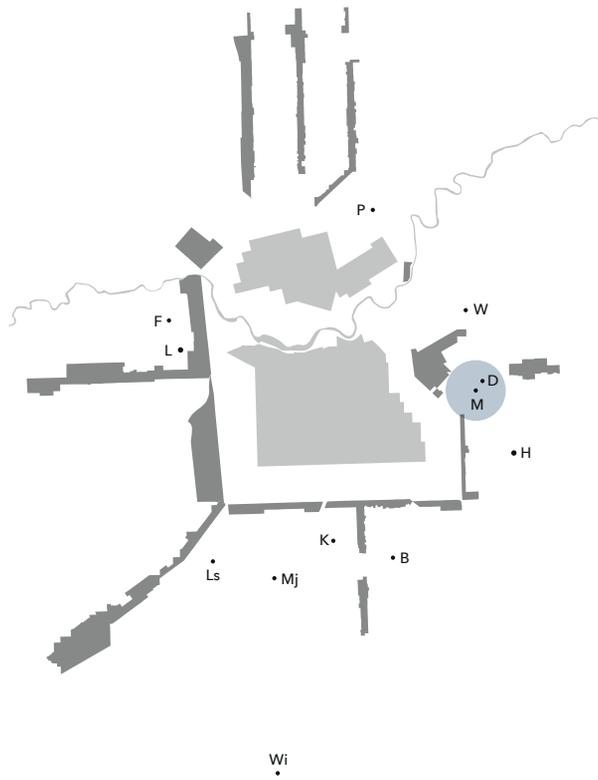


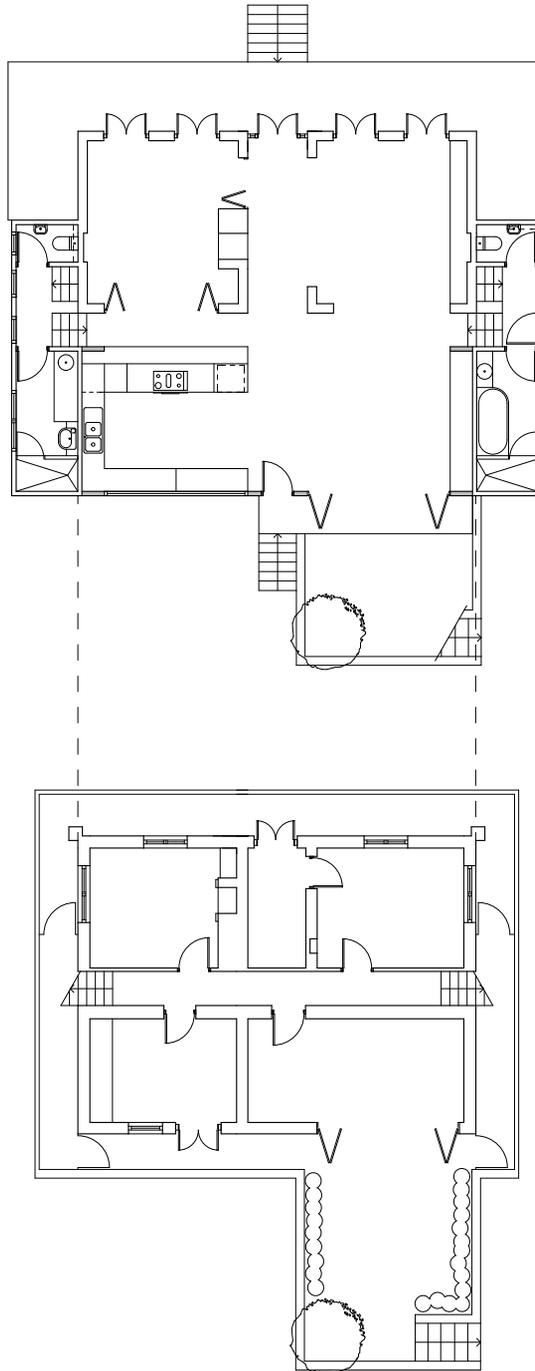
House W
Payneham





House D
Norwood



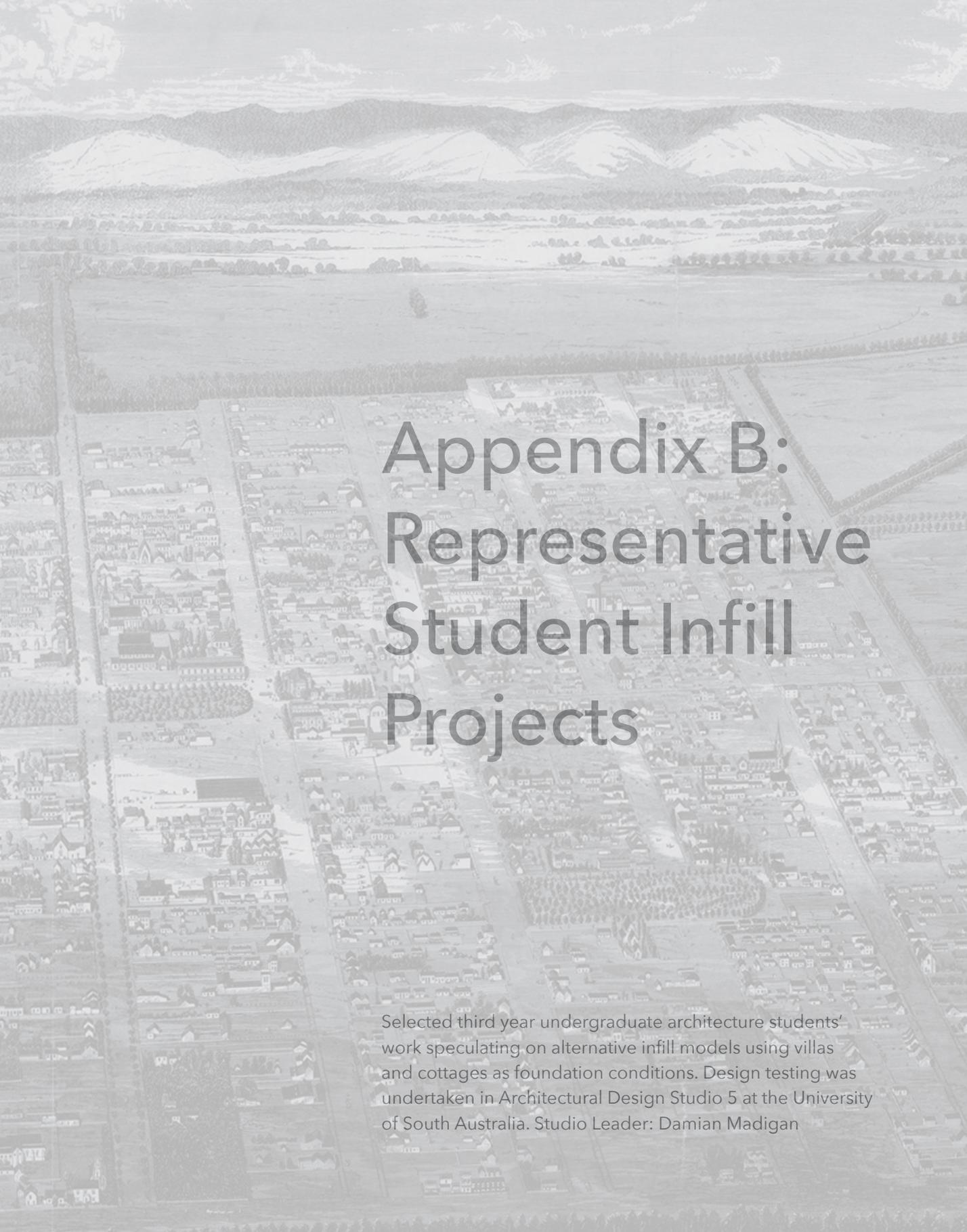


House M
Norwood



Thomas Peirce:
Adelaide 1875 (detail)

source: sahistoryhub.com.au/map-and-plans

An aerial architectural rendering of a town, showing a grid of streets and various buildings, including houses and larger structures. The town is set against a backdrop of rolling hills and mountains under a cloudy sky. The rendering is in a light, sketchy style.

Appendix B: Representative Student Infill Projects

Selected third year undergraduate architecture students' work speculating on alternative infill models using villas and cottages as foundation conditions. Design testing was undertaken in Architectural Design Studio 5 at the University of South Australia. Studio Leader: Damian Madigan



A two villa study of the public/
private activities of mixed use.

Design testing by
Chloe Chiaw Chiah Chung



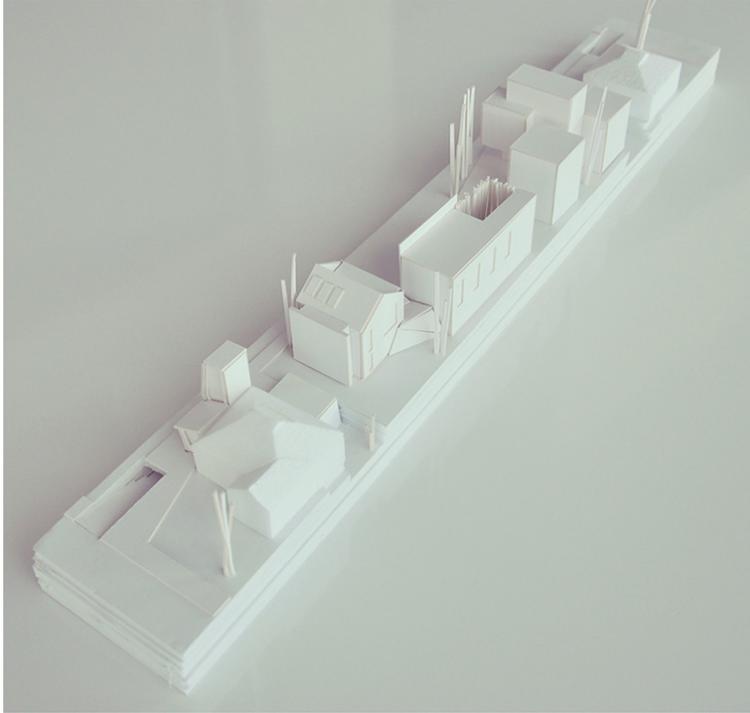
Polemic three storey development.

Design testing by
Claire-Marie McQuillan



Elevated design study.

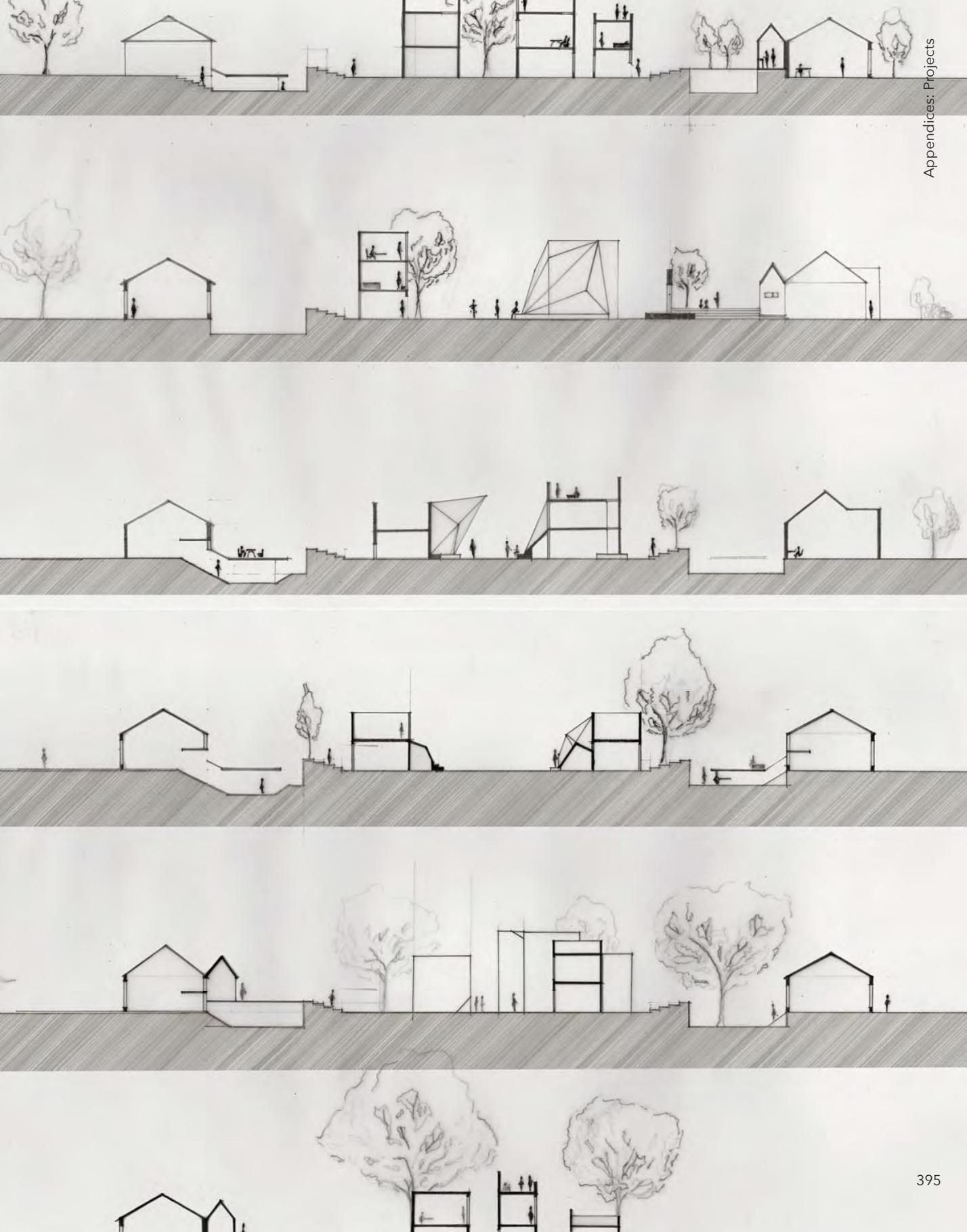
Design testing by
Mark Frost

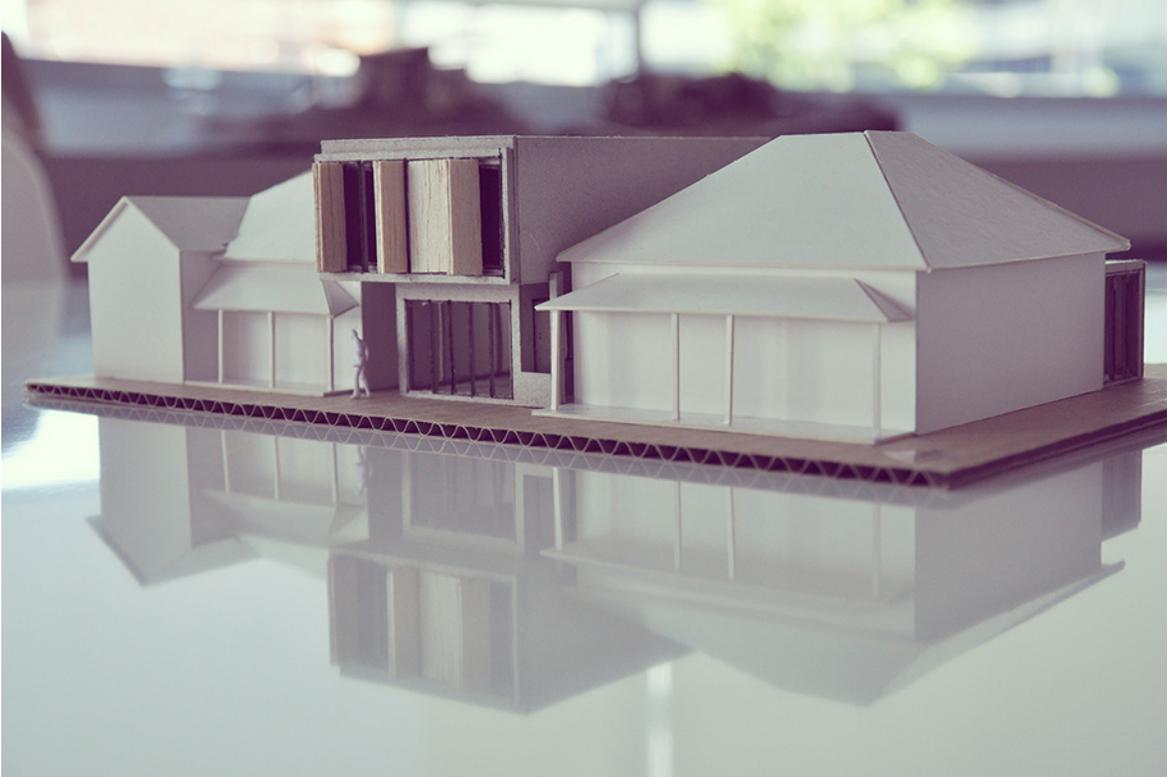


Semi-basement studies.

above: design testing by
Ben Mammone

facing page: design testing by
Michael Barilla, Talullah Barker-
Gale, Evelyn Makris and
Ben Mammone

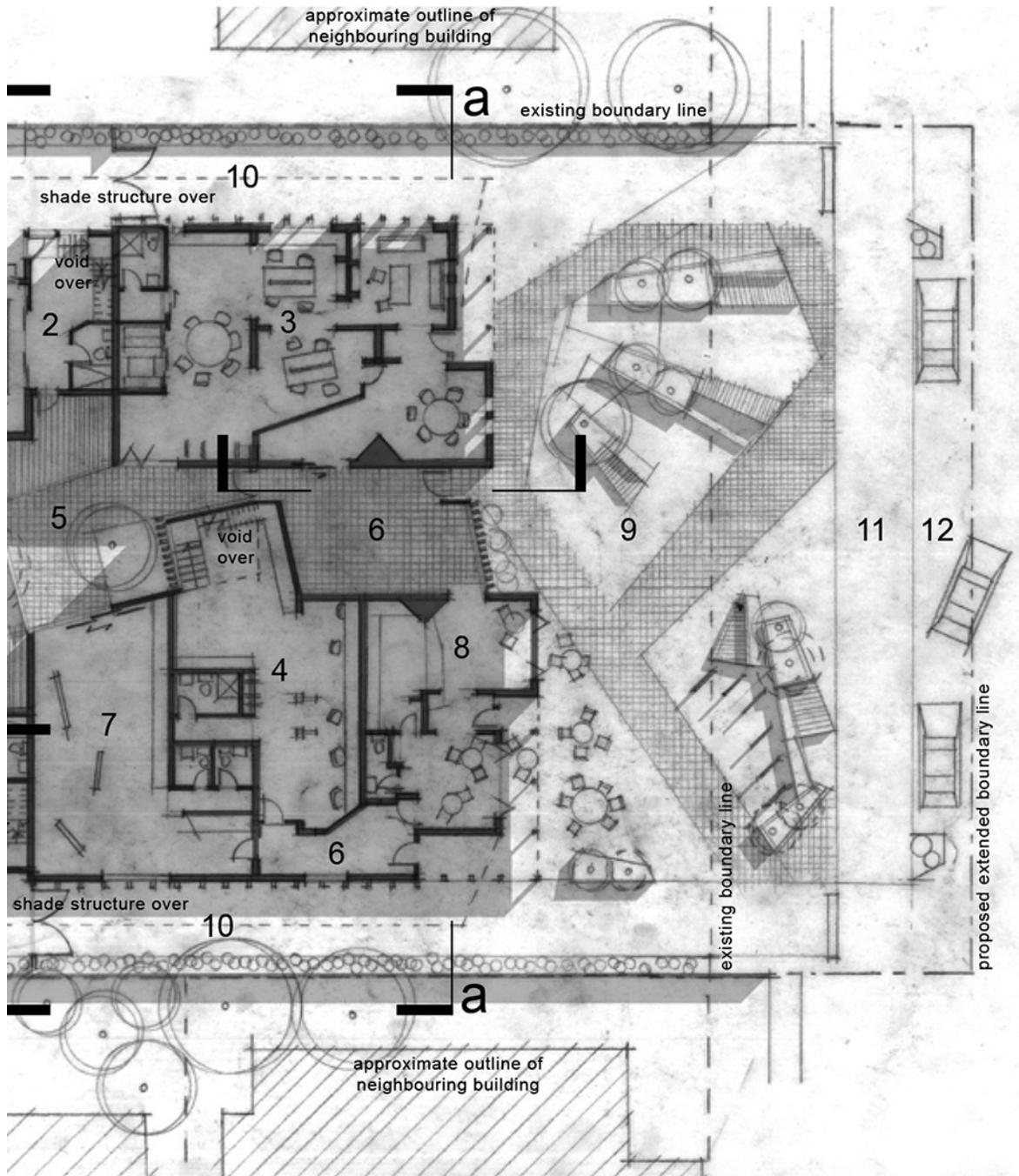


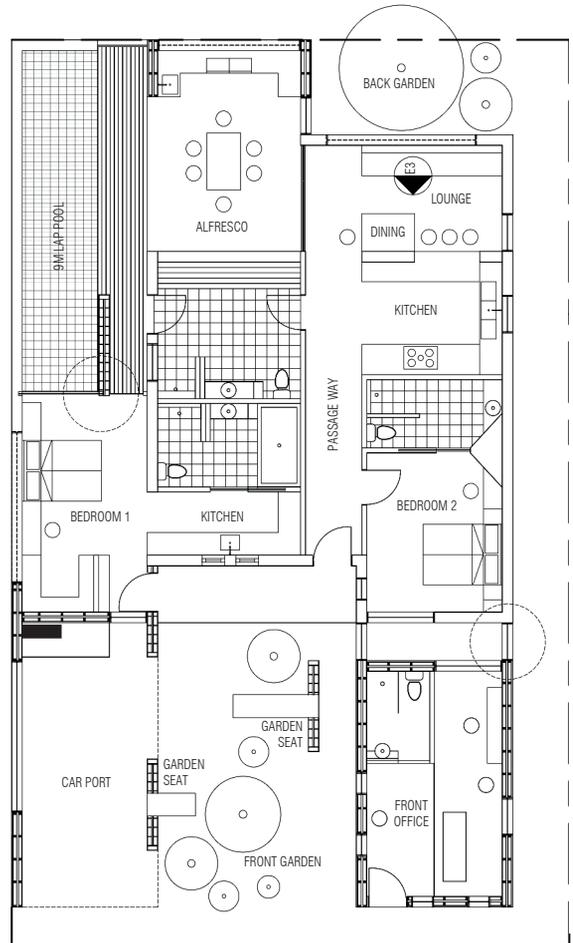
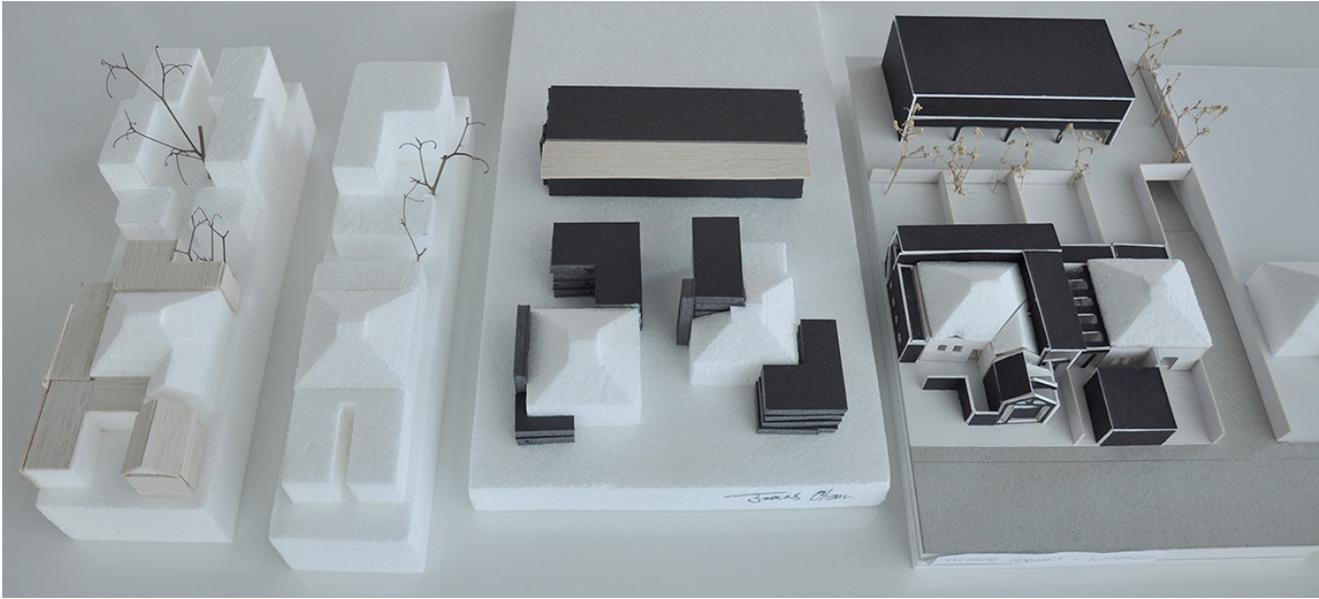


Walkway / carriage lane
intensification studies.

above: design testing by
Shiwen Yeo

facing page: design testing by
Christopher Hill

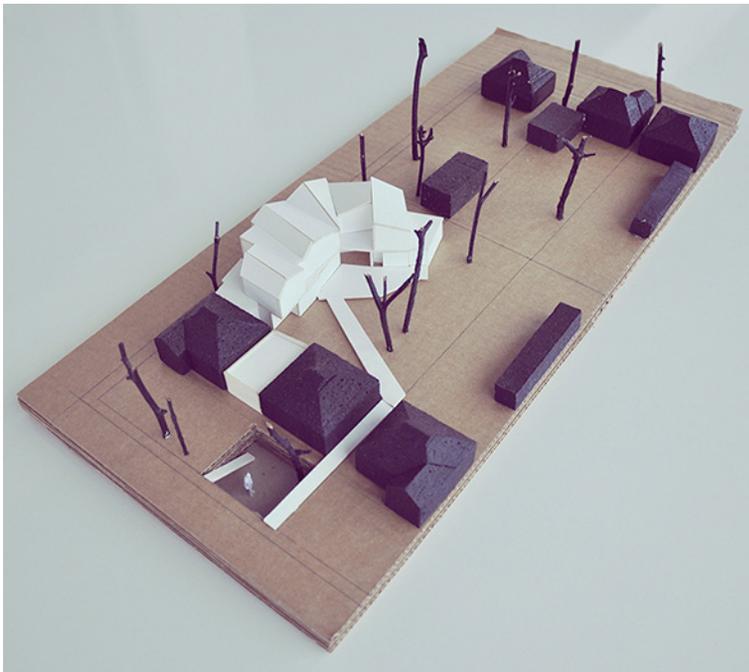
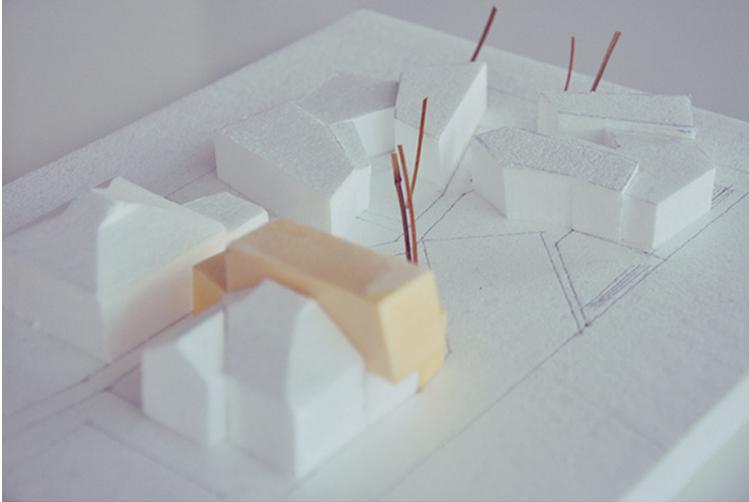




Front yard intensification studies.

above: design testing by
Craig Williams
(left and second from left),
Jomas Chung Ming Chan (centre)
and Patrick Holmes (right)

right: design testing by
Craig Williams



Lateral courtyard studies.

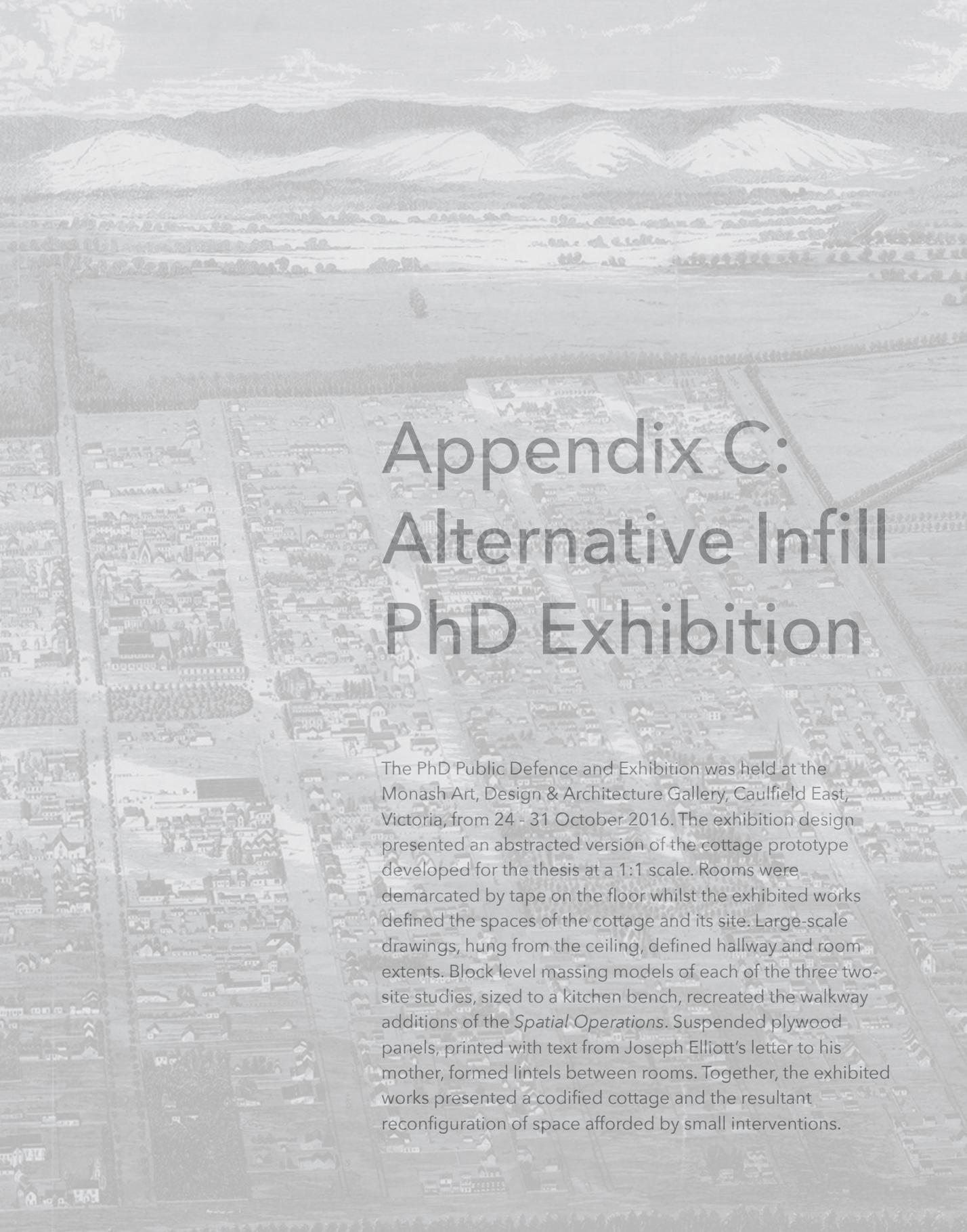
top: design testing by
Wei-jung Hsu

left: design testing by
Nicholas Parker



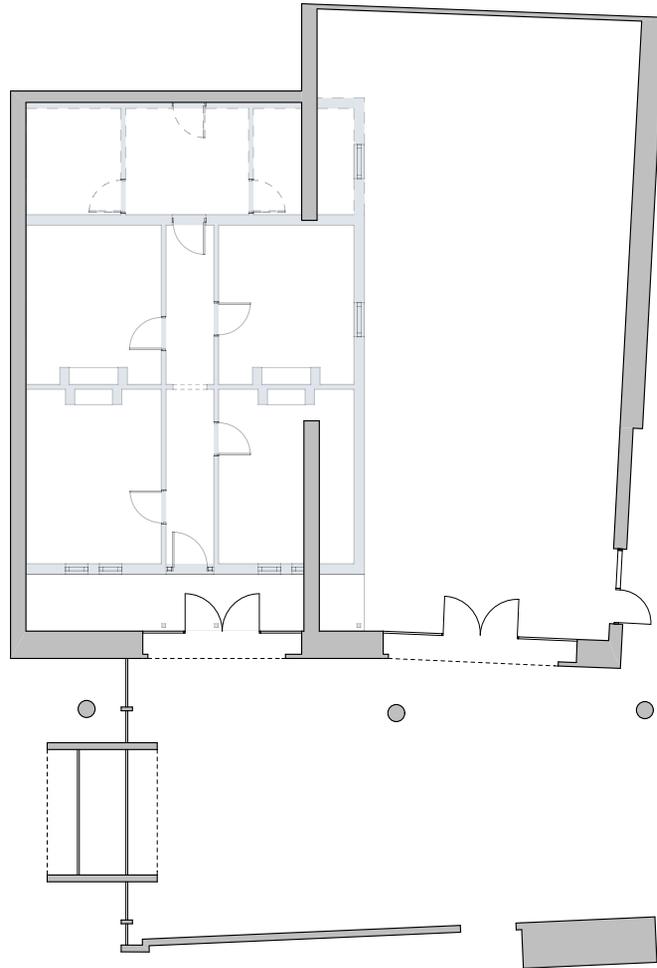
Thomas Peirce:
Adelaide 1875 (detail)

source: sahistoryhub.com.au/map-and-plans

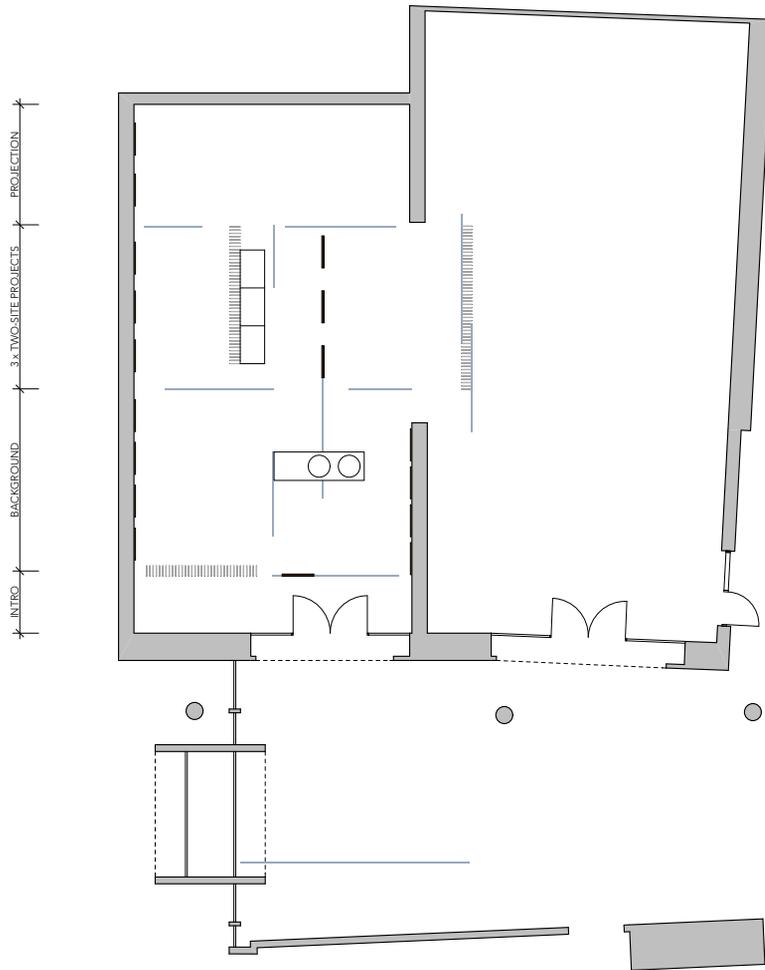
The background image is a grayscale aerial photograph of a city grid. A large, rectangular area in the center of the grid is highlighted with a semi-transparent white overlay, indicating the location of the exhibition. The city streets are clearly visible, and the surrounding landscape includes some greenery and distant hills under a cloudy sky.

Appendix C: Alternative Infill PhD Exhibition

The PhD Public Defence and Exhibition was held at the Monash Art, Design & Architecture Gallery, Caulfield East, Victoria, from 24 - 31 October 2016. The exhibition design presented an abstracted version of the cottage prototype developed for the thesis at a 1:1 scale. Rooms were demarcated by tape on the floor whilst the exhibited works defined the spaces of the cottage and its site. Large-scale drawings, hung from the ceiling, defined hallway and room extents. Block level massing models of each of the three two-site studies, sized to a kitchen bench, recreated the walkway additions of the *Spatial Operations*. Suspended plywood panels, printed with text from Joseph Elliott's letter to his mother, formed lintels between rooms. Together, the exhibited works presented a codified cottage and the resultant reconfiguration of space afforded by small interventions.



Alternative Infill's cottage prototype, described in Chapter 2, overlaid at a 1:1 scale in the MADA gallery



Alternative Infill exhibition design:
the exhibited works as a
codified cottage



Alternative Infill exhibition,
MADA gallery, 24-31 October 2016



Alternative Infill exhibition,
MADA gallery, 24-31 October 2016



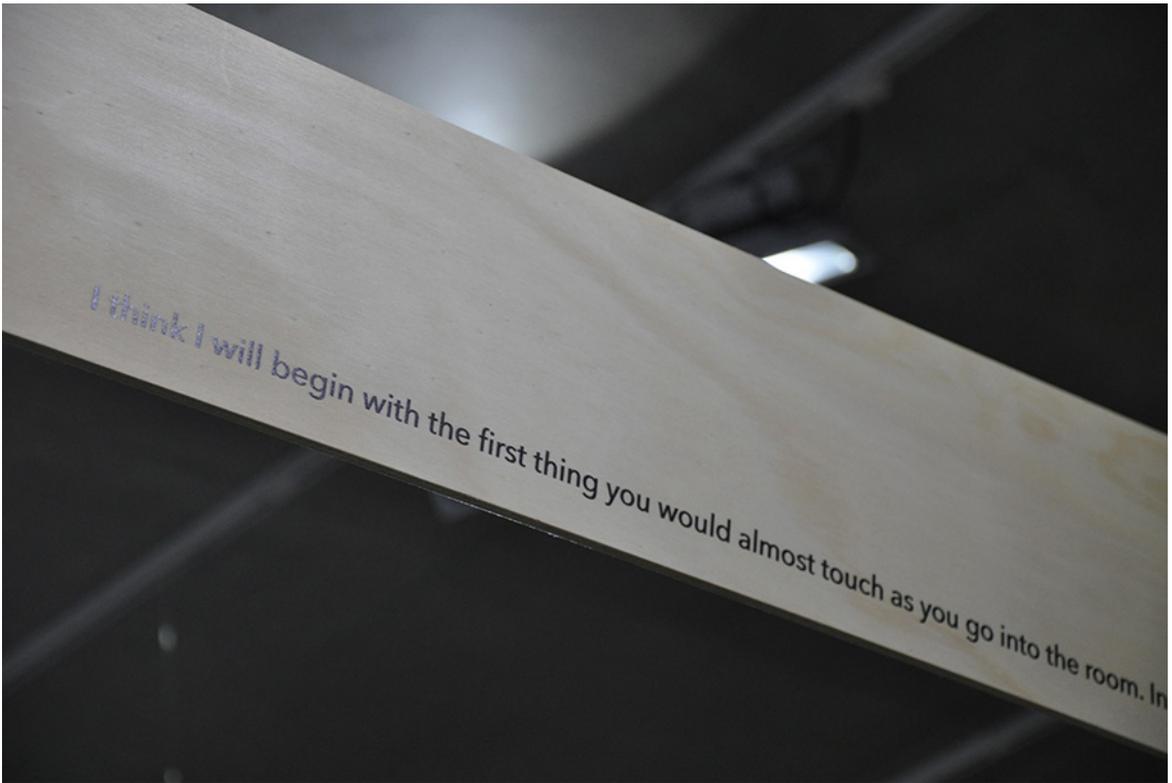
Alternative Infill exhibition,
MADA gallery, 24-31 October 2016



Alternative Infill exhibition,
MADA gallery, 24-31 October 2016



Suspended drawings delineating the line of the central hallway walls in the codified cottage



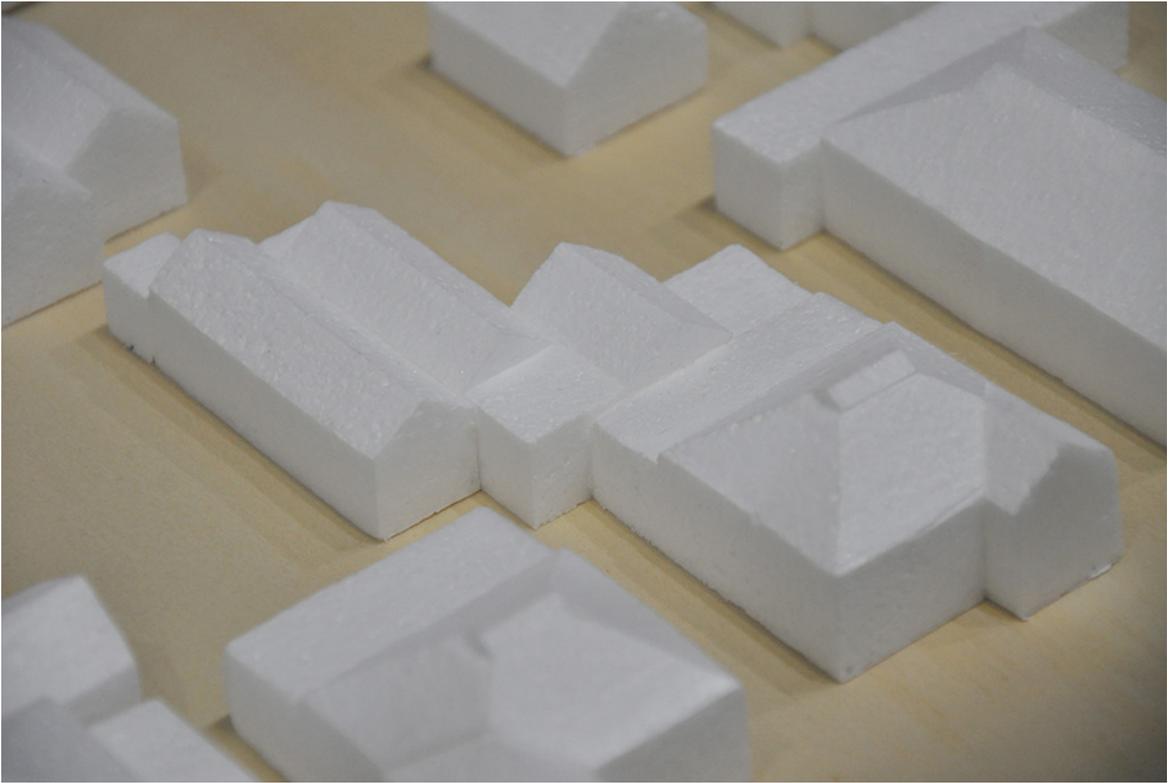
A suspended timber 'lintel' connecting rooms, with accompanying text from Joseph Elliott's letter to his mother (refer Chapter 2)



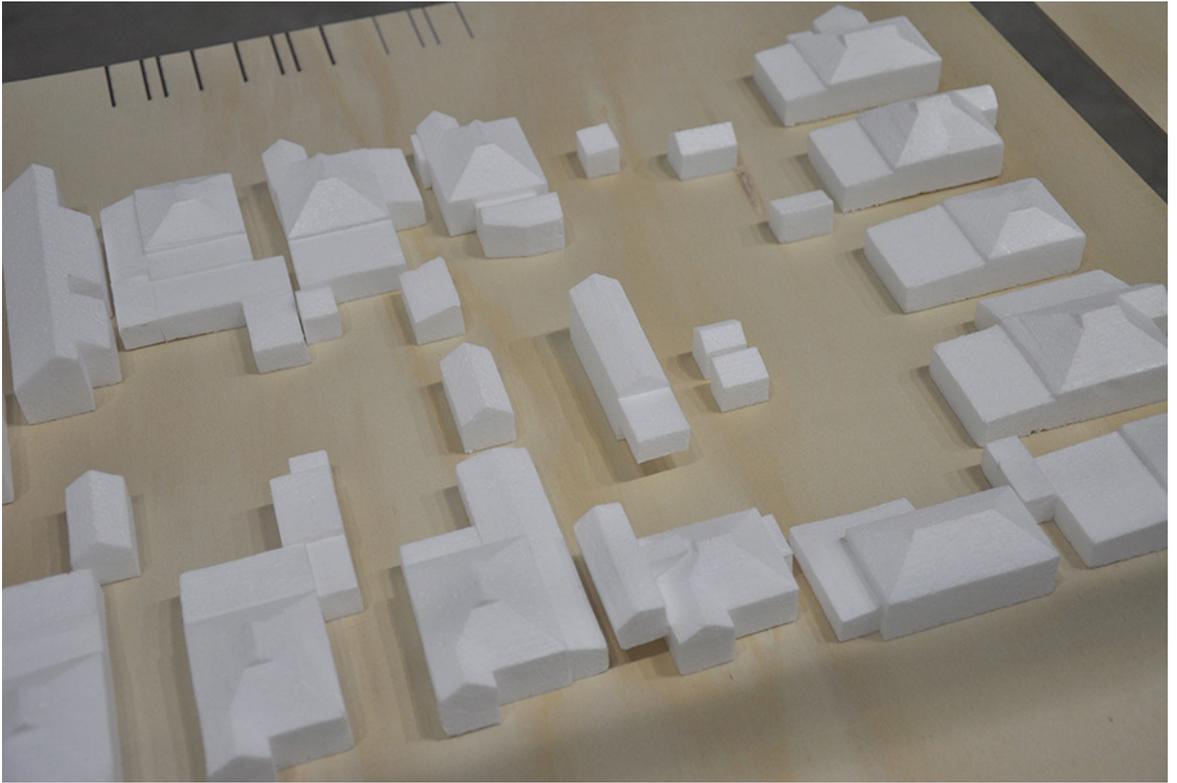
Adelaide's Inner Metropolitan Growth Area map recreated as a relief model



Massing models of the three detailed two-site speculative studies, arranged as contiguous neighbourhood blocks demonstrating the range of *Commonly Accepted Anomalies* and suburban ubiquity (refer Chapter 2)



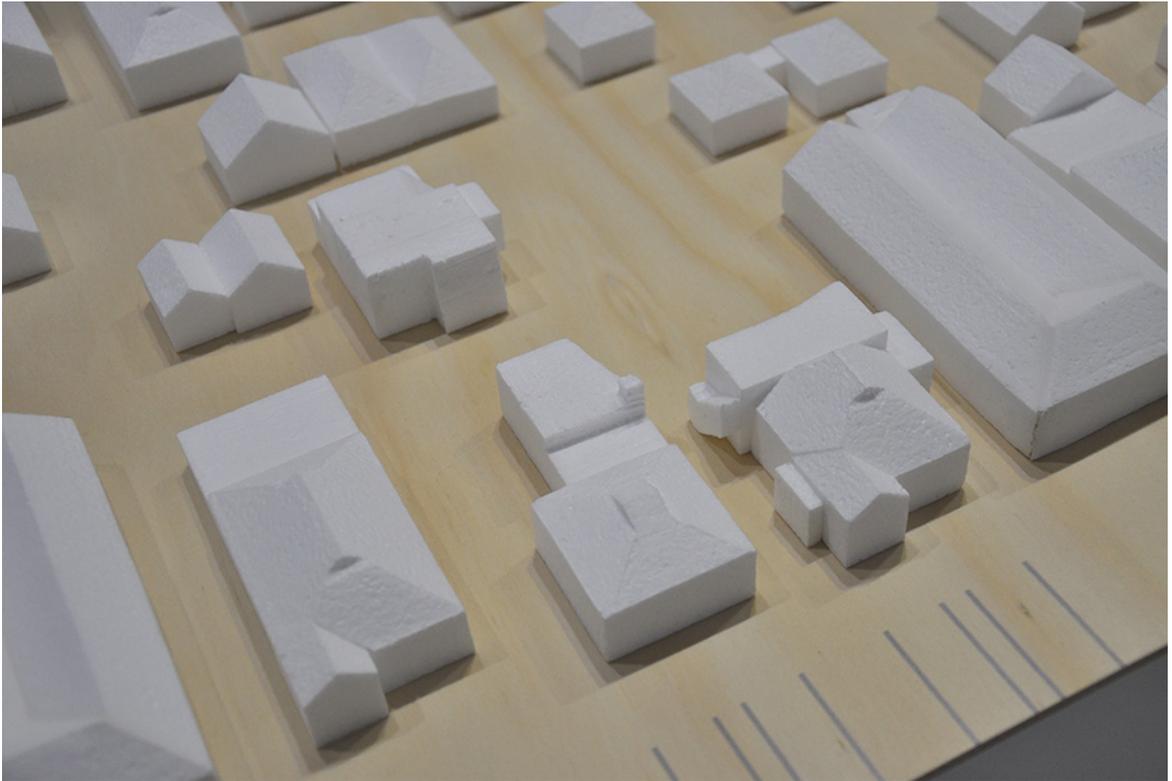
Commonly Accepted Anomalies
(refer Chapter 2)



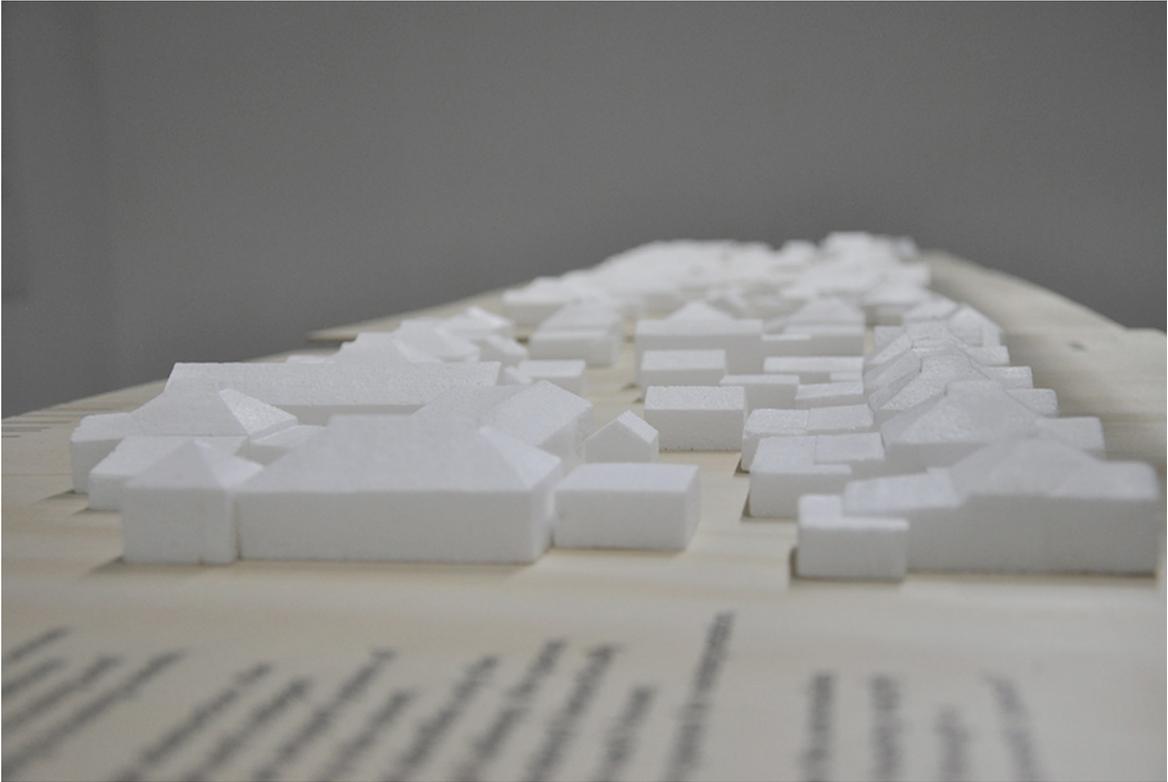
The Mile End speculative study
(refer Chapter 4)



The Prospect speculative study
(refer Chapter 4)



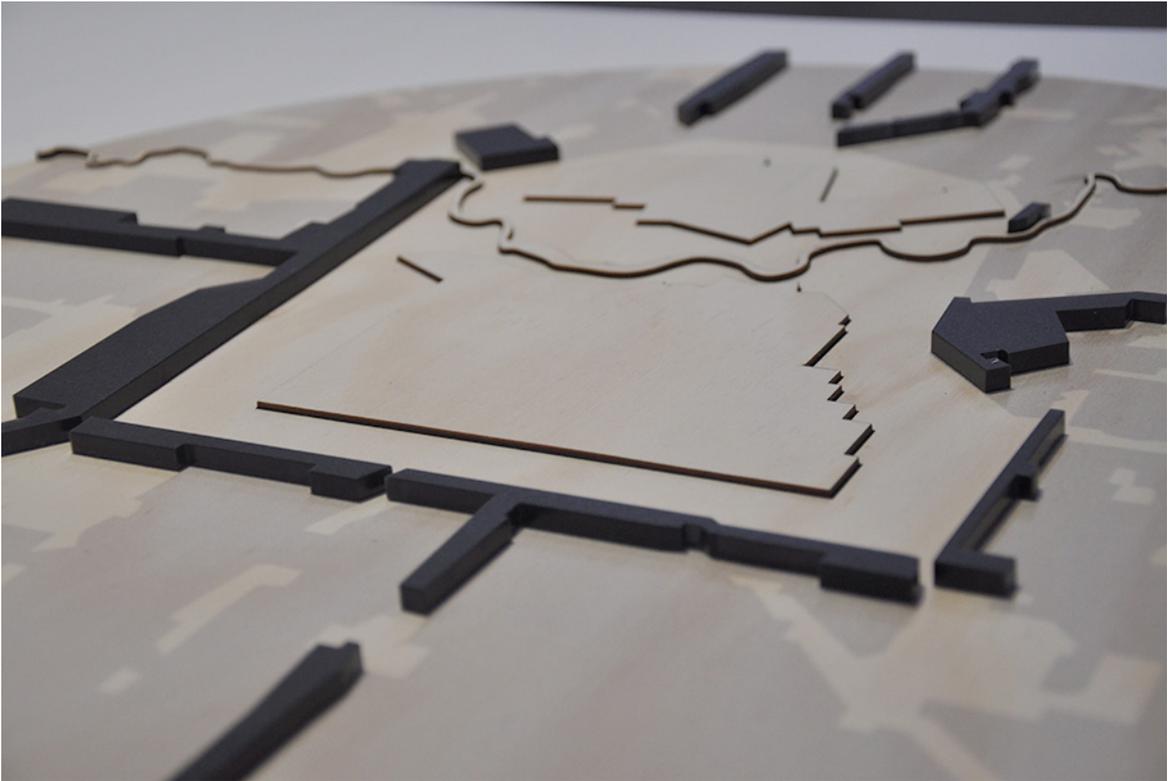
The Unley speculative study
(refer Chapter 4)



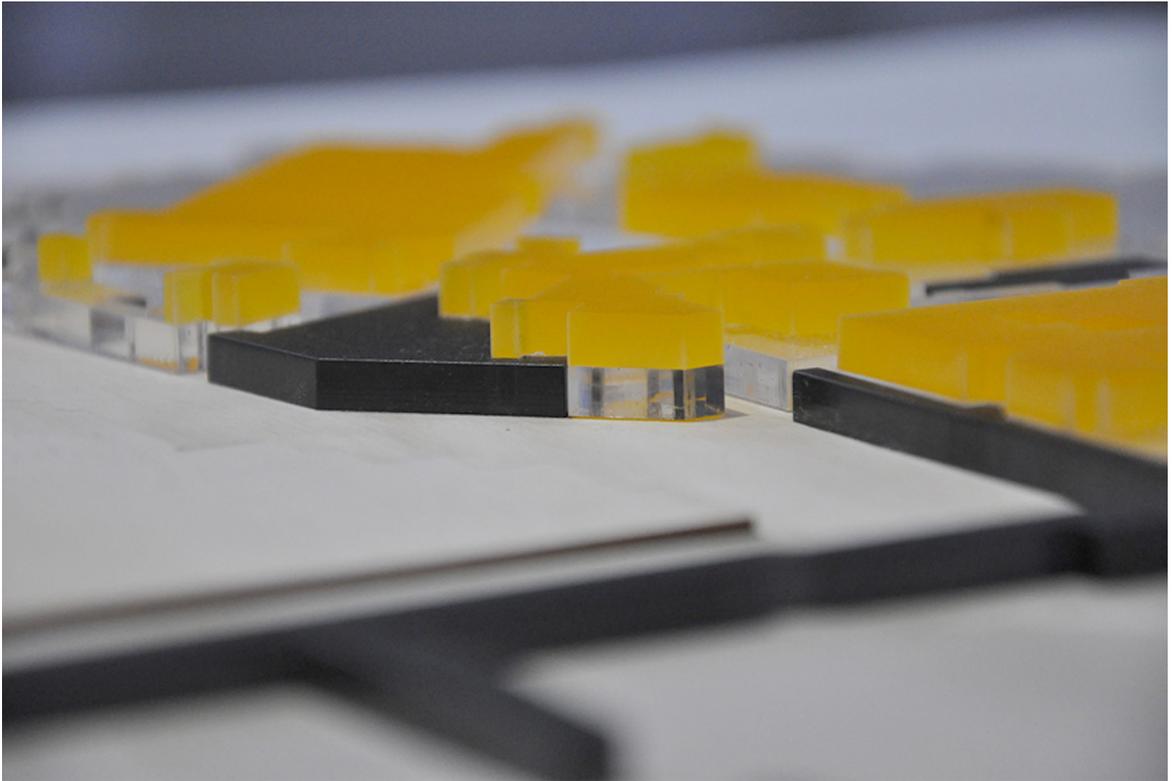
Massing models of the three detailed two-site speculative studies, arranged as contiguous neighbourhood blocks demonstrating the range of *Commonly Accepted Anomalies* and suburban ubiquity (refer Chapter 2)



The speculative two-site studies
(refer Chapter 4)



Adelaide's Inner Metropolitan Growth Area map recreated as a relief model: the Government's proposed medium-density transit corridors are shown in black with existing residential areas in grey



Adelaide's Inner Metropolitan Growth Area map recreated as a relief model: making the drawing three dimensional and inverting the hierarchy shifts the emphasis of the discussion from transit corridors (black) to the existing residential areas (clear) and heritage and character zones (orange)

