Urban Ensembles: An integrated approach to design in steep, urban environments

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Urban Ensembles
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Abstract

Urban Ensembles explores the way in which landscape and architecture can be employed together within the design of a steep, urban site.

Lyttelton is a small port town on the border of Christchurch, settled in the foothills of a harbour formed by a major volcanic eruption. This rugged setting, with steeply sloping urban terrain, presents an interesting challenge when designing an urban development.

The site was badly damaged in a series of earthquakes in 2010-2011, and many of the town’s oldest buildings, heritage structures dating back to the colonial settlement era, were destroyed. This has left a void in the heart of Lyttelton, and caused the loss of much of the tourism business that the town relies upon for its income.

This thesis takes a methodological approach to the design of landscape architecture on such a challenging site. A range of techniques are explored, drawing from both landscape and architecture to explore the roles that each discipline plays in the design of urban spaces. The frequent imbalance between disciplines is addressed both through the literature review and design method, as this landscape architecture thesis draws on architectural design as a tool for generating spaces which fall somewhere in between the two ideals of interior and exterior.

The final design proposal is an alternative rebuild plan for the central business area to the south of London St, and also addresses the relationships between that site and the surrounding context, both urban and environmental. The aim of this design is to create a series of interconnected spaces which have a strong relationship to the surrounding harbour setting, and also to facilitate development of the pedestrian spaces throughout the block and encouraging the development of activity at the street level, through the interface between buildings and landscape.
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As a Christchurch native living in Wellington, I have a deeply personal interest in the rejuvenation of Lyttelton. I spent large parts of my formative years there, exploring the hillsides above the town, watching shows at the Harbourlight Theatre, El Santo (both now demolished) and the eclectic Wunderbar (still open).

While the Christchurch City Council acted quickly in formulating a design masterplan for the Lyttelton rebuild, and they actively engaged the public in soliciting suggestions for how the rebuilt town should look and feel, this plan is still restricted by a set of very pragmatic conditions. Pressing, short-term economic needs demanded that businesses be re-housed as soon as possible, to prevent those businesses being lost to other, immediately available locations.

The council has expressed interest in compulsory acquisition of some land, or offering incentives to businesses for redeveloping collaboratively, in order to restructure the town’s fabric in a more diverse and pedestrian-friendly manner. However the masterplan is still very much based on the existing arrangement of land parcels, and relies on easements and concessions from businesses to make more efforts to open up back-of-house areas to encourage site permeability.

Finally, the design restrictions in central Lyttelton are severe, and based on a set of conditions which have largely disappeared over the past two and a half years. These design guidelines are fiercely protective of any building deemed to be ‘heritage’, and require anything built within the central business area to conform to a strict set of conditions. These conditions are very specific about height, overall scale, materials, form, weather protection provisions and parking, but they make little-to-no mention of the natural context of Lyttelton, or of the functionality of the town centre as a system; each building consent is treated as an isolated unit that must only meet those narrow criteria to be considered. They have no focus on improving or developing the town as a holistic entity, only in maintaining the aesthetic of a ‘heritage settlement’.

I strongly question the legitimacy of this attitude, particularly after the loss of so much of the town’s built form. Yet even before the earthquakes, these restrictions were preventing Lyttelton from developing and reaching its potential as a truly thriving, vibrant and diverse community. The official masterplan offers residents and business owners a sense of stability and a few interesting details on a very conservative template; this thesis offers a bolder interpretation of Lyttelton’s future, one with an improved public environment and better private/economic conditions.

N.B. The council has acknowledged (midway through this thesis) that elements of the design guide are no longer relevant, yet they are bound by the district plan as it is a statutory document. I am free from those restrictions, and where appropriate I have used my informed judgement rather than simply following the plan.
Fig. 2. Lyttelton Township.
1 Introduction
Fig. 3. Lyttelton Library. Top Left. Image from Christchurch City Libraries.
Fig. 4. Harbourslight Theatre. Top Right. Image from Graham Beattie.
Fig. 5. Timeball Station, damaged. Bottom Right. Image from www.heraldsun.com.au
Fig. 6. Union Parish Lyttelton. Bottom Left. Image from Otago Daily Times.
1.0 Introduction

1.1 - Motivation & Project Background

Lyttelton is the port settlement for Christchurch, and a key infrastructural asset for the South Island’s largest city. The town sits in the foothills of a major volcanic crater, which forms the Lyttelton Harbour. Separated from Christchurch city to the North by the Port Hills, Lyttelton has a small permanent population of around 3,000 people, with a regular fluctuation due to the maritime industries which provide much of the town’s revenue.

The main industries in Lyttelton are shipping and tourism, with tourists travelling into the town via Christchurch as well as arriving directly via cruise ships at the Lyttelton Port. There is a high proportion of well-preserved, historic architectural and landscape features in Lyttelton, and the town has proudly displayed these as a major part of its tourism strategy for several decades. The accumulated heritage of over a century of settlement includes a variety of colonial architectural styles, and public infrastructure such as the retaining walls and open stormwater drains made from red Scoria rock which was quarried locally, from Quail Island, in the Lyttelton Harbour. The small population has allowed Lyttelton to develop a distinct identity, drawing on its relative isolation from its Christchurch neighbours to host regular farmer’s markets, community events and a lively performing arts scene, with a number of popular venues in central Lyttelton.

1.1.1 - 2011 Earthquake

After weathering a major earthquake the year prior, with only relatively minor damage, in February 2011 Lyttelton was rocked by a second major earthquake, this one a 6.3 magnitude which devastated the centre of the town. Lyttelton suffered severe damage, with the majority of the buildings on the block between London St and Norwich Quay suffering irreparable damage (link to damage analysis further in document). Many prominent and/or historical buildings were lost as a result of the quake, and the efforts of local groups to quickly erect some transitional structures, Lyttelton has lost a great deal of its built fabric, its physical heritage, and its business space, as well as the loss of much of what was considered to be integral parts of the town’s physical identity.
1.2 - Design Project

This thesis proposes an alternative design framework for the rebuild of Lyttelton. Defining the site in strict parameters is difficult, as there are elements to the design scheme which fall within retained elements of the existing town, such as the northern side of London St. However, a rough description of the site extents would be the city block bound by London, Oxford and Canterbury Streets, and Norwich Quay to the south, as well as several damaged sites on the North side of London St.

The design scheme features is presented across a range of scales, from a schematic framework for the layout of greater than a city block, to the detailed design of individual architectural elements. There is a range of cross-disciplinary work: urban planning, landscape architecture and some preliminary architecture studies, including specifications for new building development on site: location, floor dimensions, suggested uses, and aesthetic/form guidelines. While specific building designs would be developed by individual architects, these plans are indicative of the qualities of space and form for the architectural design.

This thesis will address pragmatic concerns, but is not bound strictly by the same requirements that would be in place for a real design brief. It is a forward-thinking plan that aims to provide a future for Lyttelton as a vibrant destination.

1.3 - Research Question

How do landscape and architectural ensembles address design on a steep, urban site?

This design study has a great deal of complexity which comes from its physical and cultural context: design upon a steep urban site, at a mid-level scale. This is challenging because of the extensive range of factors that impact the situation, from the requirements to work within the scale and character of the existing fabric, the aim to re-subdivide the land parcels for a more permeable and diverse urban environment, the close proximity of residential neighbourhoods to the central business area, the outstanding natural character of the surrounding environment and the nearby port infrastructure, among others.

All of these factors combine to provide a unique urban situation that raises a design problem with a lot of relevance across the broader discipline of landscape architecture. Much of the following research is dedicated to developing a design language and process suitable for working in this cross disciplinary environment.
Volumetric Design
Irresistible Decay
Early Preoccupations
Container Urbanism
Lebbeus Woods
Esther Charlesworth
Aldo Van Eyck
Making of Hong Kong
Jane Jacobs

Parallax

Context
Scale
Density
Topography
Movement & Permeability
Integration of Landscape and Architecture

Linda Pollak:
Linda Pollak:
Constructed Ground

Literature Review Process
“Architecture is viewed not as an object but as a device that can transform an urban landscape.”

Linda Pollak
‘Constructed Ground, Pg 127’
2.0 Positioning & Literature Review

Lyttelton is a town which shares characteristics of many different situations:

- A small, seaside settlement with unique architectural history.
- A strong relationship with the harbour and its related maritime industries.
- Striking, natural environmental features.
- A desire to reshape itself as a future centre for technical innovation.
- A historic area dealing with loss of built identity as a result of major damage via natural disaster or conflict.
- An urban area built on steep topography.

Each of these aspects adds complexity to the particular challenge of designing in Lyttelton, and also adds depth to the research and makes it relevant to the broader discipline. While there will not be another situation that exactly mirrors the full set of circumstances here, the aim is to derive a set of principles from this research that can influence the design of spaces in other locations that face similar challenges.

This chapter contains a review of the material which acted as a catalyst for the development of both the research question and the design brief itself. First is a selection of key written works, which framed the primary issues within the research. The following section includes secondary sources, which at early stages in the research, had strong relevance in informing the direction of the design. These include pieces on treatment of ruins and historic architecture in disaster-damaged environments, and the role of modular or container-based in forming a new urban fabric. These ideas became less central to the thesis throughout the research process, but were integral in the early direction of the design.

After the literature reviews is a series of case studies, firstly looking at projects with significant relevance to the research, and then analysing specific design elements or spatial relationships in order to gain an understanding of the requirements for designing in a steep, urban environment such as central Lyttelton. The final section contains a series of preoccupations or questions which do not fit within the broader research scope, but were important in the development of my understanding of the design. They have been collected in this section and each is discussed briefly.

Through a series of phases of research and iterative testing, a set of design principles was derived to base the design on.
This paper explores literature and design theory which address the relationship between architecture and landscape, and the importance of balance between the two disciplines, particularly with regard to urban spaces. The ability to see the landscape as an integral part of the architectural space is key to the development of designs which reflect the context within which they exist.

It will do this through review of literature focussed on Constructed Ground, Volumetric Design, Parallax and Urban Diversity among others, and through critical analysis of design, in order to explore how landscape and architecture ensembles can address the design of a steep, urban site in a way that reflects the context of the place.

2.1 - Primary Sources

2.1.1 - Constructed Ground: Emphasising the Ground Plane as a Design Tool

There is a theory emerging from within the field of landscape urbanism that looks to increase the consideration given to the ‘ground’ within design planning. The ‘ground’ representing the space outside of what is generally considered Architecture: the Landscape. By treating a building as an object within a sterile environment the designer seeks to impose their own creative will on their work, and there is a sense that if the aesthetic is similar to other buildings nearby then this forms a sense of place. This belief is an extension of the tools of juxtaposition common in architecture: figure/ground, architecture/landscape, object/space, and it tends to disregard the pre-existing qualities of the landscape.

“This persistent blindness [to landscape] is evident in... the figure ground plan, which fails to engage the material aspects of a site, representing the ground as a void around buildings. This convention is part of a historically embedded oppositional system of thought... which foregrounds the construction of the first term while naturalizing the second as unproblematic background. The tendency is to view the second, ‘environmental’ term, as an abstract container, separate
from the objects and events that occur within it.”¹

Linda Pollak believes that there is a fictionalised nature which planners and architects often imagine as they place buildings upon a site, and that this position implicitly fails to acknowledge or address the complexities of the urban environment. This lack of contextual awareness has lead to the design of a community in Lyttelton which serves as a copy of the design and planning trends of 20th Century England, with only the locally sourced materials serving as any indicator that this place is separate from any other Anglo-Saxon settlement.

Constructed Ground seeks to restore balance to the urban design process by “[engaging] architecture... by challenging architectural conventions of closure and control”², which implicitly disavow knowledge of the complexities of urban reality.

“In this context, architecture is viewed not as an object but as a device that can transform an urban landscape.”³

“The objective of Constructed Ground is to engage and focus on these environmental terms in a way that exceeds the oppositional system that continues to contain them. Constructed Ground represents a hybrid framework that crosses between architecture, landscape architecture an urban design, to engage the complexity of the urban landscape. This framework invests in the ground itself as a material for design, using landscape as both a structuring element and a medium for rethinking urban conditions, to produce... urban spaces that do not exclude nature.”

“This goal is to address simultaneously the concerns of architecture, landscape, and city, without having one or more recede in importance as would happen in a conventional disciplinary framework.”⁴

This ideology incorporates elements of ‘bottom-up design’, which seeks to oppose the sterility and contextual void that often accompanies top-down master planning, as a result of being distanced from the subject matter by working at large scales. This raises the other key aspect of Constructed Ground: the ability to work across scales from broad and process-based to intimate and site-specific.

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1. (Pollak, 2006) - pp. 127
2. Ibid.
3. Ibid.
4. Ibid.
Fig. 10. Marpillero Pollak Architects: 'Beyond The Box' Project.

These images show Pollak's approach to design through exploring the influences on a site at a variety of scales.
Pollak suggests that working across scales reveals relationships which play important roles in the formation of a site, yet are often invisible at the scale of the site itself. These relationships function “across a range of formal, ecological, social and other criteria.” The ability to work across scale allows the design in factor in the wider natural and cultural contexts of Lyttelton, and to better understand the processes which have lead to the formation of the town as it existed pre-quake. This understanding will be crucial in the design of a scheme which serves the needs of the wider community while also creating interesting spaces at the human scale, which connect people with their immediate cultural and natural environment.

Landscape, as a frequently public discipline can engage with multiple businesses without bias, while architecture, in service of a private client, often neglects the context in which it sits as part of a broader system. For example, the proximity of the port to Norwich Quay brings noise and visual clutter to the streetscape, as well as preventing one side of the road from having any active functions at street level. This weakens the ability for the street to generate an atmosphere conducive to pedestrian life, and so it has developed a typology of industrial buildings, faceless offices and generic retail without any significant street presence. It also contributes to the lack of connection between Norwich Quay and London St through the centre of the block.

A strength of the ‘Constructed Ground’ approach is the ability to mediate between these disciplines to reach mutually beneficial outcomes. Understanding that the success of Norwich Quay is related to the quality of space at the interior of the site, and also to London St, the design approach is to redesign both of these areas with a view facing both inwards and out, creating a new environment at the centre of the site, and improved quality of space across the whole site.
Spatial diversity increases movement through site, and improves permeability through buildings.
2.1.2 - Urban Diversity

“There is no logic that can be superimposed on the city; people make it, and it is to them, not buildings, that we must fit our plans.”

Despite being written over 50 years ago, Jacobs’ *The Death and Life of Great American Cities* remains an important reference point for the redevelopment of urban neighbourhoods. *Death and Life* shows a strong opposition to the top-down, rationalist planning tendencies that Pollak despises, and is particularly critical of the segregation of uses that modernist planning is based upon, which she believed created isolation and destroyed community. Written in reaction to the “devastating results of post-war urban renewal”, Jacobs’ position is that community is characterised by layered complexity and organic development of functions. She particularly focuses on four urban conditions as indicators of urban quality: **Density, Permeability, Mixed-Use Buildings and Buildings of Various Age and Condition.** The aim of these conditions is to create communities at the human-scale, prioritising pedestrians and public transport.

“The ballet of the good city sidewalk never repeats itself from place to place, and any one place is always replete with new improvisations.”

While Jacobs was vigorously opposed to mid-20th Century urban renewal through compulsory acquisition, this was largely in response to the removal of local communities, minorities and the poor, in favour of higher-income developments and big-business. The redevelopment of Lyttelton inevitably resembles urban renewal due to the reshaping of the town’s urban fabric, but compulsory acquisition is merely a tool, and when wielded responsibly it can be a force for positive change in the urban realm.

“In real life only diverse surroundings have the practical power of inducing a natural, continuing flow of life and use.”

The loss of so much of Lyttelton’s urban form makes the gradual development of a central neighbourhood

6. (Jacobs, J. 2006)
7. (Wendt, J. 2009) - pp. 4
8. (Wendt, J. 2009) - pp. 1
9. (Jacobs, J. 2006) - pp. 150
10. (Jacobs, J. 2006)
11. Ibid
impossible. Over 75% of the buildings within this thesis study site require demolition, so the idea that the town can be rebuilt as it was is a fallacy. Any new buildings would be replicating the aesthetic of the old ones without the original context, so instead, this thesis proposes the establishment of a new framework for development based on the principles that Jacobs believed.

“[Jacobs] never intended her ideas to be applied to smaller suburban settlements. She was writing only about big cities, with all their native grit and mess.”

This new proposal will focus on increasing urban density, but at a low-to-mid-level scale in keeping with the character of Lyttelton. It provides adequate car-parking, yet focuses on walking and public transport, with high-quality public spaces dedicated to bus stops, and the development of a series of laneways and open spaces to create a community within the public realm that features a strong connection to its surrounding context. While it is difficult to have buildings of various age and condition after the earthquake, the proposal has kept key structures and formal arrangements from the existing town - retention of the Wunderbar, and replication of the scale and typology of London St. It aims to retain and attract local businesses rather than encouraging chain stores, establish new residences to cater to existing residents, and keep a fine grain of built form to enable organic development over time without major reorganisation of the urban space - enabling buildings to essentially plug in and out of the wider fabric.

12. (Jacobs, K. 2006)
2.1.3 - Volumetric Design

"It is multiple activities and good connections between multiple levels that bring liveliness or ‘intensity’"\(^{13}\)

Hong Kong is a monumental city, with the greatest number of skyscrapers in the world.\(^{14}\) Lyttelton, with its population of just 3000, and a height restriction of just a handful of storeys, would seem to have little in common with the skyscraper capital. Yet *The Making of Hong Kong: From Vertical To Volumetric City* provides a blueprint for intensifying development in a way which has the potential to enhance public life while also providing much needed economic growth for the small town. This approach is through volumetric design principles.

The volumetric design strategy for Hong Kong is based on three criteria which can be replicated in an abstracted way in Lyttelton.

These criteria are:

- verticality
- layering of functions
- strong connectivity.

By applying these criteria within the context of Lyttelton, the thes\(\text{is}\) proposal can increase the density of the site considerably, thereby providing economic incentive for redistribution of land parcels on site, and increasing the public presence through greater density of built space - residential, retail, commercial developments will all be layered through the new urban fabric.

Research includes a study of the pre-existing urban condition of Lyttelton, which recorded the use and floor area of every building within the design site. The new proposal has successfully accounted for the replacement of every activity within the new scheme, by increasing building density on site and layering multiple functions within the same structures, with each business or residence receiving equal or greater floor area within the new design. In addition to this, there is almost a 100% increase in usable floor area above the original total: from 10,995m\(^2\) to 20,499.5m\(^2\).

\(^{13}\) (Chau, 2011) - pp. 97

\(^{14}\) (Chau, 2011) - pp. 96
Fig. 13. Layering Functions.
By increasing building density and adding layers, mixed-use buildings can develop through the site.
With an increase in internalized movement and activity, there is potential for degradation of the public street environment.\textsuperscript{15} However, the small scale of Lyttelton works to prevent the formation of internalized super-structures. Instead, this design remains faithful to the fine grain of Lyttelton's existing London St CBD, merely extending that typology throughout the site. Connecting pathways are included both between and within buildings, with a number of new laneways providing a massive increase in active edge space for business growth.

The site's steep topography allows for easy movement at grade from the street or laneway on a northern edge, and out onto a raised level at the other, providing interesting perspectives on the street life, and unobstructed views of the surrounding harbour landscape. The laneways running at ground level encourage this movement and function as a 3-dimensional lattice for hassle-free movement across the site and between levels.

The increase in density also justifies the establishment of a large, public open-space at the western edge of the site. Lyttelton previously lacked such a space in the central township.

It is the development of activity at the ground level and in the public realm which differentiates well-received public designs from those which develop reputations for sterile and unpleasant environments. By putting in place a framework for complex and layered spaces, this thesis proposal allows for the continued development of community life in Lyttelton. The town already has a tightly knit community, and the aim for growing this is to provide the site with enough spatial variety that it can cater to the future needs of that community, whatever they may be.
Fig. 14. Parallax, page 8. Above Left.
Fig. 15. Parallax, page 3. Above Right.
2.1.4 - Parallax

Space is always experienced through relatively, though a specific perspective, and in an urban environment where verticality is prominent throughout, the experience is very different from the top-down view of the urban planner. In Parallax, Steven Holl challenges the notion of design through plan, then section and finally projecting into perspective views to provide impressive presentations. He proposes that the urban condition particularly - with its prominent vertical element - is better served through designing via perspective glimpses of space, crafting a series of experiential moments which are linked together in sequence, in the same way that individuals experience space.

The concept of parallax is “the change in the arrangement of surfaces defining space due to the change in position of a viewer”. This places an emphasis on position within the 3-dimensional realm, and allows the forms and angles of a space to be constantly redefined by movement through the space.

Along with emphasising volumetric thinking about form, Holl also discusses the layering of functions, stating that “isolated buildings of a single type are scarce in the compression of a city, where abutment and connection of buildings cause functions to intersect”.

Finally, parallax allows for diversity of experiences as the concept of a ‘personal centre’, complete with its own unique perspective, means that within a space there are as many different individual spatial experiences being had as there are people to experience them. Each person defines their own path through the space, and these may overlap or deviate wildly from those imagined by the designer. This furthers the concepts of turning the ground itself into a shifting canvas where users define their own place within the site, and how they choose to experience it.

16. (Holl, 1988) - pp. 8
17. (Holl, 1988) - pp. 12
2.2 - Secondary Sources

2.2.1 - Container Urbanism

Reminiscent of old-world cities building atop their scars, container urbanism allows development amongst remnants of highways, earthquake damaged spaces and urban traumas. With the freedom of prefabrication, structures made primarily of repurposed shipping containers can concisely tell the story of a site: while seemingly opposed to the ideology of formal monuments, these developments have the ability to communicate history through context. Proxy, a collection of businesses housed in shipping containers placed upon a disused San Francisco freeway, is a counterpart to the transport infrastructure’s nearby relocation. A series of small outdoor businesses, Proxy manages to take a singular, repeated element and, through a variety of ornamentations and alterations, craft a series of unique outdoor spaces.

Container Urbanism involves the activation of interstitial spaces; fringe spaces formed through abandonment, disrepair or disaster. The style succeeds because of the speed and ease with which the developments can be set up, and the flexibility of modular elements.

Also important to Container Urbanism is community engagement. At its base level, this style of design overlaps with DIY Urbanism, through the restoration of singular sites by local parties, often in simple fashion through planting or building with recycled materials. More substantial work, such as Proxy, may function as ‘pop-up’ businesses, with transitional intentions. These businesses often have high levels of user interaction: internet capability and online presence, user-controlled content, takeaway coffee and temporary outdoor spaces. Their target demographic does not require imposing office spaces, they desire evolving forms and functions which respond to surrounding context and their changing needs.

It is doubtful that this strategy would be suitable for large-scale rebuilding in Lyttelton, but the potential for transitional designs is strong as an interim solution to retain businesses during the rebuild.

2.2.2 - Treatment of Ruins and Loss

Modern societies have a tendency to fetishize the past, attempting to immortalise people and events to prevent their memories from fading away. Charles Merewether explores the idea that through the preservation of ruins...
we are attempting to address the notion of loss, while also constructing a belief in a future without ruins.\textsuperscript{19} Their presence can bring a sense of nostalgia while also promising progress beyond the cause of loss.

Ruins can even be framed as a warning, such as the Charleston railway site which was destroyed by Southern Confederate troops in the American Civil War and kept by the union as an allegory to the fall of the Greek empire, a reminder that “all the dire calamities of Greece were rooted in the selfish desire for Autonomy.”\textsuperscript{20} Likewise, “[Daniel] Libeskind and [Lebbeus] Woods use ruins to oppose those who propose their restorations to a former glory or infamy and those who argue that since one can never restore what has been lost, ruins must either be erased or recycled. Their work refutes the domestication of violence and the obliteration of history”\textsuperscript{21} by concerning themselves with excavation. This style of practice touches upon the concept of a negative, or anti-monument. Merewether suggests that this style of design is exemplified by a desire to expose the history by which the loss was suffered as opposed to memorialising the lost through the building of commemorative structures.

The initial research proposal for this thesis involved addressing the treatment of ruins in a post-disaster environment. The intended series of small interventions amongst the ruins underwent several changes until the thesis had shifted focus away from ruins and towards the study of architectural and landscape ensembles.

2.2.3 - Post-Disaster Architecture

Lebbeus Woods’ take on design in a post-disaster environment places a strong emphasis on site specificity. He proposes three broad principles, with the objective of having the details handled by local architects who know the site more intimately. His three principles are:

- Restore the normalcy of life before the disaster. This considers the disaster as just a brief interruption to the normal flow of life.
- Demolish and build anew. When buildings are unsalvageable they should be removed and replaced with something else, rather than preserving ruins.
- Create the new from the old. This could mean physically recycling building materials to save resources, or it could mean using the old structures as a point of departure for building for new ways of living.

This third principle is particularly relevant to Lyttelton,
where the ways of living had stagnated due to reliance on outdated urban infrastructure and fetishised architectural history. Building upon that history while catering to new ways of living is a key element of this design proposal.

2.2.4 - Architecture Without Frontiers: War, Reconstruction and Design Responsibility

As Esther Charlesworth states, the role of deciding what to keep, what to alter and what to discard completely is a contentious one when dealing with post-disaster environments. Many of these types of situations result in a landscape which reflects the predominant political ideology of the time, even when it is dressed up as historical restoration. “For traumatized cities, the rebuilding of historic sites or in historic styles can serve as a political device to restore national identity.”

This is understandable, as people seek familiarity and stability in the wake of disaster. The role of the architect is to look further into the future and view the interests of cities and societies long-term, rather than succumbing to hysteria. This can be an unpopular stance, and has lead to many reconstruction projects where architects are overlooked until the major decisions have already taken place. “It became increasingly disconcerting to observe what might be called the foreign architect’s fetish for rebuilding ‘cultural heritage icons’.” Lyttelton has a strong attachment to many of the architectural forms lost in the quakes, and there is already a strong push to rebuild in the styles of that lost heritage, ignoring the fact that those buildings were representative of a by-gone era, and that any attempt to recapture that would be a hollow gesture. This is one of the major challenges of post-disaster design - deciding on the importance of creative authenticity and contextual appropriateness.

One benefit to designing and planning in these situations is access to large areas of real-estate which could not have normally been freed except through costly and cumbersome appropriations. “While the aftermath of (disaster) is undeniably a time of great physical and psychological trauma, it can also be viewed as a fertile testing ground for political ideologies about the city and a site for radical architectural speculations.” What often occurs though, is that “faced with economic and political rubble, [political figures] seek to present an image of national prosperity, progress and glory by funding large-scale rebuilding programmes.” This is the case with the Christchurch earthquakes, as the government was so desperate to provide a sense of economic and social stability that within 18 months of the 2011 quake a master plan was in place for the entire

22. (Charlesworth, 2006)
23. Ibid. 6
24. Ibid. 11
25. Ibid. 10
rebuild. This eagerness offers short-term solutions, but at the expense of the necessary time and research needed to test what the future of Christchurch and Lyttelton might hold. This thesis offers the time to develop that research, free from social and political pressures.

2.3 - Key Case Studies

2.3.1 - Melbourne Laneways

In the last two decades Melbourne’s laneways have been turned from little-used service alleys into the most important new development in the city. They are a major source of new revenue, a marketing focus and a vibrant and thriving district, popular with both locals and tourists.

The laneways are used to bisect and break up the large city blocks in central Melbourne, contrasting the wide streets with narrow, intimate, pedestrian only spaces. By increasing permeability and walkability the designers were able to bring pedestrian life back to parts of the city that were poorly frequented before.

The laneways bring a human-scale to the towering high-rises of the CBD, and they feature an array of diverse activities: cafes, restaurants, galleries, boutique and high-end shopping are all present. There are dozens of laneways and each has a unique flavour, with varying widths, and different activity focuses in each lane. In narrow lanes the spaces open inwards, allowing public seating even in more intimate settings.
Street art is used prominently in some places, indicating a more youthful and bohemian vibe, while other areas have retained more upmarket building facades and a more polished demeanour. This variety gives a diverse experience moving through the laneways and allows them to cater to a range of demographics.

Lyttelton has several distinctions from Melbourne, the first being the steep topography. Secondly the development is new, not a renovation of existing forms. The site is smaller, and requires far more permeability, one of Jacobs’ key conditions for generating urban diversity. Lyttelton also has a strong connection to the surrounding natural environment, as opposed to the introspective urban nature of the Melbourne laneways.

2.3.2 - Auckland Fish Market

Auckland’s Wynyard Quarter and North Wharf renovations coincided with the development of a new Fish Market Complex in close proximity to the waterfront. The new market is a good example of the potential in grouping industrial, wholesale and retail activities within one site, as the Fish Market provides a public face to the seafood industry and is very popular.

The fish market is a new building, hosting a variety of fresh seafood retailers, a boutique food market, restaurants, licensed cafes, and a seafood culinary school. It also has car-parking, a processing facility and the wholesale fish auction which is used by restaurateurs throughout the region. Adjacent to the site is the headquarters of a major seafood company.
The site also helps to bring life to the adjacent public spaces, with Silo Park across the road visitors can stroll the waterfront before heading to the Fish Market for lunch.

2.3.3 - Lyttelton Master Plan

The Lyttelton Master Plan was established quickly following the 2011 earthquake, and it follows integrated urban design and recovery planning principles. The plan was developed following a period of in-depth community engagement. Some of the weaknesses identified through critique of the plan include:

• **Strict retention of the existing land use patterns.**

Given the rare opportunity to adjust the subdivision of land within a central business area, the council's plan is timid in its addressing of this issue, calling for easements to increase movement and doing little else to alter the status-quo.

• **Retention of the heritage building design guidelines without review until at least 2014-2015.**

Despite acknowledging the problems with the design guidelines being based around retention of a now-demolished architectural style, the council has refused to revisit these guidelines until at least the 2014-2015 financial year.26 This has already had significant impact on land-owners' ability to rebuild, as creatively challenging consent applications are being denied and
people are leaving sites in ruin rather than rebuilding.

- **Lack of unified development opportunities.**

The plan has a clear focus on restoring businesses to pre-quake quality, and while there is intent to increase pedestrian life within the centre of the urban block, this is mostly discussed as 'back-of-house' courtyards. There is no clear plan for how businesses might be encouraged to work collaboratively to build up a sense of place within the block.

- **Poor Connectivity.**

Isolated businesses and poor connections throughout the site were causes of poor urban quality south of London St before the quake, and passing easements through the back of house areas of other businesses is not a proactive solution to the problem. Emphasis should be placed on actively increasing the permeability throughout the site, and supporting those connections through well located designs and adjacent activity, as well as targeting views of the surrounding environment.

2.3.4 - Wellington Cable Car Building

Connection to the surrounding environment is an advantage to designing in Lyttelton. The ability to allow context to play a role in defining the identity of the site means that the design can work on framing the environment rather than competing with or ignoring it.

Wellington's newly completed Cable-Car building is a good example of a design which elegantly frames views and connects people with the context of the site. This building, at the botanical gardens, sits above the cable-car tracks and features a switch-back where visitors turn after leaving the car and step up onto a platform with majestic views of the city and harbour beyond. The space strongly communicates the feeling of elevation, with a sharp drop to the sloping hill below. The building itself is simple and understated, with subtle level changes and a series of supports running the circumference of the building which lead the eye towards the city view.

2.3.5 - Qunli Stormwater Park

This designed wetland in China features interplay between levels and walkways which provides pedestrian lookout to make the most of views into the site. Pathways encircle the wetlands, and have kinks and
intersections to make them more interesting, avoiding a monotonous repetition. The pathways generally stay flat, while the ground-plane undulates beneath them, creating variation in the pedestrian experience.

*Images on next page*
**Fig. 27. Qunli Diagram**
Design becomes more angular to create diverse and interesting spaces.

**Fig. 28. Qunli Photo. (Right)**
Elevated walkways link spaces directly, while secondary connections meander around them at ground level.

**Fig. 29. Qunli Photo. (Far Right)**
Ground-level pathways create localised micro-landscapes.
Urban Ensembles
An integrated approach to design in steep, urban landscapes

Fig. 30. Pathway Diagrams. (Above)
Walkways meander in pleasing patterns for people to move through the site leisurely, with plenty of views, seating, shelter and numerous intersections offering choice of direction and activity.

Figs. 30-32. Photos & Diagrams. (left)
Vertical punctuation points and vertical circulation.

Fig. 33-36. Circulation Photos & Diagrams (Far left)
Users can access space at grade then move between spaces easily from the single element.
### 2.3.6 - Federation Square, Melbourne

Located in a central urban location with easy access to high quality public transport, Federation Square is a diverse and flexible public space with an unconventional aesthetic. It hosts more than 2000 events per year, ranging from culinary events, craft markets, music festivals to wine tastings. Fed Square plays major sporting events on a big screen, allowing people to gather in a communal setting, and activating the surrounding amenities. The 'Spirit of the Square' events frequently provide a variety of activities such as video gaming on the big screen, or public art installations.

The way Fed Square is used supports Melbourne's aim of being a creative, contemporary city with vibrant public life. Lyttelton's redevelopment should work to support the identity of the town moving into the future: a creative, close-knit community, with strong connections to the harbour and to local industry, as well as a growing tech industry.

The design of Fed Square is striking, with a number of sharply angled buildings placed around a gently sloping plaza, the site feels like a series of man-made peaks. There is a feeling of rugged power that comes from the buildings, and the open space allows for a range of activities to take place simultaneously, or for a single large event to dominate the site.

The plaza is laid-out in an unconventional shape, with numerous angles, and small sub-areas across different levels. This reflects the abstract geometry of the architecture and provides balance to the design. It also allows spaces to highlight connections to the city, even if they site on an unusual angle.

### 2.3.7 - Lyttelton Volumetric Study

Early stages of the research included a study of the pre-existing condition of the buildings within the site*. This included the function[s] of the building, number of storeys, total floor area, and current status. One criteria of this project would be to design for increased density of buildings, and to account for all of the pre-existing users within the new scheme, providing them with equal or greater area than they possessed previously.

*Details of the volumetric study can be found in the appendix
Urban Ensembles
An integrated approach to design in steep, urban landscapes
Volumetric Design Details

**Usable Space On Site m²**

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**Housing Capacity Within Site**

- **Pre-Quake**
  - 40 Residents
  - 14 Residents

**Increased Building Density**

- Maintain London St fine grain.
- Intensify centre of the block, make more efficient use of open space.
- Larger buildings, located at edge of site nearest to the port activity.
- Small Buildings, fine grain, facilitate pedestrian interaction.
- Lack of development through centre, mostly empty space and car parks.
- More dense building grain but poor street presence and relationship to pedestrians.
Proposed
Pre-existing

5000
0
10,000
15,000
20,000

Retail
3,646
Supermarket
1,314
Car Parking
2,410 (119 Parks)
Industrial
1,050
Hotels
3,840
Public Buildings
5,349
Offices
2,347.5

Total Built Space
23,452.5

40 Residents
10,995
14 Residents
1,380

Residential
1,930
1,100
450
500
2,080

Public Open Space
4,538
0
2,075
2,690
2,060 (92 Parks)

Increased Building Density
Proposed
Pre-Quake

Usable Space On Site m

Maintain London Street grain.
Intensify centre of the block, make more efficient use of open space.
Larger buildings, located at edge of site nearest to the port activity.
Small Buildings, fine grain, facilitate pedestrian interaction.
Lack of development through centre, mostly empty space and carparks.
More dense building grain but poor street presence and relationship to pedestrians.

Activities Allocated To Each Programme

Hospitality
• A range of speciality bars, restaurants and cafes
• Fish Market selling locally sourced seafood
• Fish and Chip shop attached to the Market
• Several hotels and backpackers, catering to a variety of visitors from thrift to luxury

Retail
• Independent, boutique shopping
• A new and expanded supermarket
• Locally produced food and goods, incl. baked bread and roasted coffee

Residential
• Replacement housing for those displaced by earthquake damage or compulsory acquisition
• New housing development
• A range of 1-3 bedroom apartments with harbour views

Offices
• Shipping related industries
• Tech industry start up spaces
• Council offices

Industrial
• Seafood processing facilities
• Office space for seafood industries
• Loading and wholesale facilities

Public
• New library and Visitor Centre facilities
• Relocated into new building at entrance from port into Lyttelton
• Integrated public amenities into single structure and location

Urban Ensembles
An integrated approach to design in steep, urban landscapes
2.3.8 - OMA Kunsthall, Rotterdam

Kunsthall, in Rotterdam, is an intriguing take on urban volumetric design. Within a singular structure, OMA has located 3 exhibition halls, a restaurant and pedestrian access between 2 contradictory sets of conditions - one side of the space is bordered by a major highway, the other faces onto a park more than 2 storeys below.

The interlinked, overlapping spaces allow for a ramp to spiral downwards through several of the internal spaces, while stairs offer a more direct transition between the levels. This creative design offers exciting architectural experiences as a way of solving a practical infrastructure problem.
2.4 Architectural Detail Studies

This section features some of the design research of specific details or design tools, and particularly focuses on urban spatial conditions.

2.4.1 - Courtyards

Courtyards allow multiple different users to share a single open space. They can be open on one or more sides or fully enclosed. Within a grid-based design scheme courtyards can function as an ordering device, allowing activity to stem from one singular location in a regular way, or they can take on more unconventional forms as they respond to other conditions on site.

Figs. 43-46. Courtyard Explorations.
2.4.2 - Linear Parks

A series of small, interconnected spaces can be linked in series. Linear parks like this facilitate movement, by spreading activities out rather than centralising them. Each individual space may cater to a few residences or businesses but the strength of the design comes from the system as a whole.

These systems could be all of equal size, or they can be uneven, responding more directly to conditions on site. This site specificity has a stronger connection to context. Each space will be tailored to fit the needs of its surrounding built form.

2.4.3 - Articulating Level Change: Stairs, Ramps and Lifts

In a steep environment the circulation between levels becomes a vital part of the design. Interesting spatial relationships can be formed, and complex movement can become seemingly natural through good understanding of the design of these spaces.

Well designed steep spaces turn a potential problem for a site into a focal point, and a positive aspect of the design.
2.4.4 - Overlooking Spaces

One of the main benefits of working with a steep site is the abundance of opportunities to create spaces that overlook other parts of the site. These vantage points may be found naturally within the site, or they may be created to exploit the topography, but either way they offer a unique perspective on the surrounding environment.

People have a natural inclination to seek high ground, and making the most of the topography is a key aspect of successfully designing on a steep site.

Fig. 49. Overlooking Space Images.
Clockwise from Top:
49.1 Trollstigplatået by Reiulf Ramstad Architects
49.2 Pirrama Park by Aspect Studios
49.3 Roman Quarry Redesign by AllesWirdGut
49.4 Ballast Point Park by McGregor+Coxall L.A.
49.5 Alexandra Arch & Forest Walk by LOOK
49.6 Ballast Point Park by McGregor+Coxall L.A.
49.7 Hoke Residence by 2.ink Studio
2.4.5 - Laneways

Laneways are a uniquely pedestrian form of urban development. Often coming from the redevelopment of commercial or industrial areas, these converted spaces offer human scale activity, with high degrees of interaction.

Laneways may feature a large number of active spaces in a short area, creating intimate pedestrian activity, or they may be less heavily populated, allowing for installation work or street art - both popular forms of expression in urban areas.

Key to the success of active laneways is permeability. People must be able to access these areas, especially if they are away from traditional streets and inaccessible by vehicles, such as on the interior of a city block.

Shared streets - where cars and pedestrians both have access to the same space, with cars giving way to pedestrians, have become popular in more intensely populated urban areas. This relationship also allows vehicle access to service businesses.
2.4.7 - New Ground Planes

A major issue facing the urban development of Lyttelton is the severe slope across the site, which makes it difficult to establish pedestrian-friendly spaces. The success of London St is based upon the clustering of many businesses within a small area on the plateau formed by the street itself.

Creating new ground planes where pedestrians can walk comfortably allows for the expansion of the business district beyond the scope of London St. These ground planes could be at or elevated above the actual terrestrial ground level.

2.4.8 - Viewpoints

One way of clearly connecting the built environment with surrounding context is by utilising viewpoints as an ordering device. Selecting where to locate spaces, and where they will focus on, by locating interesting views grounds the design within its environment and existing context.
2.5 - Preoccupations and Questions

There were a large number of questions, preoccupations and tangents which emerged throughout the design research process, and this section is where they will be introduced and discussed. Though they may only occupy a small segment of the total research focus, each of these preoccupations contributes to the richness and diversity of the project, giving it both site-specificity and a wider application to a number of problems within the discipline of Landscape Architecture. Some of these studies are of specific precedents, while others explore a particular concept or a design technique, but all of them are undertaken in order to better understand the process of designing in conditions present in the Lyttelton site.
2.5.1 - Identity & Context

The concept of identity has been a controversial and popular debate amongst local officials and residents in relation to Lyttelton. People feel a strong sense of connection to the town, its history and its unique environment. Damage to the town’s structure is frequently described as ‘loss of identity’, and people are struggling to agree on how to re-establish that sense of collective ownership that the town had before the earthquakes.

Identity is an assemblage, relying on connections between people, place, situation and memory. It is not as simple as a building of a particular age or architectural style. There are numerous sites all over the world with old, well preserved buildings. None of them resembles the identity of Lyttelton. That identity is drawn from the incremental development of the town, in all of its elements: the relationship to the port, the music and bars, the views of the harbour and hills, the steep hillside which forces people to gather on flat, terraced roads for events, the heritage lost in the demolished buildings and walls, and the stories retained in the ones that remain. All these factors and more make up the identity of the town. It is drawn directly from the context around it, across scales from material details, to single buildings, to the whole town and into the environment beyond its borders.

2.5.2 - Flexible & Adaptable Design

As a small settlement, Lyttelton does not have the freedom of building numerous single-function facilities. It must be flexible, and this is one of the strengths of the existing town. London St, the town’s main business street, is closed to traffic every Saturday to host a farmers market. A number of demolished sites already have temporary businesses or community lead transitional designs on them, and impromptu public spaces have appeared throughout the London St region. These endeavours highlight the need for a purpose-built public space which can deliver the flexibility Lyttelton requires while also offering a civic space capable of serving the community on a daily basis, with access to amenities, hospitality, views, public transport, parking and shopping all close at hand. A space from which to host events that can draw crowds to Lyttelton, generate atmosphere and revenue at the same time, and one that fits the scale and character of the small town on the edge of the big harbour.
2.5.3 - Land Subdivision Issues

The subdivision of land parcels in the centre of Lyttelton has created a fine grain pattern of developments on London St, with narrow frontages and frequent doorways, which gives a diverse character to the street front. This is supported by a variety of detailing on the building facades. However, this intricacy, detail and fine grain only extends to a single block, and only includes the frontages of those buildings. The rest of the central urban area is a jumble of service access, extensive car-parks, industrial warehouses and underutilised backyard areas. Even the Wunderbar, a popular venue with a unique perspective on the harbour from an elevated balcony, fronts directly onto a car park and then the back of a warehouse. This is a very inauspicious approach to Lyttelton's most popular nightspot.

This site was in need of redevelopment pre-quake, but lacked the cohesive vision or funding to achieve such a radical overhaul of Lyttelton's ingrained urban structure. The earthquake has provided that opportunity and it is up to the authorities and the people of Lyttelton to take full advantage of it.
2.5.4 - Distinctions Between Public and Private

While Jane Jacobs states that in an urban development there should be clear differentiation between public and private space, there is potential for a range of states between fully public and fully private. For instance, bars and restaurants with thoroughfare between public access ways could be considered to have a degree of public-ownership - not in a legal sense but functionally. Likewise, a small courtyard which acts as an outdoor area for several residential units has a different type of privacy from a back-yard for a single residence. This design scheme will explore and employ different strategies around public and private spaces to create interesting and complex urban environments.

2.5.5 - Is A Series of Small, Interconnected Sites Capable of Handling the Roles of Traditionally Large Sites?

By compartmentalising and splitting up functions into a series of smaller parts, such as a public plaza being spread across a series of smaller terraces on a hillside, can the load of a larger space be shared? A hotel could become a complex of smaller units, similar to the use of villas or chalets in resort villages. The main street becomes a series of smaller experiences, and the dining

Fig. 56. Hillside Housing Density Study.

The residential spaces in this example are arranged very close together, with a variety of subtle changes from one to the next. This creates a range of semi-private spaces which each feel unique to that particular assemblage.
quarter is spread across several regions with a different target demographic or time-of-day.

Wellington is a good example of this working successfully. While it is a much larger city than Lyttelton, it is very small compared to other metropolitan cities, and thrives by providing diversity, and by keeping people moving through a limited number of active streets. It has no real city centre - its Civic Square is really more of a gateway to the waterfront, where many public events take place. It is very pedestrian friendly, and succeeds in feeling like a much bigger city when hosting events.

2.5.6 - Central Lyttelton and Lyttelton Port

The Lyttelton Port Company (L.P.C.) occupies the land between the town centre and waterfront, and provides the primary industry for the town, as well as being the reason Lyttelton was originally settled. There have been discussions about moving the port to the east, or turning over parts of the central waterfront to the public but the L.P.C. has plans to expand the port extensively, meaning that Lyttelton must find other ways to connect with the harbour.

L.P.C.’s long-term plans involve reclamation of land to move commercial shipping away from the centre of Lyttelton, and to convert the inner harbour to leisure boating, with green development and public amenities at the inner harbour edge. The timeline for this plan has been affected by the earthquake damage to the port, but any plan for central Lyttelton should take into account the need to interface with improved port facilities and public access in the future.

2.5.7 - What To Keep

There are a number of structures within the site which are badly damaged, but potentially repairable. These include the Wunderbar, Council Library & Visitor Centre, and the Lyttelton Working Men’s Club. The decision on what to do with these buildings is more complex than just the funding to repair them, there must be a plan in place for the rebuild which determines what stays. The Wunderbar is an iconic location in Lyttelton, and with its elevated facade and balconies, it fits with the layered, medium-density approach that the design is based on.

The library, visitor centre and club, however, are all housed in poor-quality buildings, low-density and with a large footprint and a lot of wasted space. These programmes could all be re-housed in new facilities, with the visitor centre being relocated to the south-east corner of the block, where it can function as a gateway.
into the town centre from the port, instead of visitors being bussed across town before reaching it.

Because of the dramatic loss of urban form within the main site block, most of these buildings will be replaced in function, but with new locations, within the thesis scheme. The adjacent sites, particularly on the opposite side of London St, will be retained in much the same layout, just with new buildings, because of the stronger urban fabric of this area.

Fig. 60. Damage to central Lyttelton.


Almost the entire CBD block has been heavily earthquake damaged. 15 buildings have been demolished already. 7 more are pending either demolition or significant repairs and only 4 are relatively undamaged.
Fig. 62. Historic Lyttelton Drydock.
3.0 Method & Development

How do landscape and architectural ensembles address design on a steep, urban site?

The research was developed through a series of iterative design testing phases, reflecting critically on how the design outcomes responded to the research question, and using this analysis to reshape both the design work and the question itself. Throughout the thesis research this question changed several times, as the focus of the research shifted along with the design.

Context is crucial to design research. While the site remains roughly the same throughout the thesis, the context in which the site is viewed changed dramatically. The focus of the research shifted from the impact of the earthquake on Lyttelton’s identity, viewed through the loss of heritage architecture, and the treatment of ruins in landscape to the study of how landscape and architecture come together to treat steep, urban spaces. This change represents the design research process, as the method of design testing has strong influence on shaping the research outcomes.

3.1 - Site Analysis and Context

3.1.1 - Historic Port Settlement

Originally established as a colonial port settlement in 1849, Lyttelton’s location on the slope of a steep volcanic crater, nestled in a harbour, has ensured that the town remains small. As of March 2013 the population is just 3,170.29 The central business area consists of a single street - London St, running across the slope on a plateau between Oxford and Canterbury Streets.

The town has a very small scale, with building heights kept between 2-4 storeys throughout the central area, and generally 1-2 storeys in the adjacent residential zones.

Key characteristics of Lyttelton include the very close proximity of the town to the harbour, although the adjacent Lyttelton Port prevents any public amenities at the water’s edge. There is also a strong architectural history in the town, with examples of buildings spanning several colonial styles represented within the area. However, many of these historic buildings suffered irreparable damage in the February 2011 earthquake, which has resulted in over 75% of the buildings on the southern block of the central business area being condemned or demolished.

29. (CityPopulation, 2013)
3.1.2 - Earthquake as an opportunity for change

“While the aftermath of (disaster) is undeniably a time of great physical and psychological trauma, it can also be viewed as a fertile testing ground for political ideologies about the city and a site for radical architectural speculations.”

The issue this thesis takes with the existing master plan for Lyttelton is the timid way in which it approaches anything resembling real development to the structure of the town. Even before the earthquakes Lyttelton was struggling to establish an identity for itself moving into the future. With the sudden availability of so much land in the heart of Lyttelton, there is a real opportunity to secure the town's future as a centre for creative industry and the arts, and to loosen the reliance on the shipping industry.

Identity is a subjective and abstract cultural construct. It is not an aesthetic or a single 'meaning' which can be easily applied to an entire town homogenously. The rigidity of the existing design guidelines, and the failure to address the complexities of the site, instead focussing solely on the architectural form as a representation of Lyttelton, is stunting the town's growth.

The literature review and precedent studies identified a set of design principles which is based on the aim of encouraging diversity and organic communal growth, based on the layering of a range of activities into the centre of the town.
3.2 - Design Principles

1. Design From Context
   - Highlight key views.
   - Utilise Steep Terrain.
   - Research across scales to better understand site.
   - Look at multiple contexts: social, environmental, political, economic.
   - Respect the character of the site.

2. Maintain The Grain
   - Preserve the fine grain of urban buildings where possible.
   - Locate larger buildings towards the industrial edge of site near the port.
   - When designing larger buildings use design tools to break up the scale: detailing, split facades, integrate multiple uses into structure etc.

3. Hybrid Framework
   - Give equal consideration to both architectural and landscape elements.
   - Use these elements in support of one another, rather than in opposition.

4. Mix Uses
   - Activate the streets at different times of day.
   - Bring amenities in close proximity to users.
   - Allow for multi-layered complexity.

5. Emphasise Movement & Permeable Spaces
   - Prioritise pedestrian experience
   - Connectivity facilitates diversity. Create a lattice of pathways throughout the site.
   - Use short block lengths.
   - Use views as destinations to draw people through site and above ground level.
   - Explore different methods of movement in 3-dimensions.
   - Target different areas to specific demographics or times of day.
   - Use sequencing to give movement through the site a sense of rhythm and purpose, a series of unique experiences.
   - Use a range of open spaces of varying size and function to offer variety.
   - Utilise movement through buildings.
   - Accommodate quality public transport facilities.

6. Increase Density
   - Greater density allows for an increase in diversity of activities.
   - Use volumetric study to design new building layout.
   - Establish new pattern of building within the city block.
   - New development should be 2-4 storeys tall.
   - Vary the subtle details and individual sizes of buildings to create variety.
3.3 - Importance of Context

The concept of context is often applied to landscape in broad strokes and generalities, or the exhibition of historical artifacts and information. This approach is a gross oversimplification of the importance of context, and the complexity of it as a cultural construct. It provides people with constant narrative intervention, and as a result, people have come to rely on this narrative to do the understanding for them. 'History' and 'heritage' are packaged for consumption, presented in easy to read glimpses into specific moments, forever frozen in time. This illustrates the struggle that people often have with 'understanding the meaning' of landscape. Communicating the sense of a place can be difficult when the perceptions of design are based in form, and structural aesthetic. There is an assumption that meaning is derived from architectural theory rather than from the place itself.

This thesis aims to present a design which draws its influence from ideas of context, of framing the site as it is, not imposing a set of arbitrary ideologies upon it, or paraphrasing the complexities of landscape into informative signs. It will observe the site at multiple scales, from different periods in time, and from a range of perspectives.

Design through context allows the landscape to adopt an equal standing with architecture, not just as a canvas for building upon, but as a design element itself. Landscape and architecture form an ensemble, shaped by many conditions simultaneously, over time. Cultural, environmental, political and economic forces are constantly altering the site, with many subtleties forming the fabric of the community, acknowledging Lyttelton's contemporary heritage, rather than relegating the town to forever face the past.

This design separates itself from the obsession with ruins and memorialisation of history, instead choosing to represent the characteristics that have shaped - and will continue to shape Lyttelton throughout its development in a manner showing awareness of the past, yet focusing on its future.

31. (Roth, 1997)
3.3.1 - Characteristics of Lyttelton

Because of its steep, harbour setting and relative isolation from Christchurch, Lyttelton has a strong sense of connection to the surrounding environment. The slope, combined with the town’s small footprint, gives a feeling that from almost anywhere in Lyttelton you could fall into the harbour, or climb up into the hills. The fine grain of buildings in the London St business area provides a density to the urban form which facilitates a diverse range of activities to develop, despite the town’s small centre.

This diversity deteriorates quickly as you move away from London St, with the consistent urban fabric giving way to a mess of service entrances, back yards, storage warehouses, odd-shaped or faceless buildings, and car parks. Pedestrian-friendly spaces give way to generic office buildings, or taverns within restored colonial buildings that have no street presence. As a result, the vibrant pedestrian centre of London St ends abruptly, as soon as you turn the corner onto Oxford or Canterbury Street.

This thesis identified three contributing factors to this situation: heritage protection legislation which severely restricts the ability to gain consent for new
Fig. 66. Engaging With The Site.
developments or to alter existing sites, land parcel subdivisions which make inefficient use of land and fail to promote development through the centre of the city block, and the steep slope, which is uncommon for the centre of an urban development, and poses significant challenges for a low-rise community such as Lyttelton.

3.3.2 - Working With The Site

The most interesting exception to these rules is the Wunderbar, a bar and live music venue located to the rear of a building in the heart of London St. Because of the dramatic level change the Wunderbar’s entrance is on the third floor of the building, despite sharing a level with a supermarket which has street level shop access. The area in front of the bar is a barren parking lot which faces the back of a warehouse, and the only access comes via either a steep, narrow pathway, or down a long driveway past the backs of several rubbish skips and back-of-house areas. Yet the Wunderbar is perhaps the most popular nightspot in Lyttelton. It succeeds because of the idiosyncrasies of the town, not in spite of them, and in doing so it provides a blueprint for successful design in this environment.

The Wunderbar’s outdoor area is a balcony 3 floors above the ground, with a spectacular view across the harbour. The immediate surroundings - views of roofs and warehouses - don’t impact, because peoples’ attention is attracted to the harbour fronting the town. The level change provides little inconvenience because of the novelty of processing upwards to get to the destination. It makes going to the bar feel like an event, and upon arrival you are rewarded with the reveal of the spectacular view.

The building itself is non-descript, but despite not sharing the aesthetic of the town’s colonial structures - peaked roof, weatherboard facade, narrow frontage - the building does fit with the height scale of the town, and it breaks up its facade into three distinct sections which mask the fact that this is one business.

By realising that the same factors that make Lyttelton a challenging place to design for are what make it unique and interesting, the Wunderbar establishes a tone for the redevelopment of the central business area: respect the scale of the place, utilise the natural environment.
by highlighting views and the steep topography, and provide an interesting destination to draw people to the site.

3.4 - Options For Rebuild Design

There is such extensive damage to central Lyttelton that a complete rebuild of the central city block is inevitable. Before the demolition of condemned sites is even completed there are only a small handful of buildings remaining to the south of London St, and there are also several demolished buildings on the north side of London St, and buildings were lost on 5 of 8 corner sites at the ends of the block, with the 3 remaining buildings being more contemporary designs.

Temporary interventions and urban acupuncture are techniques which are often used in cases of degraded or damaged sites, but these sites are typically interstitial spaces, caused by neglect, or erected in the transitional period before more permanent solutions are found. This design recognises the need for a cohesive urban design framework to guide the reconstruction effort, based off Pollak’s principles of engaging urban complexity through use of different scales and in-depth contextual analysis.

3.4.1 - Identify the Site

While the block between London Street and Norwich Quay is the primary focus for this design scheme, due to the concentration of damage there, the boundaries of the site are not so easily defined. The northern side of London St suffered significant losses, as did sites to the east and west of that block. The council master plan includes a proposal to renovate the Recreation Centre on Winchester St, and provide pedestrian connection to London St via a new public park on the corner of London and Canterbury Streets. This design fits with the stated goals of this project, and will be integrated into the thesis design scheme.

The designed areas will be restricted to this marked site, but with consideration given to the impact on surrounding areas also. There will be significant works taking place in the immediate future as well as long-term, which will be taken into account, such as the redevelopment of the Lyttelton Port and potential public space development along the water’s edge.
Fig. 69. Site Boundary.
This initial design scheme is developed from diagrammatic explorations of the site, and from simple 3D modelling processes in Sketchup. It includes increases in all areas of building programme from the pre-quake levels, allowing for sale of over 5000m² of new residential space, a mid-sized hotel, a new Visitor Centre at the gateway into Lyttelton from the port and new, increased commercial, industrial and retail spaces.

71. London St apartments
72. Mixed-use buildings, Hotel
73. Mixed-use buildings, Hotel
74. Commercial, Hotel, Visitor Centre, Industrial
75. Ground Level pedestrian spaces
3.5 - Early Volumetric Studies

To assess the feasibility of basing a design on significant compulsory acquisition of public land, a volumetric study was undertaken of the programme and useable area of each building, floor-by-floor. The design principle of increasing building density on site also required the design to account for each pre-existing use within the new plan and to deliver equal or greater area to each of them. A comprehensive list of both studies - pre-quake and new design - is available in the appendix, including figures for each level of every building, as well as parking spaces and open public space areas.

The summary results of this approach are that the thesis design includes 20,499.5 m² of useable floor area compared to 10,995 m² pre-existing. That is an additional 9,504.5 m² of building space within the new design. Additionally, the increased density of this new development has enabled a series of public open spaces to be integrated into the framework, including a large, terraced open space, a Visitor Centre plaza, a roof-top beer garden, several small courtyards and a large roof-garden meadow, for treating water run-off from the roofs of the development. These open spaces provide flexibility which central Lyttelton currently lacks.
Fig. 80. Elevation Diagram
The hills on which Lyttelton sits provide a backdrop to the town, looming above the small scale buildings and grounding people in the site even when they cannot see the water. The harbour, alternatively, is an iconic part of the Lyttelton landscape yet it is almost fully removed from the experience on London St. This withheld view is a motivator to draw people through the site, the desire to experience the expansive harbour which is so integral to the Lyttelton experience.

The design scheme is structured around this juxtaposition of hills and harbour. From London St, people are drawn down towards the harbour, seeking a point from which to gaze outwards. When climbing the slope there is a different experience, with the towering hills dominating the view, providing a constant reference point as they move from open spaces through the more intimate laneways towards the main street. This movement, a changing palette of spaces experienced against a static backdrop of hills creates an interesting sequence of juxtaposed scales, intimacy laid against vastness.
Fig. 81. Land Parcel Layout
Urban Ensembles
An integrated approach to design in steep, urban landscapes

Fig. 82. Roads and Port Infrastructure
Fig. 83. View Shafts and Locations

- Existing Prominent Locations
- Selected New Viewpoints

01 Cemetery
02 Oxford Street
03 Town Square
04 Cemetery
05 Timeball Station
Urban Ensembles

An integrated approach to design in steep, urban landscapes
Fig. 85. The Design Process
3.7 - Designing The Framework

The design process was initially undertaken through a series of iterative test phases, seeking to find a balance between the factors pushing the design in different directions. Early studies were mostly sketch designs aimed at better understanding particular spatial typologies, or relationships between people and space.

A main driver of the design from its early stages was that the scheme would be built around pedestrian needs, and movement through the site. This made understanding movement through space an important focus of the research, as the nature of this movement would determine the layout and form of the new development.

3.7.1 - Structuring Movement

Connection to the surrounding environment, particularly through vertical movement and views, became an important structuring device. Placement of functions on site, such as the relocation of the Visitor Centre, was aimed at targeting specific areas of the site for particular activities or times-of-day. This would provide a diverse range of activities across the site, and counter the need for a large number of people to provide vibrancy. This did not mean segregating uses individually, rather, aiming to have a series of different possibilities throughout the site. Linking different areas to a specifically framed view was one way to establish different identities for these spaces, another was to experiment with typological combinations - a narrow laneway opening up to a panoramic harbour view, or a series of pathways revealing glimpses of the hills between buildings as you move up through the site, anchoring the viewer’s orientation. These viewpoints* were used as an ordering device within the site.

*Viewpoint diagram located indesign section
3.7.2 - Design Method

The challenge of laying out an entire development plan on an almost green-field site is substantial. The lack of physical context on which to base design moves can lead to reckless decision-making. The dramatic topography adds additional complexity to the situation. Rather than base the design on abstract theories or forms, the design process was a systematic approach, building a new contextual framework ground the final design outcome within the site’s context. The following is an outline of the key steps in the process.

Replicate London Street’s Fine Grain Buildings

London St is the most vibrant and successful part of central Lyttelton. Designing the new spaces to replicate the narrow facades, two-storey scale, street level activities and diverse facades provides an anchor for the whole framework, connecting the new design with the existing urban fabric.

Retain Wunderbar

Most of the buildings on London Street either collapsed, have been demolished or will be soon. The Wunderbar and the public library are two relatively modern buildings which survived the damage. The Wunderbar is a Lyttelton institution, a popular venue and bar, and with its upper level balconies and harbour views it can be the template for a new structure for this block.

Relocate Visitor Centre and Library

The existing visitor centre and library are neighbouring structures on London St. Both are housed in buildings of dated design, with little potential for expansion and poor aesthetic value. They do not sell the image of Lyttelton as a tourist destination, either as a modern, creative community, or as a colonial heritage town. The buildings also break up the grain of London Street, and occupy a prominent, bookend spot at one end of the block. The visitor centre is also located at the furthest point on the block away from the port. These two programmes will be re-housed in a new, combined location at the corner of Norwich Quay and Oxford Street, establishing a ‘Gateway To Lyttelton’ where cruise ship passengers first enter from the port.

More Industrial Programmes To Be Located At Norwich Quay

Norwich Quay is adjacent to the port. It is the main road for shipping transports, and it makes sense to
locate supermarkets, car parking and other less boutique activities here. These are also the largest functions, spatially, so locating them here preserves the finer grain of the site while still being in conveniently close proximity.

**Move Car Parking Underground**

With the site cleared of buildings at present there is an opportunity for earthworks, and potential to relocate car parking facilities underneath the ground level, to remove car parks from streets and empty lots.

**Set Main Pedestrian Pathways At Grade**

The terrace formed by London Street provides comfortable movement across the site. Replicate this with pedestrian pathways connecting across the site east-west.

**New Buildings Through Centre of Site**

Increase site density by establishing new buildings through the centre of the site. This creates potential for new pedestrian environments at the edges of buildings.

**Establish Laneways**

New development should have active edges across multiple levels, both at ground and above, to facilitate movement vertical and horizontal movement. Explore balconies and elevated walkway connections.

**Create a lattice network of connecting pathways**

Facilitate movement through, over and between buildings with a range of pedestrian options.

**Open Spaces**

Explore options for integrating open spaces into the design. Placement will have an effect on the function of the site as a system.

**Structure Framework Around Viewpoints**

Views are a clear way of establishing connection with the surrounding environment. Identify a range of interesting viewpoints and use these as nodes around which to order the spaces within the framework.
Grid Manipulation

Grids are effective methods of ordering a site; they provide frequent intersections and a high-degree of permeability. They can also be dull, and unimaginative if employed without deviation. A series of iterative changes was made to the spatial arrangement of elements on-site, and through these alterations the design began to develop its own complexities, as different spatial ideas and ordering devices were juxtaposed.

Explore Building Typologies

Precedent studies were undertaken to establish building styles which would fit both the needs of the new design and the character of Lyttelton. Terrace housing developments were a good fit, with their narrow facade and long profile, and the front porch interactions with the street environment.

Design Key Building Elements

While architects would be employed to define the details of the buildings, it is important to understand how they function within the design scheme. The framework specifies building locations, their function and dimensions, as well as aesthetic qualities and some example interior layouts. For buildings with mixed-uses this is especially important to ensure that permeability through buildings is maintained, and that the buildings and landscape can engage in an active dialogue.

Detailed Design

The final step is the design of details within the site. These spaces are often roughly sketched out in the initial design stages, as discussed below.
3.8 - Designing Across Scales

Human-scale spaces are not designed last, once the framework is in place. Instead, the design process oscillated between scales throughout the process. The experiential qualities of the spaces from a human perspective was a strong factor in the design of the plan as a whole. The process of designing to realise that initial space would follow through the design of the entire site, as they are intimately linked. Without the single space the framework loses purpose, and without the context of the design the space has no point of reference and loses meaning and legibility.

The design of the new visitor centre illustrates this point, as the design of the building was intrinsically linked into the ground and the space surrounding the building. This is true of any design, but particularly here, as the new building was designed to span three levels, and to have pedestrian entrances at each level, connected to a different section of the site. None of the surrounding spaces were fully designed at this point - the process of designing the visitor centre informed the shaping of the spaces around it, which affected the function of the site as a whole. Likewise any changes to the wider framework inevitably trickled down to the visitor centre. This is typical of the fluid process of design research.

3.8.1 Visitor Centre

The new Visitor Centre & Library building is planned to be the most prominent new building on site. It is located strategically at the intersection of the site and the access to the port, meaning that this building welcomes new visitors to Lyttelton.

This location was a product of the master plan process, working with the rest of the design to select the most appropriate location before design was begun.

The design of the building itself was based around the steep topography, as the Visitor Centre connects pedestrians with three different levels across the site.

Finally, the details of the building are worked in closely with the landscape it sits within, through a series of viewing decks and connecting walkways which allow the building to play a role in many aspects of the site at the same time, both inside and out.
3.9 - Relationship Between Design and Drawing Methods

Designing for a site where steep topography is one of the defining characteristics of the space represents a challenge for drawing conventions. Both plan and section have deficiencies when working in 3-dimensions, as plan views by default lack depth, even when layered with additional topographic information (contours, GIS slope analysis), and while sections give a better understanding of the slope they lack depth.

Using multiple sections cuts through the site gives a better general understanding of the topography, but can lack cohesion when designing spaces which move between those cuts.

Sketching in 3-dimensional views such as axonometric is useful for getting a better feel for spaces, and it combines elements of both plan and section, giving depth and a broad view of the layout of space.

Sectional perspective is an enhanced version of the qualities of axonometric drawing; it provides multiple layers of information simultaneously. Using this method of drawing allows the designer to examine relationships between spaces clearly, and it gives good understanding of change in elevation.

Digital 3-D modelling software has the advantage of creating accurate models based on data input, which allows the designer to experience the site in a more immediate way than through drawing in 2-Dimensions. Digital modelling was used extensively through the design process to develop spaces across large areas. Sketchup also offers the ability to experience the space through a first person perspective, enabling the designer to better experience the qualities of the space, and making easier the process of designing through a sequence of perspectives. A draw-back from digital modelling is the potential to be drawn into fiddling with increasingly insignificant details, which can muddle the intent of a design.

Finding the right method of representing this style of design is equally complex. A range of wide-scale plans and sections, as well as perspective drawings and sectional perspectives are effective methods of communicating the experiential qualities and contextual relationships which are key drivers for the design. Cross-referencing these drawings allows multiple streams of information to be communicated together, giving a better understanding of the intent behind the spaces.

The concept of movement through the site may be communicated by cross-referencing a series of perspectives against their relevant positions on a plan or section, while sectional perspectives referenced against a series of plans showing different building levels communicates the layering of spaces.

Exploded axonometric drawings can also serve this purpose by breaking down complex spaces into their composite parts for easy examination.

For this thesis, the right approach seemed to be to employ a diverse range of these techniques, and to approach different design challenges through as many different drawing types as possible in order to best understand and clearly communicate the three-dimensional space.
3.10 - Optimise Necessary Infrastructure

Car parking, bus stops, walkways and seating are all practical requirements for the design scheme. By making strong connections to the site through placement, orientation and articulation of these elements, they can evolve from peripheral parts, and take on more meaningful roles within the design scheme.

For example, London Street requires a bus-stop for the route between Christchurch and Lyttelton. This need creates an opportunity to create a moment of reflection, and connection to the hills above and the harbour below. Because of the inward-facing nature of London St, with its consistent facades, there are limited opportunities to observe the full scope of the hill landscape descending into the harbour. This bus-stop offers that ability, to pause and observe the panoramic views. The design supports that intent, with a small rise above street level to create separation, and ample seating and shade, from where patrons can sit and gaze out over the Lyttelton harbour as they wait. The southern edge of the bus-stop has a sheer drop of roughly 2m, intended to enhance the drama of the naturally steep topography, and create a sense that from this vantage point you could fall right into the harbour. The terraced, public open-space below offers unobstructed views of the harbour.

Likewise, car parking clutters much of the site in its current state. The design proposes relocating that car parking into two underground garages, one below the terraced open space, and one below the supermarket. This move frees up valuable space, and also provides car parking with strong pedestrian connections to both sides of the site.

3.11 - Inside, Outside, Through and On-Top-Of The Box

The relationship between form and space is always relative to the experience of a person. On site these elements do not exist in isolation, they are experienced subjectively as people move about them. Explorations into the relationship between movement and form was developed through many media including drawings and 3D modelling.
Fig. 88. Section Test Drawings (Opposite Page)

Fig. 89. Plan Test Drawings (This Page)
Circulating Through Multiple Spaces Via Elevator

Fig. 90. 3-D Model Test (Opposite Page)

Fig. 91. Axonometric Diagrams (Far Left - This Page)

Fig. 92. Circulation Section Diagram (Top Right - This Page)

Fig. 93. Sectional Perspective Drawing (Bottom Right - This Page)
3.12 - Diversity of Spaces

Within the wider design scheme there are a number of distinct ‘zones’ that provide a range of different activities and atmospheres, catering to a variety of demographics or situations.

These zones give the site flexibility and the chance to offer people a range of experiences suited to their particular tastes. They highlight the many facets of Lyttelton's character, from intimate and personal interactions, to wide-open vistas to grand cruise ship encounters. All of these experiences are tied to a cohesive sense of Lyttelton through their relationship to the steep topography. This prevailing sense of steepness is inherent in every part of Lyttelton, even the flat terrace areas such as London St, which function as noticeable breaks from the ever-present slope.

Fig. 94. Spatial Zones.
4 Design
4.0 Design

The design of a large, urban space in a small town is inherently complex. When that town has been decimated by a natural disaster the complexities are increased again. Regulations that were read as gospel just a few years ago are now being challenged regularly, and residents and developers are questioning what ‘in keeping with the character of Lyttelton’ really means today. This design scheme works across a variety of scales, from a city-wide framework plan down to detailed design of individual spaces, in an attempt to ensure cohesion throughout the work.

While the design is based largely around the city block bounded by London St, Norwich Quay, Canterbury St and Oxford St, this arbitrary boundary would ignore key adjacent spaces which play a part in the function of those sites. Therefore, the design boundary is extended to include areas to the north of this block, up to and including the Lyttelton Recreation Centre on Winchester St, and the north side of London St. The design takes the wider urban context into consideration also, but does not extend there in terms of the design scheme itself.

The aim for this design is simple, to revitalise a damaged, and underutilised section of Lyttelton, through a process of urban intensification which draws heavily upon the local context, and feels like a part of the town, while avoiding the dangers of sterile planning schemes or overbearing master plans. This design draws upon the past and present heritage and context of the site, to provide a future for design in Lyttelton.

Fig. 96. Harbourside Theatre.
Fig. 97. Regional Location Plan (Next Page)
Fig. 98. Site Location Plan (Next Page)
Urban Ensembles
An integrated approach to design in steep, urban landscapes
4.1.1 Site Plans & Sections

Fig. 99. Site Sections.
Urban Ensembles
An integrated approach to design in steep, urban landscapes
Fig. 100. Detailed Site Section.
Urban Ensembles
An integrated approach to design in steep, urban landscapes
4.1.2 Existing Urban Layout

The current state of the site is one of extensive earthquake damage, with much of the central London St block now demolished. Adjacent sites were also damaged, although not to the same extent.

Several important buildings were lost to the damage, including office spaces, industrial sites and many hospitality and entertainment locations - cafes, restaurants and theatres.

In addition, the formal structure of the town has been altered with the loss of key buildings which bookended the London St block. Without these structures the block lacks definition, fading into the neighbouring blocks without much clarity.
Proposed Urban Layout

The new design proposal features increased building density, particularly through the centre of the block. It works in elements of the existing Lyttelton plan, such as the connection through a new open space at the corner of London and Oxford streets, to the renovated Rec Centre at the north-west corner of the site.
4.1.3 Site Plan

- 1: London St Mixed Use Buildings
- 2: Laneway Development
- 3: Pedestrian Access Through Site
- 4: Bus Stop Harbour Lookout
- 5: Public Plaza and Market Square
- 6: Underground Car Parking
- 7: Lawn
- 8: Mixed Use Buildings
- 9: Terraced Gardens
- 10: Lyttelton Fish Market
- 11: Green Roof / Rooftop Grass Meadow
- 12: Rooftop Walkway and Lookout
- 13: Rooftop Beer Garden
- 14: Supermarket
- 15: Hotel
- 16: Lyttelton Visitor Centre & Library
- 17: Viewing Deck & Elevated Walkway
- 18: Visitor Centre Plaza

Fig. 103. Site Plan (Opposite Page)
Clay Render Showing Massing and Slope

Fig. 104. 3-D Digital Site Model.
4.2 Volumetric Design

Levels Within Design

When working with a sloping site it is important to have a clear understanding of the relationships between different levels.

The small scale of Lyttelton makes a series of small, interconnected spaces preferable to monolithic structures. This is particularly noticeable in the design’s open spaces, which are generally broken up into smaller sections, allowing for a variety of activities within a single area.

The exploded section to the right shows the different areas within the site’s main open space, which stretches from London St through the entire block down to Norwich Quay.

Along this section there are several adjacent open spaces, which could be used in conjunction to hold a single, large event, or several small events at the same time. The smaller scale also makes it a more pedestrian friendly area when in everyday use.
4.2 Volumetric Design Level A

The site is divided primarily across 5 levels. The following series of plans shows the details of each level individually across the site, including the interior and exterior spaces accessible from each level. It shows the connections across the site, and allows for plan views to show appropriate details despite the slope.

The first plan shows the top level of the site, which is cut through the upper level of buildings on London St. This area contains most of the residential units for the design, with views up into the hills and out across the harbour. It also includes offices and hotel space at either end of the block, and a redeveloped Harbourlight Theatre on the North side of the street.
4.2 Volumetric Design Level B

This plan shows the street level at London St, featuring a range of retail and hospitality spaces, as well as the top floor of the buildings through the centre of the site. These include bars, hotels and more residential units. A series of offices also occupy space on this level.

At the west of the block is the new central bus stop, which features a lookout with views across the harbour.
4.2 Volumetric Design Level C

This middle level contains the major open space for the design - a terraced plaza at the western edge.

It also shows the upper of two laneways which run parallel to London St, offering permeability throughout the site.

To the south of the site you can see the rooftop spaces available to the public - a beer garden, rooftop walkway and Visitor Centre viewing deck, all with spectacular views and a range of amenities and different experiences. The beer garden offers comfort and refreshment, the Visitor Centre has shelter and access quickly through the site on foot, and the rooftop walkway offers unique coastal exposure within an urban setting.
4.2 Volumetric Design Level D

This level presents the largest buildings on site: the supermarket, fish market, hotel and Visitor Centre. These spaces are located at the Norwich Quay edge of the design scheme because of their size, and to soften their impact on the finer grain buildings of London St and the upper laneway.

The Visitor Centre is located away from the other buildings on site, and at the junction where visitors first arrive in town from the port, so as to provide an appropriate welcome to visitors. This building will be the most non traditional building on site, with angular geometric forms and a contemporary glass facade, it stands alone both physically and figuratively from the remainder of the site.

You can also see at the northern edge of this level, the upper of two underground carparks. This one is located beneath the western public plaza, and features elevator access to London St and at-grade access to the supermarket pedestrian laneway.
4.2 Volumetric Design Level E

The bottom level is comparatively unnoccupied, with only the Visitor Centre having any significant public amenity at this part of the site.

The supermarket underground parking is sited on this level, as is the loading dock and processing facility for the Lyttelton Fish Market.
4.3 - Movement Through Site

One of the key aspects of this design is the way that it facilitates movement throughout the site. That movement is important to activate the variety of spaces which have been built into this new design without needing a massive increase in population. Viewpoints are used to anchor different parts of the site as destination points, drawing people down through the site from London St, or up towards the street from Norwich Quay.

The direction of the movement affects experience, as moving towards the harbour offers glimpses of the waterfront, tempting people onwards, while the path up the hillside features the hill amphitheatre as an ever present backdrop behind the built environment.

There are a multitude of options which allow pedestrians to select their own path through the site, and craft their own Lyttelton experience.
Fig. 114. Destination Points Plan.

1. Bus Stop Lookout
2. Wunderbar Balcony
3. Public Plaza
4. Terraced Gardens
5. Roof Meadow Lookout
6. Rooftop Beer Garden
7. Visitor Centre Viewing Deck
4.4 - Destination Points

There are a selection of key points within the site which were selected for their excellent views into the surrounding environment. A town in as sought after a setting as Lyttelton must maximise that potential, and so the view points have become the grounding points around which the layout of the site is structured.

Each viewpoint feels directly connected to the Lyttelton context, yet they are varied enough to provide a range of experiences across the site, from the rugged hillside, to the expansive harbour, to the industrial might of the port cranes.

1. Bus Stop Lookout
2. Wunderbar
3. Public Plaza
4. Terraced Garden
5. Roof Meadow
6. Beer Garden
7. Visitor Centre

Figs. 115 - 121. Destination Point Images.
4.5 - Development Drawings

Visitor Centre Lookout and Elevated Walkway

Fig. 122. Visitor Centre Development.
Visitor Centre Lookout and Elevated Walkway

Fig. 123. Visitor Centre Development.
Market Plaza & Terraces

Fig. 124. Plaza Development.
Bus Stop Lookout

Fig. 125. Bus Stop Lookout Development.
4.6 Detail Design

Fig. 126. Plaza Perspective.
Fig. 127. Plaza Sectional Perspective.
Fig. 128. Visitor Centre Plaza Axonometric (Top Right)
Fig. 129. Visitor Centre Plaza Spatial Relationships (Bottom Right)
Visitor Centre Plaza: Spatial Relationships

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Visitor Centre Plaza
Visitor Centre Viewing Deck

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Fig. 130. Visitor Centre Section (Top Left)
Fig. 131. Visitor Centre Movement Diagram (Bottom Left)
Fig. 132. Visitor Centre Perspective (Above)
Bus Stop Lookout

Fig. 133: Bus Stop Harbour Perspective (Above)
Figs. 134 - 135: Bus Stop Sections (Opposite Page)
Bus Stop Lookout Sections

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Fig. 136. Plaza Terraces Section.
Fig. 137. Plaza Sectional Perspective.
Market Plaza Details

The market plaza is a public open space which is intended to provide flexibility to central Lyttelton. Large enough to cater to reasonably sized events, yet with enough diversity of spaces to host several smaller events or casual leisure on regular days. The plaza is staggered across a series of terraces, providing excellent harbour views from everywhere within the space. The terraces break up the size of the plaza, and also allow access to multiple levels within the site from the same open space infrastructure.

From hosting the weekly Lyttelton Farmers Market, to concerts and the annual Christchurch Buskers Festival, this public amenity provides Lyttelton with the flexibility it needs to promote itself as a creative events destination.
Visitor Centre Laneway Section

Fig. 140. Hillside Laneway Section.
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Fig. 141. Wunderbar Perspective.

Fig. 142. Top Apartment Perspective (Opposite Page)
There is a courtyard formed at the centre of the upper laneway, in front of the Wunderbar. This courtyard can host events and patrons from numerous bars and restaurants can gather here, creating an atmosphere between the venues.

Above the bars and restaurants is a series of residential units, with views across the site out to the harbour beyond.
Fig. 143. Beer Garden Sectional Perspective.
On top of the supermarket is an extensive grassy roof garden. Planted in coastal grasses, this space is designed to give the feeling of exposure that comes with a coastal environment, but from within an urban setting. To accompany this coastal convenience is a split-level, rooftop beer garden. With a bar on each level, and a pergola for shade, the beer garden provides the most coastal leisure experience available within the CBD block.

The seating areas have excellent views in almost a full 360 degree arc, and the location at the edge of Norwich Quay lets the unobstructed harbour breeze blow as patrons relax.

Fig. 144. Roof Bar Precedent.

This rooftop bar has a combination of views, exposed areas and shelter, where people can relax and enjoy the spectacular views from a prime location.
The roof meadow will filter the runoff water from the roofs of other buildings in the development as well as its own, before the water is released into the harbour.

Fig. 146. Sidwell School Artificial Wetland.

The roof meadow will filter the runoff water from the roofs of other buildings in the development as well as its own, before the water is released into the harbour.

Fig. 147. Roof Meadow Lookout Section.

This section cuts through the loading dock of the supermarket/fish market, which is underneath the roof meadow lookout.
Rooftop Meadow Lookout

Fig. 148. Roof Meadow Perspective.

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Discussion & Conclusion
5.0 Discussion

The aim of this design research thesis was to find an suitable approach to the design of a steep, urban site. The results suggest that creating a framework which places equal emphasis on both landscape and architectural design allows for people to understand the context and engage with the sense of place. There were a number of strategies which led the research to making discoveries about the nature of design on a steep, urban site. These included:

- Engagement With The Topography
- Integration of Landscape and Architecture
- How To Increase Density in A Small Community
- Structure Design Around Movement
- Better Understanding Of Identity

Engagement With The Topography

Despite the attention given to the spectacular natural setting of the Lyttelton Harbour, the town of Lyttelton is built around an urban structure that largely ignores its main asset. The waterfront is inaccessible to the public, due to presence of the Lyttelton Port, which occupies the harbour edge, and the town’s most popular urban destination, London St, focuses inwards and has no views of the harbour at all. In fact, this is virtually the only public place in Lyttelton from where you can not see the water.

The level plateau formed by London St creates a natural gathering point for pedestrians, and this presence is maintained through some quality boutique shopping opportunities. However, beyond this single city block Lyttelton's street life dissipates. The steep slope down to the harbour is joined by buildings with very little street presence and streets which have no way for people to linger. This creates dead spaces between the terraces formed by the streets running east/west.

Increasing the pedestrian presence through the centre of the block could also introduce opportunities to take advantage of the views. To to this, the design includes several new terraces where people can walk at grade across the site, and reduce the distance required to move up or down between levels. Offering activities, rest, shelter and refreshment at these intervals makes it more appealing for people to move beyond the boundaries of London St and have them engage with the hillside topography of Lyttelton, and the views that the slope can offer.

Integration of Landscape and Architecture

Unusual settings require design solutions which look beyond traditional understandings of building and exterior space. Lyttelton’s steep topography and small size require a creative approach to increasing public life. Focusing on movement, within and outside of buildings, allows people to have a wide range of experiences across the site. They have greater opportunities to engage with the surrounding environment, and to experience the character that makes Lyttelton unique.
How to Increase Density in a Small Community

One of the key principles of urban design, as stated by Jane Jacobs, is increasing urban density. However, Jacobs was referring to design in major metropolitan areas, not a small, seaside town like Lyttelton. Given the importance of maintaining the small scale and fine grain of the existing town, adding density presented a different challenge. Rather than build up in bulk, the solution was to add built form through the centre of the site, increasing the amount of built space and creating a large amount of new urban pedestrian space. These spaces facilitate new business and residential development, and the low-rise nature allows for a lot of foot traffic without sacrificing the town’s small scale typology.

Structure Design Around Movement

Small communities such as Lyttelton don’t have permanent masses of people to stimulate street life and economics, they rely on visitors and a small group of dedicated locals. When tourists arrive from Chch or cruise ships the site must be easy to navigate and appealing to pedestrians.

Viewpoints were used to structure the location of spaces on site. The views in Lyttelton are the main selling point for the town, so making the most of them by positioning walkways, lookout and building vantage points where they can see the harbour or rugged hillsides makes them attractive destinations for tourists.

The concept of Parallax - your experience being shaped by your shifting perspective as you move through a space - allows for a diverse range of experiences within a site built for movement. The unusual topography of Lyttelton also offers opportunities for creating unique landscapes for people to move through.

Better Understanding of Identity

Identity has more to do with context than it does with architecture specifically. Loss of architectural form is typically mourned as a loss of the identity of a place, but the resilience of Lyttelton, and the increase in consent applications which resemble the town’s port aesthetic rather than its colonial architecture, supports the idea that identity is an accumulation of the complexities within the landscape: experiences, places and form all contribute.

While architecture often privileges the built form or container above all other aspects of place, this thesis seeks to design in a more holistic manner, treating the landscape as an integral part of the design process rather than a blank canvas.

Suggestions for Future Research

The significant earthquake damage suffered by central Lyttelton provided ideal testing opportunities for the design principles, but a weakness of this research was the lack of existing urban context to work within. The development of urban space over time, and varying ages and conditions of buildings is an important aspect of diverse and user friendly urban spaces. Future research should aim to test these principles in a more robustly established urban setting.
Similarly, the small population size of Lyttelton makes it a less ideal test case for working with more densely populated areas. The low-rise nature of this design scheme demonstrates the compromises made which may not be suitable to carry over into a high-rise environment. Further testing of the principles in a range of urban environments is needed to establish the range of site specific outcomes that these principles can generate.

Conclusion

The relationship between landscape and architecture is successful when both are given equal consideration. It is important to remember that design does not exist in a void, there is always a context within which it sits, and the most effective designs will be the ones which connect strongly with that existing context. This thesis proposes a design that draws from urban design principles, and also uses the context of the site itself, the views, history and functionality of Lyttelton, to structure the framework that the design is built around. In this way, the design is unique to this site, and could not be successfully replicated anywhere else. But by applying the design principles researched in this thesis with the particular characteristics of other steep, urban sites, the results can be successful, in creating a system for unique and site specific design.
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London Street

As the main business street of Lyttelton, London St maintains a fairly regular building type, consisting of 2 storey facades with street level access. Building frontages are based on an 8m wide template, with some larger buildings using two units for a 16m wide front. This is reflected in the buildings on the northern side of the street too (although the north side of the street has a higher percentage of single storey buildings).

The building types are largely restored from original buildings on the site, with neo-classical facades and weatherboard villas being the predominant styles.

Exceptions to these rules are the supermarket, which is a 30m wide building with a single storey facade, in a modern-commercial style, and the two public buildings at Canterbury St corner, which break from the heritage template with building styles from the more contemporary styles.

Flat terrain characterises the pedestrian conditions on the street, as London St occupies an artificial terrace across the sloping face of the hillside.

Canterbury Street

The steeply sloped topography of Lyttelton means that the roads running
As the main business street of Lyttelton, London St maintains a fairly regular building type, consisting of:

### Commercial
- **Hotel / Restaurant**
  - Storeys: 2
  - Total Floor Area: 425
  - Notes: Royal Hotel: 32 Norwich

### Mixed Use
- **Hotel / Restaurant**
  - Storeys: 2
  - Total Floor Area: 800
  - Notes: Lyttelton Hotel: 26 Norwich

### Industrial
- **Shipping Supplies**
  - Storeys: 2
  - Total Floor Area: 250
  - Notes: 24 Norwich

### Commercial
- **Office / Retail**
  - Storeys: 2
  - Total Floor Area: 200
  - Notes

### Commercial
- **Video Store**
  - Storeys: 2
  - Total Floor Area: 300
  - Notes

### Commercial
- **Hotel / Restaurant**
  - Storeys: 2
  - Total Floor Area: 450
  - Notes

### Commercial
- **Hotel / Restaurant**
  - Storeys: 2
  - Total Floor Area: 1700
  - Notes

### Residential
- **Shops / Residential**
  - Storeys: 2
  - Total Floor Area: 800
  - Notes

### Mixed Use
- **Dairy / Residential**
  - Storeys: 2
  - Total Floor Area: 140
  - Notes

### Commercial
- **Health Clinic**
  - Storeys: 1
  - Total Floor Area: 180
  - Notes

### Commercial
- **Maritime House**
  - Storeys: 2
  - Total Floor Area: 380
  - Notes

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The steeply sloped topography of Lyttelton means that the roads running perpendicular to London street have a very steep gradient of roughly 12 degrees. This slope leads to buildings with narrower facades and longer profiles, as well as less regular building frontages along the street edge. The result is that Canterbury street has a less intense street presence, with zero buildings that have any active presence out into the public realm.
Facade Edge

Regular pattern of facades: 6m spacing

Building Edge

South face of laneway follows 6m grid but with double or triple-spaced units. Still consistent though.

Mixing of the unit sizes could create more diversity within the street environment; 6 and 12m facades.
Melbourne's Laneways benefit from the contrast between massive metropolitan buildings and intimate pedestrian spaces, and the heavy foot traffic allows for long straight lanes with little deviation and few intersections.

The street frontages are kept below a single storey with awnings to provide shelter and reduce the scale to a more human one.
London St’s modestly scaled buildings strike a nice balance between profile and facade, as well as offering ideal size for small commercial units.

Vulcan Lane places unit facades close together to create pedestrian spaces with vibrancy due to the close proximity of a number of activities.

The south side of Vulcan Lane has less hospitality amenities and more traditional retail, which requires larger frontages. The facades are still based on the same grid though.

Melbourne is a much larger city than any of the other case studies. The success of the laneways in rejuvenating central Melbourne is clear, but the buildings are much too deep to fit in Lyttelton. The facades are actually kept to a fairly modest scale, not much larger than those on Vulcan Lane. Each of these buildings may also house several, separate businesses which also diminishes the buildings scale by compartmentalising it. The Melbourne Laneways succeed by providing a sense of intimacy contrasted with the massive scale of the surrounding city.
Figs. ? - ?. Sketches and plans for interim design scheme.

This iteration of the design focused on exploring the intricate relationships between levels and adjacent spaces.

Detailing a section of the site between the Visitor Centre and Wunderbar, it features several elevated sites with connections across multiple levels and several different ground planes.
These plans show the different ground planes across the site, as well the importance of vertical circulation to move between all of the different spaces.

This design iteration begun to develop an understanding of the importance of proximity, and the distance between spaces, as well as the way that visual connections can make spaces feel connected, both within the urban setting, and to the surrounding natural environment.
Context Studies
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